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International Journal of Education Research for Higher Learning is a biannual refereed journal published by the Research, Publication, and Innovation Center (RPIC) of the University of the Immaculate Conception, which tackles significant issues in the disciplines of humanities and languages, natural and health sciences, mathematics and physical sciences, engineering and information technology, education and social sciences, and business. This periodical is committed in giving the faculty members the apt avenue to fully develop their intellectual traits through the publication of their research outputs and other scholarly endeavors.

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INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning POLICY

Editorial Policy

The INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning is a bi- annual refereed journal published by the Research, Publication, and Innovation Center of the University of the Immaculate Conception, which is wholly committed to empower researchers within the academic community to realize their full potential in intellectual inquiry through the publication of their research outputs and other scholarly articles.

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- The paper is recommended for publication but subject to minor revisions.

- The paper is recommended for publication but subject to major revisions.
- The paper is rejected but maybe re-submitted after incorporating comments of the reviewers.
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Manuscript/s to be submitted to the Editorial Board of the INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning should be written in English or Filipino and must be in MS Word. Articles written in Filipino must be accompanied by an informative abstract and summary written in English.

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Manuscripts in general should be organized according to the disciplinal requirements of the paper. However, the general required structure should follow the IMRAD structure. It is also suggested that the order of presentation outlined below be followed:

Title Page – The title should be worded briefly and printed as Title Case. The first letters of each word should be capitalized except for articles (e.g. a, an, the), coordinate conjunctions (e.g. and, or, not, but) or preposition (e.g. of, in, on, between, after, before). However, the first and last words of the title should be capitalized regardless of part of speech. In titles with marked break in the form of punctuation, capitalize the word that immediately follows the break, regardless of part of speech.

Name (s) of Authors – Authors should identify themselves only in the title page that should precede the article for ease in undertaking the review process and ensure anonymity. Write the complete name with middle initials. Indicate whether the research is the portion of a thesis or dissertation and the sources of fund of the research.

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Abstract – After the title page, print a 150 to 200-word informative digest of the background, objectives, methods used and significant findings of the article. The title preceding the abstract should also be printed in Title Case.

Keywords – The keywords for the study must at least indicate the discipline of the study, concepts studied, research design/method, and setting of the study. The keywords are printed in sentence case. There is no period at the end of the last word.

Abbreviations – For easy reference, an alphabetically arranged sequence of abbreviations and acronyms and their meanings are printed after the keywords. Avoid abbreviations in the title and abstract, although they may be used in graphs, tables, figures and legends. Acronyms are to be spelled out first and then enclosed in parenthesis at first mention. Avoid using acronyms and abbreviations as the first word of a sentence or a heading. Rewrite the sentence or spell out the term. Use abbreviations only for terms used at least three times.

Text – The body must have the following main sections and headings: Introduction, Methods, Results, and Discussion. Conclusion is optional, and must be under the Discussion section (last part) when included and must be sub-headed “Conclusion”. Recommendations and Acknowledgment may be added at the end of the Discussion only when necessary. Results and Discussion may be combined as one section but should still clearly bear the elements of both. After the main body, these sections must follow: References (composed of sources from current content-covered or peer-reviewed journals within a 5-year time period) and Conflict of Interest Disclosure (if applicable).

Tables, graphs, photographs and illustrations should be submitted in separate files. Photographs, illustrations, and graphics should be of publishable quality (TIFF, or maximum quality in JPEG), and should be in 300 to 600 dpi with dimensions of at least 10 x 15 cm (4x6 in). Figures included in the article should be in black and white or grayscale only.

When placing legends on tables and graphs, they must be placed underneath using 10-point type, italicized and briefly stated.

The captions for images and other illustrations must be encoded 2 spaces below; 12-point type, bold, and observes brevity.

Statistics – All statistical procedures, including methods of analysis, should be identified. Number of replications and sub-samples, transformations, and statistical tests should be stated. Tables of analysis of variance are not normally reported. Present the results of analyses in the appropriate tables or figures.

Following the format and the order of presentation, the article should be no more than 5000 words or 20 pages, inclusive of photos, graphs, tables and illustrations.

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Citations: The INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning is using an in-text citation using an APA Format citation style (author-year format). Cited works must appear on the list of works listed in the "References" section.

1. In the text, works are cited as follows: author's last name and year of publication, with a comma, in parentheses.
2. For cited works that include more than one work by an author (or same co-authors) that is published the same year, the suffix a, b, etc., is to follow the date in the with-in text citation and in the "references" section.
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4. Citation to institutional works should use acronyms or short titles where practicable.
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The URL must be written at the end of the bibliographic entry and provides the date of retrieval and the link. Sources must be at least three years old except sources of theories, historical documents or chronologic presentations of literature review. Writers must refrain from using unpublished thesis or dissertation because a research is never finished unless published.

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2. For manuscript dealing with field surveys or experiments: if the additional documentation (e.g. questionnaire, case, interview schedule) is sent as a separate file, then all information that might identify the author(s) must be deleted from the instruments.
3. The manuscript should be submitted via email as Microsoft Word of PDF file to the Managing Editor at email address: esagarino@uic.edu.ph. The author(s) should need to submit the following separately:
   a. The manuscript's title page which contains information to identify the author (not forwarded to the reviewers),
   b. The manuscript with the title page and all other indentifying information removed,
   c. Any necessary supplement files such as experiment instruction, and
   d. A copy of research questionnaire or tools for referral by the editors and reviewers.
4. Revisions must be submitted within the date provided by the managing editor.

About the Cover

Technically a simple picture frame, the cover design symbolically represents the big picture perspective of the essence of research publication. Conceptualized by Mary Gabrielle G. Barluado, the minimalist design features only two figures: an outside border of solid color and an inner quadrilateral of gradient hue. The former stands for strong framework foundation of the Journal's publication process while the latter, with the imposing Journal name and monogram, symbolizes the variety of the featured articles. This design will be applied on the covers of the **International Journal of Education Research for Higher Learning** as a consistent identity; only the color will be changed per issue. Also, the picture frame was designed blank not only to emblematize the limitless possibilities in education research, but also to provide artistic freedom for the editors to feature a teaser photograph related to any of the published articles in the issue.

Mary Jane G. Barluado
Associate Editor

About the Monogram

The INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning monogram depicts two feathers used in ancient quill pens. Intentionally juxtaposed to resemble the iconic Yin Yang symbol, this abstract form signifies the physicality and spirituality of the highest form of intellectual activity – research. Aside from capturing the dramatic glimpse of ancient writing, which is the essential aspect of any form of publication, this powerful image also depicts the interconnectivity and balance between the *multidisciplinary* and *international* characters of this research publication. In response to the UIC quest for quality research outputs that can pass international peer review process, this symbol was conceptualized to remind all researchers of UIC to commit to the truthfulness, credibility, and validity of information derived from the rigors of research writing. Created by Jo Caliph G. Rivera, this monogram is meant to become a unique emblem in every cover of the INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning.

Renan P. Limjuco
Editor in Chief

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PREFACE

The October 2017 issue of the UIC RESEARCH JOURNAL now INTERNATIONAL JOURNAL OF EDUCATION RESEARCH for Higher Learning, is a presentation of a dynamic mix of scholarly articles that evidence significant strides in inquiry in various fields and sectors. Through these scholarly activities it is easy to see the utility of research to attaining progress. Specifically, this issue features academic research applied towards solving problems related to education and society. The vast majority of the studies in this issue tackle problems related to the academe, specifically, matters on educational leadership and human resource management as well as learning environments and learner achievements.

The first is a review article focusing on business management programs of universities in Cebu, Philippines. This study, authored by Mary Gretchen Chavez, examined the extent by which the subjects/courses of the "management of innovations" or its equivalents have been integrated into the delivery of business and management courses. The study provides a relevant and fresh perspective to the business curriculum of Higher Education Institutions (HEIs) in the Philippines.

Studies that are geared towards stimulating positive changes in educational policy and process are also included in this issue. The study of Ana Julia Enero and Renan Limjuco seeks to find determinants of research publication productivity of faculty in Higher Education Institutions in Region XI. This article provides readers with insight into factors that fuel scholarly inquiry among educators. The study of Jo-Ann Solomon, Renan Limjuco and Rene Babiera II tackles human resource management in the academe specifically the levels of work engagement, motivational potentials of certain job characteristics and performance of the employees of the University of the Immaculate Conception. Another study looks at student satisfaction on school facilities in the interest of improving learning environments in higher education institutions. The study of Hannah Pareja, Renan Limjuco, Anne Margaret Hanopol, Ms. Paula Mae Dumanat, Margaret Faith Cabilao, Jovenna Trisha Sondon and Jefford Juntilla measures student satisfaction on the adequacy of laboratory facilities and provisions which is an important aspect of continuous improvement for schools.

This issue also features studies that highlight scholarly endeavors specifically aimed towards improving student acquisition of relevant skills and competence. The study of Dannalyn Ibañez, Jules King Defensor and Theresa Eguia assesses the level of radiographic competence of the RTs in terms of knowledge, skills

and attitude with the aim of measuring student achievement and gains. A study by Joseph Omar Apolinar, Izrafahd Bansuan and Gemma Perez looks into the effect of effect of varying types of examination to the academic performance of students in NCM-105. The study of Joan Sison looks into the challenges and struggles encountered by English language learners specifically the affective filters that have a pervasive influence on their performance in class. The study of Mara Panganiban, Yvon Jayson and Monique Musni-Tagaytay looks into how educators and students negotiate lack of access to digital computer technologies in a school in Tacunan District, Davao City, Philippines which have implications to ICT skills as applied to student learning and accomplishment of coursework.

One study looks at the media and its influence on public consciousness. The study of by Karrah Cathrina Flores, Viannah Angelica Merquita, Paolo Sausa and Maureen Aguisando analyzes published news reports on drug wars in light of the linguistic forms and structures that are used in news articles on drug wars and the kinds of framing used in the news articles on drug wars. This study provides a unique perspectives at the linguistic constructions in news discourses.

Lastly, the study of Maria Bea Lao shows the continued efforts of the academe to find new uses for natural resources, plants and herbs to improve society with her study which sought to determine the hematologic effects of the *kamias* ethanolic fruit extract (KEFE) for routine hematologic tests.

Maureen D. Aguisando
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Mainstreaming the Management of Innovation in the Curriculum: A Review on Cebu, Philippines Universities' Business and Management Programs

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ABSTRACT

Innovation has become an imperative in driving and sustaining businesses in today's hypercompetitive environment characterized by complex market structures, shorter product life cycles, and the ubiquity of digital technology solutions. A corollary to this is the expected increase in demand for innovation champions and leaders competent to lead and manage industry innovation projects. Academic institutions are relied upon to educate future entrepreneurs and managers not only on the intricacies of innovation, but also on the managerial processes involved in the conduct of innovation projects. This paper investigates the currency of forty (40) undergraduate business and management programs among eight (8) higher educational institutions (HEIs) in Cebu City, Philippines, on whether the course "management of innovation" had already been included in their programs' curricula. The curriculum prospectus data of the business programs were accessed from the HEIs' available documents and websites, if available. Using the innovation management process framework of Morris (2011), the content analysis revealed the absence of a stand-alone course on "management of innovation," or its equivalents. The study concludes the pressing need for HEIs to revitalize their programs, cognizant of the responsibility of business and management education to prepare students to the management of innovation. The study recommends to policymakers and HEIs some modes to mainstream and integrate the "management of innovation" in business and management programs to ensure relevance and responsiveness to industry requirements.

KEYWORDS: Management of innovation, management education, business curriculum

INTRODUCTION

At the macroeconomic level, a country's development is related to the vigor of its innovation and value creation processes. A necessary driver for industries and businesses to be successful in their innovation endeavors is a sound and enabling innovation ecosystem. The absence of innovation, on the other hand delays the achievement of an economy's productivity and competitiveness. The Global Innovation Index (2016) reports that the Philippines ranks 73rd of 128 nations in the innovation index. The World Economic Forum (WEF) Global Competitiveness Report moreover has innovation as one of the twelve "pillars" in measuring the competitiveness of economies. While the 2016 annual reports show the phenomenal rise of the Philippine Competitiveness Index, the country leaves much room for shaping up where the innovation pillar is concerned.

At the industry level, firms deploy research, technology and other value-adding resources for the effective implementation of various innovation initiatives. Aside from employing experts in research and development and talents from the science, technology, engineering, and mathematics (STEM) disciplines, some firms engage the services of proficient innovation champions and innovation strategy managers. In today's knowledge economy where innovation is central to productivity and competitiveness, the synergies of innovators and innovation managers have become indispensable. The demand for these kinds of professions poses a clear challenge to higher education as this requires equipping the future managers the disciplines of innovation as well as the management of innovation as practiced in the industry.

One pragmatic direction is to mainstream the course management of innovation in the undergraduate business and management curriculum. The Philippines' Commission on Higher Education (CHED), through its document "Sample or Suggested Curriculum Aligned to Outcomes-Based Education (OBE) For Bachelor of Science in Entrepreneurship," stipulates that the course "Management of Innovation" be one of the core courses of the B.S. Entrepreneurship program. While the management of innovation is critical and inherent in the entrepreneurial domain, it is equally as crucial in corporate and general management.

There is a dearth of information as to how the higher education institutions (HEIs) in the Philippines are preparing business and management students to the discipline and the management of innovation. This study thus investigates the academic programs of eight (8) HEIs in Cebu City offering various business and management programs. Specifically, the study examines whether or not

these programs offer the subject or course "management of innovation" or its equivalents. The results of this study are expected to encourage HEIs to review their curricular offers to ensure the currency, relevance and responsiveness of their programs where the education on management of innovation is concerned.

The term "innovation" is multifaceted and is almost always associated with research and development as well as the creation of new products (Ambruster et al., 2008). Innovation had been studied in different of ways. Dodgson, et al. (2002) identified at least four (4) study approaches, namely: a) the nature of innovation activity, b) the sources of innovation, c) the innovation process, and d) innovation systems. With the various ways of investigating innovation also come the different ways literature defines innovation. Dodgson, et al. (2002) defined innovation as the productive use of knowledge manifested in the successful development and introduction of new products, processes and services. Along the same grain, Du Plessis (2007) viewed innovation as the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures, as well as creating market-driven products and services. Early on, Damanpour (1991) defined innovation in four categories, with the first category as outputs – like new product or service, and the second as processes, such as a new production process technology. The third category is that of a management system, such as a new structure or administrative system, and the fourth, as a human resource program, such as a new plan or program about members of the organization.

The Global Innovation Index adopted the definition of innovation developed by the European Communities and the Organisation for Economic Co-operation and Development (OECD), as "the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations." The common theme of the preceding defintions center on the benefits innovation generates in the value creation of firms and its contribution to the economic stream, ultimately addressing the various needs of the community. The definitions also converge towards the business intent of innovation and its integral role in sustaining business relevance and competitive position.

The above definitions situate the innovation processes in the context of organizations which require the strategic and operational management of innovation. According to Simsit, et al. (2014), innovation management is "the discipline of managing processes in innovation," allowing the organization "to respond to an external (customers, suppliers, competitors, consultants, media, globalization etc.) or internal (technical divisions, marketing and sales, logistics,

production etc.) opportunity, and use its creative efforts to introduce new ideas, processes or products". The authors suggest that innovation management "includes a set of tools" facilitating the collaboration of managers and employees involved in innovation projects. Jain (2016) posits that managing innovations in an organization not only requires the sourcing out of talents with "creative and innovative behavior" but also the understanding of the importance of setting the strategic tone and organizational context that facilitate the adoption and implementation of innovation processes in the organization.

Figure 1 shows the nine-step innovation management process advocated by Morris (2011). This series of managerial activities depicts commercialization (represented by "market development" and "sales") in Steps 6 & 7 as the end-goals. The innovation management process is triggered by strategic thinking (Step -1), suggesting that two critical strategic organizational steps precede the research and ideation steps. The firm's strategic intent is crucial, guiding the choices of the innovation portfolio and initiatives. In this model, these two steps are necessary business conditions that help achieve the final commercialization stages.

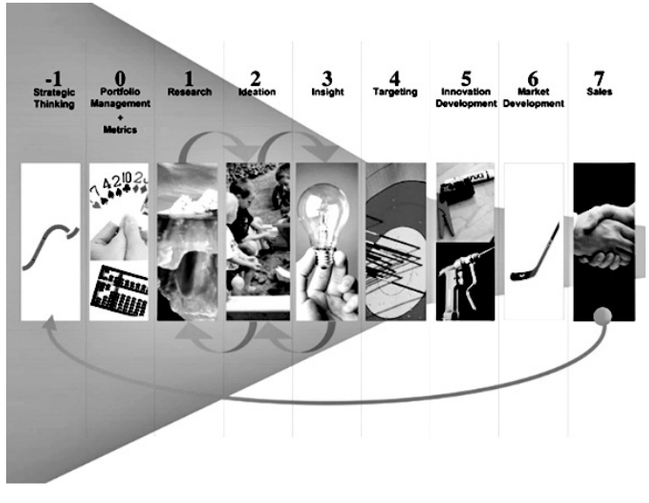

Figure 1. Innovation Management Process

Significance of Innovation Management

Businesses need to innovate unceasingly to keep abreast with complex market challenges and disruptive technological shifts. Innovation is the only sustainable source of growth, competitive advantage, and new wealth (Harrington & Voehl, 2013). Keupp, et al. (2012) present the importance of strategically pursuing innovation. Among these are to: a) achieve competitive advantage, b) compete effectively, c) adapt strategy to changing markets and customer demands, create value and growth, and d) achieve superior performance. An examination of the vision, mission and core values statements of the top performing organizations reveal the prominence of innovation as crucial for these organizations in achieving and sustaining their competitive advantage. To sustain the organizations' innovation capability, companies relentlessly pursue a continuous and effective innovation process management (Rejeb, et al. 2008).

Organizations endeavor to establish the strategic tone of innovation, providing the innovation ecosystems and the processes. They also select executives and talents who have a deep understanding of the innovation scope and processes, and those who are knowledgeable in the important role of strategic intent of organizations in relation to innovation processes. Knowledge on the management of innovation has implications on the human capital, since innovation champions need to be adept in not only in science and technology, research and development in implementing innovation activities, but also be competent in the strategic and operational management of innovation processes.

National Innovation Systems

A country's innovation system is composed of its research institutes, higher education institutions' research and development facilities, faculty and scientists, as well as the academic programs in the fields of science, technology, engineering and mathematics (STEM). This innovation system also includes the private and business enterprises with their R&D facilities and their science and technology experts. Existing government policies and financing as well as the degree of rivalry in the industry are some environmental factors identified by Maldifassi & Crovetto (2013) that encourage firms to pursue innovation activities. Firms are propelled to pursue innovation in the context of appropriate government investments in relevant infrastructure, education and financial policies and incentives prioritizing innovation programs, particularly those that support the

R&D activities of the private enterprises. As a consequence of the competitive advantage and market shares gained by firms through increased research and development activities leading to innovative products, some economies have started to invest in a R&D-based innovation policy (Ambruster, et al. 2008).

The Global Innovation Index generates the innovation efficiency ratio of economies by evaluating their respective innovation outputs against the innovation inputs. These innovation inputs and outputs comprise sub-indexes. Figure 2 shows the Framework of the Global Innovation Index 2016. The sub-indexes of the Innovation Input include institutions, human capital and research, infrastructure, market specification and business specification. The sub-indexes of the Innovation Output on the other hand are knowledge and technology outputs as well as creative outputs. From this framework, it is instructive to consider that under the human capital and research sub-index are the measures of education, tertiary education and research and development. These innovation input sub-indices and their respective measures are consistent with the elements of the innovation ecosystem.

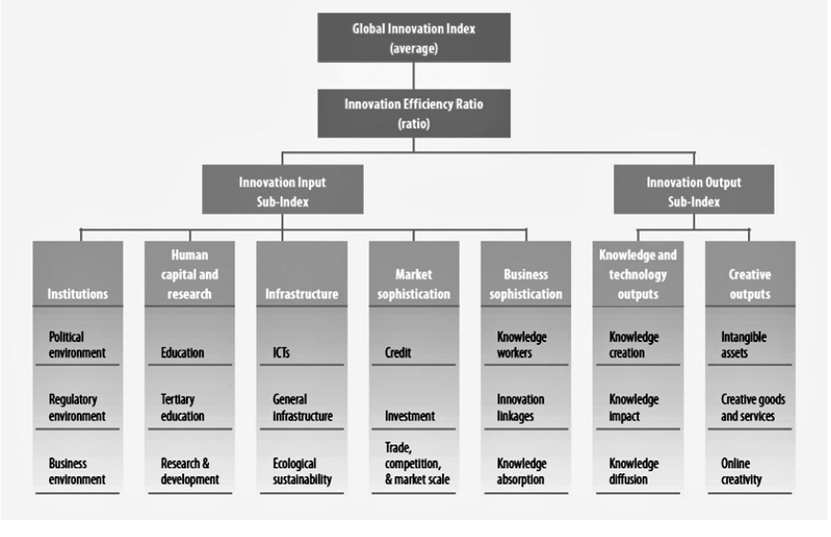

Figure 2. Framework of the Global Innovation Index 2016

The Philippines' Innovation Systems

The 1987 Philippine constitution enshrines the primacy of research and development and innovation. Article XIV articulates that "the state shall give priority to research and development, invention, innovation and their utilization..." In a 2002 study aimed at describing and analyzing the structure and characteristics of the Philippine national innovation system, Patalinghug (2003) portrayed the inadequate private sector participation in R&D. He suggested that such lackluster engagement in R&D is due to the firms' reluctance to and incapability of developing their in-house R&D. Business firms had minimal uptake on the government incentives for R&D activities, and instead preferred the government incentive for infrastructure and tax reduction. Patalinghug recommended that the thrust of the Philippine national innovation system must be "the establishment of institutions and the promotion of institutional innovations that build the capability to monitor, choose, adopt, disseminate and modify existing stock of knowledge."

The National Competitiveness Council (NCC), created in 2012, implemented major initiatives with the aim of improving the long-term competitiveness of the country. These efforts resulted to encouraging progress in the Philippine rankings in the World Economic Forum (WEF) Global Competitiveness Report. Innovation is one of the twelve "pillars" or metrics used by the WEF to measure the competitiveness of economies. In the 2014-2015 report, the Philippines was considered the "most improved country" in global competitiveness in the last four years. Relative to other economies, the innovation rating of the country lagged behind. In 2014, the USAID and its Philippine collaborator, Science, Technology, Research and Innovation for Development (STRIDE) conducted the Philippine Innovation Ecosystem Assessment study. The study reported the acute shortages of training for critical innovation-driven fields, particularly in high-demand IT occupations. The report accentuated the "process of education and human capital development" at the center of the innovation ecosystem model, and noted the absence of a strong research culture in universities and a lack of exposure to "current best practices" and the creative possibilities of technology.

Meanwhile, one of the aims of the Philippine Development Plan 2017-2022 is to increase the country's potential growth by building the foundation for a globally competitive knowledge economy. The goal of this outcome is to achieve accelerated technology adoption and stimulated innovation. Recently, the Department of Science and Technology designed the Harmonized National

R&D Agenda (HNRDA) for the years 2017-2022, articulating the national priorities that serve as guide for public investment in R&D, aligning with the R&D agenda in the Philippine Development Plan. These efforts are intended to strengthen the innovation capacity of the country by building up its national innovation system. Habaradas (2008) suggested that the Philippines can learn from Malaysia's and Thailand's initiatives when they developed their respective countries' national innovation system. Habaradas identified the critical role of visionary leadership as first among five factors.

The Philippine Statistics Authority 2015 report on the Higher Education Enrolment in Government and Private Schools by Discipline Group shows that the programs that attracted the most number of students include Business Administration and related courses (27.24%). Trailing behind are the education and teacher training (17.52%), information and technology-related disciplines (11.94%), and engineering and technology (11.9%). For the Academic Year 2015-2016, the Commission on Higher Education (CHED) reported that the Business Administration-Related courses graduated the most number of students. Although already lifted, CHED declared in 2010 a moratorium on the opening of new "oversubscribed" programs which include Business Administration and its allied programs (HRM/Hospitality Management, Tourism, Accountancy, Office Management and Entrepreneurship).

Developing this human capital by channeling into their business and management curricula the management of innovation bodes well for the achievement of the goals of the Philippine Development Plan 2017-2022 which is to increase the country's potential growth by building the foundation for a globally competitive knowledge economy. As companies pursue innovation for business competitiveness, HEIs are relied upon on to produce graduates who have been educated and prepared to the dynamics and the management of innovation strategies and operational processes. If innovation is to be considered as "the dominant form of economic activity" in the 21st century, Fortino (2011) recommends to educate innovators and "to nurture them so they are productive in any organization, to recognize them when we are ready to employ them, and to clear a path for them to be innovative..."

From the academic administration level, Youtie and Shapira (2008) urge that universities transition from their traditional role of "knowledge storehouse" to be "knowledge hubs" where the institutions "not only accumulate and produce knowledge, but they also actively foster knowledge exchange, learning and innovation through new methods and the development of boundary-spanning activities" (p. 1202). The USAID STRIDE study on the Philippine innovation

system recommended that CHED coordinate with industry in the design and approval of the academic programs and initiatives. These directions present a challenge among universities to take on the important role of integrating innovation into their communities, beyond adding value to the organized knowledge that the universities create.

Objectives of the Study

The "process of education and human capital development" is situated at the center of the innovation ecosystem model proposed by the USAID STRIDE study. In a similar vein, the "human capital and research," one of the sub-indices of the Global Innovation Index includes the measures of education, tertiary education and research. Guided by the primacy of education and developing the human capital in developing the innovation capacity of an economy, this study explores the currency of the HEIs' business and management program offers on the "management of innovation." Specifically, the aim of the study was to examine the extent by which the subject/course of the "management of innovation" or its equivalents had been integrated into the curricular designs of the business and management programs under study. The study likewise proposes viable approaches of mainstreaming the course on the management of innovation in the business and management programs.

METHODS

The study is qualitative and descriptive in design. The data on the prospectus were gathered between February and March 2015 using both desk-top web-based and paper-based data collection. The items of information were obtained from two sources, namely, the universities' and colleges' websites (whenever available) and the program curricular prospectus obtained from the schools. Descriptive analyses were done to profile the programs of the schools under study. Documentary and content analyses were the primary methods by which the data had been analyzed. The nine (9) stages in the Innovation Management Process (Morris, 2011) served as the basis for classifying the relevance of the various courses and subjects.

RESULTS AND DISCUSSION

Table 1 shows eight universities and colleges in Cebu City and their corresponding business or management programs offered. A total of 40 program prospectus served as the source document for data analysis.

Table 1. Universities and colleges with business/management programs

Colleges and Universities	Count	%age
University of San Jose - Recoletos	9	22.5
University of Southern Philippines Foundation	8	20.0
University of San Carlos	6	15.0
University of the Visayas	5	12.5
University of Cebu - Banilad	4	10.0
University of Cebu - Main	4	10.0
St. Theresa's College	3	7.5
University of the Philippines Cebu	1	2.5
TOTAL	40	100.0

Table 2a breaks down the various business or management programs offered by the eight universities and colleges. Three-fourths of the programs are in the various BS Business Administration majors. Table 2b presents the major fields of specialization of these BS Business Administration programs. About a fourth of the majors is in Marketing Management and a fifth each for Financial Management and Human Resource Development & Management.

Table 2a. Business/Management programs offered

Business/Management Programs Offered	Count	%age
BS Business Administration	30	75.0
BS Hotel and Restaurant Management	1	2.5
BS Accountancy	2	5.0
BS Entrepreneurship	2	5.0
BS Management	1	2.5
BS Management Accounting	1	2.5
BS Office Administration	1	2.5
BS Tourism	2	5.0
TOTAL	40	100.0

Table 2b. BS Business Administration with Major Field of Specialization

Programs	Count	%age
BS Business Administration – Marketing Management	7	23.3
BS Business Administration – Financial Management	6	20.0
BS Business Administration – Human Resource Development & Management	6	20.0
BS Business Administration – Management Accounting	3	10.0
BS Business Administration – General Course	2	6.7
BS Business Administration – Operations Management	2	6.7
BS Business Administration – Business Economics	1	3.3
BS Business Administration – Entrepreneurship	1	3.3
BS Business Administration – Executive Resources Management	1	3.3
BS Business Administration – Management	1	3.3
TOTAL	30	100.0

Utilizing the steps proposed in the Innovation Management Process (Morris, 2011), table 3 shows the results of the corresponding major business and management courses across all the programs sampled (column "Courses") which have relevance each of the specific steps in "management of innovation process."

Similarly, table 4 contains some of the courses classified as "minor" where the currency of the issues on innovation may be partially be covered. This study

however did not investigate the extent to which the issues of "innovation" and the "management of innovation" are covered in each of these major courses as this is beyond the scope of the document analysis.

Table 3. Stages in the innovation management process and the relevant courses / subjects

Stage No	Stage Process	Courses
-1	Strategic Thinking	Business Strategy, Business Policy, Strategic Management, and the courses on strategy on the major functions of business
0	Portfolio Management & Metrics	Project Management, Enterprise Development & Management, Business Opportunities, Financial Management, Business Plans and all finance management courses
1	Research	All research courses, Operations Research and all quantitative business analysis, Special Topics in Business Economics
2	Ideation	Business Opportunities, Business plans, all the major management courses
3	Insight	Entrepreneurial behavior, MIS, contemporary national and economic development issues, international trade, special topics in the major courses
4	Targeting	Marketing management courses, product and brand development courses
5	Innovation Development	Production and operations management, entrepreneurship management
6	Market Development	Marketing management courses, product and brand development courses, and entrepreneurship courses
7	Sales	Marketing and sales management courses, product and brand development courses

Table 4. Minor courses with relevance in management of innovation

No.	Minor Course	Count
1	Accounting Information Systems / Computerized Accounting System / Computerized Bookkeeping / Accounting Software	10
2	Introduction to Computer & IT / Introduction to Computer Concepts / IT Fundamentals	9
3	Business Applications / Computer Software Application / Business Software Application	5
4	Intermediate Computer Studies	5
5	Management Information Systems	5
6	SAP	5
7	Ecommerce & Internal Marketing / Website Development & Ecommerce	3
8	Economic Development	3
9	Fundamentals of Computer Software & Application	3
10	Fundamentals of Programming	2
11	Applied Database	1
12	Auditing in a CIS Environment	1
13	Desktop Publishing	1
14	ERP and MIS	1
	Total	54

The investigation on the curricular offers the various courses/subjects of the sampled business and management programs found no business and management program offering the course "management of innovation," "innovation management," "technology management" or its equivalents. This is not to say however that "innovation" may not have been discussed in any of the subjects or courses, since the issue on "innovation" has gained currency in the academic journals, popular press materials, economic reports, white paper and in many business and management textbooks. This investigation shows that the subject or course "management of innovation" has not yet been instituted among the schools under study.

Conclusion. The objective of this study is to examine the extent by which the subject or course "management of innovation" or its equivalents had been

integrated into the curricular designs of the business and management programs under study. The document analyses yielded no stand-alone or a dedicated course on the "management of innovation" or its equivalents. It may be possible however, that key concepts of the innovation process and the management of innovation may have been discussed in the major courses such as operations management, marketing management, financial management, human resource management and information systems management, among others, since the issue on innovation has become central in the strategic and functional areas in business and management. It is likewise possible that these issues may have been covered in some of the minor and general education courses. With the exigency of the preparing the future managers of innovation projects, it is imperative that efforts be done by HEIs to mainstream the management of innovation in the business and management curriculum.

The indices "human capital" and "education" are pivotal to an economy's innovation system which suggest the important responsibility of HEIs in harnessing and developing the innovation capacity of the nation. Yet, this study's results show that the business and management programs of the higher education institutions (HEIs) in Cebu have yet to introduce a structured, formal course on the management of innovation into their curriculums. With the efforts of the Philippine government to accelerate economic growth by revving up its competitiveness and by promoting the development of MSMEs, concurrent with the prospects of transitioning into a knowledge-based economy, the challenges of managing the expected influx of industry science and technology initiatives, research and development applications and innovation activities emerge. The management of innovation may yet be an unfamiliar academic subject, but the need to mainstream it in the business education curriculum is pressing. If the innovation mindset is to be propagated, it should begin with the "process of education and human capital development." Thus, HEIs are expected to educate the innovators and equip the future managers of these innovation endeavors.

Recommendations. Among the contents that students may be taught in the course management of innovation are those that are covered in the Innovation Masterplan framework of Morris (2011). The framework articulates the why, what, who, where of the management of innovation, as well as the corresponding responsibilities of organizational member along the innovation tasks. Additional content may comprise: (a) Rothwell's five generations innovation model (Meissner & Kotsemir, 2016), (b) the firms' strategic intent of developing and achieving competitive edge through the management of innovation, (b) creativity

and innovation, (c) innovative thinking to meet customer needs and developing and leveraging new products and services, (d) new business development, (e) intellectual property and patent laws, among others.

Educating the future innovation managers cannot be left to chance. Instead, the appropriate development of the human capital, by design, must be made integral into the innovation ecosystem. This necessitates formal ways of integrating innovation management into the business curricula. As teaching the management of innovation is in its nascent stage, the methods of teaching are still emergent. An informative start would be to adopt the modes proposed by Rusinko (2010) when integrating the concept of "sustainability" into the management education.

By adapting the first two modes of Rusinko (2010), mainstreaming the management of innovation may be done in the immediate term. First, the concepts of the management of innovation may be integrated into the existing courses, whether these are major or minor courses in the curriculum. This requires that each course be reviewed to now include the relationships and implications of the management of innovation on the specific subject. The concepts in the management of innovation framework (Morris, 2011) may be a straightforward method for coupling the issues of innovation into the courses. In an operations/ production management course for example, the business educator must make an effort to discuss production processes and systems with innovation as a crucial input.

Second, the management of innovation may may be integrated as one of the major course requirements. This implies the design and the institution of a dedicated course on "innovation management" or "the management of innovation." Just as the different functional areas and resources are managed (finance, marketing, operations, human resources, information resources, among others), an organization's innovation projects and activities need to be managed as well. This is similar to the proposed "Management of Innovation" syllabus prepared by CHED for the Bachelor of Science in Entrepreneurship program. Both the first and the second modes necessitate the training of business and management educators on the issue of STEM, R&D, creativity, innovation, and the management of innovation as well as how these issues intertwine with the other business major courses.

The two other modes of Rusinko (2010) may be instituted as a medium-term undertaking. These would take some time in planning, curriculum design, and educator and materials preparation. The third mode involves the development of a new and discipline-specific business program which specializes

in management of innovation. It may be for example a BS Administration program with a major in Innovation Management. This program delivers the coupling of entrepreneurship education, creativity, marketing, operations, industrial engineering and strategic management. Finally, the fourth mode engages the management of innovation in cross-disciplinary manner, where the innovation courses may be blended with the core courses of programs from other disciplines. For instance, STEM-oriented programs may take on some track in entrepreneurship education, innovation, creativity, marketing, operations, industrial engineering and strategic management. While ambitious, an option may also be for universities and colleges to push for the innovation and knowledge hub model, having been attributed for the transformation of a state from an industrial to an innovation-driven economy, in the case of Georgia Institute of Technology (Youthie & Shapira, 2008).

Other than the above suggestions of mainstreaming the course on management of innovation, this study also recommends to policymakers and HEI decision makers the crafting of an integrated human capital development framework that focuses on the complementarity between the STEM programs and the business and management disciplines. After all, it is in organizational contexts that innovation processes are implemented. To achieve accelerated technology adoption and stimulated innovation targeted in the Philippine Development Plan 2017-2022, a robust innovation ecosystem requires the development of the innovation capability of the human capital that includes the management of innovation side by side with the scientific and technological efforts of the country.

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Determinants of Research Publication Productivity among Faculty of Higher Education Institutions in Region XI: Basis for Institutional Research Program Enhancement

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ABSTRACT

There is a great challenge to enhance the research publication productivity among faculty of higher education institutions. The goal of this study was to find out the determinants of the research publication productivity of faculty in Higher Education Institutions in Region XI. Thereupon, the results can be used to enhance Higher Education Institution research program. The study made use of the descriptive correlation design which measured the relationship of demographic profile, research capability and institutional research support to research publication productivity of faculty. A self-made survey questionnaire consisting of four parts namely Faculty Demographic Profile, Research Capability, Institutional Support and Publication Productivity was utilized. Purposive Sampling Technique was employed in the study wherein a total of 200 faculty respondents from higher education institutions participated. Frequency and Percent, Mean and Standard Deviation were used together with Multiple Regression Analysis. The findings revealed that the level of research capability among higher education faculty is high with a mean value of 3.77 while the institutional research support has a mean value of 3.22 which is described as average. Meanwhile, the publication productivity among Higher Education Institution faculty in Region XI is only at 21%. Moreover, the institutional research support comprising training, research infrastructure and budget allocation significantly influence the publication productivity of faculty in higher education institutions in Region XI.

KEYWORDS: Research capability, institutional support, research publication productivity, higher education institution faculty

INTRODUCTION

Fundamental to the work of higher education institutions are research, scholarship and publication. The generation of new knowledge is attributed to these works of higher educational institutions. However, teachers in university or college with the necessary research and writing skills can struggle to publish as often as they would like (MacLeod, et al., 2012). Faculty publishing productivity is often used as an index of departmental and institutional prestige and is strongly associated with an individual faculty member's reputation, visibility, and advancement in the academic reward structure, particularly at research institutions (Creamer, 2011).

Publication records are an important factor in faculty performance evaluations, research grant awards, and promotion and salary decisions. The phrase "publish or perish" encapsulates the importance of research productivity to academic careers (Hesli, 2011). Hence, academics are expected to publish.

Furthermore, from the study of Miller (2011), it was found out that the pressure to publish affects both tenured and tenure-track management faculty though the second group feel significantly more pressure than the tenured. These faculty are motivated by the prospects of enhancing their professional reputation, leaving a permanent mark on their profession, and increasing their salary and job mobility. The effects of pressure to publish include heightened stress levels, marginalization of teaching; and research that may lack relevance, creativity, and innovation.

In Australia, universities receive extra funding based on their academic publication rates and academic promotion which is difficult without a good publication record. However, the reality is that only a small percentage of academics are actively publishing (McGrail,et al., 2006). In Asia, the findings indicate a growing number of higher education research publications but the proportion of Asian publications in relation to the total world publications in higher education research remains stationary (Jung, 2013). Only few Asian countries and universities have their core scholars published their research in international specialised higher education journals. It was suggested that the higher education research community in Asia needs to be expanded and include more regional and international collaborations. This was based from a paper by Jung (2013) which examined the publications of 38 specialised journals on higher education in the past three decades.

Williams (2010) stated that countries like China, Germany and France have introduced differential funding models to boost their relatively poor

international rankings. These countries provide greater concentration of research funding on selected research-intensive institutions which may not increase their total research output but it is likely to lead to an improved national presence in the international rankings and greater recognition of their universities' academic standings. Government policy in Australia is directed towards concentration of research funding on teams, irrespective of their location instead of differential funding of institutions. This policy will contribute to an increase in the total sum of quality research in Australia.

Findings on the study by Ito et al. (2007) found that the amount of time that faculty spent on research activities predicted both their perceptions of their productivity levels and their reported journal publication levels. Time devoted to research and interests in research are stronger predictors of career research productivity than the institutional reward structure, including salary (Dill, 1986). On the other hand, the results of the study by Dickson (1983) showed that on the average, the university receives less research from senior persons of all academic ranks. This is due to the fact that senior professors are already free from promotion pressure; hence, they concentrate less on the quantity of research and publication but more on the other university functions like teaching, administration and the like. Faculty that prefer to teach rather than do research publish less and those faculty that prefer to do research publish more. The only demographic variable that appears to relate to publications is age. On average, the older the faculty member, the fewer publications he or she produces, all else being equal (Porter et al., 2001)

The institution plays an important role in sustaining a faculty member's commitment to publishing by way of a work assignment (Dill, 1986). The value awarded to scholarly publishing in the institutional reward structure is most instrumental in determining whether a faculty member initiates a publishing record early in his or her career as a faculty member (Creamer, 1998).

According to the study of Vinluan (2012) starting in the 1990s, results showed that the Philippines ranked low in research productivity compared to Singapore, Thailand, and Malaysia. Only a few researchers were publishing papers on a regular basis in a small range of journals. These researchers come from a small number of higher education institutions. The journals had either no or low impact factors and most papers had low citation counts. There was less collaboration with domestic and international institutions. This low research productivity was explained in terms of economic indicators, the local orientation of many social science research studies, funding, individual characteristics of researchers, and the epistemic culture of knowledge production in the country.

These findings were corroborated by the study of Valencia (2007) wherein he mentioned that of the more than 1,500 higher education institutions in the Philippines, almost all of these are teaching institutions. Only a handful can be considered as research universities. There are substantial research activities on-going in the major research universities in the Philippines. However, it seems that very few research projects find their way to being published internationally. To a large extent, lack of funding, inadequate research facilities, and heavy teaching loads are serious impediments to research productivity of academic scientists in the Philippines. But perhaps beyond these limitations, the research culture in Philippine universities is such that publication is not the targeted culmination of a research activity. However, the reforms initiated by the government, particularly in the higher education sector, would hopefully lead to a better research landscape and, consequently, improved research productivity in the near future (Vinluan, 2012).

As a consequence, in the Philippines, the National Higher Education Research Agenda (NHERA-2) of CHED provides support for the publication of research papers in refereed journals as part of their strategies and initiatives for their agendum 4 which is promoting and facilitating dissemination and utilization of research outputs. Despite the CHED initiatives, therefore, the current state of higher education research in the Philippines leaves much to be desired in terms of quantity, quality, thrusts, and contribution to national development (Salazar-Clemeña,2006).However, according to CHED Chair Patricia Licuanan, research capacity remains weak even in better performing universities.

With CHED's support however, in Region XI based from the data of the regional Zonal Research Center, private HEIs publish mostly in non-refereed journals while SUCs (State Universities and Colleges) mostly in refereed journals. Non-refereed publications showed a declining number for private HEIs for the period 2007-2009 and for public HEIs as well in refereed publications (Digal, 2011).

Since higher education institutions are given the responsibility to produce new knowledge through research and disseminate them through publication, it would be useful to discover what factors will improve their research publication productivity. It is the desire of the researcher to find out whether research publication productivity is affected by the existing faculty line up, faculty research capability and the kind of support offered by the institution. This paper focused on these determinants of research publication productivity among faculty of higher education institutions in the region.

Objectives of the Study

This study aimed to ascertain the different determinants that may contribute to research publication productivity among Higher Education Institution faculty in Region XI. Also, this study was intended to verify the determinants that best influence publication productivity. Specifically, it sought to determine the faculty demographics with respect to their sex, their area of specialization, their type of school employed, their institution graduated from, their age at the time of Master's or PhD degree completion, their no. of years between the completion of Bachelor's degree & Master's/PhD and their age on their first publication. This study also aimed to know the level of faculty research capability in terms of: knowledge, skills and ability to give reason. In addition, the study also aimed to distinguish the level of institutional research support in terms of the following: capability training, research budget and availability of research infrastructure. Likewise, the study aimed to know the level of research productivity in terms of: no. of publication, status of publication and status of research journal. Similarly, the study intended to know if the demographic profile, capability and support significantly predict the research publication productivity of faculty. Lastly, it aimed to know what capability enhancement program can be proposed that may contribute to research publication productivity among Higher Education Institution faculty in Region XI.

Theoretical Framework

This study is anchored in the Life Cycle-Theory which is one well-established research productivity theory from the studies of Diamond 1986; Goodwin and Sauer 1995; Hu and Gill 200 as cited by Chen et al.(2010). This theory proposes that generally the research productivity of a researcher increases sharply during the early stages of one's career, hits a highest point through tenure and starts to decline after. As cited by Salazar-Clemeña et al.(2007) from the studies of Dundar and Lewis 1998, they found that individual attributes, institutional and departmental attributes in addition to departmental culture and working conditions affect research productivity.

As cited by Teodorescu 2000 from Filkenstein 1984, it is not the institutional incentive structures but the intrinsic motivations that stimulate productivity. Both Reinforcement & Cumulative Advantage Theories maintain that those scholars who undergo early success are able to command increased time, facilities and support for continued research. While for Allison and Long 1990 as cited by Teodorescu

(2000), the two most common variables of research grants and international professional networking seem to give support to the Cumulative Advantage Theory. In this theory academics find greater recognition by publishing, while professional recognition improves scholars' opportunities to economic resources such as research grants whereas their membership in professional societies or presence in overseas conferences all have a positive effect on publication productivity.

The study by Clemeña & Acosta (2007) suggested a framework that is concerned with the interrelationship of three domains. Domain 1 is the trifocal function of a higher education faculty which are teaching, research and community extension. Domain 2 consists of the individual attributes and output acquired by faculty which comprised the knowledge, skills, values and attitudes in relation to the conduct of research. This also consist their readiness, capacity, and experience as regards to research. The institutional attributes and policies included the policies set by the institution intended for developing a research institution as well as other policies and measures concerning faculty members of the entire institution.

The three domains influence each other such that the faculty members' research knowledge and skills as well as their performance of their trifocal task affect institutional policies.

The study by Ito et al. (2007), explored the predictors of research productivity and research publication. In this study different strategies were identified which include (1) building a strategic focus, (2) generating ideas, (3) working toward obtaining resources such as research grants, (4) managing one's use of time, and (5) investing time in research-related activities. A researcher who uses strategic focus has no particular area of focus but instead explores several research topics and domains. It may be supported by a plan that sets out short and longer-term goals for research, publication (including publication outlets and their requirements), and resources such as research grants and teaching releases (Scott, 2003) as cited by Ito et al. (2007). Generating ideas enables researches to be updated with current issues, and this allows new trends and directions in a research program. This process involves extensive reading, as well as dealings with academics and professionals. Obtaining financial grants is sometimes used as a mark of excellence for both individuals and their institutions, and, thus, may serve as an input productivity measure (Fairweather, 2002) as cited by Ito et al.(2007). Research productivity is associated with two aspects of managing the use of one's time: (1) reducing teaching and committee loads (i.e., reducing other demands on one's time), and (2) increasing the number of hours invested in research activities (i.e., the total number of hours spent on research).

As cited by Zhang (2014), Creswell's research (2002) concluded that the

factors that influence faculty research productivity can be divided into two parts: one part on individual characteristics, such as innate attributes like ability, stamina, personality, gender, age and years of experience and self-efficacy; while another part is related to environmental factors such as departmental size, research resources support, teaching load and culture.

Conceptual Framework

Figure 1 illustrates the conceptual framework which displays the connection between variables. There are three independent variables namely demographic profile, research capability and research support. The dependent variable is the research publication productivity.

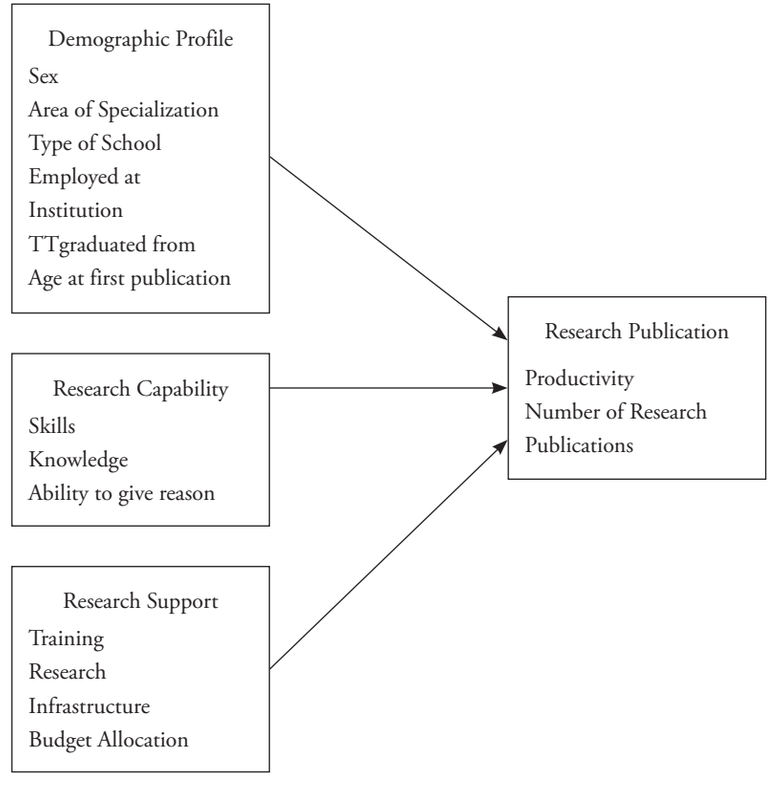

Figure 1. The conceptual framework showing the relationship of variables

The faculty demographic profile refers to the basic information that relates to HEI faculty such as their sex, area of specialization refers to the discipline in which a particular HEI faculty belongs. The study of Creamer (1998) suggests that from the 1970s gender differences in publishing were overwhelmingly conclusive that men published more than women, that is women published only one half to two thirds as compared to their male counterparts. But from 1980 to the 1990s, reports were less conclusive showing conflicting gender inequity across disciplines (Garland, 1990) and (Dupange,1993) as cited by Kaufman, 2007. The study of Rorstad et al., 2015 have shown that up to age of 55-59 years, men generally have higher publication rate than women.

From the study by Biglan (1973) and the follow-up studies by (Becher and Trowler 2001; Brew 1991; Muis et al., 2006) as cited by Shin (2010) the collaborative work in academic research, commitment to teaching and research and preferred publications of faculty differed in different disciplines. In the current study, the disciplines are Social Science, Natural Science, IT/Math and Education.

Other additional basic information in the demographic profile also considers the institution where they graduated, the kind of school where they are currently employed, the number of years between the completion of their Bachelor's and Master's or PhD degrees as well as the age at the time of Master's or PhD completion. The study of Musiige et al., 2015 suggested that the faculty's academic qualification determines the strength of an institution's research productivity.

The research capability refers to the ability of HEI faculty to produce a research output. From Cuizon & Cayogyog (2011), research capability refers to the knowledge and skills as well as the ability to engage in research. For Wichian et al. (2009) research competence factors consisted of five indicators i.e. research skills and techniques, research fund, research management, communication skill, and networking and team working. In the current study the indicators of research capability are knowledge, skills and the ability to give reason.

Knowledge is defined as the capacity to give new meaning to previously known information and answer the question what (Cuizon & Cayogyog, 2011).

Skills are the capacity to perform what was learned and answer the question how (Cuizon & Cayogyog, 2011). From the study of Feldon et al., 2011, setting context for a study, framing testable hypotheses, attention to validity and reliability of methods, experimental design, appropriate selection of data for analysis, presentation of data, data analysis, basing conclusions on data, identifying limitations, and effective use of primary literature were the research

skills focused in their study. They found that early career graduate students with both teaching and research responsibilities have significantly demonstrated greater improvement in their abilities to produce testable hypotheses and design valid experiments. The improvement of essential research skills were brought about by teaching experience.

The ability to give reason referred to as the capacity to internalize and answer the question why, (Cuizon & Cayogyog, 2011) is the third indicator of research capability.

The institutional research support includes the provisions made available to HEI faculty by their institution. This would cover training on research conceptualization, methodology, scientific writing for publication, presentation and use of statistical software and computational technology. Another is the accessibility to research infrastructure which include provision of a research unit, sufficient research services, resources and facilities in different disciplines for the conduct of research (Clemeña-Salazar,2006). The study of Wichian et al. (2009) the perceived institutional characteristics such as research policy of the institution, data source and research conducting equipment were associated with research productivity. Lastly, is the research budget allocation which pertains to the funds apportioned by institutions for research and publication. This financial support covers honorarium for completed research, membership to professional organizations, research publications and presentations.

The dependent variable is the research publication productivity which encompasses the number of research publications or the number of articles published by the HEI faculty. This also covers the status of the research publication as well as the nature of the journal where the research is published. In the study by Dickson, 1983 he employed the research publication measure called PUB, this was the number of articles authored or co-authored, plus the number of books edited or co-edited plus the number of books weighted by 5, authored or co-authored. For Hien(2010), publishing research findings in prestigious peer refereed journals is a critical measure of the quality of scientific output. In research dissemination, Musiige and Maasen (2015) stated that publishing in refereed journals is an important determinant for progress in an academic's career for this renders academics to become visible nationally or internationally. As this will provide networking opportunities and impact in one's discipline.

METHOD

Research Design. The study employed the Descriptive Correlation Design. This design is used to measure the link between two or more variables (Cresswell,2003). It is a quantitative research that entails collection of data so that information can be quantified and subjected to statistical treatment. The intention of a correlational study is to establish whether two or more variables are related. It comprises a statistical measure of a relationship between two or more variables and provides an indication of how one variable may predict another.

In this study, the relationship of demographic profile, research capability of HEI faculty and the institutional support to the research publication productivity of faculty was investigated.

Research Locale. The place of study was in Region XI. Region XI (Davao) is composed of four provinces - Davao del Sur, Davao del Norte, Davao Oriental, and Compostela Valley - and six cities - Davao City, Tagum City, Island Garden City of Samal, Panabo City, Mati City, and Digos City. The region has 19,671.8sq. km. land area, which is 6.6% of the Philippines total land area and 20% of Mindanao. Total HEIs as of 2010 is 94 of which 78 are private and 16 are public.

Davao del Sur is located in the southern part of the Philippines. Strategically, the province is located between two (2) major growth centers: General Santos City of Region XII and Davao City of Region XI. This province occupies a total land area of 3,934 square kilometers which represents 20 percent of the total land area of Region XI (Davao Region). Davao City is considered to be within the province of Davao del Sur and is the northernmost city in the province.

Davao del Norte is strategically located at the southern part of Mindanao and at the northern part of Region XI. It is bounded by Agusan del Sur on the north, Bukidnon on the west, Davao City on the southwest, Davao Gulf on the south and the Province of Compostela Valley on the east. As of 1996, the province had a total of twenty-two (22) municipalities.

Davao Oriental is a 1st Class province with 10 Municipalities, 1 City and 183 Barangays. Davao Oriental is strategically located in the Easternmost part of the Region XI. It is bounded by the Pacific Ocean in the East, Davao del Sur Province in the West (Davao Gulf if between Davao Oriental and Davao del Sur), Agusan del Sur and Surigao del Sur in the North and Davao Gulf and Celebes Sea in the South.

The province of Compostela Valley lies in the mid-eastern portion of

Mindanao Island, it is bounded by Agusan Del Sur on the North, Davao Oriental on the East and South, Davao Gulf on the Southwest, and Davao D el Norte on the West and Northwestern portion.

Research Respondents. A total of 200 faculty from 15 different higher education institutions in Region XI participated in this study using the purposive sampling technique. This technique is aimed to achieve a homogeneous sample whose units share the same characteristics or traits (Cresswell, 2003). To achieve homogeneity, the following criteria have to be accomplished: they must be a faculty member of the higher education institution considered in the study and must have experiences in the conduct of a research study.

Research Instrument. Sets of self-made survey questionnaires were used in obtaining data from the respondents. The Research Capability part of the survey questionnaires is adapted from the study of Cuizon & Cayogyog (2011) while the rest of the questionnaires are self-made by the researcher. The questionnaires are grouped into four areas namely Demographic Profile, Research Capability, Institutional Research Support and the Level of Research Productivity. The questionnaires were subjected to content validity and reliability analysis by experts.

The first part of the questionnaire is the Demographic Profile, which asks personal information of the faculty respondents such as their sex, area of specialization, type of school employed at, the institution they graduated from among others. This is followed by the Research Capability questionnaire which is made up of 18 questions divided into 3 categories namely Skills, Knowledge and the Ability to Give Reason. The scale responses range from 1 (strongly disagree) to 5 (strongly agree). The test of reliability gave an average Cronbach's value of 0.94 for the three indicators. The Institutional Research Support utilized 20 questions which covered the categories on Training, Budget Allocation and Research Infrastructure as part of the assistance provided by the institution to faculty. The scale responses ranged from 1(strongly disagree) to 5 (strongly agree). The following are the Cronbach's value for each category Training 0.950, Budget Allocation 0.968 and Research Infrastructure 0.834.

The levels on Research Capability and Institutional Research Support were provided with descriptive interpretation for easy understanding of its meaning. The scale interpretation for the Level of Research Capability is as follows:

Rating Scale for the Level of Research Capability

Mean Interval	Description	Descriptive Interpretation
4.50 - 5.00	Strongly Agree	The level of research capability is very high.
3.50 - 4.49	Agree	The level of research capability is high.
2.50 - 3.49	Moderately Agree	The level of research capability is average.
1.50 - 2.49	Disagree	The level of research capability is low.
1.00 - 1.49	Strongly Disagree	The level of research capability is very low.

Rating Scale for the Level of Institutional Research Support

Mean Interval	Description	Descriptive Interpretation
4.50 - 5.00	Strongly Agree	The level of institutional research is very high.
3.50 - 4.49	Agree	The level of institutional research is high.
2.50 - 3.49	Moderately Agree	The level of institutional research is average.
1.50 - 2.49	Disagree	The level of institutional research is low.
1.00 - 1.49	Strongly Disagree	The level of institutional research is very low.

The Level of Research Productivity is categorized according to the number of publications, status of publication and status of journal. The number of publications is classified as no publication, with 1 publication and with more than 1 publication, while the status of publication is organized into national and international publication. Lastly, the status of journal is sorted to refereed and non-refereed journals.

Data Gathering Procedure

Obtaining Permission and Approval to Conduct the Study. The researcher asked permission through writing from the Dean of the UIC Graduate School to conduct the study. After permission was granted, request letters were sent to heads of HEIs in Region XI asking permission for the researcher to conduct the study.

Questionnaire Validation. Prior to data collection, the survey questionnaire was subjected to face validity by five experts. The questionnaire was validated in

terms of clarity of directions and items, organization, suitability of questions, adequacy of items per category, objectivity and the accomplishment of the purpose for which it was constructed. The same questionnaire also underwent the test of reliability with faculty from one higher education institution in Davao City as the respondents. The results of the validity and reliability showed acceptable values thus, the survey questionnaires were reproduced for distribution.

Administration and Retrieval of Questionnaires. As soon as the request to the different HEIs was granted, the survey forms together with the informed consent forms were delivered to the participating institutions. A point person such as the Research Staff or Secretary of the School President was identified to distribute the survey forms. There were 15 higher education institutions which participated in the study. All 15 HEIs are private institutions and eleven of these are from Davao City. A total of thirty questionnaires were given to each HEI but the retrieval rate varies from one HEI to another. The highest retrieval rate so far was thirty out of thirty while the lowest retrieval rate was five out of thirty. The filled up survey questionnaires were collected by the researcher from the point person after a week.

Collation, Organization and Analysis of Data. After the retrieval of the forms, the data gathered were encoded, collated, organized and statistically treated using the identified statistical tools and existing studies.

Planning for an Enhancement Program. After the analysis of the results, the researcher came up with an enhancement program that will look into the research competence of HEI faculty.

Statistical Tools. The data gathered were statistically analyzed to provide answers to the research questions. Frequency and Percent were used to analyze the faculty demographic profile and the level of research publication productivity. In the analysis of the level of research capability and level of institutional research support, the statistical Mean and Standard Deviation were used. Moreover, the Multiple Regression analysis was employed to measure the extent of influence of demographic profile, research capability and institutional research support on research publication productivity. Moreover, this helped identify which of the three independent variables have a significant influence in the research publication productivity.

Ethical Considerations. At the start of data gathering, a letter of permission to conduct the study was handed over to the Dean of the Graduate School. After the permission was granted, another letter was made addressed to the different Presidents of higher education institutions in Region XI. The letter sought

for their approval in order for the researcher to administer the distribution of the questionnaire to the faculty of these higher education institutions. Some institutions have their protocols for outside research and these were strictly followed by the researcher. When permission was granted, the researcher delivered the questionnaire with the consent forms to the secretary of the Office of the President of the different higher educational institutions. In the consent form were written the purpose of the study, the assurance that the answers will be treated with confidentiality in the data analysis, as well as the presentation and publication of the results and their participation is voluntary in nature. The consent form further stated that the Graduate School of the University of the Immaculate Conception has approved the procedures of the study. The researcher's contact number and email address were written in the said form should there be queries. The researcher waited for the communication from the secretary that the questionnaires are ready for retrieval.

RESULTS AND DISCUSSIONS

Demographic Profile. Table 1 shows the demographic profile of the respondents in the study. The results reveal that out of 200 participants, 95 are female and 84 are male which is 47.5% and 43% of the total respondents respectively. Meanwhile, 21 or 10.5% of the respondents did not report their gender. In the area of specialization, the table reveals that 53 of the respondents belong to Education at 26.9% followed by 50 respondents from Information Technology/Math at 25.38%, while 43 of the respondents came from Social Science at 21.83%, 14 of them from Natural Science at 7.11% while 3.05% belonged to other areas not expressed in the survey questionnaire and 15.74% did not write their area of specialization. As to the type of school employed at, 62.43% or a total of 113 respondents are employed in Private Non-sectarian higher education institutions, while 65 of them or 35.91% are employed in Private sectarian higher education institutions and a very small percentage of 1.66% have their employment in State Colleges & Universities. Around 50.83% or 92 of the participants are graduates of Private Non-sectarian institutions, 58 or 32.04% of them graduated from Private sectarian institutions whereas 31 respondents with 17.13% are from State Universities & Colleges. Most of the respondents completed their Master's/PhD between ages 26-30 with a total percentage of 32.84% and a very small percentage of 0.75% at 61 years old above. For the number of years between the completion of Bachelor's and Master's/PhD,

45.38% of the respondents completed it within 5 years and 2.31% in a period of 31 years. In terms of age at first journal publication, the table shows that it is spread in the 31-35, 36-40 and 41-45 age brackets at 21.88% while the lowest is at 26-30 with 6.25%.

Table 1. Demographic profile of respondents

Demographic Variables	Frequency	Percentage
Sex		
Male	84	42
Female	95	47.5
Not reported	21	10.5
Area of Specialization:		
Social Science	43	21.83
Natural Science	14	7.11
IT/Math	50	25.38
Education	53	26.90
Others	6	3.0
Not reported	31	15.74
Type of School Employed At:		
SUCs	3	1.66
Private HEI Non-Sectarian	113	62.43
Private HEI Sectarian	65	35.91
Type of School Graduated From:		
SUCs	31	17.13
Private HEI Non-Sectarian	92	50.83
Private HEI Sectarian	58	32.04
Age at the Time of Master's/Phd Degree Completion:		
25 below	13	9.70
26-30	44	32.84
31-35	20	14.93
36-40	17	12.69
41-45	18	13.43
46-50	16	11.94
51-55	3	2.34
56-60	2	1.49
61 above	1	0.75

No. of Years Between the Completion of Bachelor's & Master's/PhD Degree:		
5 years & below	59	45.38
6-10 years	41	31.54
11-15 years	10	7.69
16-20 years	5	3.85
21-25 years	7	5.38
26-30 years	5	3.85
31 above	3	2.31
Age at First Journal Publication		
25 years and below	5	15.63
26-30	2	6.25
31-35	7	21.88
36-40	7	21.88
41-45	7	21.88
46-50	4	12.5

Research Capability. The following tables show the Level of Research Capability among faculty of HEIs in Region XI. It is divided into three indicators namely Knowledge, Skills and the Ability to give reason.

Knowledge. Table 2.1 shows the level of Research Capability in the area of Knowledge. The highest mean value is 4.06, which is described as high. It shows that HEI faculty have a clear understanding of what research really is while the lowest mean value for this indicator is 3.64 which is also described as high. It implies that faculty can enumerate research methods & tools that are used to interpret the findings of a particular research. The category mean for the Knowledge indicator is 3.76 which is described as high. It reveals that faculty in HEI in Region XI have enough background of what research is, its components and concepts. They know the kinds of research and understand research concepts as well as research ethics. The knowledge about research is always evident among faculty in higher education institution. These findings can be attributed to the reality that HEI faculty have graduate training which enhanced their research productivity Salazar- Clemeña, et al. (2007).

Table 2.1 Level of research capability: Knowledge

Research Capability	Mean	Standard Deviation	Description
I can thoroughly define and describe what research means	4.06	0.77	High
I can identify and classify the types and kinds of researches	3.84	0.81	High
I can illustrate and convey research schemes and functions	3.65	0.79	High
I can discuss research concept, logics and ethics	3.68	0.82	High
I can label or outline research components	3.77	0.80	High
I can enumerate research methods and tools in interpreting findings	3.64	0.82	High
Category mean	3.76	0.74	High

Skills. Table 2.2 presents the results of Skills as a second indicator of the level of research capability. Skills are defined as the capacity to perform what was learned and answer the question how (Cuizon et al., 2011). The table reveals that the faculty can best perform the steps and procedures in doing the research with a mean value of 3.94 while the lowest mean value of 3.75 tells that faculty can detect a problem and complete a research task to address it. Both mean values are still described as high. Furthermore, the table reveals that the category mean value for this indicator is 3.81 still with a descriptive equivalent of high. This would show that in the Skills area, HEI faculty's ability to put into practice what was learned about research is always evident. This is corroborated by the idea of Ivancevich, et al. (2008) as cited by Cuizon & Cayogyog (2011) wherein they stated that "capability is the degree to which an individual possesses task-relevant skills, abilities, knowledge and experiences". Research productivity is affected by the research skills and technique under research competence, this is according to Wichian, et al. (2009) as cited by Bernardo and Clerigo (2013). This was supported by Brambila, Veloso and Morgan (2007) as cited by Bernardo et al. (2013) who found that that there are significant differences in research productivity among areas of knowledge, not only in the peak of publications and citations but also in the productivity cycle.

Table 2.2 Level of research capability: Skills

Research Capability	Mean	Standard Deviation	Description
I can do research following its basic principles correctly	3.91	0.74	High
I can perform the steps and procedures in doing research	3.94	0.76	High
I can detect a problem and complete a research task to address it	3.75	0.80	High
I can carry out a study following scientific methods	3.79	0.76	High
I can organize a research concept and undertake it	3.81	0.79	High
I can accomplish a research work to answer a problematic situation	3.78	0.80	High
Category mean	3.81	0.76	High

Ability To Give Reason. Table 2.3 shows the results for the third indicator for research capability which is the Ability to Give Reason. This indicator characterizes the ability to internalize and analyze. In this table, the highest mean value is 3.82 with a description of high. It tells that HEI faculty can explain the process involved in certain researches and so they can give details of the procedure involved in a particular research. The mean value of 3.73 is the lowest mean value for this indicator. This value also has a description of high depicts that HEI faculty can support their use of a particular tool in research. The category mean for this indicator gives a value of 3.76 with a description of high. It shows that HEI faculty have the ability to internalize research processes, their components and how these are connected, as well as they can give research details. According to Wichian et al. (2009), the confidence of the faculty members in their research abilities was found related to their research productivity.

The overall mean value of the level of research capability among HEI faculty is 3.77 which is described as high. This illustrates that the ability to conduct research among HEI faculty is always evident. That is they have the knowledge, skills and the ability to internalize research undertakings. Generally, the results could be supported by CMO # 40; s. 2008 of CHED which directs that the minimum requirement for faculty teaching in the tertiary level must be Master's degree holder. To attain such a degree, a faculty is required to make a thesis/research output. Thus, because of the HEI faculty's engagement in the graduate program, they have a substantial background of what research is and how to conduct it. In fact according to Cuizon & Cayogyog (2011), knowledge and skills are strongly converged.

Table 2.3 Level of research capability: Ability to give reason

Research Capability	Mean	Standard Deviation	Description
I can relate the background of a certain research	3.80	0.78	High
I can tell why a certain research has to undertake a certain process	3.82	0.78	High
I can argue the reason for coming out with a certain kind of research	3.76	0.77	High
I can explain the consistency and connections of the components of research	3.79	0.81	High
I can clarify and defend the use of an element (e.g. tools) included in a research	3.73	0.78	High
I can talk about and elaborate research details and why they are necessary	3.75	0.83	High
Category mean	3.76	0.77	High
OVERALL MEAN	3.77	0.71	HIGH

Institutional Research Support. The following tables present the indicators for the level of institutional research support, namely training, budget allocation & research infrastructure.

Training. It can be noted in Table 3.1 that in the area of training, it is the provision for training on research conceptualization which has the highest mean value of 3.48 and a description of average. This means that training for research conceptualization provided by institutions to their faculty is fairly evident. However, in the study of Clemena-Salazar (2006), they expressed that an essential part of the faculty development program is the enhancement of the research capacity among faculty. Providing appropriate research training for the faculty is absolutely necessary. On the other hand, in the same indicator the lowest mean value of 3.13 also described as average is in the training on the use of statistical software and other computational technology. This implies that the training received by faculty in the use of statistical softwares and computational technologies is not sufficient. From the results of the study by Cohen(1996), faculty judged the use of computer mediated communications to be of value to their productivity.

The provision on training as part of the institutional research support is moderately evident among the different higher education institutions. This

is manifested by a category mean value of 3.32 which is described as average. According to Wichian, et al. (2009) as cited by Bernardo and Clerigo (2013), research experience and training in research gave better influence on research output utilization. Brewer (2000) as cited by Zhang (2014) suggests that the provision of adequate research support was one of the most important factors in promoting research activity.

Table 3.1 Level of institutional research support: Training

Institutional Research Support	Mean	Standard Deviation	Description
TRAINING:			
My institution provides training on research conceptualization	3.48	0.98	Average
My institution provides training on research hypothesis formulation	3.37	0.97	Average
My institution provides training on designing research theoretical/conceptual framework	3.37	0.96	Average
My institution provides training on research methodology	3.44	0.99	Average
My institution provides training on scientific writing for national & international publication	3.23	1.01	Average
My institution provides training on the use of statistical software and other computational technology	3.13	1.04	Average
My institution provides training on oral & poster research presentation	3.21	1.05	Average
Category Mean	3.32	0.89	Average

Budget Allocation. In the indicator of budget allocation, Table 3.2 shows a category mean value of 3.40 with a description of average illustrates that the budget allocation for research in the institutions covered is moderately evident. Furthermore, HEI faculty have expressed that their institution provides the honorarium for completed research outputs as shown in the mean value of 3.49, which is described as average. This result shows that the provision for honorarium is moderately evident among higher education institutions. To develop and sustain research productivity entails allotment of funds according to

Clemena-Salazar (2007). This is also corroborated by the results from the study of Hadjinicola et al. (2005) where they stress that external funding also results in more and higher-quality papers. External funding creates pressure on researchers and leads to more and better-quality publications. On the same category, a mean value of 3.21 in the financial support for membership in research organization shows the lowest mean value described as average. This shows that membership by faculty to professional organizations is not always given priority by institutions. Membership to organizations is on a personal basis, thus faculty are left to pay for their own. The study by Ynalvez & Shrum (2011), supports that publication productivity is significantly linked to professional network factors though is no evidence of any association with scientific collaboration. This is also corroborated by the study of Hadjinicola et al., 2005 wherein they expressed that when an area of research is perceived by academics or others as relevant, it is more likely to be published in the best journals of the field.

The category mean value for budget allocation is 3.32 with a descriptive equivalent of average. It implies that the funds apportioned for research by institutions is moderately evident. From Gonzalez (2006) as cited by Clemena-Salazar (2007), the scarcity of university funds for research purposes may be explained by the fact that most of the private HEIs in the country depend largely on students' tuition fees as their source of income. And most of the school's budget goes to teachers' salaries, thus it is not surprising that there is limited funds for research.

Table 3.2 Level of institutional research support: Budget allocation

Institutional Research Support	Mean	Standard Deviation	Description
BUDGET ALLOCATION:			
My institution allocates enough budget for research symposium & for a	3.42	1.08	Average
My institution provides monetary incentives for oral & poster presentation	3.39	1.14	Average
My institution provides budget for attendance of faculty for national and international conferences	3.41	1.05	Average
My institution provides an honorarium for completed research outputs	3.49	1.09	Average
My institution provides financial support for research operation expenses	3.46	1.07	Average
My institution provides financial support for membership in research organization	3.21	1.05	Average
Category Mean	3.40	0.99	Average

Research Infrastructure. Moreover, Table 3.3 shows the category mean value for research infrastructure which is 3.26 with a descriptive equivalent of average. This illustrates that this provision is fairly evident among institutions. The HEI faculty express that facilities & services for the conduct of research are not highly given priority by their institutions. In this category, faculty respondents articulate that their institution have IT centers that are part of their research infrastructure as revealed in the mean value result of 3.60 and has a descriptive equivalent of high. However, the presence of a Statistical Center to assist in data analysis shows the lowest mean value for research infrastructure with a mean value of 2.91 which is described as average. From the study of Hadjinicola et al., 2004, better library facilities enhance research in terms of the quantity and the quality of the articles published. The presence of a research center on production and operations management helped increased the number of articles published by professors affiliated with the center. While for Brewer (2000) as cited by Zhang (2014) better library facilities further can promote research productivity of researchers in terms of number of articles and their quality.

The overall mean value for the level of Institutional Research Support is 3.22 with a descriptive equivalent of average. This entails that this determinant for publication productivity is seldom seen by faculty in their respective institutions.

Table 3.3 Level of institutional research support: Research infrastructure

Institutional Research Support	Mean	Standard Deviation	Description
RESEARCH INFRASTRUCTURE			
My institution has an available IT Center	3.60	1.05	High
My institution has a well-equipped Laboratory Room for the conduct of experimentation	3.31	1.01	Average
My institution has quality assurance softwares such as Grammarly Software, Plagiarism detector to safeguard the scholarly merits of the research publication & articles	2.97	1.13	Average
My institution has an accessible Curriculum Resources & Learning Materials Center	3.38	0.97	Average
My institution has a dynamic publishing department with a well trained editorial team to critic & review the research articles	3.07	1.03	Average
My institution has a Statistical Center to assist in the data analysis	2.91	1.00	Average
My institution has a well equipped AVR for research presentations, conferences & symposia	3.59	1.02	High
Category Mean	3.26	0.82	Average
Overall Mean	3.22	0.76	Average

Level of Research Publication Productivity. Table 4 depicts the level of Research Publication Productivity among faculty of HEIs in Region XI. The categories included are the number of publications, status of publication and status of journal. The succeeding table shows that majority of the respondents have no publication (79%) and only 8.5 % have more than 1 publication. This simply reveals that researches of most faculty do not end up in publication. Also, the status of publication revealed that in instances where there is research publication, it mostly ends up in national publication (16%) and a very small percentage in international (2.5%) as well as both national & international (2%) publication. Besides, for faculty respondents who have research publications, they do so in refereed journals (13%) while 8.5% have their research publication in non refereed journals.

Table 4. Research publication productivity

Demographic Variables	Frequency	Percentage
NUMBER OF PUBLICATIONS		
No Publication	159	79
With 1 Publication	24	12.5
More than 1 publication	17	8.5
STATUS OF PUBLICATION		
Without Publication	159	79
National	32	16
International	5	2.5
Both National & International	4	2
STATUS OF JOURNAL		
Non Existent	159	78.5
Refereed	25	13
Non Refereed	16	8.5

Influence of Faculty Profile on Research Publication Productivity. Table 5 shows the test of influence of the demographic profile variables on the publication productivity of HEI faculty. The results revealed that all profile variables do not have a significant influence on the publication productivity as shown in the p-values that is above .05. This indicates that the teacher's profile such as sex, area of specialization, age at the time of Master's or PhD degree completion, among others are not predictors of their publication productivity.

In the current study, results showed that age is not a predictor of research publication productivity. This is in agreement with the study by Kotrlik et al. (2002) as cited by Wichian et al. (2009) where they reported that there was no significant evidence that age determined a drop in research productivity. The current results run counter with the results from the study of Sax, et al. (2002) where they stated that younger faculty tend to be more productive. More likely, the high levels of productivity among younger faculty indicate the fact that these faculty members have been socialized during their graduate school and in their present careers when quantity of publications is given importance. For Panthupa (1997) as cited by Wichian et al. (2009) average research productivity seemed to drop as age increased.

The study conducted by Sulo et al. (2012), indicated that there was

independency between gender and ability to conduct research. According to this study, gender does not affect ability to conduct research. This is contrary to the results of the study by Jung (2013) where he mentioned that for Hong Kong academics, demographics such as gender and years of experience are significant factors that predict research productivity. For Teodorescu (2000), women received fewer grants than men and are lopsidedly employed in disciplines where research productivity is low.

Meanwhile, from the results of the study of Long et al. (1998) one's academic origin did not appear to be strongly associated with his or her research productivity. However, according to the same study, one's academic affiliation had a strong association with research productivity in terms of number of publications in top journals and citation counts of these publications. From the study by Musige et al. (2015) they stated that "the level of the academic qualifications of staff is a key determinant of the strength of the research capacity at a university. In particular, the doctoral level is the widely expected level for one to attain key skills of inquiry and other techniques required for research practice". In the research conducted by Van Hoof et al (2015) there were no significant differences in research productivity between those professors who held graduate degrees and those who did not. The study concluded that professors with advanced degrees particularly those with doctoral degrees are expected to take leadership roles in the research efforts of universities. They are highly expected to conduct research and publish.

Table 5. Influence of faculty profile on research publication productivity

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Remarks
	B	Std. Error	Beta			
(Constant)	.246	.623		.395	.694	Not
Sex	.183	.209	092	.872	.386	significant
AOS	.032	.084	.039	.377	.707	
Type of school	-.266	.218	-.140	-1.221	.225	
School graduated	.015	.151	.011	.100	.921	
Age	.017	.011	.165	1.529	.130	

Influence of Research Capability & Institutional Support on Research Publication Productivity. Table 6 shows the regression analysis which purpose is to determine the influence of research capability and institutional research support on the publication productivity of the faculty.

The results revealed that only institutional research support significantly influence the publication productivity of the faculty (B=.155, p<.05). In other words, for every unit increase in the institutional research support, there is a corresponding increase in the publication productivity by .155. This implies that institutional research support have contribution to the quantity of publications among faculty.

These results are substantiated by the study conducted by Acar (2012) which revealed that institutional support such as providing research incentives are very important in encouraging and developing the research climate. Similar importance in motivating researchers would be the provision of facilities and equipment in support of research function. In addition, according to de Guzman (2012), the lack of research funds, poor access to available research materials and equipment, inadequate manpower, and limited trainings were crucial in the completion of a research undertaking. Moreover, this is also supported by the findings of Teodorescu (2000) which suggests the importance of receiving funding for research. He further expressed that research support like travel funds to attend conferences, grants and time for research leads to higher publication productivity. This is also reinforced by the study of Toutkoushian, et al. (2002) where a very high correlation exists between the level of resources spent or received by institutions for research and the number of publications produced. In the study conducted by Musiige and Maasen (2015), it was found out that funding had a major impact on the nature and sustainability of research capacity and productivity at Makerere University.

On the other hand, the study of Cohen(1996), states that a positive relationship was found between the frequency of use of Computer Mediated Communications (CMC) and publications, including co-authored publications. In addition to statistically significant relationships between CMC use and productivity measures, faculty judged CMC to be of some utility to their productivity.

In contrast, the research capability does not predict the publication productivity of the faculty (B=.135, p>.05). This means that research capability is not contributory to the quantity of publications among faculty. The reason for this can be attributed to the fact that though faculty can accomplish a research endeavour, this does not always end up in publication since publishing

one's research output entails monetary requirement on the part of the faculty. Furthermore, according to Lacanilao (2008) many graduate degree holders in the Philippines do not think of proper publication as part of research. Many graduate schools have the training that the end of research is the bound thesis rather than publication.

Meanwhile, the amount of variance that can be explained by the model is 4.4% as revealed in the R-square value of .044. This means that 95.6% of the variance of research publication productivity can be attributed to other factors aside from the two independent variables.

Table 6. Influence of research capability & institutional support on research

Model	Unstandardized Coefficients		Standardized Coefficients	t	p-value	Remarks
	B	Std. Error	Beta			
(Constant)	-.953	.457		-2.088	.038	
RCoverall	.186	.096	.135	1.926	.056	Not significant
IRSoverall	.187	.084	.155	2.218	.028	Significant

Conclusions. The faculty of HEIs in Region XI manifest high level of research capability, that is they have the knowledge, ability and the skills to conduct research. The level of institutional research support among HEI faculty in Region XI is average. This suggests that the assistance in terms of training, budget allocation and research infrastructure provided to faculty by higher education institutions in Region XI is moderately adequate. The publication productivity of HEI faculty in Region XI is low. This indicates that only very few HEI faculty in the region are actively publishing. In instances where HEI faculty has publications they published in national and non-refereed journals. It was established that publication productivity among HEI faculty in Region XI is influenced by institutional research support. This means that training, budget allocation and research infrastructure to a great extent have an impact on the number of publications produced by HEI faculty in the region. Lastly, the enhancement program that would further enrich the publication productivity of HEI faculty in the region is established.

Recommendations. The research production among HEI faculty in Region XI must be given due importance as part of their role as generators of new knowledge, thus an enhancement of the research program by different HEIs in the region must be strengthened. The reinforcement of the institutional research support should be strengthened. In terms of training that will focus on acquisition of skills in research publication, explore programs for external funding to augment budget allocation and better research infrastructure such as library resources, Internet access and computers and laboratories so that faculty will find the conduct of research and its publication more encouraging. Finally, there is a need to explore other determinants that may contribute to research publication productivity.

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Rethinking the Changing Academic Atmosphere: Work Engagement, Motivational Potential and Performance of Employees of the University of the Immaculate Conception

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ABSTRACT

People are the building blocks of every organization. The employees are on their optimal job performances if they are in an affective-motivational state of mind, which is known as work engagement. This descriptive-correlation study, involving 105 employees of the University of the Immaculate Conception (UIC), aimed to describe their levels of work engagement, motivational potentials of certain job characteristics and performance. It also assessed how strongly work engagement and motivational potential of certain job characteristics relate to performance of the employees. Moreover, this investigation determined which one among these variables, namely, work engagement and motivational potential significantly influences employee performance. A 17-item questionnaire on Work and Well-being Survey by Schaufeli and Bakker (2003) was used to determine the level of work engagement. Job Diagnostic Survey Questionnaire by Hackman and Oldham (198) was used to measure the motivational potential of certain job characteristics. The performance evaluation result was used to describe performance level of personnel. Data was treated using mean, Pearson Product Moment Correlation, Multiple Regression. Findings revealed that work engagement of the employees is very high, motivational potential is high, and specifically, for the Support Service Personnel, both work engagement and motivational potentials are significant predictors of performance.

KEYWORDS: Academic human resource management, work engagement, motivational potential, performance, UIC Personnel, Philippines

INTRODUCTION

Today, organizations need to deal with the multi-generation workforce. The co-existence of "traditionals" and "millennials" warrants issues pertaining to changing and rethinking workforce. Thus, the progressive management is becoming concerned also on employees as individuals and not only as members of specific generations. This is essential in building workplace culture where employees feel respected, appreciated and valued. This approach can help organizations attract and retain employees, build a collaborative workplace, prepare for future change and boost employee engagement levels.

Work engagement is a complex construct defined in a variety of ways. Kirkpatrick (2007) defined it as employees' interest in enthusiasm for and investment in his or her job. While Schaufeli et al. (2002) looked at engagement as affirmative, satisfying and work-related state of mind. Workers are then engaged if they are strong and vigorous at work, optimistic and very often immersed in that work.

Evidently, building engagement is not only about making people happy or paying them more money. But it is more of providing workers a meaningful work experience. Strong leadership, accountability, autonomy, sense of control over one's environment and opportunities for development are fundamental elements of engagement (Perrin, 2003).

Several human resource studies have indicated that there is a decline of employee engagement (Bates, 2004; Richman, 2006; Saks, 2006) and a deepening of disengaged employees today. In the study of Buckingham (2001) he found that 63% of the employees fall under the non-engaged category. Though they were categorized as productive since they do what were asked of them but they were not emotionally bonded to the organization. They can be easily tempted with job opportunities elsewhere and were responsive to financial incentives. Yet, it is clear that engaged employees are more productive than those who are not.

Along with this is the task of the management to determine ways and strategies to enable employees to be engaged to produce better and high performance. This is so because everything we knew about motivation is not enough and is now thrown and repackage into what we call employee engagement.

The study on engagement, job characteristics and performance of workers is an attempt by the researcher to help improve the well-being of employees in the organization. An analysis on the engagement level of employees contributes to the school's productivity and performance and reduces turnover, aside from the fact that investing on human capital provides competitive advantage.

Objectives of the Study. This study aimed to describe the levels of work engagement, motivational potentials of certain job characteristics and performance of the employees of the University of the Immaculate Conception (UIC). It also assessed how strongly levels of work engagement motivational potential of certain job characteristics, each are correlated to performance of the employees. Moreover, this investigation determined which one among these variables, namely, work engagement and motivational potential significantly influences employee performance.

Conceptual Framework. The study is anchored on the theoretical Model Job Demands-Resources (JD-R) Model of Work Engagement (Bakker and Demerouti, 2007) which assumes that that the motivational potential of certain job characteristics are transformed into job performance through work engagement.

The study is also based on the proposition of Schaufeli and Bakker, 2003 particularly on the idea that engagement is an encouraging, rewarding and work-related state of mind characterized by vigor, dedication and absorption. Thus, on this study, it is assumed that level of work engagement such as vigor, dedication and absorption relates to the performance of UIC personnel. Further it is also presumed that level of motivational potential of certain job characteristics will also influence performance of personnel. Hence, levels of work engagement and motivational potential of certain job characteristics are the independent variables and the performance of UIC personnel is the dependent variable.

METHOD

The study employed a descriptive-correlation design. It described whether possible relationships exist between the level of work engagement and performance of workers and level of motivational potential of certain job characteristics and performance of personnel.

Only 157 out of 200 employees, specifically the Basic Education Faculty, College Faculty and the Support Service Personnel, of UIC became respondents of this study, establishing a retrieval rate of 78.5%. However, 52 of them were invalidated due to absence of performance results, them, being still first year in UIC and thus, had to still be evaluated at the end of the school year. Moreover, there were several questionnaires with some items unanswered, which then were eventually invalidated.

A 17-item questionnaire on Work and Well-being Survey by Schaufeli and Bakker (2003) was used as the main instrument in gathering data regarding level of work engagement particularly on Vigor, Dedication and Absorption. The said questionnaire was answered using the following response options: 5-Always; 4-Often; 3-Sometimes; 2-Seldom; and 1-Never. As to its reliability index, Work Engagement Questionnaire has a Cronbach Alpha of .919, described as very high. To measure the level of motivational potential of certain job characteristics, a 22- item questionnaire was used. The questionnaire was answered using the following response options: 5 – Strongly agree; 4 – Moderately agree; 3- Agree, 2- Disagree and 1 – Strongly disagree. This Job Characteristics Questionnaire possesses Cronbach of .832, for its reliability coefficient.

On the other hand, the personnel evaluation result was used to describe performance level of the personnel. Separate criteria as reflected in the respective performance appraisal forms of the three units of the university, were used to determine the employee performance---Basic Education Faculty was based on 10% Self-Rating, 30% Coordinator's Rating, 50% Principal's Rating, and 10% Student's Ratings; Higher Education Faculty was assessed considering only the 35%, made equivalent to seven points, of the entire performance ratings, converted to a 5-point Likert Scale since other criteria pertain to research and community engagement efforts, which were not included in this investigation; and the Support Service Personnel were based on the Evaluation Tool generic to all departments and areas containing criteria not related to teaching, which were also converted to a 5-point Likert Scale.

The researcher wrote a letter address to the Vice President for Administration/ Human Resource Officer requesting for permission to conduct the study. The researcher coordinated with the Dean of College and the Grade School and High School Principals for the distribution of the questionnaire to the respondents. These survey forms were collected, collated and analyzed. Descriptive and inferential analyses were performed.

The data was treated using various statistical tools such as descriptive statistics, Pearson Product Moment Correlation and Multiple Regression Analysis set at a level of significance equal to .05.

RESULTS AND DISCUSSION

Table 1. Level of work engagement of UIC personnel

Item	Mean	Descriptive Rating
Vigor		
1. At my work, I feel bursting with energy.	4.23	Very High
2. At my job, I feel strong and vigorous	4.27	Very High
3. When I get up in the morning, I feel like going to work.	4.29	Very High
4. I can continue working for very long periods at a time	4.17	High
5. At my job, I am very resilient mentally.	4.23	Very High
6. At my work, I always persevere, even when things do not go well.	4.39	Very High
Category Mean	4.26	Very High
Dedication		
1. I find the work that I do full of meaning and purpose.	4.62	Very High
2. I am enthusiastic about my job.	4.53	Very High
3. My job inspires me.	4.55	Very High
4. I am proud of the work that I do.	4.72	Very High
5. To me, my job is challenging	4.69	Very High
Category Mean	4.62	Very High
Absorption		
1. Time flies when I am working.	4.53	Very High
2. When I am working, I forget everything else around me.	3.63	High
3. I feel happy when I am working intensely.	4.32	Very High
4. I am immersed in my work.	4.12	High
5. I get carried away when I am working.	3.87	High
6. It is difficult to detach myself from my job.	3.76	High
Category Mean	4.04	High
Overall Mean	4.31	Very High

Legend: 4.20-5.00 - Very High; 3.40-4.19 - High; 2.60-3.39 - Average; 1.80-2.59 - Low; 1.00-1.79 - Very Low

Specifically, vigor, as component of work engagement was rated very high with a mean of 4.26. The data shows that the respondents are bursting with energy while at work (4.23), strong and vigorous with their job (4.27), feel like going to

work (4.29), persevere even when things do not go well at work (4.39) and very resilient mentally (4.23). Whereas, the respondents rated continue working for very long periods at a time (4.17) as high.

Data also reveals that dedication as level of engagement of UIC personnel is rated as very high with a mean of 4.62. The respondents find their work with meaning and purpose (4.62), they are enthusiastic about their job (4.53), their job inspires them (4.55), they are proud of the work they do (4.72) and consider their job as challenging (4.69).

The data further shows absorption as level of engagement is rated as high with a mean of 4.04. Specifically, I forget everything else around me while working (3.63), immersed with work (4.12), get carried away when working (3.87) and difficult to detach from work (3.76) is rated by the respondents as high. Further, time flies when I am working (4.53), and feel happy when working intensely (4.32) are rated as very high.

The level of work engagement of the employees of UIC is very high as quantified by a mean of 4.31. This finding describes that the personnel performs as expected. The data shows that such work engagement manifests consistent delivery of jobs by the UIC employees with physical and mental readiness and persistence coupled with enthusiasm and inspiration even at long hours of work.

These data suggest that the University of the Immaculate Conception is among those contemporary organizations, as defined by Bakker and Leiter (2010) that supervise committed employees who are psychologically connected to their work; who are willing and able to invest themselves fully in their roles; who are proactive and highly-capable to deliver high quality performance outputs. This academic atmosphere in UIC is expected as the university has lined up and embarked on several programs and projects like curricular development, research and community extension engagements as efforts to keep its status in Region XI as one of the dynamic and progressive basic and higher learning institutions ready to serve its students and other community stakeholders. Thus, the involvements of all units of the school are tapped positively for the realization of the many visions set by UIC, to address challenges brought about by many curricular reforms such as the K-12, TESDA, and Outcomes Based Education Framework.

In addition, this survey from UIC has established that, as an academic institution, as described by Bakker et al. (2010), the work engagement existing include energetic faculty and non-teaching staff who experience their work as stimulating and something to which they really want to devote time and effort (the vigor component); as a significant and meaningful pursuit (dedication); and as engrossing and something on which they are fully concentrated (absorption).

These findings agree with the study of Laguador and Dotong (2014), which reports that employees of the university have naturally great compassion and concern about the integrity and reputation of the institution; therefore they give their best effort and energies through working long hours in the office just to finish certain tasks as required by the growing institution aiming for excellence. These authors added that employees feel stronger and enthusiastic to work because of the dynamic leadership and support of the management in every academic exercise and quality assurance efforts. Particularly, on the aspect of absorption, it is contended that personnel who have been oriented with the work performance standards of the university already have certain level of expertise and experience on how they are going to deal with the people in the middle and top management. The immersion of employees on their work is a manifestation that they truly devoted their time and space for the welfare of its clients. They tried to manage their time effectively and efficiently through being proactive members of the organization who are ready to make things happen (Laguador & Dotong, 2014).

Table 2. Level of motivational potential of certain job characteristics as perceived by the UIC personnel

Item	Mean	Descriptive Rating
Task Variety		
1. I have a chance to do a number of different task, using a variety of skills and talents.	4.31	Very High
2. I get to use a number of complex skills on this job.	4.25	Very High
3. The job is quite simple and repetitive.	3.18	High
4. My job involves doing a number of different task.	4.38	Very High
5. The demands of my job are predictable.	3.45	High
Category Mean	3.91	High
Task Identity		
1. I do a complete task from start to finish.	4.20	Very High
2. I make significant contributions to the final output.	4.36	Very High
3. My job is arranged so that I do have a chance to do the task from start to end.	2.17	Low
4. My job provides me a chance to finish completely any work I started.	4.25	Very High
Category Mean	3.75	High

Task Significance		
1. What I do affects the well-being of other people in very important ways.	4.37	Very High
2. What I do is of great consequence to anyone else.	3.09	Fairly High
3. My job is important to the survival of the organization.	4.31	Very High
4. Many people are affected by the job I do	4.23	Very High
Category Mean	4.00	High
Autonomy		
1. I have almost complete responsibility for deciding how and when the work is to be done.	4.20	Very High
2. I have freedom in deciding how the work is to be done	3.13	Fairly High
3. My job allows me an opportunity to participate in decision making	3.90	High
4. My job gives me considerable freedom in doing the work	4.19	High
Category Mean	3.85	High
Feedback		
1. My superior provides me with constant feedback about how I am doing.	4.08	High
2. The work itself provides me with information about how well I am doing.	4.21	Very High
3. Just doing the work provides me with opportunities to figure out how well I am doing.	4.22	Very High
4. My superior provides me information on how well they think I am doing.	4.12	High
5. My job provides clues about whether I am performing adequately.	2.25	Low
Category Mean	3.78	High
Overall Mean	3.86	High

Legend: 4.20-5.00 Very High; 3.40-4.19 High; 2.60-3.39 Average; 1.80-2.59 Low; 1.00-1.79 Very Low

Specifically, the data reveal that task variety as job characteristics is rated by the respondents as high with a mean of 3.91. This means that the respondents perceived that the motivational level is high if the demands of the job are predictable (3.45). Further that the motivational can be very high if they get to use a number of complex skills on the job (4.31) the respondents have a chance to perform a number of different task using a variety of skills and talents (4.31) and the job involves doing a number of different task (4.38).

Moreover, the respondents rated task identity as high with a mean of 3.75.

This means that respondents perceived that the motivational level is very high if they perform a complete task from start to finish (4.20) makes significant contributions to the final output (4.36), and believe that the job provides them a chance to finish completely any work started (4.25).

Likewise, task significance as a motivational potential is rated as high with a mean of 4.00. This means that the respondents perceived that the motivational level is high if what they do is of great consequence to anyone else (3.09). On the other hand, it can have a very high motivational level if what they do affects the well-being of other people in very important ways (4.37), job is important to the survival of the organization (4.31) and many people are affected by the job that they do (4.23).

On the other hand, autonomy as a motivational potential is rated by the respondents as high with a mean of 3.85. This means that the respondents perceived that the motivational potential is high if the workers have freedom in deciding how the work is to be done (3.13) the job gives considerable freedom in doing the work (4.19) and the job allows workers an opportunity to participate in decision-making. Further, the task can elicit a very high motivational level if workers have almost complete responsibility for deciding how and when the work is to be done.

Lastly, the item on feedback as a motivational potential is rated by the respondents as high with mean of 3.78. This means that the respondents perceived that the motivational potential is high if superior provides feedback about how the worker is doing (4.08) and provide workers information on how well they think the worker is performing (4.12). Whereas, it can provide a very high level of motivational potential if the work itself provides information about how the worker is doing (4.21) and just merely doing the work provides a chance for the worker to figure out how the he is doing (4.22).

The overall mean rating of 3.86 implies that the UIC personnel perceived that the identified job characteristics have elicited high levels of motivational potential. These results describe that the employees of UIC have acquired enough grasp and maturity to extract out motivational potential level to carry out their respective jobs from the very nature of the tasks assigned to them. Skill variety, task identity and task significance are all job characteristics that stimulate personal growth and development and can help employees achieve their work goals. Thus, the workforce of the university are composed of employees who are given the opportunity to maximize the use of their talent and ability for pursuing a clearly identifiable and worthy outcome or goal, they are more likely to consider their job as one that helps them meet their own personal goals and aspirations. For

example, for almost seven years already from 2010 to the present, majority of the curricular programs in both basic and higher education, have either undergone PAASCU visits to elevate the existing statuses of quality instructions, or applied for some accreditation grants and recognitions in CHED, like COD/COE Certifications and/or CHED-JAS Endorsements and/or submitted proposed projects for all forms of research grant funds and scholarship available from all possible funding windows like CHED, DOST, and USAID STRIDE. These institutional activities and would not be realized had it not for the high level of motivational potential in certain job characteristics perceived by the employees of the university.

Table 3. Level of personnel performance

Item	Level of Performance	Description
Basic Education Faculty	88%	Above Average
Support Services Personnel	3.86	Very Satisfactory
Higher Education Faculty	5.59	Very Satisfactory

Legend:

Basic Education Faculty - 96 and above – Exceptional; 92-95 – Excellent; 88 -91 - Above Average; 84-87 – Average; and 80-83 – Fair

Support Services Personnel 4.20-5.00 Excellent; 3.40-4.19 – Very Satisfactory; 2.60-3.39 – Satisfactory; 1.80-2.59 – Less Satisfactory; 1.00-1.79 – Not satisfactory

Higher Education Faculty – 5.80-7.00 Excellent; 4.60-5.79 – Very Satisfactory; 3.40-4.59 – Satisfactory; 2.20-3.39 – Less Satisfactory; 1.00-2.19 – Not Satisfactory

Table 3 presents the level of performance of UIC personnel. Data shows that the performance of the basic education faculty is above average or 88%. Thus, this finding describes the approval of the job efficiency rendered by the basic education faculty as seen and experienced by the various groups of raters that included themselves, their coordinators and principals as well as the students. On the other hand, the support services personnel has a mean rating of 3.86 or very satisfactory while the higher education faculty has a mean rating of

5.59 or very satisfactory. These high evaluation assessments reflect not only the dedication, commitment and efficiency to complete the assigned tasks but also of the competence to assure quality outputs required to make the educational practices at par with the other CHED-recognized schools in Region XI. These data describe that the employees of the University of the Immaculate Conception really perform as expected. The commitment and efficiency in rendering the tasks that require concerted efforts are felt across all units of the institutions. Regardless of the rigorous nature of their respective jobs, the high level of performance is manifested.

Table 4. Correlation between level of work engagement and performance of personnel

Work Engagement	r	P-Value	Interpretation
Basic Education Faculty	.068	.638	Not significant
Support service personnel	.279	.055	Not significant
College faculty	.313	.322	Not significant

As shown by data in Table 4, level of work engagement has established from negligible positive correlation with performance among the Basic Education Faculty (r = .068) to low correlations in Support Service Personnel (r = .279) and College Faculty (r = .313). These correlation coefficient values describe the tendency that an increase in the level of work engagement brings a corresponding increase in performance but not really substantial as to claim adequate associations between and among these variables. On the other hand, although, definite but small relationships would have existed in the two variables for the two units, Support Service Personnel (p-value = .055), although marginally promising, and College Faculty, statistical data have failed to establish their significance (p-value > .05). At large, these results imply that there is no significant relationship between the level of engagement of personnel and their performances in the three units of UIC.

On a positive note, these findings, specifically for the UIC Support Service Personnel, jibe with the findings of Bakker (2010), which reported that engaged employees are highly energetic, self-efficacious individuals who exercise influence over events that affect their lives. The positive attitude and activity level enabled

the highly engaged employees to create their own positive feedback, in terms of appreciation, recognition, and success. As advanced by Bakker (2010), although engaged employees do feel tired after a long day of hard work, they describe their tiredness as a rather pleasant state because it is associated with positive accomplishments.

Table 5. Correlation between level of motivational potential of certain job characteristics and performance of personnel

Motivational Potential	r	P-Value	Interpretation
Basic Education Faculty	.161	.264	Not significant
Support service personnel	.415	.003	Significant
College faculty	.426	.167	Not significant

Data in Table 5 reveals that only in the Support Service Personnel unit (r = .415; p-value = .003) was established the significance of the relationship between level of motivational potential of certain job characteristics and performance. This positive, direct, moderate and significant correlation implies that an increase in the employees' sense of familiarity and flexibility, that is, their perceived task variety and identity, of their assigned work and their fulfillment of knowing that the job done is important to the organization, as component of their task significance, significantly brings a higher level of performance as concretized by the job outputs delivered to their immediate supervisors. Data from the two other units of UIC, Basic Education (r = .161; p-value = .264) and College Faculty (r = .426; p-value = .167), revealed positive low to moderate direct relationship between the variables but failed to establish significant correlations. Thus, among the faculty units, high self-assessments of their task variety, task identity, task significance, and the rest of the domains of motivational potential, may tend to produce corresponding increase in their performance but these small to substantial relationships do not warrant significance of the associations; thereby, implying that other factors, may have more bearing on the performance of the faculty.

Table 6. Influence of work engagement on the performance of personnel

Variables	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		7.831	.000	
Vigor	.277	1.186	.242	Not Significant
Dedication	.375	1.693	.097	Not Significant
Absorption	.011	.061	.952	Not Significant

R = .245, R-square = .060, F = .978, p = .411

As shown by Table 6 data, vigor, dedication and absorption are not significant predictors of performance of the basic education faculty. In general, the level of work engagement may inluence only the performance by a small extent, that is, only 6.0% of the variation in the performance can be linearly attributed to their level of work engagement, which implies and the remaining percentages can be attributed to other factors not included in the study. However, this claim does not warrant significance of the model (p-value = .411).

Table 7. Influence of work engagement on the performance of personnel

Variables	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		3.023	.004	
Vigor	.530	2.590	.013	Significant
Dedication	-.233	-1.113	.272	Not Significant
Absorption	.070	.485	.630	Not Significant

R = .405, R-square = .164, F = 2.878, p = .047

As revealed by the tabulated data in Table 7 vigor is a significant predictor of performance of the support services personnel of UIC. Specifically, it implies that for every unit increase in the standard deviation of vigor (b = .530, p = .013) corresponds an increase of .530 in the deviation of the performance. In general, taking into account the regression model, the performance of the UIC

Support Service Personnel (p-value = .047) is significantly influenced by the level of work engagement. These findings support that 16.4 % in the variation in the performance of the Support Service Personnel can be attributed to the combined effect of vigor, dedication and absorption.

Table 8 . Influence of work engagement on the performance of personnel

Variables	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		.077	.941	
Vigor	- .172	-.452	.664	Not Significant
Dedication	.493	.998	.347	Not Significant
Absorption	.020	.039	.970	Not Significant

R = .449, R-square = .201, F = .672, p = .593

On the other hand, vigor, dedication and absorption are not significant predictors of performance of the higher education faculty. In general, the level of work engagement tend to inluence the performance by a certain pronounced extent, that is, about 20.1 % of the variation in the performance can be linearly attributed to their level of work engagement, which implies and the remaining percentages can be attributed to other factors not included in the study. Nevertheless, this claim does not warrant the significance of the model (p-value = .593).

Table 9. Influence of motivational potential of certain job characteristics on the performance of personnel basic education faculty

	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		8.569	.000	
Task Variety	-.030	-.184	.855	Not Significant
Task Identity	.077	.430	.669	Not Significant
Autonomy	.246	1.433	.159	Not Significant
Feedback	.510	2.565	.014	Significant

R = .412, R-square = .170, F = 2.297, p = .074

Among the identified domains of motivational potential, assumed as predictors of performance of the Basic Education Faculty, only feedback (p-value = .014) was found to be a significant factor. Particularly, this result implies that for every unit increase in the standard deviation in the domain feedback, there corresponds an increase of .510 in the deviation of the performance; however, the suggested regression model failed to establish the significance of all these domains together in influencing the outcome of performance among Basic Education Faculty.

Table 10. Influence of motivational potential of certain job characteristics on the performance of support services personnel

	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		1.946	.058	
Task Variety	.252	1.720	.093	Not Significant
Task Identity	-.019	-.115	.909	Not Significant
Task Significance	.248	1.544	.130	Not significant
Autonomy	.321	2.206	.033	Significant
Feedback	.173	1.174	.247	Not Significant

R = .527, R-square = .278, F = .3.233 , p = .015

As shown by Table 10 data, only autonomy was found to be a significant factor of performance of the support services personnel. This result suggests that for every unit increase in the standard deviation in the domain autonomy (b = .321, p = .033), there corresponds an increase of .321 in the deviation of the performance. In general, taking into account the regression model, the performance of the UIC Support Service Personnel (p-value = .015) is significantly influenced by the motivational potential of certain job characteristics. Data asserts that 27.8% of the variation in the performance of Support Services Personnel can be attributed to the combined effect of task variety, task identity, task significance, autonomy, and feedback.

Table 11. Influence of motivational potential of certain job characteristics on the performance of higher education faculty

	Standardized Coefficients	t	P-Value	Interpretation
	Beta			
Constant		1.783	.125	
Task Variety	-.918	-1.909	.105	Not Significant
Task Identity	1.085	3.103	.021	Significant
Task Significance	-.540	-1.488	.187	Not significant
Autonomy	-.176	-.524	.619	Not Significant
Feedback	.909	2.761	.033	Significant

R = .878, R-square = .772, F = 4.054, p = .059

Regression analysis revealed that task identity (b = 1.085, p-value = .021) and feedback (b = .909, p-value = .033) are significant predictors of performance among the higher education faculty. The data contends that for every unit increase in the deviation of task identity, there corresponds an increase of 1.085 in the performance, while an increase of one unit in feedback results to an increase of .909 in the performance. Nonetheless, the regression model failed to establish the significance of the influence of the combined effect of all the domains of motivational potentials of certain job characteristics to the performance.

In this particular investigation of UIC personnel job performance, the domains of motivational potential of certain job characteristics, which were identified as significant predictors of performance included feedback for both the Basic Education and Higher Education Faculty, autonomy for Support Personnel Service, and also task identity for the Higher Education Faculty. These findings jibe with the research outcomes shown by Ali and Zia-ur-Rehman (2014), which contends that job design, which embodies constructs of motivational potential of certain job characteristics, has sufficient role in employee satisfaction and performance. To cite, in a collectivist society like Pakistan people do prefer jobs with significance and autonomy and the highest of the responses depict that people prefer to have autonomy in their work, which is the self-determination in accomplishing tasks. Job autonomy refers to the degree any worker has liberty to plan his or her tasks, take decisions according to the situation and find out all those means to achieve their work objectives.

Similarly, here in UIC, despite the varying demands in the tasks of the

respective programs and units, feedback was identified as the critical element for the job efficiency of the faculty. Thus, a regular work-related interaction to clarify expectations and goals pertaining to jobs among the supervisors, coordinators, and unit heads with their members has been valued highly for the completion and delivery of the required tasks.

To sum up, as far as UIC academic workplace is concerned, the work engagement and motivational potential of certain job characteristics of the employees across all units are very high and high, respectively. Specifically, for the Support Service Personnel, both work engagement and motivational potentials are significant predictors of performance. This assessment reflects the capability of the employees to maintain commitment and enthusiasm in carrying out their well-defined duties for the growth of the University of the Immaculate Conception.

As recommendations, academic managers of learning institutions, like UIC may take a proactive role in coming up with jobs that have task identity and to use the psychological approach to job designing so that when coming up with job descriptions, the aspects in a given task that can motivate the workers are carefully considered. Educational leaders are also encouraged to use the findings of this study to improve human resource policy framework to address employee motivation issues and human resource challenges like commitment, productivity, motivation, and performance, especially in the dynamic and highly evolving institutions of basic and higher learning. Management should seek to design jobs, which offer task identity, to give every employee a sense of achievement when that particular job is well delivered.

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Satisfaction with University Hospitality Management Kitchen Facilities and Dynamics in Relation to the Performance of Students

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ABSTRACT

This descriptive-correlation study sought to determine whether the levels of student's satisfaction with the university hospitality management kitchen facilities and dynamics are each significantly associated with the performance, that is, the knowledge and skills of the students in the hospitality management program. The purposively chosen study participants were 30 males and 30 females from second year to fourth year Hotel and Restaurant management students with laboratory grades of 80 and above. The survey made use of Four-point Likert researcher-made questionnaire. Chi-square test was employed in the data analysis. Results revealed that the levels of students' satisfaction in terms of facilities and dynamics are high. Also, only the year level was significantly associated with the satisfaction with both facilities and dynamics, while sex is not to either. These findings implied that student's interest on a particular field was not solely dictated by the presence of a complete facilities and budget appropriated by the school but also by the skills imparted by the teachers during their laboratory classes that significantly affect the performance of the students. On the other hand, sex of the learner was not a factor for satisfaction with the kitchen facilities and dynamics.

KEYWORDS: Hospitality management, facilities, dynamics, knowledge and skill, correlation, Chi-square, Philippines

INTRODUCTION

Optimizing the learning of students through the utilization of appropriate facilities, like front office, and those that are housekeeping, events, tourism and travel management-related, is one of the goals that an academic institution would like to attain. Specifically, for effective hospitality management curriculum, this end could be actualized when the facilities or laboratories are enough and functional and the learners are given sufficient activities to undertake with the aid of the facilities.

Part of the quest of the University of the Immaculate Conception (UIC) is to exercise leadership in the pursuit of excellence in instruction, research and community service which is the second mission of the institution. Hence, UIC provides kitchen tools and equipment that are important elements of every institution that offers hotel and restaurant management. Apparently, this requirement is mandatory to colleges and universities that offer Bachelor of Science in Hotel and Restaurant Management as per Commission on Higher Education Memorandum Order #30 s2006.

UIC Hotel and Restaurant Management program started in 2006 with the vision of producing graduates who can help individuals, families and communities sustain and enhance their quality of life in a dynamic world (UIC website). For the past 8 years, the school has produced graduates that became professionals in their fields. Hotel and Restaurant Management graduates are expected to end up working in a field that has something to do about hotel and restaurant management, food and beverage attendant, and the likes. To become effective professional on such field students' needs to be properly trained inside the school and be able to practice its profession using the different facilities that the school has offered (CMO #30, s2006). As of June 11, 2015, there are about 326 students from 1st year to 4th year who are enrolled in this course.

With the intention of identifying areas that need to be improved particularly in line with the utilization of laboratory facilities, this study would like to assess whether students are satisfied with the hospitality management facilities the UIC is providing. Satisfaction will be measured according to the students perception on the availability and usage of the laboratory facilities while dynamics on its part has something to do on the different processes or procedures that the students' need to undergo in order for them to perform laboratory activities. Operationally, dynamics, as used in this study also pertains to the role and functions of the faculty and personnel assistants to facilitate the conduct of laboratory culinary activities of the students. The process involves the personality and the capability

of the teachers and also the accommodations of the laboratory assistants in the settlement of budget and tools' requisition and provision for recipes and the like.

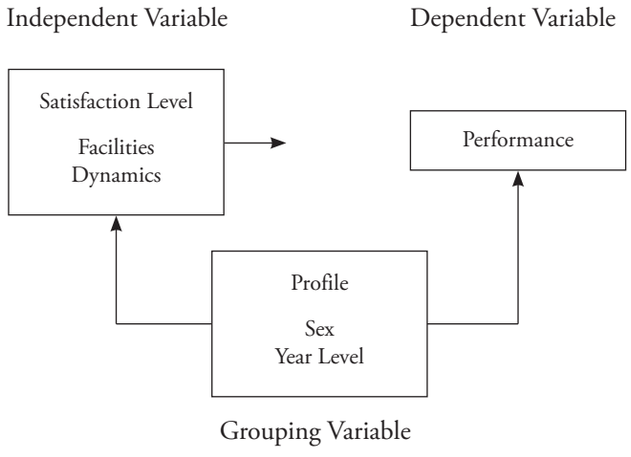
Preliminary interviews have been conducted conveniently to twenty-five students to gather the initial feedback of the students regarding the facilities and equipment of the ND/HRM laboratory. Two concerns have been presented to the students--the availability of the facilities as well as the procedures that the students need to comply prior to the conduct a laboratory activity.

Interview results reveal that the students had varied responses—56% were satisfied with the facilities since they are provided with the things they need, both the necessary materials and the budget, while 43% were concerned about budgeting and lack of laboratory materials to suffice their needs for deeper understanding of certain topics. The researchers felt the need to validate this point of view of the 25 participants to a greater number hence; this quantitative investigation has been conducted.

Objectives of the Study. The study intended to find out whether the College students from 2nd to 4th year levels are satisfied with the provisions of laboratory facilities as well as the laboratory materials and budget. Also, it intended to determine whether the variables such as facilities and dynamics have significant relationships with students' performance. Specifically, this study sought to know the demographic profile of the respondents in terms of sex and year level. Also the study aimed to know the level of satisfaction of the students in the kitchen facilities and dynamics in terms of space, tools and equipment, utensils/storage room, faculty personality and competence, personnel assistance and capabilities, and budget appropriation and release. Furthermore, it intended to determine the level of performance of hospitality management students.

Theoretical Framework. This study is linked to the cognitive apprenticeship theory which was developed by Collins, Brown and Newman in 1987 specifically the situated learning component which states that active learning can take place through one's participation in an authentic task or setting (Lave and Wenger, 1991). Apparently, learning that occurs within the context of application will yield greater level of skills. The application in this context pertains to the laboratory activities of the respondents in which they will be provided with various cooking experiences that are designed to develop their skills.

Conceptual Framework



This study was premised that the level of performance obtained by the students as reflected in their lecture and laboratory grades is a manifestation of the students' satisfaction on facilities and dynamics. As it is hypothesized, the more satisfied they are with the kitchen facilities and the other operations involved, the higher their performances will be.

The diagram also suggests that under professor's instruction, students must apply the knowledge they learned from class to the real operations and integrate academic knowledge into real practices to obtain the professional skills suited for future career development. Thus, if students will be familiar with rudiments involved in kitchen facilities and the operations involved there in, there is an assumption that satisfaction with these elements would relate to the true-to-life experiences as perceived by the students in their laboratory and culinary activities.

As shown in Figure 1, the independent variable is grouped into two parts--the facilities with indicators that include space, equipment and storage rooms and the dynamics with faculty personality and competence, personnel assistance and capabilities and budget appropriation and release as indicators. Sex and year level are used as grouping variables to further examine the relationship between satisfaction with kitchen facilities and dynamics and performance.

METHOD

This is a descriptive-correlational research. Thus, it assessed whether significant relationships exist among satisfaction with the facilities and dynamics and knowledge and skills of the students. The study was conducted at the University of the Immaculate Conception main campus located at Father Selga Street, Bankerohan, Davao City. UIC was selected as the research locale since the researchers wanted to conduct an institutional evaluation type of study to come up recommendations that might help the hospitality management program to improve its facilities and some of its policies.

The purposively chosen study participants were composed of 30 males and 30 females from second year to fourth year Hotel and Restaurant management students. The first year students were not included for they do not have laboratory subjects yet. A respondent must not have a grade lower than 80 percent final grade in all her/his subject. This qualification was set to limit the study among those who excel in class.

Prior to the data gathering activities, the researchers sought permission from the Vice President for Academics, College Dean and the Program Dean of the Nutrition and Dietetics/Hotel and Restaurant Management for the conduct of the survey to selected Hotel and Restaurant students. The researchers would assure the confidentiality of the respondents by not letting the faculty members and anyone outside of the research committee to know the identity of the 20 students that the researchers had chosen from the list that faculty members had provided.

On the side of the respondents, the researchers gave them the option to refuse in answering the survey questionnaire. They were given the chance to withdraw from answering the survey questionnaire anytime they wanted. The researchers took into consideration the risk/s and/or discomfort/s that the respondents might probably feel while answering such as being hesitant in giving their opinion thinking that the program personnel may know their identity and their answers and being cautious in answering the lengthy questionnaire. The faculty members who had provided the respondents' name would not have any participation in recruiting the respondents. By the time that the researchers had finalized the selection of the respondents, they would then convene them in a classroom.

Prior to filling up of the questionnaire, the respondents were oriented of their role as participants in the study. Their identities were kept confidential even among the researchers and also they were told that they would not be forced in

answering the survey question and that the participation was highly appreciated. The researchers also indicated the term "optional" beside the name to assure the respondents comfort.

The researchers made questionnaire that had two parts -- the Facilities and Dynamics. The facilities were categorized into three sub-parts, the provision of space, cooking equipment and utensils and storage rooms. The dynamics was categorized into three sub-parts, which included the faculty, personnel assistance and budget appropriation and release.

The response to the items was facilitated with the use of four-point Likert Scale. A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey research, such that the term is often used interchangeably with rating scale. Four would mean "strongly agree", three as "agree", two as "disagree" and one as "strongly disagree".

The study employed descriptive statistics such as frequency counts and percentages for the profile part. Moreover, Chi-square test was used to determine the significance of the association of between the variables.

The information revealed in the succeeding interpretation matrix describes the response level of students to satisfaction with university hospitality management facilities and dynamics in relation to their performance.

Matrix 1. Response level of students to satisfaction with university hospitality management kitchen facilities and dynamics in relation to their performance

Mean Range	Response	Descriptive Rating	Statement
3.25-4.00	Strongly Agree	Very High	The characteristics and features as described are Clearly Evident
2.50-3.24	Agree	High	The characteristics and features as described are Evident
1.75-2.49	Disagree	Low	The characteristics and features as described are Vaguely Evident
1.00-1.74	Strongly Disagree	Very Low	The characteristics and features as described are Not Evident

RESULTS AND DISCUSSION

Table 1. Profile of the respondents

		Frequency	Percentage
Sex			
	Male	30	50.0
	Female	30	50.0
	Total	60	100.0
Year Level			
	Second Year	20	33.3
	Third Year	20	33.3
	Fourth Year	20	33.3
	Total	60	100

Among the 60 respondents who are equally determined from second to fourth year levels, 30 or 50 percent are males while the remaining respondents are female (Table 1). This frequency distribution assures that both the sex and year levels of the respondents are fairly considered to provide a more balanced set of views in terms of the university hospitality management facilities and dynamics in relation to their performance.

Table 2. Level of students' satisfaction on the facilities

	Mean	Descriptive Rating
Space		
1. adequate space for student's preparation	3.27	Very High
2. enough space that allows students to work freely without interfering with one another	3.22	Very High
3. furniture arrangement that allows traffic to flow smoothly as students enter and leave the laboratory	3.28	Very High
4. provisions for cooking demonstrations	3.27	Very High
5. kitchen laboratories are subdivided into completely-equipped unit kitchens (cold kitchen and hot kitchen)	3.02	High
6. enough space that can accommodates no more than seven students per unit	3.27	Very High
7. provisions, facilities and appliances for International cuisine or specialty cuisine	3.22	High

8. provisions for sanitation and garbage disposal	3.32	Very High
9. two or more exits	3.28	Very High
10. enough ventilation	3.17	High
Category Mean	3.23	High
Tools and Equipment		
1. provisions for dining area, including a complete set of dinnerware, utensils, glassware and service ware	3.30	Very High
2. equipment, tools, and materials that conforms to the requirements of the laboratory activities	3.38	Very High
3. improvised equipment and visual aids for demonstrating the basic principles of the course given	3.25	Very High
4. equipment and supplies that are up to date and adequate for small groups of 5-7 students	3.23	High
5. equipment provided that exceed the minimum requirements of the course	3.33	Very High
Category Mean	3.30	Very High
Utensils/ Storage Rooms		
1. facilities for both hot and cold preparations	2.92	High
2. fully equipped cooking sets	2.97	High
3. separate storage space, under lock and key, is provided for flammable and toxic chemicals as a preventive measure against their misuse	2.97	High
4. provisions for storage of supplies and equipment	3.10	High
5. storage rooms that are well arranged for easy location of utensils and ingredients	3.10	High
Category Mean	3.01	High
Overall Mean	3.18	High

Table 2 shows the level of students' satisfaction on the facilities, which has 3 dimensions, namely, space, equipment tools and utensils/storage rooms.

Students' satisfaction on the facilities (space) to provisions for sanitation and garbage disposal has the highest mean of 3.32 which is described as very high while the level of students' satisfaction on the facilities (space) to the kitchen laboratories are subdivided into completely-equipped unit kitchens (cold kitchen and hot kitchen) has the lowest mean of 3.02 which is described as high. Thus, the category mean of the level of students' satisfaction on the facilities under space is 3.23, which is also described as high. These findings indicate that the characteristics and features as described are Evident among the students.

Moreover, students' satisfaction on the facilities (equipment tools) to equipment, tools, and materials that conforms to the requirements of the laboratory

activities has the highest mean of 3.38 which is described as very high, while the level of students' satisfaction on the facilities (equipment tools) to the equipment and supplies that are up to date and adequate for small groups of 5-7 students has the lowest mean of 3.23 which is described as high. Therefore, the category mean of the level of students' satisfaction on the facilities under equipment tools is 3.30, which is described as very high, indicating that the characteristics and features as described are Clearly Evident among the hospitality management students.

Lastly, the level of students' satisfaction on the facilities (utensils/ storage rooms) to provisions for storage of supplies and equipment and storage rooms that are well arranged for easy location of utensils and ingredients both has the highest mean of 3.10 which is described as high, while the level of students' satisfaction on the facilities (utensils/ storage rooms) to facilities for both hot and cold preparations has the lowest mean of 2.92 which is also described as high. These ratings result to a category mean of 3.01 for the level of students' satisfaction on the facilities under utensils/ storage rooms, is also described as high, indicating that the characteristics and features as described are Evident among the hospitality management students.

The overall mean of the level of students' satisfaction on the facilities is 3.18, which is described as high and it indicates that the characteristics and features as described are Evident among the hospitality management students. These further describe that the UIC Hospitality Management students find the space in the kitchen adequate and conducive for them to perform their culinary-related activities. The spatial conditions of the kitchen and the availability of the provisions and other furniture are assisting their explorations of the different ways in which they can showcase in "actions" all the things that they have learned from "theories." Also, findings indicate that the students are confident and assured that the kitchen facilities can supply the tools and equipment required for the performance of laboratory activities. The kitchen facilities are housed in a laboratory with good lay-out design that gives mobility and freedom to students during performance sessions.

Table 3. Level of students' satisfaction on the dynamics

	Mean	Interpretation
Faculty Personality and Competence		
1. The faculty in charge is competent to handle culinary class	3.07	High
2. The faculty is strict in implementing laboratory rules	3.05	High
3. The faculty is knowledgeable in answering students inquiry about laboratory class	3.03	High
4. The faculty members adapt latest trends in culinary activity (updated)	2.88	High
5. The faculty is the role implementer of the laboratory rules	3.05	High
Category Mean	3.02	High
Personnel Assistance and Capabilities		
1. There is evidence of adequate laboratory custodians or assistant to maintain the laboratory as stipulated in the CHED manual	2.90	High
2. The personnel assistant has the skills, knowledge and attitude expected of laboratory custodians	2.93	High
3. The duties and responsibilities of laboratory custodians and assistants are clearly stated in the laboratory manual	2.97	High
4. The Personnel assistance has enough trainings on kitchen safety to assist the students on their activity	2.93	High
5. There is enough numbers of laboratory custodians and assistant to look after students during laboratory class	2.83	High
Category Mean	2.91	High
Budget Appropriation and Release		
1. there is a designated laboratory budget	2.83	High
2. laboratory fees are used for the purpose to which they are collected	2.87	High
3. policies and guidelines on the use and release of budget for all laboratories are in place and are disseminated during orientation	3.05	High
4. The budget are properly allocated and is consumed entirely within the semester	2.97	High
5. the budget are released 3-5 days before scheduled laboratory activity which will allow students to have enough time to buy necessary ingredients	2.91	High
Category Mean	2.94	High
Overall Mean	2.96	High

Table 3 presents the level of students' satisfaction on the dynamics which has 3 dimensions, namely, faculty personality and competence, personnel assistance and capabilities and budget appropriation and release.

The level of students' satisfaction on the dynamics (faculty personality and competence) to the faculty in charge is competent to handle culinary class has the highest mean of 3.07 which is described as high, while the level of students' satisfaction on the dynamics (faculty personality and competence) to the faculty members adapt latest trends in culinary activity (updated) has the lowest mean of 2.88 but still it is being described as high. The category mean of the level of students' satisfaction on the dynamics under faculty personality and competence is 3.02, which is described as high. These findings indicate that the characteristics and features as described are Evident among the students.

The level of students' satisfaction on the dynamics (personnel assistance and capabilities) to the duties and responsibilities of laboratory custodians and assistants are clearly stated in the laboratory manual has the highest mean of 2.97which is described as high, while the level of students' satisfaction on the dynamics (personnel assistance and capabilities) to there is enough numbers of laboratory custodians and assistant to look after students during laboratory class has the lowest mean of 2.83which is described as high. The category mean of the level of students' satisfaction on the dynamics under personnel assistance and capabilities is 2.91which is also described as high. These findings indicate that the characteristics and features as described are Evident among the students.

The level of students' satisfaction on the dynamics (budget appropriation and release) to the policies and guidelines on the use and release of budget for all laboratories are in place and are disseminated during orientation has the highest mean of 3.05 which is described as high, while the level of students' satisfaction on the dynamics (personnel assistance and capabilities) to there is a designated laboratory budget has the lowest mean of 2.83 but still it is being described as high. The category mean of the level of students' satisfaction on the dynamics under budget appropriation and release is 2.94 with a description of high. These findings indicate that the characteristics and features as described are Evident among the students.

The overall mean of the level of students' satisfaction on the dynamics is 2.96, which are also described as high. These findings indicate that the characteristics and features as described are Evident among the students. Thus, the hospitality management students readily feel and experience the capability of the faculty in terms of their competence, knowledge, and flexibility in giving instructions for the laboratory activities. The students also recognize that the accommodating and open personality of the faculty help them cope with the demands of the laboratory sessions. Moreover, the students clearly see that there are adequate laboratory custodians or assistants to maintain order of operations

in the laboratory, clearly stated guidelines in the laboratory manual, and staff with adequate trainings on kitchen safety to assist the students on their activity.

Table 4. Performance of the students in hospitality management

Moderator Variables	Performance	
	$\bar{x}$	SD
Year Level		
2nd year	87.20	2.98
3rd year	87.00	2.97
4th year	87.35	4.66
Overall Mean	87.18	3.57
Sex		
Male	86.00	3.64
Female	88.87	3.25
Overall Mean	87.18	3.57

Table 4 data reveal the knowledge level of the students based on year level and sex. The overall mean is 87.18, which describes satisfactory knowledge of the students in their lecture and laboratory grades. This finding indicates that the students have attained their teachers' expectations. Further examination of the data reveals that there in not much variation in the performance of students when grouped per year level. Also, data shows that female (88.87) respondents have higher knowledge level than the male (86.00) respondents.

Table 4. Test of significant association between students' demographic profile and their level of satisfaction on facilities

Variables being paired	Chi-square value	df	p-value	Decision
Year Level and satisfaction on facilities	18.889[a]	6	.004	Significantly Associated
Sex and satisfaction on facilities	5.101[a]	3	.165	Not Significantly Associated

Table 4 shows the test of significant association between students' demographic profile and their level of satisfaction on facilities.

Chi-square test reveals that year level is significantly associated with the satisfaction on facilities (X^2 = 18.889; df= 6; p-value = .004). This finding implies that the length of exposure of the students to the curricula of the UIC Hospitality Management program put them in a better position to evaluate the facilities available in the university pertaining to their program. On the other hand, respondents' sex and satisfaction on facilities are not significantly associated (X^2 = 5.101; df= 3; p-value = .165). This result implies that male and female do not significantly vary in their judgment as to the facilities of the UIC Hospitality Management program.

Table 5. Test of significant association between students' demographic profile and their level of satisfaction on dynamics

Variables being paired	Chi-square value	df	p-value	Decision
Year Level and satisfaction on dynamics	18.241[a]	6	.006	Significantly Associated
Sex and satisfaction on dynamics	6.857[a]	3	.077	Not Significantly Associated

Table 5 shows the test of significant association between students' demographic profile and their level of satisfaction on dynamics.

Chi-square test analysis reveals that year level (X^2 = 18.241; df= 6; p-value = .006) and is significantly associated with dynamics while sex (X^2 = 6.857; df= 3; p-value = .077) is not. These findings reveal that the length of exposure of UIC HR students with the hospitality management curricula. However, their being a male or female student does not establish bearing on their satisfaction with the faculty personality and competence, personnel assistance and capabilities, budget appropriation and release.

To sum up, this study aimed to know whether the satisfaction level of students in terms of performance has a significant association to the facility's space, facility's equipment tools, facility's utensils and storage room as well as the faculty's personnel and its competence provided by the institution. Also, the researchers intended to figure out whether the satisfaction level of students in terms of knowledge and skill is affected by the availability of kitchen tools

and equipment. Results reveal that the levels of students' satisfaction in terms of facilities and dynamics are high. Also, only the year level is significantly associated with the satisfaction with both facilities and dynamics, while sex is not to either. These findings imply that student's interest on a particular field is not solely dictated by the presence of a complete facilities and budget appropriated by the school but also on the skills imparted by the teachers during their laboratory classes that significantly affect the performance of the students. On the other hand, sex of the learner is not a factor for satisfaction with the kitchen facilities and dynamics.

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Radiographic Competence of Radiologic Technologists between Film-Screen and Computed Radiography in Exposure Technique Selection

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ABSTRACT

Assessment of competence of Radiologic Technologist (RT) is very important in every healthcare delivery system because of the involvement of radiation dose given to a patient. This study was conducted among selected hospitals in the cities of Davao, Tagum and Digos to assess the competence of the RadiologicTechnologists in terms of exposure factor selection. The assessment was to compare if there was a significant difference in the RT's competence between those who were users of the film-screen system (traditional) and users of computed radiography system (digital). Accuracy in selection of exposure factors was very important in a film-screen system because one mistake could peril a radiograph, while, digital system had a wider dynamic range that oftentimes no longer need precision. Furthermore, the study sought to identify if competence had significant relationships to the respondents' profile and category of hospital agency. Questionnaires and practical evaluations were used to gather the data. The results revealed that there was no significant difference in the RT's level of competence between film-screen and computed radiography users. Further, the results revealed that there was a significant relationship between the respondents' profile in terms of age and skills, and the respondents' category of hospital agency.

KEYWORDS: Health education, radiographic competence, film-screen, computed radiography, comparative, Davao City

INTRODUCTION

After the discovery of x-ray, careful considerations are undertaken because of its hazardous effects. One of the important considerations in this field is the image production which has always been a challenge to radiologic technologists (RT) who manipulate x-ray equipment. This challenge includes providing high quality images for accurate diagnosis because one mistake can affect the image and yields as an unacceptable radiograph. This scenario is true in the film-screen system, but with digital imaging system, an unacceptable radiograph may be salvaged because it can be edited digitally.

The film-screen system has been the imaging system of choice since its discovery in 1985. In 1981, digital imaging was introduced by Fuji with the first commercial computed radiography (CR) imaging system. After a decade of improvement, this system became a clinically acceptable image receptor.

More Asian nations are adapting digital imaging. Among the reasons from the transition of conventional to digital imaging are faster image processing, fewer image retakes, and low equipment maintenance when compared to the film-screen system.

Locally, in 2010 Davao Doctors Hospital was the first tertiary hospital to acquire the digital system in the form of computed radiography. It was later followed by the Southern Philippines Medical Center and the Davao Medical School Foundation, respectively.

Since the new innovation primarily uses computer, computer-aided equipment oftentimes do the entire job. A question of competence of the people manning the said equipment wherein will the competence of the RT in terms of exposure factor technique selection be the same as using the conventional way? Several studies stated that because of the convenience of the system, the RT using the machine oftentimes failed to consider the standard protocols in every technique selection because images can be manipulated later. In addition, alteration of images from time to time should not be a daily scenario because manipulation sometimes interfere accurate diagnosis (Herrman, 2008).

Therefore, the researchers, as educators of radiologic technology are compelled to assess whether the new system can affect radiologic technologists' competence in terms of exposure selection technique. Based on the result of the study, the researchers will also be able to assess whether age, length of service and agency of the hospital can also affect radiographic competence.

Theoretical and Conceptual Framework. Exposure technique selection is an important foundation for these two types of image receptor (IR) or image processing system. An image receptor is a very important device because this is a medium that converts x-ray into visible image, and visible image is an important tool for the radiologist in making accurate diagnosis. There are two IR's that are widely used today: Film-Screen System and Computed Radiography.

During x-ray procedure before the RT positions the patient, the RT should be able to choose the exposure factors on the control panel for selection of the appropriate factors that compose the image. According to Fauber & Johnston (2012), the RT's selection of exposure factors at the control panel directly determine the nature and the make-up of the x-ray beam. And, the nature and make-up of the x-ray beam affects the composition of the image as well as patient dose. This means that the selected exposure factor is directly proportional to image quality and radiation dose given to the patient. Because of the hazards of the radiation exposure, it is the RT's responsibility to learn the philosophy, factors and methods that minimizes ionizing radiation exposure to the patient (Callaway, 1996). This also means that an RT is providing quality patient care when he/she gives an adequate and necessary amount of radiation to the patient.

On Radiographic Competence. In the field of radiologic technology, one aspect of the profession requires competent skills in radiographic exposure technique. The said competence is essential especially in the diagnostic x-ray imaging, wherein exposure factors are the key to accurate diagnosis and providing radiation dosage to minimum level (Fauber, 2013). In order to make the image visible, IR is used to convert x-ray into manifest image.

For 100 years, the film-screen system has been the method of choice in radiographic imaging (Bushong 2013). Film-screen system uses radiographic films, radiographic intensifying screens and wet chemistry to make the image visible. Furthermore, this conventional system should adhere to the standards of the darkroom requirements (Shephard, 2003). With regards to film-screen system it has the same concept as a typical conventional camera. In this system, the RT should be certain that every x-ray examination has exact exposure factors to be applied because improper selection of exposure factors can result to either overexposure or underexposure of the film. Overexposure or underexposure degrades image quality and therefore, it will result to rejection of film, thus necessitates the need for repeat examination (Papp, 2011). And repeat examination provides unnecessary dose to the patient and additional costs to the department.

On the other hand, as with the other innovations in technology, diagnostic

imaging has shifted its course from conventional to digital. In digital imaging, computer applications are employed in diagnostic imaging modalities. An appropriate analogy that is easy for most people to understand is the replacement of typical film cameras with digital cameras wherein images can be taken, immediately examined, deleted, corrected, and cropped, and subsequently sent to a network of computers. One form of digital imaging system that is being employed nowadays is the computed radiography system (CR). CR is considered as a cheaper alternative to digital imaging (medicalxray, 2010). With this system, instead of using radiographic film, an imaging plate is used to capture x-rays and makes it visible when the plate is scanned into a computer and digitized it. And once the image is converted into data, it can be recorded on a laser printed film or can be transmitted and can be stored digitally. Furthermore, it has special features like manipulation or enhancement of the image. Its specialized software is used to image viewing with enhanced functions similar to film-screen system, such as contrast, brightness, and zoom. (dicomsolutions.com, 2011).

In the field of radiologic technology, competence means that the RT is equipped with the knowledge, skills, attitude and judgment to provide each patient with quality care. Competence is essential in the field of radiologic technology because RT is a fast growing profession and it deals with human lives. However, RT curriculum is not enough to prepare the students to be equipped with the skills necessary for the profession especially in the special fields of radiologic technology. In order for an RT to become competent, he/she should have undergone formal educational background followed by specialized training in their chosen field that takes months. As an RT, he/she should have comprehensive knowledge and skills in patient care, radiologic procedures and radiation dosage. In addition, the RT curriculum has not been updated to include digital imaging and image acquisition. This means that since digital imaging is not in the curriculum, it is most probable that digital technology will not be learned in the classroom setting, therefore, competence using this IR cannot be assessed in terms of academic performance inside the school.

Exposure Factors. Exposure technique factors are the combination of settings in the control panel that makes up the x-ray beam (Carlton & Adler, 2013). These factors influence and determine the quantity and quality of x-radiation to which the patient is exposed (Bushong, 2009). Kilovolt peak (kVp), milliamperage (mA), exposure time and source-to-image distance (SID) are the principal exposure technique factors that affects the quantity and quality x-rays. (Fauber and Johnston, 2012). Kilovoltage peak (kVp) is the maximum potential difference applied across the x-ray tube that determines the penetrability of the beam. Milliampere is the measure of x-ray tube current applied across the

x-ray tube; on the other hand, exposure time is the length of time during x-ray procedure and source-to image receptor- distance (SID) is the distance from the source to the image receptor. These factors not only affect the quantity and quality of the x-ray beam, but it affects image quality as well.

Image Quality Factors. Image Quality factors are the factors that affects the visibility and sharpness of the image. These factors are the result or the outcome from the factors selected at the control panel. These include density, contrast, recorded detail and distortion. Optical density is considered as the overall blackening of the film. Milliamperesecond (mAs) affects density. The higher the mAs, the darker the film and the higher number of x-rays are given to the patient, thus radiation dose is increased. On the other hand, contrast is the variations of densities in the radiographic image; this is affected by the kVp that is selected in the control panel. If higher applied, the contrast of the image will be low, as well as patient dose. While source-to-image receptor distance (SID) affects the quantity of the radiation by increasing or decreasing the distance. If the SID is increased, x-ray quantity will decrease, as well as the optical density, but patient dose will increase.

However, higher kilovoltage produces more scatter radiation, thus increases the transmission of x-rays to the image receptor and degrades image quality. The best techniques to prevent scatter radiation are using beam restrictors such as collimator to filter low energy x-rays and to cut-off low energy rays using radiographic grids. By employing beam restrictors and grid will enhance image contrast because scatter radiation will be prevented. Furthermore, scatter radiation will also provide unnecessary dose to the patient.

Therefore, exposure technique factor selection is essential. To provide quality radiographs and to limit patients to radiation should be a goal for every RT. According to Bushong (2013), RTs are required to use their skills to produce the best possible image with single exposure (Bushong, 2013). Otherwise, repeat examination will provide unnecessary radiation dose to the patient. Therefore, it is necessary for the RT to be equipped with knowledge and skills to manipulate these exposure technique factors to produce desired optical density, contrast, and image detail on the finished radiograph.

RT in Film-Screen System. In conventional film-screen system, before each examination, the radiologic technologist must select the optimum radiographic technique factors- kVp, mA, and exposure time (Fauber, 2013). There are many considerations to determine the value of each factor and they are complexly

interrelated. Contrast and Density are the photographic factors of the radiograph and it functions to make the image visible. Visibility of image is important so that anatomical image will appear for proper diagnosis. After each exposure, there is no way to manipulate its contrast and density and that's what makes film-screen system difficult as inadequate contrast or density entails repeat examination. Since manipulation of the image is not possible in this system, the RT should be certain with the technique factors prior to the exposure; otherwise, miscalculations can result to underexposure or overexposure. In a film-screen system, overexposure and underexposure of the image is considered unacceptable because the important structures are not visible and thus it is not a tool for proper diagnosis. In other words, image quality is dependent on exposure factors.

RT in Computed Radiography. In CR system, image quality is not dependent on exposure factors. Digital image is unrelated to dose, kVp becomes less important. Since, image quality is not dependent on exposure factors, image can be manipulated. In a conventional system, the film serves as both image acquisition and display medium. With CR, the image plate serves as the acquisition medium but does not display the image. Since these functions are separate in CR, the digital signal can be altered to compensate for underexposure or overexposure and an acceptable image can be displayed on the monitor (Shephard, 2003). With CR system, post-processing is possible that helps enhance image thus allowing the RT to alter image contrast and density. Since image can be manipulated or modified, underexposure or overexposure is no longer a problem with this system, because it can usually salvage variations from the optical technique, whereas technical error with a screen-film system often requires a repeat exposure (Pizzutiello, 1993; Cesar, 1997). Therefore, with CR, technical errors are eliminated because of exposure variances that are possible with salvageable results, assuming adequate kilovoltage is used (Bontrager, 2011).

With digital imaging system it has practical technical advantages compared with conventional techniques, such as wide contrast dynamic range, post-processing functionality, multiple image viewing options, and electronic transfer and archiving possibilities. With CR, quality image can be achieved because of the post-processing techniques that are not possible with film-screen system. According to Fauber (2013) because of the ease of digital processing, CR is very convenient for the technologists because the RT can compensate for exposure technique inaccuracies by adjusting the technique during post-processing phase of the image rather than that time of exposure.

On Assessment of RT Competence. In order to know the competence of

a professional, assessment plays a vital role. Assessment is important so as to evaluate if the RT is still competent to do the job. Since we are in the era of rapid technology, it may come to a point that we will just put our confidence on computers rather than our competence. According to Olavidez (2005), competence is an observable ability and it can be measured against set of standards. Assessment of competence is a combined knowledge, skills, and attitudes that reflect the current work practice. Furthermore, it can bridge the gap between workplace requirements and standard.

Selection of exposure technique factor is of extreme importance because RT deals with exposing patients to radiation. Exposure technique factor is equivalent to the quality and the quantity of radiation that exits the patient, therefore, the RT should be precise in giving exposure technique factors. Providing appropriate radiation dose is necessary to prevent the patients from the hazards of the ionizing radiation, therefore prior to the exposure of the patient, accurate exposure techniques should be practiced. The issue of providing accurate techniques lies in a digital system, wherein images can be manipulated during post-processing. According to Fredrick Walker (medicalimagingmag, 2008), a radiologic technologist at Sharp Rees-Stealy in San Diego, CA, he pointed out if the image is too dark, we can manipulate the image using post-processing techniques like windowing or shadowing or to adjust contrast without having to repeat the examination. Furthermore, since image can be manipulated during post-processing, it can encourage complacency rather than accuracy with exposure techniques which can result in overexposed or underexposed images (Medicalxray, 2010). In addition, according to Enfinger (2012), that it is true that the image can be adjusted, however, it is not recommended because the raw data from the initial exposure will contain information from scatter radiation that degrades image quality even if it is manipulated later.

According to Shephard (2003), it is likely that digital imaging will replace conventional screen-film radiography in many modern medical imaging centers in the near future. It has already been stated that even if the image can be manipulated during post-processing, this should not be a practice because somehow it can deteriorate image quality which results in inaccurate diagnosis. One retrospective analysis of patients who had undergone lumbar spine radiographs for the diagnosis of osteoporosis compare diagnostic accuracy with screen-film versus digital radiography. The authors suspected that bone mineral loss could be more easily visible with screen-film imaging due to the fact that image contrast cannot be adjusted with this modality, whereas CR (and DR) images undergo digital post-processing techniques to maximize contrast. This could result in misleading results that confound diagnostic strength in osteoporosis.

Therefore, this is a challenge now for the RT to maintain their competence

amidst the aid of technology. Competence of RT is the foundation of providing quality patient care by providing appropriate radiation dose for accurate diagnosis.

Conceptual Framework. In this view, the researchers attempted to assess the level of radiographic competence of the RTs in terms of knowledge, skills and attitude. Through assessing the competence of the RTs, the researchers are able to determine the level of radiographic competence; their strengths and weakness of radiographic techniques. On the other hand, the researchers identified the factors that can affect their competence, such as the respondents' demographic profile in terms of age, number of years in service and the profile of institution.

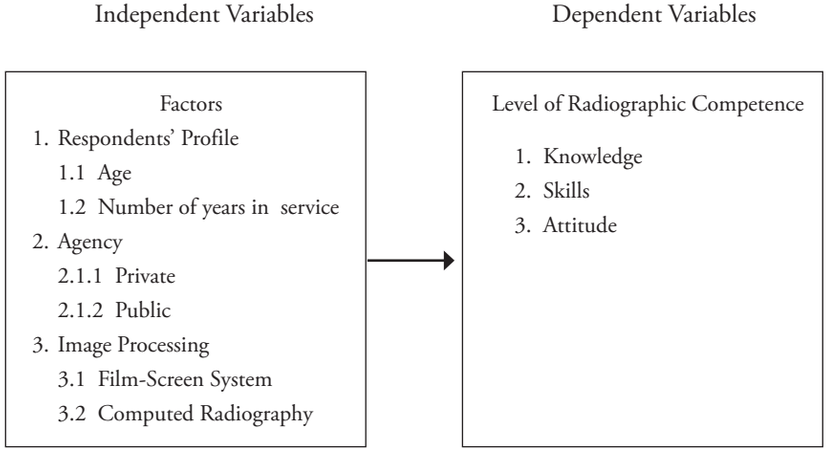

Figure 1. Schematic diagram showing the relationship between the independent and dependent variables

Objectives of the Study. The study aimed to compare the level of radiographic competence among radiologic technologists in using a film-screen system and computed radiography on exposure technique factor selection; specifically it aimed to identify the relationship between the respondent's profile and the agency of the healthcare institution. Based on the results of this study, the researchers could identify the strengths and weaknesses of the RTs and if it show significant decline in the competence of the RT in the CR system, the researchers would propose an enhancement program for the professionals.

METHOD

The study employed a descriptive-comparative-correlational research. The study is descriptive because it describes the respondent's profile and the profile of the institution. It is comparative because it aims to identify if the profile of the respondents and the profile of the institution has a significant relationship between radiographic competences in terms of exposure factor selection. Furthermore, the study is comparative because it aims to determine if there is a significant correlation between the respondents who are using the film-screen system or the computed radiography system in terms of radiographic competence.

The study was conducted from the selected hospitals in Davao, Digos and Tagum City employing either film-screen system and computed radiography. The hospitals using film-screen system are the following: Medical Mission Group of Hospitals located at Magsaysay, Davao City; Davao Regional Hospital, located at Apokon, Tagum City 8112 and Davao Del Sur Provincial Hospital which is located at Lapu-lapu St. Digos, City Davao Del Sur. On the other hand, the hospitals using the computed radiography system are the following: Davao Doctors Hospital (DDH), E. Quirino Ave., Davao City; Southern Philippines Medical Center (SPMC), J.P Laurel Ave., Bajada, Davao City and Davao Medical School Foundation and Hospital (DMSF), Medical Drive, Bajada, Davao City.

The respondents of the study were the Registered Radiologic Technologists coming from the selected hospitals in Davao, Tagum and Digos City employing a film-screen or computed radiography system. Moreover, the qualified respondents should be at least six months in service at the time of the evaluation.

As to statistical tools, the study utilized weighted mean to measure the level of ratings of the respondents in terms of radiographic competence. Frequency was used to count the occurrences of value within a particular group or interval. Pearson-Product- Moment Correlation Coefficient was used to measure the linear relationship between the two variables in the study. Lastly, ANOVA was used to compare the level of respondents' competence between film-screen system and computed radiography in terms of radiographic competence. The processing was calculated with the use of SPSS.

The study was limited to skull and chest examination. Since the study discusses the quality and quantity of radiation, however, it does not cover the radiation dose the patient receives. The study only focuses on the image quality based on the exposure techniques -kVp, mA, exposure time and SID- selected by the respondents.

RESULTS AND DISCUSSION

Table 1 shows that majority of the radiologic technologists working in the hospital have an age bracket from 20-25 which is 54% from the total population. 37% belongs to the age bracket of 26-30. While the remaining age brackets have 3% each from the total population.

Table 1. Age of respondents

Age	Frequency	Percentage
41-45	1	3
36-40	1	3
31-35	1	3
26-30	13	37
20-25	19	54
TOTAL	35	100

Table 2. Length of service

Length of Service	Frequency	Percentage
5 years and above	8	23
3 to 4 years and 11 months	8	23
1 to 3 years and 11 months	13	37
6 to 11 months	6	17
TOTAL	35	100

The Table 2 shows that the majority of the radiologic technologists working in the hospital have been working for 1 to 3 years and 11 months which is 37% from the total population. There are only 6 radiologic technologists or 17% from the total population who have been working for six to eleven months. According to Dowd (1992), he stressed out that the longer a radiologic technologist is in the profession, the more competent he/she will become in terms of knowledge in procedures, positioning and exposure factor selection.

Table 3. Agency of the healthcare institution

Agency	Frequency	Percentage
Private	24	69
Public	11	31
TOTAL	35	100

The Table 3 shows that there are 24 radiologic technologists or 69 % works in a private hospital, while there are only 11 radiologic technologists or 31% in a public hospital.

Table 4. Level of radiographic competence and image receptors used

Competence	Mean Score	Verbal Description	Mean Score	Verbal Description
Knowledge	18.27	Moderately High	18.92	Moderately High
Skills	7.5	High level of radiographic skills	5.29	Moderately low level of radiographic skills
Attitude	3.34	Indifferent	3.09	Indifferent

Table 4 shows that the radiologic technologists who uses film-screen system has higher level of radiographic skills compared to computed radiography users with moderately low level of radiographic skills. According to Dowd (1992), film-screen users have higher skills in exposure factor selection because a precise technique should be given to the patient because an error in selection of exposure techniques will result in unnecessary dose to the patient.

Table 5. Relationship between age and radiographic competence in public and private healthcare institutions

	Paired Variables	R	p-value	Decision	r^2
Public	Age and Knowledge	0.10	0.67	ns	0.01
	Age and Skills	0.47*	0.04	s	0.22
	Age and Attitude	-0.42	0.07	ns	0.18
Private	Age and Knowledge	-0.43	-0.11	ns	0.18
	Age and Skills	-0.13	0.64	ns	0.02
	Age and Attitude	-0.50	0.06	ns	0.25

In Table 5, data establish that there is a significant relationship (r = 0.47; p-value = 0.04) only between age and skills in the respondents from the public health care institution. None of the other dimensions of radiographic competence has shown significant correlation with age in both public and private healthcare institutions. According to Zaniboni, S., Truxillo, D. M., & Fraccaroli, F. (2013), the process of competency development is a lifelong series of doing and reflecting. Therefore, the older a person or an employee in a particular profession, the more competent he/she is.

Table 6. Relationship between healthcare institutions and radiographic competence in knowledge, skills and attitudes

Paired Variables	Chi-Square	p-value	Decision
Healthcare Institutions and Knowledge	0.044	0.83	Ns
Healthcare Institutions and Skills	0.16	0.69	Ns
Healthcare Institutions and Attitude	3.39	0.07	Ns

In Table 6, data fails to establish any significant relationship between the healthcare institution and any of the dimensions of radiographic competence such as in knowledge, skills and attitude.

Table 7. Test for the significance of the difference in knowledge, skills and attitude between film screen and computed radiography

Dimension of Competence	Technique	N	Mean	T; p-value	Decision
Knowledge	Film screen	11	18.64	-0.25; 0.80	Ns
	Computed Radiography	24	18.92		
Skills	Film screen	11	6.27	1.18; 0.25	Ns
	Computed Radiography	24	5.29		
Attitude	Film screen	11	3.57	0.98; 0.34	Ns
	Computed Radiography	24	3.35		

In Table 7, data fails to establish any significant difference in knowledge, skills and attitude of the respondents between those using film screen system and those using computed radiography.

In summary, there is a significant relationship only between age and skills in the respondents from the public health care institution. None of the other dimensions of radiographic competence has shown significant correlation with age in both public and private healthcare institutions. There is no significant relationship between the healthcare institution and any of the dimensions of radiographic competence such as in knowledge, skills and attitude. Moreover, there is no significant difference in knowledge, skills and attitude of the respondents between those using film screen system and those using computed radiography.

Based on the findings of the study, it is recommended that the results of the study shall be used as basis for curricula enhancement among academic institutions offering Radiologic Technology program. The enhancement could be opening a new subject dealing with digital imaging. In addition, the results of the study may also be used in the preparatory program for incoming Radiologic Technology interns who will be assigned to different healthcare institutions.

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Type of Examination, Academic Preparation and Performance of BSN Three Students of Davao Doctors College

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ABSTRACT

The study aimed to assess the effect of the types of examination to the academic performance of students in NCM-105. Further, the researchers intended to assess the difference between academic preparation and performance of the students. The study was prompted to an observation that students were not exerting enough effort in studying with their knowledge of taking purely multiple choice type of examination in the periodical examinations. The study utilized an experimental research design wherein there was a control group who took multiple choice tests and the experimental group who took the mixed type of examination who were "mind set" prior to the conduct of the test. The respondents were the BSN 3 students. The study also employed a validated survey questionnaire to measure the academic preparation of the students in terms of intensity of studying and study techniques. The results showed that the experimental group has a higher academic preparation and performance compared to the control group. And, there was a significant difference on the academic performance of the students. It implied that students who were introduced to a new or unfamiliar type of examination were motivated to intensify their studying and improved their study techniques. Recommendation was suggested to encourage the nursing program and its instructors to formulate and conduct periodical examinations in a mixed type manner, provided that, multiple choice type of questions should be in majority of items.

KEYWORDS: Education, academic preparation, academic performance, type of examination, comparative, Davao City

INTRODUCTION

A test or examination is an assessment intended to measure a test taker's knowledge skills, aptitude, physical fitness or classification in many topics. It may be administered orally, on paper, on a computer, or in a confined area that requires a test taker to physically perform a set of skills. Formal testing often results in a grade or a test score (Thissen and Wainer, 2001).Since tests are usually developed by individual instructors, the format and difficulty of these tests may not be widely adopted or used by other instructors or institutions.

In the Philippines, most standardized tests, including professional licensure examinations and achievement tests, are also made up primarily of multiple choice items. In fact, most of the licensure examination such as the Philippine Nursing Licensure Examination constructs one hundred percent of the test items in multiple choice type of test. The questions are strategized to test the students or examinees' level of knowledge, comprehension, analysis and synthesis. Nursing graduates need to pass the PNLE in order for them to become Registered Nurses (RNs). The examination is being administered in a multiple-choice type of question.

DDC nursing faculty trained their students in dealing with test questions formulated in multiple-choice in all term examinations. It has been observed that the Philippine Nurse Licensure Examination (PNLE) results were not able to exceed 50 percent of the total number of examinees for the last five years (www.prc.com.ph). This poor performance in passing the said examination caused an alarm in the academe nationally. And Davao Doctors College is not exempted from it.

At present, it has observed that most nursing students are becoming laidback in preparing to take multiple-choice type of tests. As claimed by most of the nursing students, they are not inspired in reviewing or studying to prepare for their examination because of the knowledge that they will be taking a multiple-choice type of questions. They expressed that even with no preparation, they can solely rely on their stock knowledge and strategies in dealing with the choices to answer correctly.

A method appropriate for most students may be ineffective for other students who could learn more easily with a different approach. An effective teacher needs to vary techniques and to have an armamentarium of teaching methods and learning activities that can be drawn upon from moment or from week to week to facilitate maximum learning for as many students as possible. Thus, the teacher's goal then, is to search for a teaching strategy that will suit students' varied needs and jibe with students' learning styles.

Poor study habits due to insufficient time spent in class preparation, failure

to understand the nature of assignment, failure to complete special assignments such as paper, outside reading assignments, lack of participation in class discussion, lack of ability to concentrate and lack of proper study environment is a reason for academic failure. From the perspective of a test developer, there is great variability with respect to time and effort needed to prepare a test. Likewise, from the perspective of a test taker, there is also great variability with respect to the time and needed to obtain a desired grade or score on any given test.

When a test developer constructs a test, the amount of time and effort is dependent upon the significance of the test itself, the proficiency of the test taker, the format of the test, class size, deadline of test, and experience of the test developer (Cangelosi, 1990). As an educational tool, multiple choice items do not allow test takers to demonstrate knowledge beyond the choices provided and may even encourage guessing or approximation due to the presence of at least one correct answer. In view of this, the researchers were motivated to conduct a study on the type of examinations and the academic performance of the nursing students.

Conceptual Framework. The research study has two (2) variables, namely the independent variable which is the type of examination (multiple choice and mixed type where there is use of "mind setting"). And, the dependent variables are the academic preparation of the students which was being measured in terms of intensity of studying and study techniques and their academic performance in terms of their raw score during the final examination.

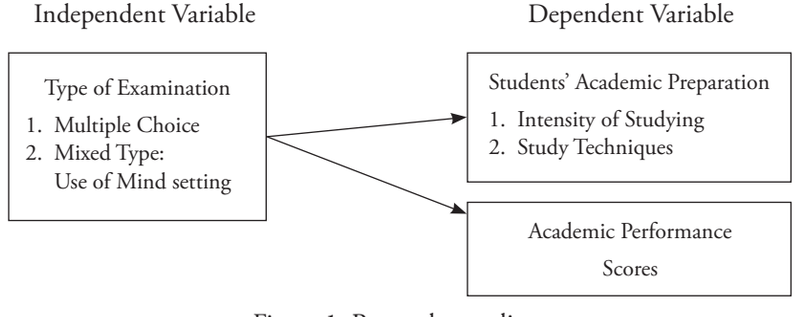

Figure 1. Research paradigm

Objectives. The study aimed to assess the effect of mind setting as to the type of examination to be given to the respondents on their levels of academic preparation and academic performance. Specifically, the study aimed to determine the respondents' level of academic preparation in terms of intensity of studying and study techniques; and level of academic performance in terms of their final examination scores in NCM-105. Further, the study aimed to determine if there is a significant difference between the academic performance of the students when analyzed according to the type of examination.

METHODS

This study utilized the descriptive-comparative research design. It is descriptive because it described the academic preparation and academic performance of the BSN Three students in both multiple choice and mixed type of examination. It is also comparative since it determined the difference between the academic performance of the students when analyzed according to the type of examination.

The respondents of this study were the two sections of Bachelor of Science in Nursing Level 3 students of Davao Doctors College enrolled in the second semester of School Year 2012-2013 who were taking the NCM-105 (Disturbances in Metabolism, Perception and Coordination) concept. There were 38 students, comprising 18 students from Section B and 20 students from Section C excluding those students utilized in the reliability test. The study was conducted at Davao Doctors College.

To measure the respondents' academic preparation in terms of intensity of studying and study techniques, a questionnaire was formulated by the researchers. The questionnaire was validated by three experts in the field and subjected to Cronbach reliability test with a reliability coefficient of 0.882 suggesting an "acceptable" level of reliability.

Section C which was used as the experimental group was "mind set" to have a mixed type of examination. On the other hand, Section B which was the control group was not given any information as to having a mixed type of examination, which led them to assume having a multiple choice of examination which is regularly given.

To measure the academic performance of the respondents, the raw scores from the NCM-105 Final Examination were utilized. The final examination given was subjected for validation and reliability using the Classical Item and Test Analysis Spreadsheet (CITAS).

The study utilized mean values to describe the levels of academic preparation and academic performance of the respondents. T-test was used to determine if there is a significant difference in the academic performance between the control and experimental groups.

RESULTS AND DISCUSSION

Table 1. Level of students' academic preparation in taking examination

	Academic Preparation (Mean Scores)		
	Intensity of Studying	Quality of Study Technique	Descriptive Interpretation
Multiple Choice (Control Group)	3.43	3.96	HIGH
Mixed Type (Experimental Group)	3.57	3.77	HIGH

Legend: 1.00-1.50 (Poor); 1.51-2.60 (Fair); 2.61- 3.40 (Average); 3.41-4.20 (High); 4.21-5.00 (Very High)

Results revealed that the level of academic preparation of those students who were oriented on mixed type of examination has a higher mean score of 3.57 verbally described as "High" in terms of intensity of studying. Whereas, the level of academic preparation of those having the multiple choice type of examination had a higher mean score of 3.96 verbally described as "High" in terms of study techniques. This implies that whenever an individual is being made aware of the type of examination he/she will undergo, specifically on this aspect eventually that person will make more efforts and will allocate more time in studying because of the fear that he/she cannot answer the questions especially that of an enumeration, true or false, fill in the blanks or identification. According to John Keller's ARCS Model of Motivational Design (1988), it emphasized the relevance within the instruction to increase motivation by using concrete language and examples with which the learners are familiar. Moreover, the quality of studying or study techniques of an individual depends on his/her attitude. According to Thorndike's law of readiness, that a learner's satisfaction is determined by the extent of his preparatory set, that is, his readiness for action.

That is if a person is motivated or ready to perform an act usually the outcome is satisfying. In addition, desirable study habits and attitudes are vital to learning. They are essential in the formation of intellectual, physical, and emotional dispositions as well as efficiency, ease, and economy of action (Dewey, 1955).

Table 2. Students' academic performance in terms of final examination scores

	Academic Performance (Mean Final Examination Scores)			
	Multiple Choice	Mixed Type	Mean Average Percentage	Verbal Description
Control Group	54.28	51.61	52.94	FAIR
Experimental Group	59.29	57.80	58.54	AVERAGE

Legend: 40 & Below (Poor); 41-55 (Fair); 56-65 (Average); 66-75 (High); 76 & Above (Very High)

The level of academic performance (in terms of raw scores) of those students who were oriented on mixed type of examination is high with a mean average percentage of 58.54 described as "Average" compared to those students who were oriented on multiple choice type of examination only having a mean average percentage of 52.94 described as "Fair". The level of academic performance of the students is high when they know what they are going to take. In other words, most students did their best when confined in a critical situation such as taking examination which they were not used to. However, poor study habits may be due to insufficient time spent in class preparation, failure to understand the nature of assignment, failure to complete special assignments such as paper, outside reading assignments, lack of participation in class discussion, lack of ability to concentrate and lack of proper study environment is another reason for academic failure. Furthermore, the match between teaching or instructional style and pupils preferred test examinations styles are said to have an effect on the academic performance of the students.

Table 3. Test of significant difference on the academic performance of the students

	CONTROL GROUP (Mean Average Percentage)	EXPERIMENTAL GROUP (Mean Average Percentage)	p-value	Decision on Null Hypothesis	Conclusion
Multiple Choice	54.28	59.29	0.028	Rejected	Significant
Mixed Type	51.61	57.80	0.021	Rejected	Significant

There are significant differences between the academic performance of the control group and the experimental group on both the multiple choice and mixed type of examination as depicted in the result of 0.028 for the multiple choice type of examination and p-value of 0.021 for the mixed type of examination which is lesser than 0.05 level of significance. When a student has diverse study techniques, even for the improvement of memory, it stress the importance of immediacy in remembering and learning. According to Brophy (1998), it was found out that unlike students of limited ability, who often fail despite their best efforts, academic failure students often fail needlessly because they do not invest their best efforts. They begin tasks half-heartedly and simply give up when they encounter difficulty. During interview on both control group and experimental group, experimental group claimed that they had intensely memorized on the pertinent facts, while the control group had done scanning of their notes for familiarization mostly a day or night before the conduct of the said examination. Learning and testing styles are the composite of characteristics cognitive, affective and physiological factors (Keefe, 1991).

In conclusion, whenever a student is made aware that he/she will be into something more challenging or in a situation that needs preparation, such as mind setting the student of a difficult type of examination, he/she will make more effort and will allocate more time for his/her academic preparation. The better the academic preparation, the better is the academic performance.

Based on the findings of the study, it is recommended that instructors in the Nursing Program conduct periodical examinations in a mixed type manner, provided that multiple choice type of questions should still be in majority of the items.

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Affective Filters of English Language Learners: Voices of College Students In Context

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ABSTRACT

The purpose of this phenomenological study was to describe and to understand the lived experiences of college students in dealing with their affective filters as they learn English as a second language. It also sought to find insights of students on their language learning travails as well as explore the effective English as a Second Language learning strategies beneficial to lowering students' affective filters. Purposive sampling technique yielded 10 participants in the in-depth interview and 7 in the focus group discussions in selected higher learning institutions in Davao City. Thematic analysis propelled various themes to emerge from this study. For the Lived Experiences of Students in Struggling with their Affective Filter, the themes were Stage Fright, Coping Mechanism (Independence versus Interaction), Refusal to Converse with the English Professor, Embarrassing or Discouraging Moments in Class and Motivating Moments in Class. Students' insights from their learning travails that will explain their lived experiences include Request for Correction without Humiliation, Need to Practice Speaking in English, Need for Confidence-boosting, Fun Activities, Empathy versus Alienation and Beyond Students' Level. Effective English as a Second Language (ESL) Learning and Teaching Strategies to Combat Affective Filters Drawn from the Participants' Narration comprise Relaxing Environment, English Linguistic Environment, How Professors Heighten Students' Motivation, Learning Strategies to Lower Affective Filters and Relating English Language Learning to Real Life.

KEYWORDS: Applied linguistics, affective filters, english language learners, voices, english as a second language (ESL) teaching and learning strategies, phenomenology, thematic analysis

INTRODUCTION

My years of teaching experience allowed me to cross paths with students who struggle in expressing themselves in English not because of intellectual issues but because of emotional concerns and sometimes, unfounded fears. I want to better understand glossophobic students by uncovering their lived experiences. I wonder what makes them hesitate in interacting with other people and how they deal with their language learning jitters. I also wonder about how professors like me can aid them in breaking their emotional barriers to learning---their affective filters.

I highly encourage my students to adhere to the "English Only Policy" or EOP in the classroom. I often aim to "maintain a flow of ordinary, meaningful language… universally accepted as normal, basic modes of human interaction" ("Essential features of focal…" n.d.). Groping for words to express their queries, some of them would stammer but end up blurting, "Nothing, Ma'am" or "Never mind, Ma'am!"

This travail in English language learning is also shared by young minds beyond the local milieu. Alarmingly, Ramirez (2012) divulged in a Department of Education website the low English mastery level of Filipino learners in the National Achievement Test for these past years. She pointed out a deterioration in both oral and written communication skills that needs to be addressed by the education sector. Lang (2010) documented how "shyness and this social disposition complicates the learning of English and participation" of students in the American classroom. Meanwhile, in the Asian setting, having limited vocabulary and little motivation for communicative competence led Korean learners to resist interacting in the academe (Li, 1998 as cited by Hadikin, 2014). In order to acquire a second language, students must be exposed to comprehensible input, which they can effectively process by diminishing their affective filters. Having a low level of anxiety, high levels of self-confidence and motivation, and positive attitude to English language learning promote low affective filters that are advantageous to learning (Krashen, 1981). Nonetheless, students must not just aim to decrease their affective filters merely for academic prestige but for practical reasons.

At present, there abound economic opportunities linked to high English proficiency. For instance, a change in government policies and globalization issues has triggered numerous Korean parents to send their children to study in foreign countries for English language acquisition (Park, 2007). The exam-obsessed culture of Korea opened doors for Filipinos to teach English to Korean learners.

It even came to a point that "the demand for English teaching in the Philippines has meant the closure of many schools in Korea as the Philippines becomes the favored choice of Koreans to study English. Another economic opportunity linked to high English proficiency is the Business Process Outsourcing (BPO) industry, which is the biggest employer of graduates in our country nowadays. Since excellent English communication skills of agents comprise the lifeblood of this industry, partnerships between the industry and the academe have been initiated to cater to the language proficiency demands of the call centers (Lockwood, et al., 2009). In the midst of the mentioned work opportunities demanding high English proficiency, students need as much help as they can in understanding how their affective filters affect their English language learning.

The purpose of this phenomenological study was to describe and to understand the lived experiences of college students in dealing with their affective filters as they learn English as a second language in selected institutions in Davao City. Specifically, it aimed to gather insights of the students gained from their language learning travails and to outline the effective teaching and learning approaches in dealing with the affective filters, which were drawn from the participants' narration.

This study is viewed through the lens of Affective Filter Hypothesis (Krashen, 1981), which posits that "a number of affective variables play a facilitative but non-causal role in second language acquisition." Krashen highlights how motivation, self-confidence and anxiety can either heighten or hinder students' progress in language acquisition. Since affective filters are inversely proportional to learning, students who are highly motivated, strongly confident and less anxious are better language acquirers than those who are not. Through the Affective Filter hypothesis, I explored the emotional learning barriers present in the participants and how these participants coped with these impediments.

From the themes extracted, there are other theories used. For instance, Individual Variation theory (Richie 1978 as cited by Krashen 1981) "describes how the learning acquisition distinction captures one sort of individual variation in second language performance." Among the three types of learners mentioned in case history, there are Monitor "over users" who are obsessed with grammatical rules. These over users may experience "lathophobic aphasia", "an unwillingness to speak for fear of making a mistake." (Stevick, 1976 as cited by Krashen, 1981).

METHODS

This qualitative study made use of phenomenological approach. Through the active engagement of a small group of participants in a discussion of specific phenomena, rich and insightful results are yielded from the thematic analysis of participants' perspectives. This phenomenological study entitled, was conducted to reveal the lived experiences of students as they struggle with their affective filters in learning English as a second language, to highlight insights that the students have gained from their language learning travails, and to explore the effective ESL teaching approaches in dealing with affective filters drawn from the participants' narration. The qualitative research described how the participants deal with their professors and classmates amidst affective filters or emotional factors like anxiety, motivation, self-confidence and language learning attitude in the academic setting.

In this study, I identified the phenomenon of affective filters then sought persons who have consciously experienced this phenomenon either by directly asking students who could be possible participants or by asking other students and teachers if they knew learners who experienced the mentioned phenomenon. After securing informed consent from the qualified participants, I gathered data from them through in- depth interviews and focus group discussion where they were asked open-ended questions.

From the interview transcriptions, I used "horizonalization" (Moustakas, 1994 where I highlighted "significant statements, sentences or quotes that provide an understanding of how the participants experienced the phenomenon." From these, I developed clusters of meaning. I then used these clusters of meaning to create description. This description comprised 'what' participants experienced (textural description) and 'how' they experienced it, which is imaginative variation or structural description (Moustakas, 1994). These structural and textural descriptions led me to write a composite description that showcases the phenomenon's essence (essential, invariant structure) that highlights the participants' common experiences.

Since phenomenology is descriptive rather than explanatory, its central task is "to provide a clear, undistorted description of the ways things appear". The world's existence is enclosed in brackets and every mode of consciousness, which comprises intuition, recollection, imagination and judgment, is changed into a phenomenon. Meanwhile, in the second step, which is eidetic reduction, "one must forgo everything that is factual and merely occurs in this way or that." Hence, there is a need for the phenomenological investigator to examine the

different forms of intentionality in a reflective attitude, because it is precisely in and through the corresponding intentionality that each domain of objects becomes accessible to him.

The varied perspectives of this study's participants guide the readers to have a renewed understanding of what it is like to be a learner struggling with affective filters while learning the English language in the classroom. There were 17 college students who were invited to participate in this study. Seven joined the focus group discussion and ten took part in the in-depth interview as means to generate data sources. The number for the focus group discussion is enough because Eliot (2013) defines a focus group discussion as "a small group composed of six to ten people." Meanwhile, Polkinghorne (1989) as cited by Creswell (2007) recommended the interview of five to twenty-five participants "who have all experienced the phenomenon. These participants were all enrolled in the second semester of the academic year 2014-2015 in two Catholic higher learning institutions in Davao City, Philippines.

I formulated guide questions based on the rudimentary research questions. Then, I chose field experts to validate my research questions so as to ensure that the questions are clear or understandable and will yield necessary relevant responses without being harmful to participants.

Next, I chose participants through random purposeful sampling so that the necessary relevant information could be drawn. This technique "adds credibility to sample when potential purposeful sample is too large" (Miles, Huberman & Saldana, 1984). I informally observed some students and asked them about their affective filters. I also sought the help of former co-professors to identify students who showed high affective filters and who could be possible participants of this study. The participants were given codes so as to secure confidentiality of their identities in line with ethical considerations.

Subsequently, I made arrangements for a safe, secured and conducive site for the interview, set a target date and made adjustments based on the participants' available time. On the day of the interview, I let them sign a consent form specifying their voluntary participation and their prerogative to refuse if they feel uncomfortable, to conceal their identity through codes and to review the transcribed data for accuracy before the research would be published. Then, I conducted the interview in an informal way to let it transpire in a convenient and conversational manner. I also used techniques to promote rapport between the participants and me as the interviewer. These techniques included clarification of questions, providing information, body language and eye contact.

Aside from recording the interview through my mobile phone, I took a

video of the interview through my Macbook to capture the "laughter, sighs, silences, and participants' questions and explorations, all of which are considered as aspects of an interview that are vivid' and 'appealing." For triangulation, I conducted a focus group discussion. The advantages of focus group research consist of "gaining insights into people's shared understandings of everyday life and ways in which individuals are influenced by others in a group situation". I implemented a focus group interviewing so as to employ triangulation, which contributes to the trustworthiness of a research. I hired a qualified focus group moderator to supply the topics for interaction and to ensure "good levels of group leadership and interpersonal skills."

The analysis of the data was patterned after the simplified version of the Stevick-Colaizzi-Keen method discussed by Moustakas (1994). First, I expressed in the introduction a description of my personal experiences relevant to the studied phenomenon. I did this to later set aside my own experiences in favor of focus directed to the study's participants. After having access to the video and audio recordings of interviews, I analyzed the data using the relevant theoretical lenses previously mentioned.

First, I transcribed the data. Then, I carefully read and reread the data to come up with a list of significant statements. After that, I applied data coding and analysis to easily identify and link questions and participants' answers (Strauss, 1987, Strauss and Corbin, 1990 as cited by Bitsch, 2005). Later, I grouped the significant statements into themes and categorized the themes that emerged. Subsequently, I wrote a textural description of what the participants experienced in relation to the phenomenon with verbatim examples. Next, I wrote a structural description on how the experience happened that comprised the setting and context of the participants' lived experiences. Finally, I developed the composite description of the phenomenon, which consisted of the textural and structural descriptions that highlighted the "essence" of the lived experiences of college students in relation to their affective filters in English language learning.

To achieve credibility, I emphasized to the participants that they had to be honest with their answers but they did not have to divulge information they are uncomfortable with. They also had the right to withdraw from their participation. I did this to ensure genuine willingness of participants to give data freely. Next, I employed triangulation. This process exists "to address the issue of internal validity" by using more than one method of data collection to answer the research question (Barbour, 2001). In this study, I used interview and focus group discussion. The purpose of doing this is "to maximize the range of data that might contribute to the researchers' understanding of the case" (Breitmayer, 1991).

Furthermore, I let a peer debriefer read the research and I accepted comments or suggestions so as to widen my perspectives and establish a necessary detachment from the study (Shenton, 2003). I also employed participant checking. I needed to "check feedback from study participants" to ensure the "accuracy of my interpretation of the experiences of the participant" (Ely, 1991). I did this by showing the transcribed data to the participants and by letting them sign a certification of truth and accuracy of data.

To have transferability, I collected sufficient detailed and rich description of the experiences of the participants by conducting an in-depth interview in order to come up with similarities between situations to ensure that the result of the study could be transferred into another context or with other situations by reporting with sufficient detail and precision.

Involving teachers, advisers, and other consultants to examine the process of collecting, analyzing, and interviewing my transcribed data implemented the audit trail. Moreover, audit trail was achieved by keeping a written detailed description of the responses of the participants from both the in-depth interview and focus group discussion. Triangulation was used to allow multiple perceptions to clarify meaning and to avoid investigator bias. Moreover, I made sure that findings were the results of the experiences and ideas of the participants. I analyzed the experiences of the participants consistent to what they shared and did through the interview and focus group discussion. Furthermore, I "analyzed the actions and perceptions of participants for their expressions of meaning within a given context" (Jensen, 2013). I then "interpreted the participant expressions through a coding or meaning-making process".

I also assigned a peer debriefer to "make pointed observations and suggestions and pose 'devil's advocate' questions" throughout the conduct of the study. (Denzin and Lincoln, 2008). Furthermore, I expressed the weaknesses of the techniques used in the study and provided the audit trail. This audit trail would allow the observers "to trace the course of the research step-by-step through the decisions made and the procedures" in this study (Shenton, 2003).

As a teacher who strives to expose my students to an English linguistic environment, some of the challenges I encounter are students who refuse to take advantage of this learning opportunity because of their affective filter issues. Some of them are too shy, too unmotivated or too anxious to interact using the English language. I am a faculty member who teaches English and Literature subjects in the tertiary level in Davao City. I was nurtured by a private high school, which gave us a strict training on the English Only Policy. Hence, I also implement it in the classroom in view of Saunders, O'Brien, Genesee, Lindholm-

Leary & Christian (2006) suggestion which states, "the use and exposure are essential conditions in achieving higher levels of proficiency regarding academic use of the language".

Specifically, during the conduct of this study, I explicated the lived experiences of the participants, and looked into their points of view in order to reveal their language learning travails, and the challenges they encountered. I was the interviewer and I had someone who transcribed and translated the data. To avoid biases, I was open to see their world differently because they had unique experiences and these experiences had particular meanings. As suggested by Crotty (1998), in order to discover the true experience that is being studied, the researcher must "lay aside" any preceding understanding of the phenomenon, so I refrained from persuasion in the investigation.

I observed ethical considerations in the conduct of this study. I ensured that the participants were "fully informed about the aims and objectives of the study" (Kimmel, 2007). After asking students questions regarding their affective filters, I made them answer a survey questionnaire for supplemental demographic profile data. I then informed the selected students about my research and requested them to sign an informed consent form as a proof of their voluntary participation with the assurance of confidentiality and a convenient schedule that will not disrupt their studies. I ensured that their privacy was respected (Buchanan and Bryman, 2009) by letting them use pseudonyms.

Aside from participant information through written and verbal manner, I allowed digital interaction wherein those who still had queries sent me text messages to which I replied. To ensure that participants were not harmed in any way, I let experts validate the research questions and interview guide as proof that only relevant queries were asked to spare participants from anything that is discriminatory, degrading or too personal. I informed the participants that they had the right to refuse answering any question that they are uncomfortable with and that they may withdraw their consent if ever they find justifiable reasons to do so. I also informed the participants that the study would be beneficial for them to reflect on their lived experiences regarding their affective filters. Eventually, they could possibly retain good coping mechanisms and open the eyes of key people in the academes so as to provide positive changes in English language learning. Furthermore, I provided food as well as transportation allowance for the participants' added convenience.

Moreover, I assured the participants that the Macbook videos would only be used to store supplemental (for observations on non-verbal communication) and back up data. However, only transcriptions with confidential participant

codes from the audio record would be included in the hardbound research. The transcribed data was then shown back to the participants for them to check the accuracy of their responses. Their access to the transcribed data was subsequently documented through their signed certification. Lastly, I properly cited and referenced texts from other authors using the APA format.

RESULTS AND DISCUSSION

The most dominant of all the themes that surfaced was that English communication scenarios led the participants to experience stage fright. Performing in front of the class gives the students the jitters because they worry about being their classmates' laughingstock. Among the varied symptoms of stage fright, the most dominant is the shivering of hands. The way learners speak is also affected, ranging from stuttering, cracking of voice and worse, totally losing their voice. Learners also get clueless on what to do especially on how to deal with their emotions. They shared that their anxiety made it hard to control their shaking and stuttering and made it hard for them to focus on the task at hand.

Participants in the in- depth interview and focus group discussion revealed that emotional preparation for recitation in front of the class involves independent, metacognitive strategies like organizing or constructing ideas in the mind and harnessing "think time" before expressing their answers. The participants revealed that having their own coping techniques made it possible for them to complete communicative tasks in spite of the anxiety they felt. These coping mechanisms included organizing their own thoughts and practicing what is in their mind as preparations for communicating. Avoiding humiliating moments is done by making use of think time such as preponderance of answers, gathering their thoughts and really thinking about what they would say are some techniques so as not to give irrelevant answers. Most participants resort to another independent strategy like calming their jitters by transiently ignoring other people's presence in class, specifically that of the professor or the classmates. They do this through pretending that one is alone in the room, avoiding eye contact and subjecting what is sighted to notions of invisibility or nothingness.

On the other hand, interactive strategies of participants include asking classmates for clarification. These are employed when participants encounter difficulties in English language learning. One participant was caught off guard when asked a question by his professor and had to resort to asking his classmates.

Some participants tend to avoid raising queries or voicing out opinions

to their teachers because of their timidity or because they tend to be paranoid about the probability that their teacher will give them a sarcastic remark. Other interviewees prefer to be reticent because they are scared of making mistakes or they have experienced a mental block.

In the classroom, most participants' battle against discouragement or humiliation are caused by their peers. The rest, are induced by themselves and their teachers. Peers dampen their enthusiasm by criticizing or correcting their answers and by laughing at their mispronunciation or grammatical errors. Meanwhile, they commit self-inflicted discouragement through the feelings of communications skill inadequacy, fear of linguistic glitches, and lack of confidence. On the other hand, teachers discourage them the least through negative or harsh comments on their abilities and setting standards they deem too high to reach. Feeling ashamed is often caused by the derisive laughter that comes from their classmates as well as heckling and teasing.

Although there have been embarrassing moments in class, the participants were also able to share that there are also motivating moments in English Language Learning. Majority of the time, professors motivate the participants by discussing real life examples (through citing a popular person's success story or through mentioning the participants' future career needs) and by giving encouraging words as well as learning tips. Participants also spark their own interest through perceptions of ESL learning as supportive of self-development and future career competitiveness. Instrumental motivation dominates the reason why students learn English as a second language.

The participants' were asked what message they had for their English professors regarding their hesitance to speak in English as well as the learning and teaching strategies, which participants think can lower their affective filters. Moreover, it differentiates the English language learning attitudes of participants when they are with peers or friends and when they are with their English professors or proficient English speakers. It further discloses the English Professors' words, gestures or comments, which might be detrimental to participants' confidence in the classroom.

A lot of participants shared that they can and are willing to accept correction. While some prefer it to be done in private and others don't mind if it's in public, all of them request to be spared from humiliation. Accordingly, if a professor affronts them, they would be traumatized and they would have diminished confidence. They, too, desire their professors' tolerance and understanding by bearing with their attitude and by not being too strict and intimidating. Moreover, they seek to be encouraged to speak or to be cheered on.

To combat their affective filters, students predominantly believe in the need to practice their English communication skills. There is an expressed preference for the gradual increase of the audience they face when they speak. There is also a predilection for group learning specifically on the group's evaluation of their speech as well as the mimicking of movie lines as a warm up activity for speaking tasks.

Participants believe that professors can help students combat affective filters when the former provide speaking activities that do not only build confidence but are enjoyable as well. Participants' preferred oral communication tasks included impromptu speech, interactive games and role-playing. Aside from providing reinforcement through points, professors can crack jokes and strive to capture students' attention.

Empathy is highlighted among participants as more of them prefer what they describe as "informal" conversations with peers or friends in which they feel happy, comfortable and confident. They can easily express their ideas and understand one another. They do not judge and are not judged, they laugh at their own errors, and learn from their more proficient peers through example or correction.

On the other hand, alienation prevails over participants, as they feel uncomfortable and nervous in what they describe as "formal" interaction with their English professors or with proficient English speakers wherein the students have to carefully filter their topic or words. They fear being judged and feel inferior. They too exert more effort in responding in English and are conscious of what is right or wrong in this language. It's no wonder that participants favor conversations with peers rather than those with their English professors or with people so adept in the English language.

When participants perceive professors' words as "beyond students' level", they end up feeling clueless, intimidated and inadequate. Meanwhile, when participants see on their professors' faces what they dub as a "tiger look" and a face that they interpret as saying "really?" they think their teachers doubt their English speaking ability.

Participants perceive a relaxing environment as one where teachers and students learn at the same time, without competition and with acknowledgement of imperfection. They view it, too, as a place where they comfortably voice out their ideas without being criticized or looked down on. They also want to be with

The participants shared that they want to be in an English linguistic environment where the teacher commands respect and emulation through her

language proficiency but is still able to meet them at their level. They view the teacher as the primary source of meaningful input in the target language and find it challenging and advantageous for learning if their peers also converse in English. They also shared that English professors can help improve their motivation to learn English by challenging them to push themselves to the limits. Participants also revealed that their English professors can boost their motivation by reminding them of the importance of English in their future career.

To lower their affective filters, participants read dictionaries and other books that enhance grammar, vocabulary and speaking skills. Participants also practice speaking English usually with friends in school. Participants further revealed that they can appreciate English language learning better when their professors explain the significance of English especially in real life situations like social interaction and attainment of a higher educational level.

Newman (2002) presented the "specific competencies and motivational resources required for adaptive help seeking: (a) cognitive competencies (ie., knowing when help is necessary, knowing that others can help, knowing how to ask a question that yields precisely what is needed); (b) social competencies (ie., knowing who is the best person to approach for help, knowing how to carry out a request for help in a socially appropriate way); (c) personal motivational resources (ie., personal goals, self-beliefs and feelings associated with tolerance for task difficulty)".

Some participants do not interact with their teachers due to shyness, the fear of receiving sarcasm and fear of making mistakes. They also do not respond when experiencing "mental block". Chu (2008) divulged that shyness has been linked to other social anxiety types like communication apprehension and stage fright. Shyness is a universal experience though it may have variations in frequency and magnitude. Chu (2008) also cited other authors like Caspi, Elder and Bem (1988) who stipulated that very shy individuals may waste opportunities to meet like-minded people and benefit from intimate relationships with the opposite sex or even with peers; to express their perspectives to their professors at school (Friedman, Prince, Riggio, & DiMatteo, 1980).) and to voice out their efforts and concerns to their employers at the workplace.

The refusal to talk due to the fear of making mistakes is coined "lathophobic aphasia" by Stevick (1976) as cited by Krashen, 1981). Horwitz (2001) supported this when she said, "anxious language learners feel uncomfortable with their abilities even if their objective abilities are good." Hence, they may refuse to respond to the professors' questions not due to intellectual deficiency but due to fear of risk-taking when giving answers. Pawlak (2014) added that what is most

damaging when peers give correction is that the speech performer might end up discouraged or humiliated. Pointing out errors in an insensitive or thoughtless way may provoke a negative affective response. Learners may endure teacher correction even if it may be harsh but being the object of derisive laughter may seriously harm students' self- esteem, self-concept and self-efficacy.

Ur (2012) stated that teachers are in a position of power due to their authority to correct learner errors. Awareness of being in a high place in the academic hierarchy of power should make teachers careful not to exploit the said privilege. Montessori and Ponte (2012) stressed that hurling bad remarks at the learners like saying something negative about their intellectual ability is an insult and not a correction "because in order to correct oneself, one must become better." She added that, "Experience and exercise alone correct errors, and the acquisition of faculties demands long exercise."

Students acknowledge the necessity to hone their communication skills through constant training. Norton (2013) divulged a similar awareness on women he studied in an English as a Second Language (ESL) course in Canada. Norton's participants revealed practice as the best way to learn. Without practice in the classroom, they would lose courage when talking to other people like those in their work place. The students also bared their passion for fun, interactive games and tasks like impromptu speech and role-playing. They like being challenged through group activities that give positive reinforcement like points. They also appreciate the teachers' sense of humor. Participants were happier, more confident and more comfortable when speaking with peers wherein they feel the empathy and they are not judged for their linguistic errors. However, participants feel alienation and awkwardness when communicating with their English professors and with fluent English speakers because they feel inferior to them and fear their correction.

Challenges and frustrations encountered along the learning pathway can be used to understand other learners with similar experiences. Meanwhile, Firestone and Riehl (2005) uncovered the "strong, mutual dependence among teachers and students. The alienation of each contributes to the alienation of the other". Professors tend to endeavor in improving their craft if they have a positive reception from the students. In turn, students will strive to achieve school-related success if their teachers encouraged them.

"Vocabulary knowledge plays a critical role in people's lives and future possibilities" (Beck, McKeown & Kucan, 2002). An extensive reservoir of vocabulary is the "hallmark of an educated individual. A large vocabulary is strongly related to reading comprehension as well as school achievement. (Feng,

n.d.). Hence, it is imperative for teachers to build up students' store of lexicon by giving them exercises like paraphrasing. (O'Reilly and Bonesteel, 2012)

Traditionally, there is a notion of students likened to piggy banks in which teachers can deposit coins of knowledge that the former can retrieve during quizzes or exams. These days, academicians should utilize an educational approach that is co-intentional and incorporate teacher-student and student-teacher dialogues (Breunig, 2005). Students can amplify their success expectancy by co-creating methodological classroom practices that treasure the student-teacher's role and by imbibing that they can achieve positive success indicators through varied assessment means.

In a particular classroom setting, students were asked to be in groups where they teach one another. They were given work sheets as guides while the teacher roamed around the room to check salient participation among group mates through oral question-and-answer interaction relevant to the topic. After evaluation, they were tasked to teach the lesson to the teacher. Here, students were granted the opportunity to assume a teacher's autonomous role that empowers them which develops students' success expectancy (Eccles and Wigfield, 2002).

In addition to theories on humility and simultaneous learning, Hall and Eggington (2000) stated that while secular definitions link mercy and grace to pity and civil condescension, spiritual morality elicits compassion, generosity and humility. Accordingly, when teachers pursue equity in these terms, they design language policies that go beyond teaching techniques geared merely at efficiency concerns. Though these, teachers retain the quality in their teaching techniques while clemency guides their motive and demeanor. Accordingly, teachers who love their students through offering their friendship develop an intimate relationship with students. However, the teachers may not be aware that students are reciprocating the unconditional love they first showed. Nonetheless, the teacher's condition for extending love must not be anchored merely on students' reciprocation.

Moreover, participants revealed that a relaxing environment is one where their friends surround them. Rifkin (2009) stated that humans are genetically predisposed to harbor an intrinsic longing for empathic companionship with others and even with the wild. As such, there are colossal consequences of psychological and even physical deprivation to our species in case of isolation from nature.

Participants, too, expressed feeling relaxed around friends and peers who don't bully. Youell (2008) stated that bullying arises from perceived differences. It surfaces from a usually unconscious psychological maneuver, which when

acted upon, can have a particular harmful effect to the victim. The more insecure people are, the more they want to let others experience the feeling of being weak, small or stupid. Often, learners become victims when, even though they are not naturally like the ones described earlier, they are ready to believe that they are. They also get victimized when they are thought of as "different" or when they don't associate with a dominant group or faction in school.

Participants shared that they admire and respect Professors who show commendable proficiency in the English language but still meets them at their level. They view the teacher as the primary source of meaningful input so the teacher's fluency is a motivating factor in finding English as challenging and advantageous to learn. Accordingly, teachers and peers can especially provide auditory input that expedites and facilitates the acquisition of English as a second language.

Unfortunately, when teachers do not use English most of the time in English subjects and in subjects like History, which are supposed to be taught in English, students may harbor negative thoughts about the teacher like she's not doing her job to teach English. Students may also refuse to learn from non-fluent teachers. Krashen (1976) presented data suggesting that the classroom can be both an informal and formal linguistic environment and can thereby provide acquired as well as learned competence. The English linguistic environment in the classroom can trigger success especially in language teaching systems that optimize active language use.

It appears that participants long for their professors to challenge them to push themselves to the limit. However, professors must take note that there are certain factors to consider about their students' learning goals. Generally, students' performance-avoidance approach or "the desire to avoid performing more poorly than others) provoke adverse consequences while their performance-approach goals or "the desire to outperform others" ignite advantageous effects (Darnon, Dompnier, Gilliéron, & Butera; 2010). However, in the presence of uncertainty, like the disagreement of a co-actor regarding problem solutions, performance-avoidance approach and performance-approach goals do not differ anymore in terms of their effects on performance. It is therefore crucial for professors not only to cater to their students' individual needs but also to focus on their students' interaction with friends or peers so as to handle the impact of uncertainty in challenges to pursue further language learning.

Furthermore, teachers can heighten students' motivation by reminding the latter of the importance of English in their future career or the opportunities that await them after they graduate. When approaches are rote, passive, formulaic

and teacher-centered, students may link English to what they must endure and not enjoy. Hence, students may think of English as a chore instead of a portal to possibilities in career, in business and in other fields. However, when the teacher establishes such association with practical activities, learners in Asia and elsewhere may view future successes in terms of task fulfillment. (Robertson and Nunn, 2006)

Participants believe that their appreciation for English language learning can be amplified when their professors explain the significance of English in real life situations like in communicating with native English speakers and in pursuing a higher educational attainment. For instance, when they meet doctors and experts in the field, they get to value English language learning better. Non-native English speaking students worldwide may encounter such struggles in learning the English language. However, the students' awareness of the value of the English language in future careers, in international communication and in global trades and services tend to let these students persevere in the learning process.

In this study, ideas are provided by students on the fears or worries that they grapple with as they learn. One of their affective impediments is stage fright which has an anthropological origin (Rosakis, 1999). Fortunately, the fight-or-flight response which arises in a person who is separated from a group by being asked to perform in front can be remedied by changing students' mindset and by constantly exposing them to tasks that will make them realize that performance in public isn't such a threatening thing after all.

Students in English language learning classrooms may not speak right away when their names are called for recitation. These learners utilize "think time" or "wait-time" to propel their metacognition. Rowe (1972) invented the concept of "wait-time" as an instructional variable. Accordingly, "wait-time lasts for not more than 1.5 seconds in typical classrooms. However, having "wait-time" of 3 seconds or more was more beneficial at increasing the length and quality of student responses, diminishing the number of "I don't know" answers and no answers and multiplying the number of volunteered, appropriate answers.

Some beginner teachers or Education interns may be uncomfortable with the silence of these mentioned learners after the former have asked questions. These beginner teachers or Education interns may feel like they are being stared at. What's best is to give these "wait time" or "think time" users the options of whether they would ask their teacher for more time to organize their answers or they would ask for help from a classmate far from where they are seated so as to also distribute recitation opportunities evenly.

English language learners overwhelmed with a speech to deliver may deny that there are people in front of them so they may opt not to look at the spectators. Students may also gaze at the ceiling in another attempt at denial of audience existence due to stage fright and the possibility of being judged or being harshly criticized. Awareness of the unique ways that students cope with public performance will help teachers better understand their learners. "Gelotophobia" or the fear of being laughed at, was another trigger for high affective filters among the participants. Gelotophobes are scared of self- disclosure and revelation of their opinions because they dread that they are

involuntarily funny for other people's eyes. They, too, are hypersensitive to laughter even when such is not necessarily directed at them. Hence, they may experience social withdrawal (Platt, Ruch, and Hoffman, et al., 2012). When teachers have a background knowledge on the manifestations of "gelotophobia", they may not only reach out to learners but may also avoid dismissing the latter as merely lazy or uncooperative.

In the midst of academic pressure, students may solicit for help from their classmates especially if they are called to recite and they perceive the question as difficult. Newman (2002) specified this adaptive help seeking of students in competencies such as knowing the precise question to ask and the right person to answer it. Teachers must guide the students to ensure that queries to peers are asked and addressed in socially acceptable ways through showing politeness. However, as politeness also includes respect for other people's time and avoidance of bothering peers so much, teachers can encourage students to tolerate task difficulty and pursue independent learning.

Embarrassing or discouraging moments for learners comprise not being able to perform a task due to jitters and fear of being judged negatively for that by their teachers and peers. Hence, there is a need for professors to introduce strategies to avoid mental block during speech tasks or to cope with it. Professors should also promote a culture of being encouraging and not being judgmental especially when learners commit flaws. High affective filters may weigh down learners but they somehow endeavor to get extra points in speech tasks. Yet, teachers must deal effectively with grade-grubbing students and focus not only on scores or grades. They must also appreciate and reward students for completing assignments and cooperating well in-group activities.

From the insights gathered from their learning travails, participants request for correction without humiliation. Hence, teachers must focus on correcting students' errors politely and indirectly through expansion technique. They must refrain from side comments that may be derogatory for the learners. To address

the need to practice speaking in English, professors may design speech tasks that gradually expose shy learners to an ascending number of spectators. They may also let students have role-plays where the latter imitate English movie lines.

Meanwhile, the research participants revealed that they get tongue-tied or reticent when they deem their professor's lexicon as beyond what they can grasp or comprehend. Thus, professors must unlock difficult vocabulary words or jargons and encourage students to use context clues. They must also refrain from non-verbal communication such as facial expression or tone of voice that suggest sarcasm especially when students have a hard time comprehending the jargons used.

When professors of the English language can communicate well, they are respected for their credibility and are esteemed as worthy of emulation. However, students may refuse to learn from non-fluent teachers. Hence, teachers and even pre-service teachers so as to retain and enhance excellent communication skills must undergo further training. Students' motivation is heightened when professors challenge them positively and emphasize the importance of commendable English proficiency in the world of work. Thus, professors may ask students to compile job advertisements that require high English proficiency and encourage job interview role-plays that test the communication skills of students.

Among the tools or strategies that teachers may use to help participants to lower affective filters are the use of dictionaries, extensive reading and constant practice in speaking in English. Thus, professors may assign a vocabulary word for a student to define and use in a sentence and encourage the use of electronic or online dictionaries for the latter's presentation. Professors can also assign book reports and suggest to the administrators the implementation of "English Speaking Zones" in school.

Furthermore, participants get to lower their affective filters by relating the importance of proficiency in the English language to real life situations. Hence, professors may assign students to conduct local and global researches on the impact of a nation's excellent communication skills to various sectors like education, tourism and commerce. It would also be interesting to include gender and year level as well as course as moderator variables in the study of affective filters. As individuals are unique, boys' experiences on these debilitating emotional barriers and how they cope may differ from that of girls. Hence, it is worthwhile to investigate phenomena that will lead to an English language learning environment that respects gender- based differences in coping with affective concerns. Studying affective filters of participants grouped according to year level and course may also improve field-relevant instructional programs. By

doing so, teachers can create effective workbooks in English for Specific Purposes and design lesson guides tailor-fit for their specific clientele.

Furthermore, it may be advantageous to study professor's non-verbal language like facial expressions, gestures and tone of voice to find out if they have conscious or unconscious acts that heighten or reduce learners' affective filters. It is also worthwhile to investigate professors' classroom management skills specifically on their verbal acknowledgment of learners' correct responses, their comments on incorrect answers during class recitation and their techniques on encouraging class optimism and controlling derision to prevent gelotophobia.

Firestone and Riehl (2005) expressed that "a strong, mutual dependence among teachers and students" aid in increasing motivation for both parties. It may be beneficial to find out how both students and teachers encourage one another and what its impact is to the teaching and learning process of English as a Second Language. From the lived experiences of students, I better understood students' stage fright due to its anthropological origin (Rosakis, 1999 as cited by Williams, 2012). Prehistoric cave dwellers banded together for protection so isolating a student to speak onstage may signal danger. Meanwhile, the refusal of students to maintain eye contact and connect with the audience no matter how many times the professors tell them to do so may be due to their denial of the existence of the audience who may potentially bash them. This denial is a coping mechanism of anxious students. Adaptive help-seeking strategies and think time also dominate as preferred coping mechanisms of timid students.

From the insights drawn from the participants' English language learning travails, I uncovered the necessity for professors' correction of students' errors without humiliation on the latter's part. Hence, professors must refrain from having side comments and sarcastic non-verbal language. In addition, educators must be well versed in the English language while exhibiting empathy and humility to enable them to meet students at the latter's level. Meanwhile, confidence-boosting, fun activities can be implemented through interactive games like the Hand-held English Language Organizer or the "HELLO" software application and through the incorporation of good-natured humor.

From the effective English as Second Language (ESL) strategies to lower affective filters, I found out that the participants view the formal English linguistic environment in school as advantageous for their learning. They respect professors better when the latter have excellent communication skills, which they deem as worthy of emulation. Alarmingly, they refuse to learn from non-fluent teachers not only of English subjects but of subjects that are supposed to be taught in English. Furthermore, participants appreciate learning more about the

significance of high English proficiency for their future career. Thus, professors and administrators may invite human resource managers or public relations officers to speak about the role and impact of high English proficiency in the corporate world and in the current global market.

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Living with the Digital Divide: Exploring Internet and Computer Technology (ICT) Accessibility and Digital Inequality through the Experiences of Educators & Students

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ABSTRACT

This phenomenological study aimed to look into how educators and students negotiate lack of access to digital computer technologies in a school in Tacunan District, Davao City, Philippines. By using in-depth interviews and focus group discussion, the study found that the lack of ability to manipulate computers and navigate the internet as well as having no access to internet technologies caused difficulty among students in their learning, making them feel inadequate compared to those who had internet access. The study also found that for teachers instead of adding and enriching learning, the use of digital computer technology became a source of anxiety among learners. The lack of funding of the school for computer units and computer laboratory also added to the struggle of the educators and students. In order to deal with the Digital Divide that is evident in their school, the teachers would utilize their own money to buy portable Internet devices, buy credits for these devices and even lend their own personal laptops to students in order for them to have "hands on" experience with computers and the Internet. Students shared that they would have to travel long distances in order to be able to use the Internet when these facilities should have been available in their school so that they could learn how to use them for course work and in their future professions. The students added that they feel they are inferior as compared to students in private schools who are well provided with computer and Internet facilities. The study's findings bear significant implications to education and learning as well as policy formation for educational institutions in the public sector in order to address the presence of the Digital Divide.

KEYWORDS: Digital divide, media studies, qualitative phenomenology, Philippines

INTRODUCTION

The term Digital Divide has been applied to the gap that exist in many countries between those with ready access to the tools of information and communication technologies and the knowledge that they provide access to, and those without such access or skills. People who lack the access usually experience difficulty in adapting to a mediatized environment and those who do not have ICT skills are at huge disadvantage in a world that is powered by computers and the Internet.

There are several factors that contribute to the Digital Divide. These factors include age, gender, ethnicity and motivation, low income and other financial limitations, lower quality or high-priced connections, low level of education, lack of digital literacy, poor technical assistance, and limited access to Information and communication technology content. Since technology is advancing at a fast pace, there are many third world countries being left behind. (Cronin, 2011).

Having access, however, is not enough to destroy Digital Divide between students and children in schools. A new digital divide can also arise not from a lack of access to technology, but from a lack of access to the right people, helpful connections and correct information (de Dios, 2012). Lack of knowledge on how to access digital technologies may be considered as a new disability for the reason that people do not know how to operate Internet and communication technologies.

This study endeavours to describe the experience of students and educators and to understand the plight of their lack of access and experiences to Internet and Computer Technology (ICT). Gaining an understanding to this phenomenon will allow light to be shed on their struggles and help those who do not have access. This is turn will give them the chance to also have knowledge and experience the era of advanced technology and serve as a basis for the allocation of the needed funding in areas that are isolated in terms of technology.

In this digital era, the lack of access to computer and Internet technology affects the teaching and learning process of educators and students. The lack of facilities and the remoteness of an area acould serve as contributing factors of Digital Divide. This is a heavy problem because the students and educators experience unequal privilege to access of ICT that limits their knowledge and skills.

This study aimed to gain insight into the Digital Divide in the Philippine context through the experiences of students and teachers. Specifically, the study sought to examine the lived experiences of the students and educators pertaining

to the use of ICT and digital devices and how the participants view their experiences relative to the teaching learning process.

The study anchored itself primarily on the Diffusion of Innovation Theory proposed by Everett Rogers in 1986. The theory states that people with more resources are first to adopt technologies and that new interactive technology creates a series of successive knowledge gaps. (Mason & Hacker, 2003).

As a secondary theoretical anchor to the study the researchers also ground their investigation in the Resources and Appropriation Theory of Van Djik (2005). This theory is centered in the core argument categorical inequalities in society produce an unequal distribution of resources (Ragnedda & Muschert, 2013). The theory supposes that unequal distribution of resources causes an unequal access to digital technology that will cause unequal participation in the society.

The adaptability of culture plays a very relevant role wherever the theory is applied. Following the model of the theory, if the school has more resources or facilities the students and educators can easily adopt new technologies that would help them in their teaching and learning process. If there is difficulty in providing enough facilities, more students and teachers are behind in adoption of technology placing them most probably in the category of late majority adopters of technology. People also need to be motivated in order to appropriately use the new technology. When sufficient motivation is developed one should be able to acquire physical access to a computer, the Internet or another digital medium.

This study was limited only to the perceptions and experiences of the high school students and teacher of a public high school in Tacunan, District in Davao City, Philippines. The study included 10 students from grade 7 to grade 11 and five teachers from the faculty who shared their views and experiences about ICT accessibility and its effect to the teaching-learning process.

METHOD

This study used a qualitative research design in which it sought to learn the significance of audiences' experiences and views about Digital Divide by using in-depth interviews with members of the faculty and focused group discussion with the students. These methods were used so the participants could share their common views, sentiments and experiences on the particular topic being investigated. The interview focused on the personal narratives of the participants that helped describe the phenomenon on Digital Divide that as experienced by

our informants.

The method of this study was the phenomenological method. Creswell (2003) defined this as a method where researchers identify the essence of human experiences concerning a phenomenon, in this case the Digital Divide. This method provides an understanding of lived experiences of their lack of access to computers and internet technologies as well as their inability to apply these technologies to the teaching and learning process. The study's chosen methodology included only a small number of subjects through extensive and prolonged engagement to develop patterns and relationships of meaning wherein the researcher brackets his or her own experience in order to understand the participants of the study (Moustakas, 1994; Nieswadomy, 1993). We conducted In Depth Interviews with 5 educators and we also conducted FGD with 10 random students from Tacunan in Davao City, Philippines. We hired a facilitator with a track record in qualitative research.

The study was done in Davao City, the Philippines' fourth most populous city located in the Southern part of Mindanao. Davao City is the largest city in the country in terms of land area and currently serves as the main trade, commerce and industry hub of Mindanao.

Barangay Tacunan, which is the research locale, is one of the 18 barangays of Tugbok District under the Third Congressional District. It is located some 18 kilometers away from Davao City Hall and around 4 kilometers away from Davao-Bukidnon Road. The public high school where the study was conducted was established last 2011 on a 2.2 hectareparcel of land. It currently has 12 classrooms which is composed of three classrooms each for grade 7, 8 and 9, two classrooms for grade 10 and one classroom for grade 11.

Participants of this study were students and teachers from the public school in Tacunan. We used purposive sampling, a type of non-probability sampling technique known as judgmental, selective or subjective sampling. We selected voluntary, willing subjects particularly 10 students from grades 7 to 11 and 5 teachers from the faculty. They were the chosen participants for this study since they are most readily available and willing participants to share their views and experiences on this study.

Since the teachers were busy, we conducted In depth Interview with them. Five teachers were selected for in depth interview. We also conducted a focus group discussion, which composed of 10 students, 5 from senior high school and 5 from grade 10 participated in this study. We asked the teachers to recommend students with communication skills to be part of our study.

The technique we used was an in-depth interview to gather knowledge

from individuals in the community on the extent of their capability in using these new digital technologies. Therefore, the primary data source of this study were transcripts of the Focus Group Discussions and In-depth Interviews that was conducted by our facilitator. We hired a facilitator with a track record in qualitative research. The interviews and discussions were held in conducted installment sessions, 4 for the IDI and 1 for the FGD. Each session lasted for a minimum of one hour and were subject to the availability of the participants.

We documented the questions and information that we gathered in the actual focus group discussion and in depth interviews to also learn more about the experiences of the students and teachers that we have chosen as participants in our study. We also took notes of the processes that we did in the field.

We designed an interview guide and focus group discussion (FGD) guides that were congruent with our research questions. Both guides were our subjected to validation of faculty researchers from the University of the Immaculate Conception in order to ensure that our line of questioning was consistent with the objectives and purpose of the study.

For permission, we wrote a letter to the School division Superintendent of Davao endorsing us to the School Principal. Consent forms to be signed by parents and guardians were provided for the students who were minors. After being granted with permission to conduct the study we coordinated with prospective participants and scheduled the FGD and the interviews. In our study, we strived to gather a group of students and teachers in this same number. We also arranged the logistics such as venue, documentation and other such matters. The participants of the FGD were gathered at the venue and were first given a participant briefing in order to inform them of their rights and also to gain their consent and voluntary participation. Then the FGD facilitator took over and began the interviews among the participants. We asked help from the principal of the school to select students to be our respondents and asked permission to use one of their classrooms to conduct our interviews. For the IDI, the researchers met the interviewees at a time and place of their convenience.

We also recorded a video and audio conversation from the interviews. After the study, we revised according to the recommendations of the technical panel, we submitted the study for ethical review since the study involves human participants.

The recorded video and audio conversation from the focus group discussion and in-depth interview were transcribed in order for us to determine and make codes for the data analysis. When transcribing, we transcribed the interviews word for word and analyzed the original transcripts. There was no translation of

the words of our participants until after we completed our analysis. This was to ensure that we did not miss any of the important contexts in their statements in translation so we analyzed them as the participant said them. We went through the transcripts and tried to look for emergent themes in the participants. After we went through the transcripts we generated the themes that are the same across participants. We described and analyzed the themes that were found and identified commonalities in their thoughts and opinion that determined the implications of the findings.

In order to increase the credibility, conformability, transferability and dependability of the study we will utilized member checking which was done both formally and informally. Informal member checks were done during or immediately after the interviews or FGD. Formal member checks was done by testing the data, analytic categories, interpretations and conclusions with members of those groups from whom the data were originally obtained (Lincoln & Guba, 1985; Morse, 1994; Sandelowski, 1993).

We atrived to provide thick description, which is described by Lincoln and Guba (1985) as a way of achieving a type of external validity. By describing a phenomenon in sufficient detail one can begin to evaluate the extent to which the conclusions drawn are transferable to other times, settings, situations, and people. Thick description refers to the detailed account of field experiences in which the researcher makes explicit the patterns of cultural and social relationships and puts them in context (Holloway, 1997). In order to do this, we spent significant time in the school or community where our participants are found. Spending time within the environment of the school allowed rapport and trust to develop between us and our participants as well as give us, as researchers, an intimate orientation to the situation we were examining so that we were not only confined to our own preconceptions and biases.

Our role in the study is we were the interviewers during our IDI. As interviewers we recorded the interviews on digital recorders. We also took down notes during the interview. Creswell (2013) recommends that proper recording of interviews and group discussions must be done in order to be able to review what was discussed by the participants and also for purposes of confirming information later once the discussions or interview is done. During our FGD, we served as documenters since we enlisted the aid of an FGD facilitator.

In this study, only willing and voluntary participants were included in our focus group discussion and in depth interviews. The participants were oriented properly about the gist and purpose of the study and they were assured of confidentiality. Informed consent were given to each participant, which explained

the purpose and objectives of study. They also explained how significant the role of our participants was in the research. The "Do No harm" is the main ethical standard considered in this study. There were participants who were minors, so we obtained parental permission and assent forms for them to be secured. Since the rights of our participants are important to us we made it clear to them that if they feel like they want to back out at any time they have the option to do it. Understanding that the discussion could cause potential discomfort among our participants, it was made clear to them that they could back out of their participation any time and that they could decline from answering if they felt the questions would cause them emotional unease. As part of our ethical considerations, confidentiality agreements were signed between our informants and us. In publishing our findings we concealed participant identity by using code names to identify them each (Participant 1, 2, 3, and so on).

As researchers, we are responsible in keeping safe of all the information gathered pertinent to this study. We also made it a point to maintain objectivity as much as we could specifically towards respecting their perceptions and opinions. To do this we took on more of a "listening" stance careful not to react to what they said but instead document everything without injecting our own reactions or opinions. Aside from us, only the panelists and advisers are the only allowed people to have access to the data that will be gathered. We kept all our materials safe by keeping the raw data transcripts and copies of the coded data in portable data files stored on data disks. The same safekeeping goes for documents were done for our research process notes.

RESULTS

One evident Digital Divide Experience that is common among all of our informants is the lack of access to and the lack of availability of Internet and computer resources. None of the students included in our study have computers of their own based on our focused group discussion. For the teachers, they have their own personal laptops and computers at home that they use in making school reports, daily lesson plans, and grading records especially that they use the new Electronic record wherein they simply encode the grades in their personal laptops.

During our initial visit in Tacunan, we have noticed the lack of computer laboratory in the school. The computer units were placed at the corner of a classroom that is regularly used for classes. The computers are there but they are

not in use. The teachers shared that they are using a classroom as their temporary computer laboratory because they still lack room to be used as a computer laboratory. For the teachers, the importance of having a computer laboratory is necessary for them to catch up on the 21st century skills where technology use is greatly demanded. They said it would be a great help for them to monitor the students in their learning process and that they would be able to identify if the students are doing their research properly instead of playing online games or engaging in social media. It would also be a big help for those students who walk long distances to reach Internet Cafes so they could do their research. All the teachers shared that the school has been planning on building a laboratory, but it will depend on the budget of the school, and as of the moment, the establishment of facilities for learning and using internet and computer technology not on their priority.

Most participants related that although there are computer units in their school, they have not tried using it yet because only the Senior High school is allowed to use them. If this is the case, there is an unequal privilege to access of computer facilities between the students considering that as soon as they entered grade 7 the use of Internet and computer for researching is part of their requirements. The possibility for them to learn about ICT will only start when they reached Senior High school. One participant shared that she never tried using computer at school, not even once, so there is no chance for her to learn about ICT from school. While some participants related that they have had experience and knowledge about ICT because they were taught from their previous school but their skills may change or get rusty because of the situation of having to experience ICT access to not having ICT access at all. Their learnings about ICT have stopped because of this.

One participant shared that although there are 21 units of computer available, there's only one unit that is installed for them to use. During their ICT class, they take turns in using one computer, one person at a time. Their ICT teacher would have to teach them one by one. In cases like this, there is only limited time for each of the student to learn about the subject, one participant shared that there are 47 students in their ICT subject, the one a one hour and thirty minutes would not be enough for a student to learn, considering on how well and good they are at manipulating computer.

One factor that can also help in teaching-learning process is the Internet Connection. However, participants shared that their computer units do not have Internet connection. For the teachers, their way of coping with the Digital Divide is through pocket Wi-Fi. The teachers used their own money to load the

pocket Wi-Fi and they do not expect any refund from the school. The amount spent in loading their pocket Wi-Fi's would already be a great help to add up in paying their daily expenses.

Another prevalent experience among the informants was their self-admitted lack of Internet and computer skills. Participants also shared they're having difficulties in manipulating computer especially when they are outside the school or in the Internet shops. According to one of their teachers, some students do not even know how to turn on or off a computer. If students still need to go outside the school premises, then no one knows what might happen to them. No guardian will go with them outside so there is a risk in the safety and security of the students. It would be easier for the students and safer if only they can do their research at school.

In the focus group discussions, almost all the participants referred to themselves as ignorant on using the computer for work. For someone to refer to himself or herself as "ignorant" is a reflection of feelings of inferiority. This could probably have an effect on their self-efficacy, influencing their decision to learn more about ICT. One participant could relate to this as she shared that she would tremble whenever she touched a computer or the keyboard because she is not used to it.

As to the ICT education in school, the students shared that only the Senior High school students have an ICT subject. They also do not have any book that can be used as their reference. ICT education is not just about how one can operate or manipulate a computer. It also includes their knowledge, on the basic uses and applications of ICT for professional use and productivity. So it is important to have learning references they can study at home. Most participants related that they do not have ICT books in their school.

When it comes to their skills about computer application, most participants related that they have limited knowledge on the basics of using Microsoft Word when making an assignment or project. One teacher shared, that even she is not really good in using Microsoft PowerPoint and she does not know how to install or download materials online and she seeks help from other teachers. Participants shared that the difficulty they experience even in the basic use of Microsoft Word was due to the lack of hands-on experience whether in school or at home.

Participants shared that not having regular access to computers was very evident in their school. They said they were not the only ones experiencing the difficulty. Some even shared not being able to touch a computer since their days in elementary up to the time they entered in high school. As a result of this, whenever they were asked to do tasks that had anything to do with computers

they would become nervous. One even shared that that sometimes her hand would freeze or tremble whenever she touches the mouse that is why she just asks other to do it for her. Even some of the teachers, who had more experience with computers than their students, echoed that they have some anxiety when it comes to computer use. One of the teachers said that in terms of her knowledge and skills, she cannot really say that it is high and even shared that some of the teachers from school are really not proficient in manipulating ICT and admitted that they still lack in ICT skills and knowledge. One teacher said that some students really do not have access because some come from poor families. They would do their assignments and projects in the traditional way, meaning hand written. Some know how to operate but when it comes to typing they have a hard time.

In contrast to this, in terms of the use of social media and online games, the students admitted that they know how to use social media fairly well, in fact, they all have accounts on Facebook. They shared that it is easy for them because they have memorized everything on Facebook. The teachers related that in their observation, the students really know how to use social media and online games. Sometimes, it could be the reason why students also go to Internet shops to play online games or use their mobile phones to use social media. It seems that difficulty comes to the students only in terms of the use of computer applications like Microsoft Office or just simply manipulating the computer. Participants shared that they still need assistance in using the computer when using it for completing work related tasks.

When making projects and assignments, they usually use Microsoft Word. When asked about what the most difficult application for them to use, most of the participants shared that Microsoft Power Point is where they are having a hard time using while others have difficulty in using Microsoft Excel. Some paticipants shared that apart from Microsoft word, they had no idea about other applications on Microsoft Powerpoint and Excel.

The informants had various coping strategies for coping with the Digital Divide. If they have projects in school or tasks that require computers and the Internet, they would have to find these facilities elsewhere. Most of the participants related that they would ask someone else to do the assignment or task for them instead of doing it themselves since they do not have the means to do it themselves. Another way by which the students cope with the Digital Divide is they travel to the nearest urban area in order to be able to use the computer and get on the Internet. For residents in Tacunan this is difficult because a person would have to travel about 1 kilometer before reaching the first

Internet café, which they would usually have to cover by foot because they do not have private vehicles and public utility vehicles seldom go to that area. For other informants, they would still have to travel this same distance to go to the house of their classmates who had their own connection. Once participant shared that she would utilize the connection at her workplace. Another way by which the students cope with the Digital Divide is going to their neighbor or classmate's house to be able to use their computers and connect on their Internet. This could cause a lot of inconvenience to the students since they are depending on others' computers not to mention some embarrassment on their part. They shared that they could not always do this because they did not want to intrude on others for their needs. If this is the case, the students are often unable to make their assignment affects their grades and performance.

When the teachers would give assignments and projects that require computer or internet what they usually do is group the students so that other members who have access of ICT can do the research while those who do not have access or having a hard time accessing resources will have to do other task. In this way also, it could help students lessen their expenses. However, if the task is divided to students because only few has access, then those who do not have access will only depend on their group mates and would not have the chance to do their own research since others are doing it for the group. They would do other tasks not related to accessing the computer and Internet, which in return does not give them the experience or learning on how to use it.

The school lacks ICT facilities as compared to other schools in Davao City who have their computer laboratories with functional computer units and Internet connection. Teachers said that the students at schools where ICT is present are more advanced than their students. They also think that although they have students who can match students from other schools, there is a vast number that lag behind compared to others because they do not have enough facilities. A teacher said that students in private schools have a big advantage compared to the students in their school. She notes sadly that some of their students only engagement in computers is just to play games which they cannot use for work.

Since some students are hesitant to seek help from their teachers. Their ICT learning is gained basically from student-to-student learning. The students also shared that they do not get help from other family mebers as well since they are also not capable when it comes to ICT. The students share that they choose to keep it to themselves and not approach anyone because they are ashamed to do so. Teachers also try their best to help the students in coping up so what they do

is they extend the submission of their assignments or they give in to the students' requests such as doing other tasks instead or teachers would give activities to be done on activity notebooks only. They are even willing to lend their laptops especially to the 10th grade class where they have their research subject and they need to use computer to use a Microsoft application and they do not refuse because they know how much the students need their help.

Another coping mechanism employed by the teachers for dealing with the Digital Divide is to give the student long periods of time to complete a project. Knowing that they do not have easy access to internet and computer technology. One of the teachers said he gives them a whole month since they still have to research it and it would take them a lot of time to do that. The fact that a teacher would give a month for the students to complete an assignment implies that they really have difficulty in doing their research. This also further implies that given the one month time frame, the learning experiences of the students are also limited by their lack of ICT access. Some teachers limit the amount of technology-based homework they assign and others even print hard copies of all the readings so students will not have to struggle to access them later online. Teachers had the initiative to conduct workshops but they never had the chance to because if they do tutorials, they will have a problem about the conflict of time when it comes to class hours and the teacher's subject load.

When asked about how they feel that some public schools within the city has more access to computer and internet as compared to them, all of the participants said that it is unfair. They felt that they lag behind in terms of technology which make it hard for them to make their assignments. One participant compared their situation with private schools that are provided with everything, although she can feel that the teachers are trying their best, she felt that it is still not enough. One participant also felt that it is unfair because they are all working hard to study yet they were not given the equal opportunity in accessing the technology. She could not understand why the government could not give them enough attention especially that they in a remote area.

Given the shared experiences among the students, it is evident that the Digital Divide they are in has implications to their learning and their future skills. There is a possibility that the students will graduate and go to college without any solid knowledge of ICT that can affect their careers in the future. They will have to live being behind from others who are advanced and are literate in terms of ICT.

DISCUSSION

As observed, Digital Divide is present in the school where we conducted our research. It is our impression that the primary driver of digital divide in their case is their lack of facilities. The very obvious disparity is that there are people who have computers and Internet connection in the area and there are some who do not have it at all. In the case of students who ask others to do their assignments or projects because they do not have access at home, they will not be able to maximize the learning that they should be getting out of their assignments because they are not doing the tasks themselves. Also, the grades that they get for these assignments do not accurately reflect the students learning or their capacity because it was done by someone else. For the students who still need to go to their neighbor or classmate's house to use a computer, this could cause a lot of inconvenience to the students since they are depending on others' for their needs. If this is the case, the student cannot make their assignment, thus affecting their grades and performance.

The findings of this study echo the findings of the Pew Internet & American Life Project, the use of Internet for the teenager's ages 12-17 years old, is essential as their study aid outside that classroom and the increasing use of Internet in the classroom. In this case, the participants have also shared similar indespensibility of Internet and computer technologies to keeping up with the workload of present times.

According to a recent study from the Hispanic Heritage Foundation, Family Online Safety Institute and My College Options, nearly 50% of students say they have been unable to complete a homework assignment because they didn't have access to the Internet or a computer. Furthermore, 42% of students say they received a lower grade on an assignment due to lack of access (Mclaughlin, 2016).

As mentioned, they lack computer laboratories at school and only Senior High School students can use the computer units means there is an unequal privilege to access of computer facilities between the students considering that as soon as they entered grade 7 the use of Internet and computer for researching is part of their requirements. The possibility for them to learn about ICT will only start when they reach Senior High school.

The world is changing and the skills that students need to thrive are changing, and at the end of the day we have to do what we can so that the children will thrive in a global economy. It would be doing them an extreme disservice if we didn't prepare them and it is essential that students have access to the proper materials 24/7 (Mclaughlin, 2016).

The lack of access found in the school is similar to the thoughts of Mclaughlin (2016) who said that the "lack of access to broadband is robbing millions of students of their full potential." As some of the participants have alleged they find this disparity between the situation in their school and other schools to be unfair as they feel that they are less capable than those students who are not having the same lack of accessibility as they are.

There is only one unit available for the use of the Senior High School as of the moment so they need to take turns in using it. Each class has at least 47 students so there is only limited time for each of the student to learn about the subject and one hour and thirty minutes would not be enough for a student to learn, let alone master ICT skills. If there were enough computer units available to accommodate all students, then they would not have to take turns and would have enough time to learn ICT skills.

The students shared their difficulty in using computers because they do not have enough facilities to learn about computers. Some students would call themselves ignorant because of their incapability of accessing computers. For someone to refer to themselves as "ignorant" is quite alarming. It will effect on their self-efficacy and how it will influence their decision to learn more about ICT. Self-efficacy is essential to overcome the fear many novice users experience. Compeau and Higgins (1995) empirically verified the relationship between computer self-efficacy and computer use. Staples, Hulland, and Higgins (1998) found that those with high levels of self-efficacy in remote computing situations were more productive and satisfied, and better able to cope when working remotely. According to Bandura (1997), people who have little confidence in their ability to use the Internet, who are dissatisfied with their Internet skills or who are uncomfortable using the Internet may be said to have weak self-efficacy beliefs. Those with low self-efficacy should be less likely to perform related behaviors in the future (Bandura, 1982), in this case, adoption and use the Internet, than those with high degrees of self-efficacy.

The findings of the study imply that there is a need to increase ICT funding for public schools. Classroom computers are so low on the budget priority list that some teachers have no choice but to teach without technology. District money is not there for classroom computers and shared labs are just too busy. This is echoed by Price (2002) who observed that many teachers with classroom computers have spent countless hours on their own to seek sources for funding, write grants, or solicit local businesses for equipment and money. This is a large commitment of time out of an already very busy day that not all teachers can give.

Though technology became more affordable and Internet access seems increasingly common nowadays, the Digital Divide between rich and poor still exists. According to the Pew Internet & American Life Project, the rich and educated are still more likely than others to have good access to digital resources. SOltan (2016) explains that the Digital Divide has its far-reaching consequences when it comes to education. For children in low-income school districts, inadequate access to technology can hinder them from learning the technology skills that are crucial to success in today's economy. For those who do not have accessibility of Internet and Computer technology at home, they should be able to have it in school. However, even in their school, they do not have any access at all. To address this problem, the school must be provided with enough facilities such as computer units with Internet connection.

The secondary driver of digital divide is the remoteness of the area. The school is located in an area where students need to travel a minimum of 1 kilometer in order to find an Internet shop. The distance not only entails considerable time, effort and expense to get to an Internet shop but also poses potential safety hazards as well. It would be easier for the students and safer if they can do their research at school. Mclaughlin (2016) explains that the homework gap forces students in households where they do not have high-speed Internet service at home to head to go somewhere else to squeeze in a few more hours of homework instead of going home. Some may decide to forgo the safety and warmth of their home to venture out to the places with free Wi-Fi access in order to complete and submit their assignment. Or many students are simply unable to finish the work.

In terms of improvement of the student performance, the teachers should also take into consideration that the students have limited knowledge and skills about ICT because of the gap that exists in the school. Because of this, the teachers cannot expect the students to do tasks that they are not capable of doing. Even some teachers have difficulty in accessing ICT. If this is the case, even if they want to help the students in improving their knowledge about ICT, it would be impossible in terms of their means to teach the students. First is because they themselves still need to have training on how to use beyond the basic applications of computer. Before they teach the students, the teachers must have enough knowledge on it themselves. They cannot teach their students ICT when they themselves also need help in accessing it. Second is because there are really not enough units to accommodate even one class at a time and they are composed of 50 students in one class. They would not be able to learn altogether if it can only cater 20 to 21 out of 50 students in a given span of time. In order to give the appropriate and right education about ICT to the students, the teachers

should be equipped and knowledgeable enough in imparting information to them. Price (2002) explains that some teachers may not have enough exposure to computers to feel comfortable using them in a classroom. In order to acquire technology, training often is too little too late and one training course is not enough. Early adopters know the changes that take place and the need to be updated on equipment and software is constant. This results in a competition for teachers' time with the other myriad changes in policies and curriculum that require workshops. Teachers are still waiting for the support infrastructure to catch up with the demand. Some schools do not have the internal support staff to maintain large numbers of classroom computers in addition to all the other administration computers, and shared labs.

ICT should be one of the focus of the schools. Krueger (2016) pointed out that the gap caused by barriers students face when working on homework assignments without a reliable Internet source at home has widened as an increasing number of schools incorporate Internet-based learning into daily curriculum. However schools are not doing anything about ensuring outside of school access to broadband (Mclaughlin, 2016). It is sad to note that though technology has become more affordable and Internet access seems increasingly common nowadays, a "digital divide" between rich and poor still exists as evidenced by the experiences of the students and educators in Tacunan. DiMaggio and Hargittai (2001) suggest that the term "digital inequality" better captures the complexity of inequalities relevant to understanding the differences in access and use of information technologies. Digital inequality considers variation on five dimensions: differences in the technical apparatus people use to access the Internet, location of access, the extent of one's social support networks, the types of uses to which one puts the medium, and one's level of skill.

Our findings also suggests that digital divide exist not just in school but in the community as well. The school should collaborate with public sectors to find ways and means of their problems in bridging the gap. The barangay should build an ICT Center that serves as a training ground for the individual's improvement in knowledge and skills about ICT. The education sector should also look into the fact that although there is an ICT subject in the curriculum for the Senior High school, it is not uniformly implemented in all public schools. In line with this, the school should also be well equipped with computer and internet facilities before professing to offer it in their curriculum. If the school is not capable of providing these facilities, they should look for donors or sponsorship from private sectors. Any means of bridging the gap could spell a positive change for them.

Since one of the drivers of digital divide is the remoteness of the area, attention should be placed in providing far areas with Internet acccess. Since location matters in terms of accessing ICT, the government should allot resources that provide ICT facilities in community, so that individuals will be digitally literate regardless of the remoteness of the area.

In this digital era, being computer literate can help them to be more productive now and in the future. It will give them the opportunity to compete in the intellectual workforce rather than being left behind in today's fast ICT and information driven economy. With that being said, there should be long-term sustainable ways in bridging the Digital Divide in schools and in the community. Access should be available wherever in the community. In order to do this, the government should endeavor to provide at least basic ICT infrastructure in schools and at the community level. Allocating for these infrastructures should be done as part of government budgeting and should be prioritized as an investment in empowering students and people in the community.

The findings of our study are still limited to the research locale in which it was conducted. This type of study should be replicated in other areas so as to gain more data into how Digital Divide is experienced in different communities in the country. More studies should also be done using a quantitative design in order to empirically quantify the extent of the Digital Divide specifically in terms of measuring the ICT skills of students and teachers. For this purpose, adequate testing tools will have to be developed. In addition, it would also be helpful if long term research could be conducted on the implications of Digital Divide wherein its implications to participants could be seen in terms of their performance as professionals or members of the workforce.

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Prodigies in News Reports of Duterte's War on Drugs: A Content Analysis

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ABSTRACT

This study determined the commonly published news reports on drug wars, the linguistic forms and structures used and also the kinds of framing evident in the news articles. The study gathered thirty (30) articles, fifteen (15) articles from CNN and fifteen (15) articles from ANC. The researchers found out that the most commonly published news report on war on drugs in the Philippines according to the lead paragraphs and contents are the following: news about slain drugs suspects, news about government officials involved in illegal drugs, news on drug lords, news on foreigners involved in illegal drug trade, and the news on drug users or pushers that surrendered. The study also revealed that the news reports contained linguistics structures that might evoke anger to some readers. These were the modifiers used in describing the slain drug suspects and the victims and the utilization of combination of quantifiers and figures as reference to the number of slain drugs suspects, government officials involved in illegal drugs, drug lords that had been caught and killed and drug users and pushers that surrendered. On the other hand, the result of this study showed that majority of the news article used thematic framing since it dwells on the issues that have caused the problem and capture the attention of the public on what is going on with the society.

KEYWORDS: New reports, war on drugs, linguistic forms and structures, news framing

INTRODUCTION

The Presidential Election of 2016 gained a lot of public attention, specifically Rodrigo R. Duterte who was then running for President on a platform of radical nationwide changes. Duterte has received popularity in the media because of having a strong stance in eliminating crime specifically, eradicating the illegal drug trade in the Philippines within the first 6 months' time of assuming the presidency. Duterte has succeeded to win the national elections by a wide margin from his opponents. The news stories that have emerged during his first 100 days as president are barrage of stories scrutinizing every move of the palace and watching for the actions of the Philippine national police. Filipinos are bombarded everyday by news reports of police operations in Duterte's self-proclaimed "War on Drugs".

It has been the most talked-about issue because this has been reported in televisions, radio, newspapers and most especially on different websites in social media where people are able to give their insights about the news. But there are also thousands of drug addicts and drug pushers in local areas who have been given a merciful chance to participate President Duterte's rehabilitation program because they chose to surrender themselves to the authorities and change their way of living.

The effect on the society of President Duterte's administration have caused millions of people reacting and questioning his leadership if it is the right thing to come up to the extent of killing these criminals without due process and how they have disregarded the law of human rights as well.

People tend to look deeper on how would be the country's status quo if this fight on illicit drugs comes to an end. Several questions have come up and have remained unanswered if President Duterte can regain the resources of the Philippines that have been administered during the regime of former President Ferdinand Marcos and if he is capable of making the whole Philippines as a safe haven like he has done to Davao City during his time being the highest-ranking official in the city.

Khamis in 2008 stated that the media have involved in bringing about political change by facilitating its underlying processes through promoting civic engagement, triggering public mobilization, enabling citizen journalism, stimulating civil society, promoting a sense of community among marginalized group members, creating less confined political spaces, and publicizing causes to gain support from the global community. Eltantawy, N. & Wiest, J. B. (2011) mentioned that this, in turn, has moved discussions about their impact on

political change, giving rise to a new discourse, which the media uses to give make a news story. This story is gaining an increased in attention however, researches that deals on the issue if the media are causes of revolutions and vehicles for empowering people.

The readers according to their human interest and values can affect when reading a news stories. The media easily influence the readers on what they saw on the news portal. Readers have their own interpretation and done with a deliberate choice of information presented as one-sided view.

A news story is a paper that described a pilot version of a commercial application of natural language processing techniques to the problem of presenting the news stories into broad topic categories. This method and system characterizes individual news stories and identifies a common news story among a variety of stories based on its characterization. The system does not perform a full syntactic analysis of the input of the stories.

Moreover, framing and linguistic forms and structure concerning public policy issues are carefully constructed. This occurs in part because both politicians and interest groups take an increasingly proactive approach to extend their views of what certain issue is all about.

Iyengar, S. (1993) stated that framing analysis is presented as a constructivist approach to search news stories with the principal focus on conceptualizing news structures into empirically operational dimensions-syntactical, script, thematic, and rhetorical structures. So that validation of the news framing of issues in news stories may be gathered. This is considered an initial step towards examining the news story process as a whole. Finally, an extended experimental example is provided to demonstrate the applications of this conceptual framework of news structures.

With the numerous concepts presented above, the researchers have realized that there is a necessity to look into the news reports on war on drugs through the online news portals of ANC and CNN to be attentive of the contributions of mediain the current sensation of political and social change that are recently happening in the country.

Objectives of the Study. This qualitative research study aimed to know the news reports on drug wars that are commonly published. Also, this study desired to identify the linguistic forms and structures that are used in news articles on drug wars. Finally, it intended to determine the kinds of framing that are used in the news articles on drug wars.

METHOD

The researchers used content analysis on the gathered news articles from the news websites of ABS-CBN News Channel and CNN Philippines about drug wars in the Philippines from the start of President Duterte's administration up to the first 50 days period of assurance of his administration to eliminate drug problem in the country..

We looked into the headlines and the story content of the news regarding drug wars. In the same way, the articles of the news websites had been analyzed to provide substantial answers to the research questions in this study. We had also determined the dominant contents of the news reports on drug wars Then, we scrutinized the different news articles and arranged the data to categorize substantial comprehensive patterns of meaning. Next, we checked the prevailing themes against the data set and then formed the ideas that directly answer our research questions. We prepared a comprehensive analysis of the news articles and worked out on the scope and emphasis of each theme. Finally, we wrote a logical description supported by data extracts, to answer the research questions raised at the start of the study and contextualized the analysis in relation to the prevailing literature.

RESULTS

The commonly published news reports on drug wars from CNN Philippines and ANC News websites are stated below. The news reports are categorized according to the contents and headlines. The first column is about the news on slain drug suspects, 8 out of the 30 articles talks about the slain drug suspects 5 of the news stories is from ANC and the other 3 is from CNN. The main focus is all about the slain suspects that have been killed during police operations and some unidentified gunmen. Based on the news stories released by ANC and CNN, there are times that the killed suspects are only mentioned and was elaborated than the number of surrenderees. This is evident in the following news articles below:

> *Tan was the only one killed in the running gun battle... Authorities were supposed to serve a search warrant in one of the shabu laboratories operated by Tan when the suspected drug lord tried to flee... (Art. 25 ANC)*

> *A total of 293 were killed in drug operations nationwide between July 1 and 24... (Art. 28 ANC)*

> *The Philippine National Police (PNP) confirmed early Wednesday thatsix people were killed in an encounter in Albuera, Leyte...(Art.14 CNN)*

> *The death of alleged drug lord Meco Tan and the discovery of a shabu clandestine laboratory in Valenzuela City during police operations on Friday... (Art. 9 CNN)*

> *They have recovered 37 bodies from July 1 to 17, and National Capital Region Police Office (NCRPO) chief Oscar Albayalde says the killings may be related to illegal drugs.... (Art. 7 CNN)*

Another news story that is usually published on drug wars from CNN Philippines and ANC News websites talks prominent government officials involved in illegal drugs. The war on drugs has been a broiling issue for the past few months, especially the involvement of Government officials. The President of the Philippines has announced Narco-List to name all the government officials who have been part on the illegal drug trade. Out of 30 news articles there are 6 news stories deals about the government officials that are involved in this illegal drugs, 5 of the news stories is from CNN and 1 is from ANC. Due to the rising illegal drug trade in the Philippines, the news stories have publicized that there are some Government Officials that have been involved in protecting or using illegal. Most government officials that are mentioned are high ranking police generals and mayors of different municipalities and cities. This is manifested on the following lines:

> *The President sprung a surprise on national television when he named five police generals, including three still in active duty, he said were involved in illegal drugs... (Art. 2 of CNN)*

> *Two days after naming police top brass allegedly protecting illegal drug trade in the country President Rodrigo Duterte came out with another list this time, naming the drug lords themselves... (Art. 3 CNN)*

After naming five active and retired police officers as protectors of drug syndicates and three drug lords, President Rodrigo Duterte may soon identify 23 mayors also allegedly involved in the illegal drug trade, the national police chief said Friday... (Art. 4 CNN)

The President, in a speech early Sunday, identified eight judges, more than 50 sitting and former mayors and vice mayors, and 95 active retired and non-commissioned police officers allegedlyinvolved in the illegal drug trade.... (Art. 13 CNN)

These were the initial reactions of some whose names were mentioned by PresidentRodrigo Duterte as politicians allegedly involved in illegal drug trade in the country... (Art.17 ANC)

There is one article that talks about the drug rehabilitation centers that cannot contain illegal drug users anymore due to the increasing number of surrenderees. This is the objective of President Rodrigo Duterte to fund some of the rehabilitation centers and he has decided to make rehabilitation centers that can house thousands of illegal drug users. Out of 30 articles there is only 1 from CNN.

President Rodrigo Duterte wants a full throttle campaign against illegal drugs and other crimes while he is at the helm of the nation, and promised the police he will give them the means to…(Art.1 CNN)

Another news story that is published is about the news on foreigners that are involved in illegal drug trade. The news stories have mentioned that in the Philippines, not only the local citizens are being checked but also foreigners that are suspected of bringing drugs in the Philippines. Out of 30 articles there are 5 news stories that deal about the foreigners that have been involved in the illegal drug trade. 4 of the news stories are from ANC and 1 is from CNN. Specifically, the news stories have revealed that there are Chinese nationals that operated illegal drugs in the Philippines; it includes 3 of the biggest drug lords which are known to be half- Chinese or even Chinese nationals. Based from the data given, ANC news stories have covered more on the Chinese nationals that are involved in the illegal drug trade whereas CNN has only covered a foreigner

that surrendered at Cagayan de Oro which who is an Italian national. The Italian national was said to be an illegal drug user and since the new president was going strong on anti-illegal drugs he surrendered voluntarily to the police. On the other hand, the ANC news stories that have focused on Chinese nationals are on the police operation. Specifically, 1 Chinese national has been killed during a police operation and seven Chinese national have surrendered. Those articles that are published online are from ANC specifically are the following:

Duterte claimed that some drug suspects killed in local police operations are Chinese nationals... (Art.18 ANC)

Chinese woman who was nabbed with 4.2 kilos of shabu at Mactan Cebu International Airport last Tuesday morning... (Art. 22 ANC)

A Chinese woman arrested with 4.2 kilos of illegal drugs also sneaked in illegal drugs during her previous visits to Cebu... (Art. 23 ANC)

In Cagayan de Oro City, a police station chief confirmed last Monday that a foreigner voluntary showed up during 'Oplan Tokhang' and confessed to being a drug dependent... (Art. 24 CNN)

Moreover, these are the news stories about Philippine's drug war operations. Out of 30 articles 4 news stories are the following these are only from CNN website.

Duterte came out with another list this time, naming the drug lords themselves. Duterte, complete with a chart illustration of the drug trade network, identified on Thursday three of the country's topmost drug lords... (Art. 3 CNN)
The Philippine National Police (PNP) has started its investigation on an alleged floating shabu laboratory discovered off the waters of Subic, Zambales.... (Art. 5 CNN)

The local government of Quezon City will come up with a centralized list of drug users and pushers who have surrendered or have been arrested... (Art. 8 CNN)

President Rodrigo Duterte on Saturday talked about the "narco-list," which he said contains 1,000 names of mayors, governors, congressmen, barangay captains, and police officers... (Art. 15 CNN)

There is one news article from CNN and the other one is from the ANC that dealson the Human Rights debates surrounding the war on drugs. CNN talks about Senator De Lima being against on the operation of anti-illegal drugs due to the number of killings happening per day. She has been backed up with the CHR due to the summary executions and response of the police when buy-bust operations have been conducted. They are against in these type of operations while news story that ANC covered, it is just about the CHR being against in this kind of operation. This is manifested in the following lines:

Amid online rumors that she is protecting the drug trade, Sen. Leila De Lima on Tuesday said she supported President Rody Duterte's war on drugs... (Art. 10 CNN)

There are news storiesabout importing illegal drugs in the Philippines. One news story from the ANC news talks about the shabu ships. On Duterte's statements, police raided a floating shabu laboratory along the coast of Baranggay Calapandayan, Subic and Zambales. It is all about Chinese fishing vessel being used to bring illegal drugs to the Philippines from abroad. As revealed in the news article from ANC issued last July 18, 2016.

Shabu' ships, prison meth: Duterte hints at massive drug menace… (Art. 7 ANC)

Lastly, 2 news stories were provided and all of the news stories are from ANC. It is about the PNP's operation being supported by Duterte's Administration. These talks about the PNP officials declaring that are ready to fire during their operations. If suspects are about to engage into a gun fight, the police are commanded to fire back without orders from their higher officials. It also covers that President Duterte has been apologizing to the police officers that have been killed during the gun fight and promises to give more funds and support to the police officers that will be involved in the anti-illegal drugs operations.

Dela Rosa threatened to reshuffle police officials over their performance in the government's campaign against narcotics. Police district, city and provincial offices will be evaluated based on their performance under "Oplan Double Barrel."... (Art. 19 ANC)

From all the 30 articles we have gathered, news stories from CNN mostly focused on naming the list of Government Officials involved on illegal drugs, Police Officials who are allegedly involved on illegal drugs and some on slain drug suspects and surrenderees. On the other hand, ANC mostly focused on slain drugs suspects either during police operations or by an unidentified gunman also Chinese Nationals who have been arrested, surrendered and killed. Moreover, they also focused about President Duterte bravely announced government officials and police officers who are involved on illegal drugs.

Finally, the data shows that both ANC and CNN online news portals mostly focused on slain drug suspects.

Linguistic Forms and Structures Used in News Articles on Drug Wars. Linguistic features are important in the analysis of news articles for it shows the scenario of events and action of the people involved in a news story.

From the chosen 30 news articles from CNN Philippines and ANC News websites that deal about Drug Wars, there are several linguistic features that are contained in the news articles. We have found out that there are three most dominant linguistic features contained in the news articles on drug wars.

Utilization of Statistics, Figures and Quantifiers. The first one is the utilization of statistic, figures and quantifiers. In English grammar, statistics and figures is the study of numerical information which is called data. Likewise, statistics is used as a tool to understand specific information. On the other hand, quantifier is a prefixed operator that binds the variables in a logical formula by specifying their quantity. In this research study the utilization of statistic, figures and quantifiers are used in describing the number of killed alleged drug suspects and drug lords. These are evident in the following phrases below:

From June 27 to July 3, PNP figures show 31 have been killed by the police in the region. Calabarzon and Mimaropa together account for 43 killed, the biggest number. With 124 taken into custody in the region,

Central Luzon also ranked third with the most number of individuals arrested for links to drugs… (Art. 4 CNN)

They have recovered 37 bodies from July 1 to 17, and National Capital Region Police Office (NCRPO) chief Oscar Albayalde says the killings may be related to illegal drugs. From July 1 to 17, the police killed 70 drug suspects in Metro Manila whom they claimed resisted arrest. Meanwhile, on a national scale, 194 drug suspects were killed from July 1 to 19 or 10 deaths per day… (Art. 7 CNN)

Six people were killed in an encounter in Albuera, Leyte. Thirteen high-powered firearms and four .45 caliber pistols were recovered in the crime scenes… (Art. 14 CNN)

Police have confirmed killing more than 110 suspects. Police reported killing eight "drug personalities" during a pre-dawn raid on Saturday in a small southern town… (Art. 16 ANC)

The Philippine National Police said 103 people have died in police operations to combat illegal drugs between May 10 and July 3, 2016… (Art. 19 ANC)

A total of 106 people have died in anti-narcotics police operations between May 10 and July 3, according to figures from the Philippine National Police (PNP). A separate tally by ABS-CBN's Investigative and Research Group places the number of drug-related fatalities at 154, or fifty percent higher… (Art. 20 ANC)

Based on ABS-CBN Investigate and Research Group's monitoring of national and local news reports, and Philippine National Police (PNP) Regional Office press releases, there have been 505 deaths from May 10 to July 20. 122 of the 505 people killed were silenced by unidentified gunmen, while another 44 were considered victims of summary executions… (Art. 21 ANC)

One killed (Meco Tan) in the running gun battle but seven other Chinese nationals were arrested in the drug laboratory after implementing the search warrant. The seven Chinese nationals- four men and three

women will be investigated for their involvement in Tan's operation… (Art. 25 ANC)

Some 316 suspected drug dealers were killed from July 1-27, 195 of which were vigilante killings, according to police… (Art. 27 ANC)

One drug user was killed. Some 316 suspected drug dealers were killed from July 1-27, 195 of which were vigilante killings, according to police… (Art. 28 ANC)

The total number, 496 were killed during police operations, while 240 were killed by unidentified gunmen. At least 74 were victims of summary executions… (Art. 29 ANC)

In the same way, the utilization of statistic, figures and quantifiers are used in describing the number of top brass police officers and government officials holding higher position and even local government officials involved in illegal drugs. These are exhibited in the following phrases below:

Duterte names 5 police generals allegedly linked to illegal drugs. The President sprung a surprise on national television when he named five police generals, including three still in active duty, he said were involved in illegal drugs… (Art. 2 CNN)

After naming five active and retired police officers as protectors of drug syndicates and three drug lords, President Rodrigo Duterte may soon identify 23 mayors also allegedly involved in the illegal drug trade, the national police chief said Friday. Chief Supt. Aaron Aquino, regional PNP officer-in-charge, said there are at least a hundred policemen in Central Luzon who could be involved in drug trafficking… (Art. 4 CNN)

23 mayors who are linked to the drug trade. Dela Rosa said the two were "downlines" of suspected drug supplier Johaira "Marimar" Macabuat, a former mayor of Maguing… (Art. 12 CNN)

The President, in a speech early Sunday, identified eight judges, more

than 50 sitting and former mayors and vice mayors, and 95 active, retired and non-commissioned police officers allegedly involved in the illegal drug trade.109 drug pushers in San Rafael, Bulacan have been put behind bars since he took over as mayor in 2013. While around 900 pushers and users surrendered and subjected themselves to rehabilitation programs last month… (Art. 13 CNN)

The "narco-list," which he said contains 1,000 names of mayors, governors, congressmen, barangay captains, and police officers. Five police generals he said were protectors of drug syndicates.The three active officials were soon put under investigation by the National Police Commission (Napolcom)… (Art. 15 CNN)

Similarly, the utilization of statistic, figures and quantifiers are used in telling the number Chinese drug lord syndicates that have been importing drugs here in the Philippines. These are evident in the following phrases:

One killed man (Meco Tan) in the running gun battle. Tan was the only one killed in the running gun battle, but seven other Chinese nationals were arrested in the drug laboratory after implementing the search warrant. The seven Chinese nationals--four men and three women--will be investigated for their involvement in Tan's operation… (Art. 11 CNN)

Correspondingly, the utilization of statistic, figures and qualifiers are used in expressing the number of drug users and pushers who voluntarily surrendered. These are apparent in the following phrases below:

Communications Secretary Martin Andanar said Thursday the voluntary surrender of thousands of self-confessed users and pushers reaffirms the Filipinos. Andanar said in a statement. "We have to seize the momentum. "Close to 60,000 drug dependents nationwide have surrendered to authorities since the Duterte administration began an intense campaign against illegal drugs… (Art. 6 CNN)

Integrated Drug Abuse Profiling System that will be put up in each

of the city barangays translating to 142 computers with a finger-print scanner. Another 12 computers will be distributed to police stations. The city government's rehab center can only accommodate 150 persons. An additional 150 capacity will be available soon but still not enough to accommodate the large number of surrenderees. Police records show that over 4,000 have surrendered since July 1 most of them drug users. Meanwhile, almost 400 have been arrested while 24 have been killed in buy-bust operations… (Art. 11 CNN)

Since July, more than 20,000 drug users and pushers have turned themselves to authorities in Zamboanga,Sibugay, Zamboanga del Norte, Zamboanga del Sur and Zamboanga City… (Art. 22 ANC)

Hundreds of them were self-confessed drug pushers who decided to surrender for fear of being targeted in the police's anti-illegal drugs operations. More than 2,000 prisoners inside the facility, around 70% of them are involved in drug-related cases… (Art. 24 ANC)

Dela Rosa met and had lunch with more than 600 drug dependentsin Bataan who voluntarily turned themselves in… (Art. 4 CNN)

Moreover, the utilization of statistic, figures and quantifiers are used in articulating the extent of illegal drugs that are seized during drug operations by the Philippine National Police. These are evident in the phrases below:

During the police operation, authorities recovered half a kilo of suspectedmethamphetamine or shabu worth around P10 million. The police also said the floating lab could be connected with another anti-illegal drugs operation in Claveria, Cagayan last week which yielded 180 kilos of suspected shabu since the same fishing vessel had also been previously spotted there… (Art. 5 CNN)

The Chinese woman who was nabbed with 4.2 kilos of shabu at Mactan Cebu International Airport last Tuesday morning. According to the 27-year-old nurse, she has visited Cebu twice before she was nabbed for carrying P6 million worth of illegal drugs… (Art. 22 ANC)

A Chinese woman arrested with 4.2 kilos of illegal drugs also sneaked in illegal drugs during her previous visits to Cebu, police said Thursday. Zhou was made to open the luggage and authorities found 11 large packs of shabu… (Art. 23 ANC)

The data above show that the leading use of statistics, figures and quantifiers in the news reports on war on drugs is in describing the number of killed alleged drug suspects and drug lords.

Labeling. The second linguistic feature that is evident in the news reports on drug war from ANC and CNN news portal is labeling. This linguistic structure deals on how the self-identity and behavior of individuals may be determined or influenced by the terms used to describe or classify them. In this research study, labeling is used in naming the individuals who are allegedly involved in illegal drug transactions. The most dominant labels of these individuals who are apparently involved in illegal drug transactions are drug suspects, suspected drug criminals, drug peddlers, drug lords, drug syndicates,anddrug traffickers. These are evident in the following phrases below:

From July 1 to 17, the police killed 70 drug suspects in Metro Manila whom they claimed resisted arrest… (Art. 7 CNN)

The Philippine government's top lawyer called Monday for police to kill more suspected drug criminals… (Art. 16 ANC)
President Rodrigo Duterte on Monday said the photos of a slain drug suspect cradled by his wife are melodramatic… (Art. 26 ANC)

Activist umbrella group Bagong Alyansang Makabayan (Bayan) on Thursday denounced the unabated killings of drug suspects all over the country. With the number of slain suspected drug peddlers rising by the day and questions being raised on the manner anti-drug raids are being carried out, human rights advocates are now taking President Rodrigo Duterte to task… (Art. 29 ANC)

Duterte names country's topmost drug lords. President Rodrigo Duterte came out with another list – this time, naming the drug lords themselves. Duterte, complete with a chart illustration of the drug trade network,

identified on Thursday three of the country's topmost drug lords… (Art. 3 CNN)

Enrico Rigor said the foursuspects from Hong Kong, who were arrested during the police operation, could be chemists connected with big time Chinese and local drug syndicates… (Art. 5 CNN)

PNP Chief: Killing of suspected drug lord is birthday gift to Interior Secretary… (Art. 9 CNN)

The President recently named "Level 5"drug lords… (Art. 17 ANC)

Law enforcers shot and killed suspected drug lord Meco Tan in an encounter in Valenzuela before dawn Friday… (Art. 25 ANC)

Duterte earlier identified threealleged top drug traffickers and fivepurported police drug coddlers… (Art. 20 ANC)

Similarly, the labeling is used in specifying the top brass police officers and government officials holding higher position and even local government officials involved in illegal drugs. These are exhibited in the following phrases below:

After naming five active and retired police officers as protectors of drug syndicates and three drug lords… (Art. 4 CNN)
PNP top brass Ronald Dela Rosa said Espinosa is included in President Rodrigo Duterte's list of local officials tagged as protectors of illegal drug activities in their areas… (Art. 14 CNN)

After having their names dragged in the country's illegal drug trade by no less than President Rodrigo Duterte himself,several of the accused government officials, police officers and drug lords has turned themselves in to clear their names… (Art. 15 CNN)

Duterte names 5 police generals allegedly linked to illegal drugs… (Art. 2 CNN)

PNP top brass Ronald Dela Rosa said Espinosa is included in President Rodrigo Duterte's list of local officials tagged as protectors of illegal drug activities in their areas… (Art. 14 CNN)

After having their names dragged in the country's illegal drug trade by no less than President Rodrigo Duterte himself,several of the accused government officials, police officers and drug lords has turned themselves in to clear their names… (Art. 15 CNN)

Duterte earlier identified threealleged top drug traffickers and five purported police drug coddlers… (Art. 20 ANC)

Correspondingly, labeling is used in determining the foreigners involved on illegal drug-trade. These are shown in the following phrases below:

President Rodrigo Duterte on Sunday deplored the alleged involvement of someChinese citizens in the narcotics trade in the Philippines… (Art. 18 ANC)

Chinese woman who was nabbed with 4.2 kilos of shabu at Mactan Cebu nternational Airport last Tuesday morning...Meanwhile, the Filipino-Chinese community in Cebu expressed their disappointment towards Chinese nationals… (Art. 22 ANC)
A Chinese woman arrested with 4.2 kilos of illegal drugs also sneaked in illegal drugs during her previous visits in Cebu, police said Thursday… (Art. 23 ANC)

Tan was the only one killed in the running gun battle, but seven other Chinese nationals were arrestedin the drug laboratory after implementing the search warrant… (Art. 25 ANC)

Enrico Rigor said the foursuspects from Hong Kong, who were arrested during the police operation, could be chemists connected with big time Chinese and local drug syndicates… (Art. 5 CNN)

The data above indicates that most of the foreigners involved in illegal drug transactions are Chinese nationals.

Furthermore, the data above shows that the dominant use of labeling in the news reports on war on drugs is naming the killed alleged drug suspects and drug lords.

Lexical Choice. The third dominant linguistic feature contained in the news reports about Drug Wars on ANC and CNN news portals are the presence of infrequent lexicons. One of the most important tasks in language generation is lexical choice. This means choosing words to communicate to the reader the information selected by the system's content determination. From the chosen 30 news articles from CNN Philippines and ANC news, we have found out that there are predominant words and phrases that can be seen among the chosen news articles on Drug Wars are the following: summary execution, extra-judicial killings, vigilante killings, drug related killings, scot-free, drug bigwigs, salvage, slain, and brutal war. These words and phrases are used in recounting the incidents that have occurred during the drug campaign of Duterte's administration. These are evident in the following excerpt below:

The Metro Manila police force is not letting alleged victims of summary execution go unnoticed… (Art. 5 CNN)

The Duterte government is against extra-judicial killings and does not condone such acts, he said… (Art. 6 CNN)

"The PNP continues to investigate situations involving vigilante killings and operational aspects where deaths are reported... (Art. 7 CNN)

National Police Commission (Napolcom) Vice Chairman Rogelio Casurao even says policemen may be allowing the vigilante-style killings to happen. But Albayalde says they are not condoning these acts, and are probing incidents of drug-related killings without suspects... (Art. 7 CNN)

The former Justice Secretary said she was concerned about the ongoing vigilante killings of alleged drug criminals… (Art. 10 CNN)
But Albayalde says they are not condoning these acts, and are probing incidents of drug-related killings without suspects... (Art. 6 CNN)

National Capital Region Police (NCRPO) probes on alleged summary killings underway... (Art. 7 CNN)

The former Justice Secretary said she was concerned about the ongoing vigilante killings of alleged drug criminals... (Art. 10 CNN)

The Palace official also denied Duterte's anti-narcotics efforts only target poor drug peddlers while big-time drug lords remain scot-free... (Art. 17 ANC)

Duterte recently identified alleged drug bigwigs Peter Lim, Peter Co and Herbert Colangco... (Art. 17 ANC)

The President recently named three alleged bigwigs in the underground trade. Among those he identified was Cebuano-Chinese businessman Peter Lim. The other two were Peter Co and Herbert Colangco... (Art. 18 ANC)

But rights group Amnesty International says extrajudicial killings are not the solution regardless of the crime situation... (Art. 6 CNN)
In a Facebook post that is starting to get viral, Kaibigan Foundation raised alarm over what it believes was the extrajudicial killing of Bunuan and two others... (Art. 21 ANC)

Based on ABS-CBN data, 122 of the 505 people killed were silenced by unidentified gunmen, while another 44 were considered victims of summary executions... (Art. 21 ANC)

Some 316 suspected drug dealers were killed from July 1-27, 195 of which were vigilante killings, according to police... (Art. 28 ANC)

Human rights groups estimate the body count to be at least double the official number. Duterte previously promoted the vigilante killings and has yet to condemn them... (Art. 28 ANC)

The president was also criticized for describing as "dramatic" a viral photo of a slain pedicab driver accused of being a drug pusher… (Art. 29 ANC)

Rodrigo Duterte's brutal war on crime against mounting criticism… (Art. 16 ANC)

President Rodrigo Duterte on Monday said the photos of a slain drug suspect cradled by his wife are melodramatic... (Art. 26 ANC)

There is also a small number of slain suspects in Western Visayas and Eastern Visayas, Caraga and ARMM... (Art. 27 ANC)

"Salvage" victims, or those whose bodies were found with an attached label or signage tagging them in drugs... (Art. 30 ANC)

From the gathered data in this study, the used of phrase summary execution and vigilante killings invite thoughts of injustice to news readers since it can be perceived that any person can take the law of his or her hands without recourse to lawful procedures. On the other hand, the words brutal, salvage and slain invite thoughts of gruesome death to news readers.

The Frame Used in News Articles on Drug Wars. In the utilization of figures and quantifiers, the frame that has been used is thematic framing. According to Iyengar in 1993 thematic frames focuses on; big pictures, providing statistics, expert analysis or other information that can help the readers see the event on a broad context. The researchers have found utilization of figures and statistics that has been used in the news reports on war on drugs particularly on determining the number of slain drugs suspect, number surrenderees, the number list of government officials involved in illegal drugs, drug pushers and users and the salary of police officials. These can lead to the reader's perception; those seeking to frame political issues to their advantage recognize the power of emotional appeals. Yet the study of framing has focused mainly on the cognitive effects of framing and emotional effects.

On the other hand, the frame that is used in labeling is thematic framing. It focuses on the issue that caused the problem and to get the attention of the public on what is going on with the society. The war on drugs in the Philippines has spread worldwide creating news trends on different Medias. The labeling of the top brass police officers and government officials holding higher position and even local government officials involved on illegal drugs earns scrutiny because

these individuals are considered as valuable in the law implementation but their participation on illegal drug transactions in the Philippines gives the incident a higher impact value.

Nowadays the role of the media is dominating in our modern society. They tend to bring the latest news and trends to the people that can be affected on how they write their news. Online news portals are leading this new generation of media because it updates the people immediately or easily, it is considered to be one of the most useful ways of news to bring awareness and ideas to the society. Online news portals have everything like articles, pictures and videos to make the news more clearly and precisely to the readers and viewers.

In this research study, we found out that the most commonly published news report on the war on drugs in the Philippines according to the lead paragraphs and contents are the following: news about slain drugs suspects, news about government officials involved in illegal drugs, news on drug lords, news on foreigners involved in illegal drug trade, and the news on drug users or pushers that surrendered. Lead paragraphs can help the journalist to get more attention to the reader just with the first paragraph, that's why journalist tends to make the lead paragraph more eye catching and more interesting. According to Van Dijk (1998) headline along with the lead paragraph expresses the main topics of the text. Also according to Yule in 1983, headline creates some expectations and urges the readers to look into the contents of the text because this catches their attention.

The study also reveals that the news reports have linguistics structures that can indulge anger to some readers. These are the modifiers used in describing the slain drug suspects and the victims of the killings. Modifiers are commonly used in news stories but Merril (1965) mentioned that these modifiers must be used with high extreme care or subjectivity will creep in and the mere use of modifiers will create favorable or unfavorable impressions to some readers. Some of the news reportage do not follow the fair choice of words or the language they use in the news reports, the results of this study are similar to the notion of Fairclough (1995) that distortion and manipulation of the truth is in pursuit of specific interests, making the readers confused or mostly believing on the wrong idea of news reportage. The media play an important part in the production of ideology according to Jalbert (1983), because it creates ideas to the readers and makes their mind full of stories about the news reportage that they have read. Pisarek (1983) stated that journalistic information is based to a large extent on the use of words so therefore; the choice of words is important because it can give great impact in the news story. Since, words carry different shades of meaning; it is insignificant which words can be used in a news stories. There are always different ways to say

the word to the people, events and happening. The utilization of combination of quantifiers and figures as reference to the number of slain drugs suspects, government officials involved in illegal drugs, drug lords that have been caught and killed and drug users and pushers that surrendered which points out the angle towards evidence-based reporting or objective reporting. Tuchman (1978) and Van Dijk (1988) stated that in order to claim objectivity, reporters resort to certain devices. These devices are used on numbers to indicate precision, presenting contradicting views on a matter, witnesses of events and the use of quotation marks to signal that reporter is not making a truth-claim.

On the other hand, the result of this study shows that majority of the news article use thematic framing since it dwells on the issues that have caused the problem and capture the attention of the public on what is going on with the society.

DISCUSSION

In this research study, we found out that the most commonly published news report on the war on drugs in the Philippines according to the lead paragraphs and contents are the following: news about slain drugs suspects, news about government officials involved in illegal drugs, news on drug lords, news on foreigners involved in illegal drug trade, and the news on drug users or pushers that surrendered. Lead paragraphs can help the journalist to get more attention to the reader, that is why journalist tends to make the lead paragraph more eye-catching and more interesting. According to Van Dijk (1998) headline along with the lead paragraph expresses the main topics of the text. Correspondingly, according to Brown & Yule (1983), headline creates some expectations and the urge for the readers to look about the contents of the text because this catches attention.

The study also reveals that the news reports have linguistics structures that can indulge anger to some readers. These are the modifiers used in describing the slain drug suspects and the victims of the killings. Modifiers are commonly used in news stories but Merril (1965) mentioned that these modifiers must be used with high extreme care or subjectivity will creep in and the mere use of modifiers will create favorable or unfavorable impressions to some readers. Some of the news reportage does not follow the fair choice of words or the language they use in the news reports. The results of this study are related to the notion of Fairclough (1995) that distortion and manipulation of the truth is in pursuit of

specific interests, making the readers confused or mostly believing on the wrong idea of news reportage. The media play an important part in the production of ideology according to Jalbert (1983), because it creates ideas to the readers and makes their mind full of stories about the news reportage that they have read. Pisarek (1983) stated that journalistic information is based to a large extent on the use of words so therefore; the choice of words is important because it can give great impact in the news story. The utilization of combination of quantifiers and figures as reference to the number of slain drugs suspects, government officials involved in illegal drugs, drug lords that have been caught and killed and drug users and pushers that surrendered points out the angle towards evidence-based reporting or objective reporting. Tuchman (1972) and Van Dijk (1988) stated that in order to claim objectivity, reporters resort to certain devices. These devices are used on numbers to indicate precision, presenting contradicting views on a matter, witnesses of events and the use of quotation marks to signal that reporter is not making a truth-claim.

On the other hand, the result of this study shows that majority of the news article have used thematic framing; since it dwells on the issues that have caused the problem and capture the attention of the public on what is going on with the society.

In summary, news reports keep us updated and knowledgeable about the current happenings in our society. Without the news, people would not have a picture in mind with what is going on with the society. It also gives us more knowledge and broadens our perspective on what we see within our society. A news story teaches us and also we can get learning's from this news reports, news is a great influence to the society. It can bring the people together and can unite the whole nation if there is proper news reportage to be presented. However news reports also have negative side by providing wrong information; it can lead people to confusion, mislead the people to believe in the wrong information and create chaos within the nation.

Finally, news reports can be used as a weapon of propagating wrong ideas that can lead to commotion. However, it is also a tool of teaching positive views and giving hope to the nation.

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Hematologic Effects of *Averrhoa bilimbi* (Kamias) Ethanolic Fruit Extract

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ABSTRACT

Clinical laboratories employ in vitro anticoagulant, such as Ethylenediaminetetraacetic Acid (EDTA) for complete blood count (CBC), which is commonly synthetic and expensive. *Averrhoa bilimbi* (kamias), which contains oxalate, may be a natural substitute source of anticoagulant. This research aimed to assess the influence of kamias ethanolic fruit extracts (KEFE) on various CBC parameters and cells microscopically. Comparisons of different concentrations of KEFE-treated blood (2, 3, 4 mg/ml) were done against the EDTA-blood. The study was an experimental research. Blood were collected from 16 volunteers free from cardiovascular diseases with normal CBC. The clotting time of the blood with KEFE showed no visible coagulation for concentrations of 3 mg/mL and 4 mg/mL even after 180 minutes of observation, while the blood with 2 mg/mL and plain blood showed a clot formation within 15 minutes. Based on the CBC parameters result, the blood treated with KEFE showed significant difference only for the platelet count between groups ($p>0.000$); the rest of the CBC parameters were insignificantly different. The microscopic evaluations of KEFE-blood smears were comparable to EDTA blood smears. With this, the KEFE demonstrated comparable anticoagulation activity towards EDTA. The kamias, KEFE, is a feasible substitute anticoagulant for CBC testing.

KEYWORDS: In vitro anticoagulant, anticoagulant, complete blood count, CBC, clotting time, *Averrhoa bilimbi*, kamias, fruit extracts, Ethylenediaminetetraacetic acid, EDTA, oxalic acid, oxalate, clinical laboratories.

INTRODUCTION

Complete blood count (CBC) testing is the frequently requested diagnostic test in clinical laboratories. CBC testing utilizes ethylenediaminetetraacetic acid (EDTA) as an in vitro anticoagulant. These EDTA tubes are readily available on a ready-to-go tubes for blood extraction. However, these EDTA tubes can be expensive that it can add-up approximately Php 10.00-15.00 per test, leading to an annual expense of Php 720,000.00 for the laboratories (1).

To possibly alleviate the expenses, locally available natural source of an in-vitro anticoagulant may provide remedy to the costing and minimize synthetic production. Kamias (Averrhoa bilimbi) is a fruit commonly found in the Philippines. It is known to have properties that are beneficial to health. One of the main component of kamias is the oxalic acid, whose conjugate base is oxalate. Oxalates are known anticoagulants.

Breakthrough in the field of clinical laboratories and for therapeutic remedies of thrombotic disorders considers kamias as a possible alternative (Daud et al). Thus, this study aims to determine the potential of kamias ethanolic fruit extract as an in-vitro anticoagulant.

Clinical laboratories repeatedly employ anticoagulants every day in almost all routine diagnostic tests. A clinical laboratory receives blood samples daily for Complete Blood Count (CBC) determination under the Hematology section (1Dayaganon, Sarpong, Sapilan, & Fernandez 2014). CBC is a test that can initially assess the well-being of the patient through different cell counts. This test requires whole blood that is free from any clot. In order to prevent blood clotting, an in-vitro anticoagulant must be added (2Rodak, Fritsma & Doig, 2012). In today's practice, clinical laboratories use the commercially prepared ethylenediaminetetra-acetic acid (EDTA) as anticoagulant for CBC (3Turgeon 2010; and 4Mcpherson & Pincus, 2012). EDTA comes as sprayed liquids or dry crystal coat on ready-to-go tubes for blood extraction. EDTA tubes can be expensive, considering the frequency they are used in diagnostics. Approximately more than 200 tubes of EDTA are consumed daily costing Php 1000.00. Computing 30-days per month and 12 months a year, the total cost for EDTA alone is worth Php 360,000.00. Using available local natural resources as an alternative anticoagulant may provide remedy to the problem as to cost, and minimize the synthetic production. Thus, possible natural plant sources having anticoagulant properties should be explored (Dayaganon et al., 2014).

In the field of allied health services, researches are focused on the extensive use of herbs and plants as a possible alternative solution to cure diseases and as

an alternative source that may augment income of people growing these plants locally. In connection to this trend and need, these plants are tested and studied for their various potentials toward the field of diagnostic medicine (Evangelista et al., 2012). There are certain plants which might have the potential anticoagulant properties (Evangelista et al, 2012), one of these, is Averrhoa bilimbi locally known as kamias or iba. This plant is found widely in the Philippines. Studies had shown that its leaf extract, fruit and even its trunk have various properties that are beneficial to health (Daud, Hashim, Samsulrizal 2013; Setiawan, 2008; and Peter, 2007; Lima, Melo & Lima, 2001).

In a recent study, the potential hematologic effect of kamias fruit juice (Dayaganon et al, 2014) had been explored as a breakthrough in the field of clinical laboratories, and for the therapeutic remedies of thrombotic disorders (Daud et al, 2013). The former study showed an optimistic result when it comes to its potential as an alternative anticoagulant. Meanwhile, there is no known published article or existing literature that determines its possible effects on various CBC parameters in blood samples, or as an in-vitro anticoagulant. Thus, this study aims to determine the hematologic effect of kamias ethanolic fruit extract on blood specimen using different concentrations to assess clotting time, the various CBC parameters, platelet count, and cellular morphology. Investigating these will impart basis for the potential anticoagulant activity of the kamias.

Objectives of the Study. This study aimed to determine the hematologic effects of the kamias ethanolic fruit extract (KEFE) for routine hematologic tests. Specifically, it determined the clotting time of various concentrations of KEFE as well as the mean values of various CBC parameters, and microscopic evaluation of cells with KEFE and cells with EDTA. This experimental research designs determined the significant difference of the means of the clotting time and various CBC parameter across groups.

METHODS

Research Design. This study is an experimental research design where the blood specimen with kamias ethanolic fruit extract (KEFE) were tested for in-vitro anticoagulation against controls, EDTA and no treatment.

This study utilized an experimental research design, using KEFE in blood specimen for the evaluation of its hematologic effects in vitro, with controls. The blood samples were assessed thru the clotting time, various CBC parameter, platelet count, and microscopic evaluation of the specific cells under the microscope. The defined concentrations of KEFE (2 mg/mL, 3 mg/mL and 4 mg/mL) treated blood were tested to get the mean clot formation time; and its effects on various CBC parameters and platelet count by getting the mean values of the different parameters.

Research Setting. All the testing, collection and expiration done in this study were performed within the locale of the University of the Immaculate Conception, Davao City. The blood samples were collected and processed at the Clinical Laboratory of the University. At the same time, the extraction process were done at the Science Research Center of the University. It is duly recognized by the Department of Environment and Natural Resources and it is also accredited by the Department of health under the Bureau of Health Facilities and Services.

Research Procedure

Collection of Fruit Material

The kamias fruit were collected along the vicinity of Bo. Obrero, Davao City, Philippines between September and October of 2014. The kamias fruit were freshly picked around 3 o'clock to 4 o'clock in the afternoon. Both the ripe and unripe kamias fruits were used in the study excluding the small and immature fruit. The kamias fruit sample were authenticated by a botanist affiliated to the University of the Immaculate Conception (UIC), Davao City.

Preparation of the Extract

The kamias fruits were processed as adapted and modified from Daud, Hashim, & Samsulrizal (2013). The freshly picked fruit with weight of two (2) kilograms were washed thoroughly with distilled water, sundried and grounded into powder. The grounded powder were wrapped in cotton cloth and soaked in 80% ethanol (2L) for 2 days. The solution was rotary evaporated at 40oC. Excess water were freeze-dried. The freeze-dried extract was stored at 40oC until it was used.

Preparation for Testing

Upon the availability of the KEFE, varying concentrations (2 mg/mL, 3 mg/mL, & 4 mg/mL) were prepared. The KEFE were placed in a test tube and made ready for placement of blood specimen. Weighing of the KEFE was done using an electric weighing scale with milligrams – kilograms of scale.

Ethical Considerations

Identification of Donors

The volunteer-donors of blood came from the UIC, represented by 16 participants between the ages of 15-30 years old and must have a normal CBC and platelet count. Donors with cardiovascular disease (such as hypertension, congestive heart failure, and coagulation disorders); recently using non-steroidal anti-inflammatory drugs (NSAIDs); obese; smokers; and suffering from dyslipidemic disorders were excluded in the selection process.

Venipuncture was done with consent from the donor. The collected blood specimens were placed in the prepared tubes with the varying concentrations of KEFE, EDTA (lavender) tube, and plain tube as controls.

Clot Formation Time

This test is intended to determine the probability of the KEFE as an in vitro anticoagulant through checking of the macroscopic clotting time of the blood. Macroscopic evaluation involved clumping and clotting assessment. Any form of fibrin clot formation is considered as clotted. The tubes were checked every fifteen minutes up to three hours (Johnston, Cullen, and Holt, 1991).

CBC, Platelet Count Testing and Microscopic Evaluation

Blood-treated that showed no clotting formation after the assessment of the clot formation time were preceded to the testing of CBC and platelet parameter. The blood for CBC and platelet parameter testing were analyzed using the Act-5diff Beckman Coulter hema-analyzer, and a smear-preparation from blood-treated tubes were performed. Furthermore, a microscopic evaluation of the stained smear (using Haema-quick stain) were done to assess the cell size, cell morphology and staining characteristics of erythrocytes and leukocytes and distribution of platelet in comparison to EDTA-treated blood.

All the blood specimen, fruit pulps, extracts and materials used in the research were disposed properly based on the standard operating procedures of the UIC.

Data Analysis

Results were collected and collated. The means of the results of the various CBC parameters and the means of platelet count from various concentrations were treated using ANOVA. The clot formation time and the observations from the microscopic evaluation were briefly described.

RESULTS

The clot formation time of the blood treated with 2 mg/mL of KEFE and the plain blood are within 15 minutes. The rest of the blood with treatment and EDTA-treated blood have shown no formation of clot even after 180 minutes of observation. The normal clot formation time of blood that is placed in a test tube without any additive is maximally achieved within 15 minutes of standing.

Blood specimens are treated with KEFE that have shown no coagulation activity during the assessment of the clot formation time are further investigated on the basis of hematologic effects using the CBC and platelet assay. The results of the CBC parameters using blood treated with various concentrations of KEFE and EDTA are presented on Table 1. Based on the data gathered, results have shown that almost all of the CBC parameters of blood treated with KEFE and EDTA are relatively of close values. The only remarkable difference is the platelet concentration of the 3 mg/mL KEFE-treated, 4 mg/mL KEFE-treated, and EDTA-treated blood samples.

The comparison of means of the 3 groups of blood samples pertaining to CBC parameters and platelet count were also presented in Table 1. Using the ANOVA for statistical comparison, the results are varied. Among the parameters of CBC and platelet count, only the platelet count that has shown significant difference with a p-value of 0.0000, the rest of the parameters are not significant.

Table 1. Mean and standard deviation of CBC Parameters of blood using various concentrations of kamias ethanolic fruit extracts and EDTA (COULTER® AcT™ 5diff hema-analyzer)

	3 mg/mL n=48	4 mg/mL n=48	EDTA n=16	p-value 0.05
WBC count x 103/µL	5.11 ± 1.84	5.28 ± 1.94	6.25 ± 1.51	0.100
RBC count x 106/µL	5.00 ± 0.61	4.98 ± 0.55	5.03 ± 0.71	0.957
Hemoglobin g/dL	144.12 ± 15.88	144.05 ± 15.69	143.95 ± 18.32	0.999
Hematocrit	0.43 ± 0.05	0.44 ± 0.05	0.44 ± 0.06	0.998
Platelet x 103/µL	104.08 ± 52.69	98.94 ± 59.71	267.19 ± 54.02	0.000
MCV fL	87.25 ± 8.26	87.69 ± 8.33	87.03 ± 8.23	0.932
MCH pg	29.04 ± 3.32	29.09 ± 3.27	28.92 ± 3.36	0.985
MCHC g/dL	33.16 ± 0.93	33.07 ± 0.87	33.16 ± 1.01	0.985
Neutrophil %	22.57 ± 38.77	22.72 ± 39.01	22.48 ± 39.30	1.000
Lymphocytes %	7.85 ± 12.99	7.84 ± 13.00	7.73 ± 13.21	0.999
Monocytes %	8.49 ± 14.73	8.45 ± 14.67	8.49 ± 15.05	1.000
Eosinophils %	0.02 ± 0.03	0.03 ± 0.05	0.01 ± 0.02	0.421

Evaluation of Cell Morphology. RBC morphological evaluation has shown normocytic erythrocytes, and the color of the erythrocytes are ranging from pink to yellowish red as presented in Figure 1, Figure 2 and Figure 3. The most common observations for RBCs of 3 mg/mL KEFE-treated blood are the presence of crenated and distorted cells (Figure 1); and for RBCs on 4 mg/mL KEFE, are distortion of RBC membrane (Figure 2).

Furthermore, the characterization of various WBCs (neutrophil, lymphocytes, monocytes & eosinophil) from different groups (3 mg/mL, 4 mg/mL & EDTA) are generally within the average range. The staining characteristics of the nucleus, cytoplasm and granules are also evaluated. Results on staining characteristics have shown that the various WBC from different groups are accurately stained.

Additional observation has shown that the neutrophil from 3 mg/mL KEFE contains a remarkable presence of vacuolated cells (Figure 4-8).

Morphology and distribution of the platelet have shown that platelets from test groups (3 mg/mL and 4 mg/mL KEFE) are aggregated, Figure 9 & Figure 10, with noticeable unstained platelets, whilst the platelets from EDTA blood were not aggregated.

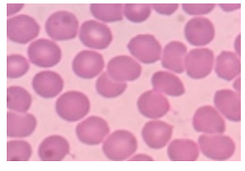

Figure 1. RBC morphology in stained blood smear treated with 3 mg/mL KEFE (OIO, magnification 1000X)

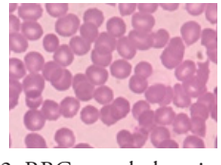

Figure 2. RBC morphology in stained blood smear treated with 4 mg/mL KEFE (OIO, magnification 1000X)

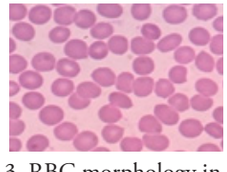

Figure 3. RBC morphology in stained blood smear treated with EDTA (OIO, magnification 1000X)

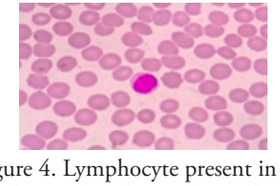

Figure 4. Lymphocyte present in the blood treated with 3 mg/mL of KEFE (OIO, magnification 1000X)

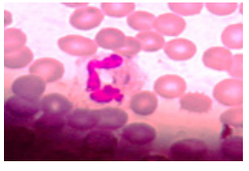

Figure 5. Neutrophil present in the blood treated with 3 mg/mL of KEFE (OIO, magnification 1000X)

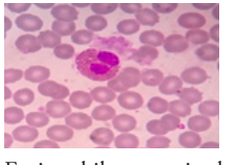

Figure 6. Eosinophil present in the blood treated with 4 mg/mL of KEFE (OIO, magnification 1000X)

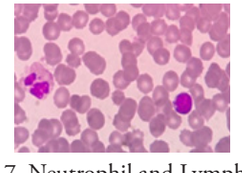

Figure 7. Neutrophil and Lymphocyte seen in the blood treated with 4 mg/mL of KEFE (OIO, magnification 1000X)

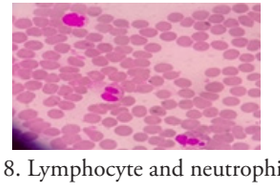

Figure 8. Lymphocyte and neutrophil seen in blood treated with 3 mg/mL of KEFE (OIO, magnification 1000X)

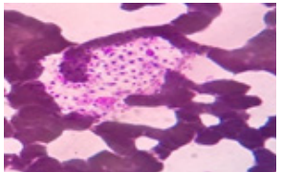

Figure 9. Platelet clumps in blood treated with 3 mg/mL of KEFE (OIO, magnification 1000X)

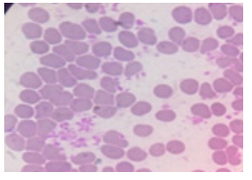

Figure 10. Platelet clumps in blood treated with 4 mg/mL of KEFE (OIO, magnification 1000X)

DISCUSSION

The study has shown anticoagulation capacity of the kamias ethanolic fruit extract in blood samples. At 3 mg/mL and 4 mg/mL KEFE treated blood, samples have remained unclotted and comparable to EDTA.

This preliminary results indicates the potential anticoagulation activity of the kamias (KEFE). Kamias as a potential anticoagulant might be due to the presence of oxalic acid, conjugate base is oxalate, from the fruit (De Lima et al., 2001; Bhasker & Shantarama, 2013; Daud et al., 2013). The kamias contains high levels of oxalic acid (oxalate) with concentrations between 8.57 and 10.32 mg/g (Lima et al, 2001; Daud et al, 2013). Oxalate is capable of chelating the calcium in the blood, thus, may inhibit the clotting capacity of the blood (Rodak, 2012).

Furthermore, hematologic effects of the test groups are further evaluated using CBC parameters have been found that majority of the parameters are comparable to EDTA treated blood, with only platelet count showing significant difference.

The difference is the means of the platelet count may be associated to its microscopic observation of presence of aggregation. According to Campbell and Coles (1986), oxalates as an in vitro anti-coagulant may not inhibit the platelet aggregation. With the undertaking that kamias contains oxalates and the assumption that oxalate inhibits the chelation of the calcium, oxalate might also have commenced the minor platelet aggregation especially after exposure of the blood to the glassware (Bishop et al, 2013).

Thorough and judicious evaluation of the different CBC parameters also includes the microscopic evaluation of the morphology of different cells. Stained smears are useful in assessing the structural integrity of each of the cell

(Rodak, 2012). Based on the results of the microscopic evaluation, in general, the KEFE-treated blood are comparable to the EDTA-treated blood. Although there are presence of distorted cells and crenation for RBC's, and vacoulation for neutrophils.

Kamias bears the fact that it contains high oxalic acid content, with this, it is contributory to highly acidic pH. The acidic pH of kamias might have contributed to the distortion and vacuolation of cells. The pH of the kamias extract was not determined and adjusted as part of the limitation of the study.

Kamias is easily grown and available locally. In this study, kamias has shown comparable hematologic effect with the commercially available anticoagulant. Much innovation can be generated from this natural resource by determining the optimum pH and adding a buffer agent. Possible optimization of the kamias can also be further investigated by enhancing the concentration of extract against the whole blood. Other means of extraction may be utilized in order to extract thee oxalic acid from the fruit to credit the anticoagulation property of the fruit to the oxalate component.

Conclusion. In light of these findings, it is concluded that the kamias ethanolic fruit extract may be used as an anticoagulant. At concentrations of 3 mg/mL and 4 mg/mL of KEFE, blood showed no coagulation even after 180 minutes of standing. This activity may be credited to the presence of oxalic acid in the fruit of kamias. As an anticoagulant, the KEFE showed similar hematologic effect in blood as those blood treated with the commercially available anticoagulant, EDTA, with the exclusion of the platelet count. Further study must be done in order to prevent the possible platelet aggregation.

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