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1 ------ Relationship of Internal Audit Functions to Governance of Local Government
Janet Sabado, Reuel Narbarte, Robert Borromeo, and Ruben Carpizo

12 ------ Human Resource Management Practices and Organizational Performance of
Selected Tertiary Institutions in the Philippines
Ruben Carpizo and Reuel Narbarte

20 ------ Journey to Quality and Academic Excellence: The Organizational Life History of
Adventist University of the Philippines
Miriam Narbarte and Jolly Balila

32 ------ Biblical Origin of Communication in the Context of Synergistic Communication
Theory: Basis for Creating the 21st Century Communication Model
Romeo Barrios

48 ------ Organic Gardening Program at AUP’s Partner Community: Impact Study
Rolyln Cadalig, Eunice Carpizo, and Eunice Aclan

61 ------ Knowledge, Health Practices, and Diabetes Mellitus II Tendency
Eunice Carpizo

73 ------ Filipino Adolescents’ Coping Strategies: A Confirmatory Factor Analysis
Jezamine De Leon and Edwin Balila

82 ------ Perceived Effects of Service Learning Program on the Academic Development of
Pre-Service Teachers
Jeremiah Fameronag and Josephine Fameronag

89 ------ Service Learning of Nutrition and Dietetics Students in the Community: A
Phenomenological Study
Merlina Idaosos, Eunice Aclan, and Ruchelle Oasan

100 ----- Students’ Career Choices: A Guide For Senior High School Preparation
Elmie Lynn Lagajino, Mercedes Ibanez, Joan Mel Guirguiz, Agapito Tuting, and Jolly
Balila

108 ----- A Preliminary Study on the Basic Education Filipino Teachers’ Psyche: WHAT MAKES
THEM TICK?
Belle Manlapig

122 ----- Socio-Cognitive Development, Peer Pressure and Ego Strength of Children in
Conflict with the Law
Buyisile Mbulawa and Flor Villa P. Marticio

134 ----- Harmony of the Principles of Design With God’s Perfect Creation
Reuben Abaya Pagaduan
145 ---- Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia
Richard Kasenda and Susy A Jael

157 ---- Experiences of College Students on Bullying
Maria Julita SJ. Sibayan

169 ---- Development of a Healthy, Nutritious, and Delicious Tiesa (Pouteria campechiana) Polvoron
Doreena Jean Padilla, Olivia Saddul, Gladys Mae Laborde*, Maribel Balagtas, and Lorcelie Taclan

179 ---- Effects of 24-Hour Fasting on the Vitro Phagocytic Activity of Neutrophils
Alain Justin Berbano, Richardson Delas Alas, David Hendrik Putra Palar, and Ma. Estrella H. Sales*

192 ---- The Great Controversy Between Michael and the Devil in Jude 9: A Theological Analysis
Rico Javien

203 ---- Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species
Litton Halder, Leilanie D. Arce*, Orlex B. Yllano

222 ---- Leader-Member Exchange and Its Relationship to Workplace Conflict as Mediated by Organizational Citizenship Behavior
Arlette Ufitinema and Lualhati Parulan Sausa*
RELATIONSHIP OF INTERNAL AUDIT FUNCTIONS TO
GOVERNANCE OF LOCAL GOVERNMENT UNITS

Janet Sabado, Reuel Narbarte, Robert Borromeo, and
Ruben Carpizo

Abstract

The study determined the relationship between internal audit functions and governance in Local Government Units (LGUs) in Metro Manila, Philippines. The data were gathered from 510 employees of LGUs using stratified sampling. Majority (359 or 70.6%) of the respondents belonged to 31–50 years old; majority of them worked in finance (181 or 35.5%) and in social service provider department (179 or 35.1%) and were managers (44 or 8.6%), supervisors (188 or 36.9%), and in clerical position (278 or 54.5%). Results of the study revealed that the internal audit functions of the Internal Audit Units of the LGUs were very good. However, the respondents perceived that the internal audit units seldom retain an independent outlook in presenting their suggestions. The overall status of governance of LGUs included in the study was very good although they sometimes spend more than what they earned. Loans from private institutions are sometimes obtained. Further results revealed that all the dimensions of governance, i.e., financial management and reporting, delivery of basic services, legal compliance, and internal government were perceived very good but the respondents were most satisfied on financial management and reporting. There was a strong positive relationship of internal audit functions to governance. The findings showed that the predictors of governance included consulting services, assurance services, and age.

Keywords: internal audit functions, governance, Local Government Units
I. INTRODUCTION

Governance is the process by which the organization and its stakeholders gain assurance that activities are conducted in accordance with broad organizational policies, and that accountability is established. (Jubb, Topple, Schelluch, Rittenberg, & Schweiger, 2008). It refers to the political, economical, social, and technological links in different countries (Hamilton & Webster, 2009), that diminution or elimination of state-enforced restrictions on exchanges across borders and the increasingly integrated and complex global system of production and exchange that has emerged as a result (Palmer, 2002). Governance brings about rapid changes in technology and communication. It also provides opportunities for new markets and other developments not only internationally but also locally.

Governance is a major concern of private and government institutions because of the quickening pace of globalization and the significant decline in economic activity brought about by the recent financial crisis. The financial and economic crisis that started in 2008 led to a significant loss of trust in government (OECD, 2013).

As a result, economies have become more complex which in turn complicates governance. Best practices, new concepts, tools and measurements are needed to ensure that any government or organization will be able to cope with these changes. Hence, the topic on governance is on top of the reform agenda conducted by governments, different concerned institutions, and individuals.

A study made by Standard and Poor’s Rating Services on the current situation of the Philippine Local Government Units (LGUs) reveals the following: there is basic to poor levels of financial management in most areas when compared to the global’s best practices although some evidence of intermediate practice has started to surface; transparency is quite poor and is helped somewhat by publicly available audited reports though often with significant qualifications; there are underdeveloped information systems and planning tools; weak link between strategic goals and expenditure allocations (Ökorotchenko, 2009).

In addition, the data taken from the Department of Budget and Management (DBM) as presented by Gera (2008) reveal that the Internal Revenue Allotment (IRA) given to LGUs keeps increasing in relation to the total national budget which is from 6.88% in 1992 to 16.33% in 2006. Furthermore, the IRA remains to be the major source of revenues for the LGUs. He presented data from the Commission on Audit (COA) where only 34.6% is generated from local revenues in 2006 while 63.1% comes from the IRA and 2.3% from other external receipts. The data revealed further that there was also a decrease in the local revenues which is 35.7% in 2005, the IRA at 62.1% and the receipts from other external sources at 2.2%.

The above scenario indicates that the goal of Republic Act 7160 to give more freedom to LGUs to self-generate their own revenues has not been achieved and the opportunities presented by globalization have not been captured.

Belay (2007) states that a well-performing internal audit function is one of the strongest means to monitor and promote good governance system in an organization. As a result, in many countries, internal audit function receives increasing attention as an important component of government financial management and as a tool for improving the performance of the government sector.
Furthermore, Asare (2009) mentions that a well configured internal audit function can play a vital role in the governance and accountability process of public sector institutions through their assessments on the effectiveness of key organizational controls, governance and risk management processes. This would lead to the examination of what an internal audit function is and how it relates to governance.

This situation puts pressure on the LGUs to examine and enhance their system of governance for them not to burden the national government and consequently to obtain support from the people. There is a need therefore for some concepts or tools on which to evaluate the problems and to find solutions for them.

Overview of the Study

If the data provided by the COA and the DBM suggests that there was a problem on governance and Tantuico (1994) also states that there was a problem on internal audit functions, then it would be worthwhile to research on it to prove whether there is relationship between internal audit functions and governance as hinted by Belay (2007) and Asare (2009). Furthermore, this study sought to answer how respondents perceive the internal audit functions in terms of assurance services and consultancy services, the status of governance (in terms of financial management and reporting internal management). The study further determined the significant predictors of governance. The effects of age, functional group, position, and locality on the relationship between the internal audit functions and governance were also determined in this study.

II. METHODS

Samples and Sampling Design

The respondents of the study were 510 employees of LGUs who belong to the age group 41-50 years old (197 or 38.6%) and 31-40 years old (180 or 35.3, mostly came from the finance group comprising 181 personnel or 35.5% of the total respondents, followed by the social service provider composed of 179 respondents or 35.1%, the personnel and IT division with 78 respondents or 15.3%, the legal and procurement division having 43 respondents or 4.8%, and 29 of the respondents or 5.7% came from other divisions. The clerical personnel also dominated the composition of the respondents wherein there were 278 of them or 54.5%, supervisors or specialists came next with respondents of 188 or 36.9% and there were 44 respondents or 8.6% who were in the managerial position. A great proportion of the respondents (27.8%) came from the City of Manila. These respondents were chosen using stratified sampling.

Instrumentation

The questionnaire consisted of three parts, namely: 1) the demographic of the respondents; 2) the perception of the respondents on internal audit functions, and 3) the status of governance. The 5-point Likert scale was used to determine the perception of the respondents towards their internal audit functions and the status of governance. The following scale was used: (5) always; (4) often; (3) sometimes; (2) seldom; and (1) never with the corresponding interpretation of Excellent, Very Good, Fair, Poor, Very Poor, respectively.

The questionnaire was content validated by nine experts holding doctorate degrees with specialization mostly in the field of business administration,
public administration and education. Some items were revised or deleted based on the comments and suggestions of the experts. Pilot study was conducted to establish internal consistency. This was done to ensure that responses are not too varied across time periods (Hair, Black, Babin, Anderson, & Tatham, 2006).

The Cronbach alpha reliability was computed. The reliability results ranged from .92 to .97 for the variables assurance services (.94), consulting services (.97), financial management and reporting (.90), delivery of basic services (.92), legal compliance (.92), and internal management (.92).

**Statistical Treatment of Data**

The data gathered was analyzed through the Statistical Packages for Social Sciences (SPSS) computer software program. Frequency count and percentages, correlation analysis using Pearson’s product-moment correlation and multiple regressions to determine the relationship between internal audit functions and governance.

**III. RESULTS**

**Internal Audit Functions**

The descriptive statistics of internal audit functions as measured by assurance services and consultancy services is presented in Table 1. The employees perceived that all assurance services items asked were often carried out and were rated very good by the respondents. The items of internal audit functions that were rated the highest are “the collection process of local taxes is efficient” \(M=4.38\), \(SD=.98\), and “the collection of revenues is timely” \(M=4.23\), \(SD=.96\) while respondents gave the lowest rating on two items of assurance services which were sometimes practiced: “loans are obtained from private institutions to finance its projects \((mean=3.25, SD=1.15)\)” and “the government spends more than what it has earned \((mean=2.74, SD=1.22)\)”.

**Table 1**

*Internal Audit Functions of LGUs*

<table>
<thead>
<tr>
<th>Internal Audit Functions</th>
<th>Mean(M)</th>
<th>SD</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurance Services</td>
<td>3.81</td>
<td>.95</td>
<td>Very Good</td>
</tr>
<tr>
<td>Consulting Services</td>
<td>3.71</td>
<td>.95</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

SD- Standard deviation
VI- Very good

The consulting services were perceived to be very good according to the respondents. Most of the practices under consulting services were also often performed; such as advice on how to use City’s funds, how to prevent from paying penalties due to non-compliance to regulation, how to safeguard the City’s properties, how to cope with the changes in the local government environment, and how to set up criteria for measuring overall performance except that the respondents feel that the internal audit units seldom retain an independent outlook in presenting their suggestions. This practice...
was considered poor by the respondents. The three items that were often practiced and were interpreted very good are “advises on improving the City’s uses of funds”, “Advises to prevent the City from paying penalties due to possible non-compliance to regulations”, and “Advises the City Government on how to safeguard the City properties”. Indeed, consulting services is perceived to be very good according to the respondents ($mean=3.68$, $SD=.83$).

**Governance Practices of Local Government Units**

The governance practices of LGUs were identified as financial management and reporting, delivery of basic services, legal compliance, and internal management. All these governance practices were perceived to be very good by the respondents with a mean ranging from 3.81 to 4.05.

On financial management and reporting, the result shows that two items “the collection process of local taxes is efficient” ($M=4.38$, $SD=.98$) and “the collection of revenues is timely” ($M=4.23$, $SD=.96$) received the highest mean rating from the respondents, while they gave the lowest mean rating on items “loans are obtained from private institutions to finance the project” ($M=3.25$, $SD=1.15$) and “the government spends more than what it has earned” ($M=2.74$, $SD=1.22$). These two items were sometimes practiced among LGUs.

The second dimension of governance practices was on the delivery of basic services. The Local Government Code took effect in 1992 which devolved to the Local Government Units (LGUs) the responsibility for the delivery of various aspects of basic services such as health, education and social welfare services among others. These were earlier under the responsibility of the national government. The respondents were then asked how they perceived these services were delivered. The results revealed that the delivery of basic services among LGUs was perceived to be very good by the respondents. Examples of the items which garnered the highest mean ratings are: “Health services are well delivered” ($M=4.2647$, $SD=.92$) and “Education is one of the priority programs of the City Government” ($M=4.21$, $SD=.99$) The item “Health service providers are updated with the latest medical technology” received the lowest mean rating ($M=3.86$, $SD=1.14$) but still perceived to be very good.

The legal compliance as the third dimension of governance was perceived to be very good which means that the employees of LGUs are compliant to Civil Service regulations, environment, government auditing rules, code of ethics, procurement practices, and other laws, rules and regulations in their respective work units.

The last dimension of governance for this study is internal management. Like the other three dimensions, the respondents perceived that the internal management practices of LGUs was very good as manifested by the mean rating of 3.90 ($SD=.68$). Some of the internal management practices that are often practiced by LGUs are: promotes cooperation among groups, provides more efficient services to the public through computerization, promotes teamwork through projects, sees to it that computer data are well secures, employees are given freedom to decide, and projects are well coordinated with the National Government for funding.

Of all the indicators of governance practices, the respondents in this study rated
the delivery of basic services as Very good, which received the highest mean rating among the four indicators. This means that the respondents were best satisfied in the execution of this function compared to the other four.

Table 2

Governance Practices

<table>
<thead>
<tr>
<th>Governance</th>
<th>Mean(M)</th>
<th>SD</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Financial Management and Reporting</td>
<td>3.81</td>
<td>.67</td>
<td>Very Good</td>
</tr>
<tr>
<td>2. Delivery of Basic Services</td>
<td>4.05</td>
<td>.85</td>
<td>Very Good</td>
</tr>
<tr>
<td>3. Legal Compliance</td>
<td>3.99</td>
<td>.86</td>
<td>Very Good</td>
</tr>
<tr>
<td>4. Internal Management</td>
<td>3.97</td>
<td>.83</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

Overall
SD- Standard deviation
VI- Very good

Correlation Between Internal Audit Functions and Governance

The results in Table 3 revealed that internal audit functions and governance practices are positively correlated \((r = .77)\). The variance accounted for \((r^2)\) by the internal audit functions to the governance practices is 59.29%. In the same manner, their dimensions are also correlated. These results imply that if internal audit functions are carried out well, the better will be the governance practices among LGUs.

Table 3.

Correlation Between Internal Audit Functions and Governance Practices

<table>
<thead>
<tr>
<th>Variables</th>
<th>FMR</th>
<th>DBS</th>
<th>LC</th>
<th>IM</th>
<th>OA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assurance services</td>
<td>.63**</td>
<td>.50**</td>
<td>.52**</td>
<td>.47**</td>
<td>.73**</td>
</tr>
<tr>
<td>Consulting services</td>
<td>.65**</td>
<td>.51**</td>
<td>.53**</td>
<td>.49**</td>
<td>.75**</td>
</tr>
<tr>
<td>Internal audit functions</td>
<td>.67**</td>
<td>.53**</td>
<td>.53**</td>
<td>.50**</td>
<td>.77**</td>
</tr>
</tbody>
</table>

**Sig at .01

Table 4 shows the regression analysis that presents the significant predictors of governance practices. The results also present the total variance accounted for at .612 or 61.2% by the three variables that entered the regression.

The 61.2% is allocated for consulting services (.557 or 55.7%), assurance services (.043 or 4.3%), and age (.012 or 1.2%). Table 4 also presents the Beta coefficients \((B)\) of consulting services \((B = .319)\), assurance services \((B = .254)\), and age \((B = \ldots\)
which indicates that for each unit increase in the measure of consulting services, assurance services and age, the score of governance will increase by 0.319, .254 and 0.083, respectively. If governance practices would be written as GOV, consulting services as CS, assurance services as AS, and age as AG, the regression equation that would predict the value of governance would be written as follows: GOV = 1.540 + .319CS + .254AS + .083AG.

Table 4

Regression Analysis for Governance

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Beta</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.54</td>
<td>0.94</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Consult</td>
<td>.319a</td>
<td>0.34</td>
<td>.557</td>
<td>0.002</td>
</tr>
<tr>
<td>Assuran</td>
<td>.254b</td>
<td>0.34</td>
<td>.043</td>
<td>0.029</td>
</tr>
<tr>
<td>Age</td>
<td>.083c</td>
<td>.021</td>
<td>.012</td>
<td></td>
</tr>
</tbody>
</table>

R = .612  R2= .37.45

a. Predictors: Consulting services

b. Predictors: Assurance services

c. Predictors: (Constant), Assurance services, Assurance services, Age

IV. DISCUSSION

I. Internal Audit Functions

Internal Audit Unit mostly conducts financial audits while the review on compliance to procurement law is given least priority when compared to the other assurance practices in this study. It also reveals that other assurance services such as computer audit and operations or systems audit were also provided. This situation could be supported by the statement of Fraser (n.d.) pointing out that from a concern with low-level financial audit, internal auditors have progressed to systems audit and involvement with economy, efficiency, and effectiveness to their contemporary focus on enterprise risk management. He also said that the traditional role of internal auditors in connection with financial auditing gave them an initial knowledge base with which to get involved with risk management. Financial auditing is concerned with the risk of financial misstatement.

The result reveals that financial consulting tops the lists of services delivered by the Internal Audit Unit and followed by compliance consulting. Other consulting services were also practiced often which means that the Internal Audit Units are providing various consulting services. The overall mean of 3.70 (SD =.95) indicated that most consulting services are practically perceived to be very good when taken as a
Relationship of Internal Audit Functions to Governance of Local Government

The various consultancy services being delivered by the respective IAU could be rationalized by what Hass, Abdolmohammadi, & Burbany (2006) found that there has been a paradigm shift in the activities performed by internal auditors. He stated that the increasing complexity of business transactions, a more dynamic regulatory environment and significant advances in information technology have resulted in opportunities and the challenges for internal auditors. These situations have advanced the focus of internal auditing from the traditional financial assurance services to other services including consulting.

However, the IAU is perceived to be poor in retaining an independent outlook in presenting their suggestions. This is supported by the study conducted by Simmons (1995), which concluded that for the most part, internal auditors who participated in the study believe that performing consulting services carries a relatively high risk of jeopardizing independence. Further, it was determined in the study that 53% of the participants believed that providing consulting services poses a risk of getting involved with internal organizational politics, a risk of political exposure, or a risk of negative political pressure from within the organization.

II. Governance

Two practices under financial reporting and management were perceived being carried out sometimes although all other items were often practiced. One of the two practices is that loans are obtained from private institutions to finance their projects. The limited borrowing from private institutions can be supported by the report of Okorotchenko (2009) that local and regional governments can borrow in local currency only and are subject to a debt-servicing limit as a proportion of their regular income. She further wrote that, in local currency, LGUs tend to borrow from government-owned banks, but they generally have low credit standings with banks. She added that only a small number/amount of local bonds has been issued so far and all of them are guaranteed by the Local Government Unit Guarantee Corporation.

The government was spending more than what it has earned. This could be backed up by Gera (2008) that the Internal Revenue Allotment (IRA) remains the main source of revenue of the LGUs (63.1%) and another small percentage (2.2%) comes from external sources. Hence, their local revenue is only about 35.7%.

III. Relationship Between Internal Audit Functions and Governance Practices

The result gives clear evidence that the internal audit functions have a relationship with governance. The relationship can be substantiated by what Asare (2009) said that a well-configured internal audit function can play a vital role in the governance and accountability process of public sector institutions through their assessments on the effectiveness of key organizational controls, governance and risk management processes. Also, Belay (2007) stated that a well performing internal audit function is one of the strongest means to monitor and promote good governance system in an organization.

IV. Predictors of Governance Practices

In this study the internal audit functions in terms of assurance and consulting services and age are significant predictors of governance practices among LGUs. Considering all these predictors to governance, consulting services emerged
as the best predictor with the largest variance accounted for to the governance practices.

These findings imply that the consistent implementation of good internal audit practices increases financial management and reporting, delivery of basic services, legal compliance, and internal management. Also, age significantly contributed to the improvement of governance. Further, the finance group significantly improved financial management and reporting while the social service providers significantly add value to the delivery of basic services.

The study reveals that very few employers had the view that ‘older workers’ as less productive. In fact, age seems to be a significant advantage in many white-collar jobs. A clear majority said that older managers and professionals were “more productive”. Two areas in which employers see value of the older worker is in a) having excellent knowledge of procedures and understanding of job aspects and b) ability to interact with all customers. This is one evidence that the older the worker, the more he/she will contribute to the improvement of internal management (O’Connor, 2006).

This could be justified by the empirical research of Lucas (as cited in Howell, Buttigieg, & Webber, 2006) which found older workers to be more reliable, careful, responsible, stable, and better communicators. He also said that hiring older employees results in lower recruitment and training costs, lower turnover, higher profitability, more experienced workers, higher organizational commitment and quality of service. Age could then be a factor for the improvement of governance because of these values possessed by the older workers.

Furthermore, Howell et al. (2006) added that workers who are 50 years old and above are more creative than their younger counterpart. Because of their experiences, older people feel more empowered to suggest new ideas for job development; whereas, younger workers have little experience in their jobs and have some fears taking risks.

V. CONCLUSION

Based on the findings of the study, the following conclusions were drawn: The internal audit functions as practiced by the Internal Audit Units of several Local Government Units (LGUs) in Metro Manila are very good. However, the internal audit units seldom retain an independent outlook in presenting their suggestions under consulting services.

The status of governance of the LGUs under study is very good. However, improvements should be made under financial management and reporting because the result of the study reveals that the LGUs spend more than what it has earned and loans are sometimes obtained from private institutions. This suggests a problem in the way LGUs manage their finances, and possibly in the way the financial results were reported, including the integrity of such financial statements.

Internal audit functions and governance are moderately related. Both dimensions of internal audit functions influence each of the individual dimensions of governance practices of LGUs. This implies a better internal audit functions for an improved governance practices. The internal audit functions in terms of consulting services had a great contribution to the improvement of the governance practices.
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Carpizo, Ruben T. and Narbarte, Reuel E.

Abstract

This study aimed to evaluate and analyze the HRM practices of the selected tertiary institutions in the Philippines and determine their relationship to organizational performance. The respondent’s profile such as age, length of service and educational attainment were also considered in the study as moderator variables. The study used the descriptive-correlational research design. Data from 331 respondents were analyzed using descriptive and inferential statistics. The HRM practices of the respondent schools were perceived to be very good and the level of their schools’ performance was perceived to be high. A strong positive relationship was found between HRM practices and organizational performance. There was no significant difference in the level of the schools’ performance when the respondent’s profile was considered. However, considering the individual dimensions of organizational performance and those of respondent’s profile, there was a significant difference in the level employee productivity considering length of service and in consumer satisfaction considering educational attainment. The sub-dimensions of HRM practices that significantly predict organizational performance were employee relations, compensation, selection, and performance management. Employee relations best predict organizational performance, customer satisfaction, employee productivity, and employee satisfaction. Performance management best predicts profitability.

Keywords: human resource practices, organizational performance
strand: business and governance
I. INTRODUCTION

While it is true that the most valuable assets that an organization could ever have are human resources and progressive human resource practices that result in higher organizational performance, it is still evident that many of the human resource management practitioners fail to prove their worth that they are making contributions to the economic value of their company (Burke, 2006). This failure is not only true to the business sector but even to the higher educational institutions as well. As a result of this failure, many higher educational institutions today all over the world, both in the private and public sectors, experience financial problem (Johnstone, 2008; Scott, 2015; Francis, 2015). The studies of Huselid (1995) and Calleja (2006) seem to prove that Human resource management practices are related to organizational performance. This study aimed to evaluate and analyze the HRM practices of the selected tertiary institutions in the Philippines and determine their relationship to organizational performance. The respondent’s profile such as age, length of service and educational attainment were also considered in the study as moderator variables.

II. METHODS

The study utilized descriptive-correlational design. There were 331 respondents from the selected tertiary institutions. Most of them came from the age group of 30 and above (84.6%) and many of them had been serving the institutions for 11 years and above (61.10%). The study used a self-constructed questionnaire that was validated by experts with reliability alpha coefficients of 0.9176 for the HR Practices and 0.8198 for the organizational performance. The questionnaire was divided into three parts: questions for personal data, HR practices, and organizational performance. All respondents were asked to describe their perceptions about the HR practices and the organizational performance of their institutions using a five-point Likert scale. Mean, standard deviation, Pearson’s product-moment correlational coefficient, analysis of variance and regression analysis were used to analyze and interpret the data gathered.

III. RESULTS

Majority (31.9%) of the respondents came from the age bracket of 31-40. Most of them had earned master’s units and had been serving their institutions for five years and below.

Results in Table 1 show that the respondents perceived the HRM practices of their institutions as follows: The employees responded “oftentimes”, interpreted as “very good”, to the employee relations, compensation, and selection practices of the respondent schools, whereas performance management, training and development, and recruitment practices were perceived to be “sometimes” practiced and interpreted as “good”. The overall rating of HRM practices is “oftentimes”, interpreted as “very good”.

Table 1

<table>
<thead>
<tr>
<th>HRM Practice</th>
<th>Mean</th>
<th>Scaled Responses</th>
<th>Descriptive Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Relations</td>
<td>3.80</td>
<td>Oftentimes</td>
<td>Very Good</td>
</tr>
<tr>
<td>Compensation</td>
<td>3.61</td>
<td>Oftentimes</td>
<td>Very Good</td>
</tr>
<tr>
<td>Selection</td>
<td>3.57</td>
<td>Oftentimes</td>
<td>Very Good</td>
</tr>
<tr>
<td>Performance Management</td>
<td>3.45</td>
<td>Sometimes</td>
<td>Good</td>
</tr>
<tr>
<td>Training and Development</td>
<td>3.38</td>
<td>Sometimes</td>
<td>Good</td>
</tr>
<tr>
<td>Recruitment</td>
<td>3.35</td>
<td>Sometimes</td>
<td>Good</td>
</tr>
<tr>
<td>HRM Practices</td>
<td>3.53</td>
<td>Oftentimes</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

Legend: Always (4.51-5.0) Sometimes (2.51-3.5) Rarely (1.61-2.5) Oftentimes (3.51-4.5) Never (0.51-1.5)

As indicated in Table 2, the schools’ levels of performance are as follows: the schools were perceived by their employees to have high employee productivity, their employees are highly satisfied, and their customers are highly satisfied. However, the employees perceived their schools’ profitability as “sometimes”, interpreted as “moderate”. The overall level of performance of the respondents’ schools was perceived to be high.

Table 2

<table>
<thead>
<tr>
<th>Organization Performance</th>
<th>Mean</th>
<th>Scaled Responses</th>
<th>Descriptive Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Productivity</td>
<td>4.00</td>
<td>Oftentimes</td>
<td>High</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>3.80</td>
<td>Oftentimes</td>
<td>High</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>3.80</td>
<td>Oftentimes</td>
<td>High</td>
</tr>
<tr>
<td>Profitability</td>
<td>3.29</td>
<td>Sometimes</td>
<td>Moderate</td>
</tr>
<tr>
<td>Organizational Performance</td>
<td>3.72</td>
<td>Oftentimes</td>
<td>High</td>
</tr>
</tbody>
</table>

Legend: Always (4.51-5.0) Sometimes (2.51-3.5) Rarely (1.61-2.5) Oftentimes (3.51-4.5) Never (0.51-1.5)

The results of the correlation analysis in Table 3 reveal that there is a positive relationship between the individual dimensions of HRM practices and individual dimensions of organizational performance; HRM practices and individual dimensions of organization-
al performance; individual dimensions of HRM practices and organizational performance; HRM practices and organizational performance.

Table 3
Correlation of HRM Practices and Organization Performance

<table>
<thead>
<tr>
<th>HRM Practices</th>
<th>Profitability</th>
<th>Custom Satisf</th>
<th>Employ Prod</th>
<th>Employ Satisf</th>
<th>Organiz Perfor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment</td>
<td>0.261**</td>
<td>0.359*</td>
<td>0.318**</td>
<td>0.470**</td>
<td>0.465**</td>
</tr>
<tr>
<td>Selection</td>
<td>0.283**</td>
<td>0.472**</td>
<td>0.424**</td>
<td>0.527**</td>
<td>0.564**</td>
</tr>
<tr>
<td>Training and Development</td>
<td>0.334**</td>
<td>0.487**</td>
<td>0.412**</td>
<td>0.546**</td>
<td>0.587**</td>
</tr>
<tr>
<td>Performance Management</td>
<td>0.354**</td>
<td>0.466**</td>
<td>0.426**</td>
<td>0.548**</td>
<td>0.590**</td>
</tr>
<tr>
<td>Compensation</td>
<td>0.328**</td>
<td>0.517**</td>
<td>0.452**</td>
<td>0.681**</td>
<td>0.654**</td>
</tr>
<tr>
<td>Employee Relation</td>
<td>0.316**</td>
<td>0.646**</td>
<td>0.635**</td>
<td>0.712**</td>
<td>0.734**</td>
</tr>
<tr>
<td>HRM Practices</td>
<td>0.368**</td>
<td>0.578**</td>
<td>0.503**</td>
<td>0.681**</td>
<td>0.704**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)

There is no significant difference in the level of schools' performance when the respondent's profile was considered. However, when the test of significant difference was done in employee productivity considering length of service, respondents who rendered 11-15 years of service perceive the level of organizational performance in employee productivity higher than those respondents who rendered 21-25 years of service. Also, when the test of significant difference was done in customer satisfaction considering educational attainment, respondents who were college graduates perceive the level of organizational performance in customer satisfaction higher than those respondents who have masteral and doctoral units and who are doctorate degree holders.

There is a strong positive relationship between HRM practices and organizational performance when respondent's profile is considered.

Regression analysis in Table 4 reveals the following: the predictors of organizational performance are: employee relations, compensation, and selection. Of the three (3) predictors, employee relations emerge to be the best predictor.
Table 4
Regression Analysis for Organizational Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.734a</td>
<td>0.539</td>
<td>0.539</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.747b</td>
<td>0.558</td>
<td>0.019</td>
<td>0.000</td>
</tr>
<tr>
<td>3</td>
<td>0.753c</td>
<td>0.567</td>
<td>0.009</td>
<td>0.012</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Employee Relations
b. Predictors: (Constant), Employee Relations, Compensation
c. Predictors: (Constant), Employee Relations, Compensation, Selection

The predictors of the individual dimensions of organizational performance using regression analysis are shown in Tables 5, 6, 7 and 8.

Table 5
Regression Analysis for Profitability

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.354a</td>
<td>0.125</td>
<td>0.125</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.369b</td>
<td>0.136</td>
<td>0.011</td>
<td>0.040</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Performance Management
b. Predictors: (Constant), Performance Management, Compensation

The predictors of profitability are: performance management and compensation. Performance management is the best predictor.

Table 6
Regression Analysis for Customer Satisfaction

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.646a</td>
<td>0.418</td>
<td>0.418</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Employee Relations

The only predictor of customer satisfaction is employee relations.
Table 7
Regression Analysis for Employee Productivity

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.535a</td>
<td>0.287</td>
<td>0.287</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.547b</td>
<td>0.299</td>
<td>0.012</td>
<td>0.018</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Employee Relations  
b. Predictors: (Constant), Employee Relations, Selection

The predictors of employee productivity are: employee relations and selection. Employee relations surface as the best predictor.

Table 8
Regression Analysis for Employee Satisfaction

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>R Square Change</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.712a</td>
<td>0.508</td>
<td>0.508</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>0.742b</td>
<td>0.550</td>
<td>0.042</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Employee Relations  
b. Predictors: (Constant), Employee Relations, Compensation

The predictors of employee satisfaction are: employee relations and compensation. Employee relations is the best predictor.

IV. DISCUSSION

The HR practices of the selected higher educational institutions as whole were perceived to be very good, as indicated in Table 1. Their selection, compensation, and employee relations were very good and their systems for performance management and training and development were good. When these HR practices were correlated with organizational performance, the results of correlation coefficients (R values) in Table 3 showed strong and positive correlations.

Another way of interpreting the data in Table 3 is by computing the correlation of determination ($r^2$). Correlation of determination is determined by squaring the value of $r$ (correlation coefficient). For example, the correlation of determination of recruitment and profitability is 0.0681 ($0.261 \times 0.261$). When translated into percentage, it can be in-

Interpreted to mean that 6.81% of variance in profit made by the HEIs is explained, or accounted for, by recruitment. Using the same formula to determine the correlation of determination for the other dimensions of HR practices in table 3 and translate them into percentage, the values can be interpreted to mean as follows:

1. Recruitment accounts: (a) 6.8% of the variance in Profitability; (b) 12.9% of the variance in customer satisfaction; (c) 10.1% of the variance in employee productivity; (d) 22.10% of the variance in employee satisfaction; and (e) 21.6% of the variance in the overall organizational performance.

2. Selection accounts: (a) 8% of the variance in profitability; (b) 22.3% of the variance in customer satisfaction; (c) 18% of the variance in employee productivity; (d) 27.80% of the variance in employee satisfaction; and (e) 31.8% of the variance in the overall organizational performance.

3. Training and development accounted for: (a) 11.20% of the variance in profitability; (b) 23.7% of the variance in customer satisfaction; (c) 17% of the variance in employee productivity; (d) 29.80% of the variance in employee satisfaction; and (e) 34.5% of the variance in the overall organizational performance.

4. Performance management accounted for: (a) 12.5% of the variance in profitability; (b) 21.7% of the variance in customer satisfaction; (c) 18.1% of the variance in employee productivity; (d) 30% of the variance in employee satisfaction; and (e) 34.8% of the variance in the overall organizational performance.

5. Compensation accounted: (a) 10.80% of the variance in profitability; (b) 26.7% of the variance in customer satisfaction; (c) 20.4% of the variance in employee productivity; (d) 46.4% of the variance in employee satisfaction; and (e) 42.8% of the variance in the overall organizational performance.

6. Employee relations accounted for: (a) 10% of the variance in profitability; (b) 41.7% of the variance in customer satisfaction; (c) 40.3% of the variance in employee productivity; (d) 50.70% of the variance in employee satisfaction; and (e) 53.9% of the variance in the overall organizational performance.

The overall correlation of determination ($r^2$) of HR practices and organizational performance is 0.496. When translated into percentage, it can be interpreted to mean that 49.6% of the variance in organizational performance is explained, or accounted for, by HR practices.

The results indicate that consistent implementation of good recruitment, selection, training and productivity, performance management, compensation, and employee relations practices increase profitability, customer satisfaction, employee productivity, and employee satisfaction. Overall, the study could be concluded that good HR practices increases performance of the organization.

Thus, the null hypothesis that “there is no significant relationship between HR practices and organizational performance” is rejected. The results of regression analysis in Table 4 revealed that organizational performance has three predictors. Among the six dimensions of HR practices, employee relations, compensation, and selection appeared to be the predictors of organizational performance with a combine $R^2$ value of 0.567. This value indicates that employee relations, compensation, and selection can
predict 56.7% of the variance in organizational performance. Among the three predictors, employee relations emerged to be the best predictor with an R2 value of 0.539. Employee relations, when treated as a separate predictor, it can predict 53.9% of the variation in organizational performance.

Other way of looking into the influence of employee relations, compensation, and selection on organizational performance as predictors is by analyzing the regression coefficients of the regression analysis. The regression coefficients (B) of the three predictors are 0.336 for employee relations, 0.108 for compensation, and 0.077 for selection. These values indicate that for each unit increase in the measure of employee relations, compensation, and selection, the score of organizational performance would increase by 0.336, 0.108, and 0.77 points respectively. Suppose employee relations is written as ER, compensation as COMP, selection as SEL, and organizational performance as OP, by using their coefficients, a very good regression equation could be written as follows:

\[ OP = 1.780 + 0.336*ER + 0.108*COMP + 0.077*SEL \]

This equation can be used to predict the value of Organizational Performance.

When regression analysis is separately done in all the individual components of organizational performance, as shown in tables 5, 6, 7 and 8, the best predictor, in terms of R square change, in all the individual components of organizational performance, except profitability, is employee relations. The study then could be concluded that the best predictor of organizational performance is employee relations.

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Journey to Quality and Academic Excellence: The Organizational Life History of Adventist University of the Philippines

Miriam P. Narbarte and Jolly S. Balila

Abstract

The study narrates the journey of Adventist University of the Philippines (AUP) to academic excellence. The humble beginnings and the past experiences of the institution paved the way to strive to academic excellence. The Excellence Model based on accreditation standards was used to achieve the vision-mission and goals of the University. The data of this paper were based on the documents taken from the university. The university has a unique organizational structure governed by a 15-member Board of Trustees and managed by its president and three Vice Presidents, that is, Academics, Finance and Operations, and Student Services. The strategic planning process of the university is well planned utilizing both “top down” and “bottom up” approaches where all sectors have the chance to participate in the process. The university president heads the strategic planning process, passing it on to the vice presidents, college deans, academic directors, and department heads. The strategic planning process and activities were presented to the faculty and staff. The University has assessment system that monitors the performance of the faculty and staff of the university. The Human Resource Department regularly conducts seminars and trainings for faculty and staff development based on the training needs survey. The combined workforce of the faculty and staff of the university resulted to numerous achievements. AUP’s performance is evident by the various awards and recognitions as well as accreditation levels given by several agencies. The continuous quest for academic excellence has been empowered by past and present performance of the University.
I. INTRODUCTION

Striving for academic excellence and high quality education is the main thrust of Higher Education Institutions (HEIs). The quest for quality in education is a never-ending journey. It has been on the agenda of HEI’s for many years. Achieving this is not easy. Support from the administrators, faculty, and staff is needed for this quality and academic excellence journey.

The fundamentals of quality in higher education is quality assurance which refers to the planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given the requirements for quality (Borahan & Ziarati as cited in Arjomandi, Kestell, & Grimshaw, 2009).

Every higher education institution formulates its philosophy, vision, and mission so that it can cover the major activities of the university. Every quality measure starts with the formulated mission statement, vision, goals, and objectives. The mission statement encompasses the inputs, process, and outputs (Arjomandi, Kestell, & Grimshaw, 2009). The core activities of HEIs are: curriculum and instruction, research, community extension, and social involvement.

According to Brusoni et al. (2014), “there is a need to analyze the excellence through different stakeholders, including students and families, society and employers. The term has been widely used in accreditation schemes in management filed for higher education, to define the level of quality of service provided by the institutions. In this context, it is possible to define standards for performance which permit the recognition of excellence” (p. 9).

The measure of quality was based on accreditation standards and criteria set by accrediting agencies and by Malcolm Bridge performance excellence. These models help the universities/organizations assess their improvement efforts, diagnose their overall performance management system, and identify their strengths and opportunities for improvement. The criteria set also help the organization by improving performance practices, capabilities, and results; facilitating communication and sharing of information on best practices among organizations of all types; serving as a tool for understanding and managing performance and for guiding planning and opportunities for learning (Yabut, 2014).

Assessment of excellence in teaching and instruction has been a long-standing issue for higher education institution. The university has no existing study that documents how the Adventist University of the Philippines became a university and has maintained the autonomous status. Thus, this study was conceptualized. Aside from the aforementioned, this study is expected to generate useful information to be shared to other colleges and universities of the Seventh Day Adventist (SDA) institutions. The cases and challenges identified will serve as examples in their pursuit of quality and academic excellence.

Information gained from this study can be used in devising academic programs, activities, and policies for improvement.

II. METHODS

This qualitative study used narrative approach. As it presents AUP’s organization-
Journey to Quality and Academic Excellence: The Organizational Life History of Adventist University of the Philippines

**History**

Adventist University of the Philippines traces its roots and humble beginnings from missionary-oriented people who had a strong desire to develop young people for usefulness in life, but more specifically, to prepare efficient workers in the different branches of Christian service and ultimately for citizenship in the coming kingdom of God.

The coming of Elder L.V. Finster in 1908 as a pioneering missionary led to the conversion of young Filipinos to Adventism: Bibiano Panis, Emilio Manalaysay, and Leon Roda who were also trained on methods of sharing the gospel. They impressed Elder A.G. Daniels, President of the General Conference of Seventh-day Adventists, of the need to build a school for them.

**Location.** Before its present location in Silang campus, AUP was first located in Pasay City. Then later it moved to Baesa, Caloocan City.

**Pasay campus.** The matter regarding building a school was presented to the General Conference Committee and in due time a small amount was raised and used to purchase a five-acre lot (worth $6,500 equivalent to Php13,000 then) at the corner of Donada and San Juan Streets in Pasay City, now the location of the North Philippine Union Conference of SDA. The rest of the money was used to purchase lumber for the construction of the school’s first building. The school was opened in Pasay on June 12, 1917 to 36 students, 12 of whom were girls. Part of the curriculum was the work program to help students earn money while they study. The first faculty of the academy was Professor I. A. Steiniehl, the principal and business manager and Professor O. F. Sevrens, as preceptor. Both had come to the Philippines.
with their families as missionaries. Brother Marciano A. Roxas was the first Filipino teacher employed by the Academy. In 1925, it was voted at the Spring Council of the Far Eastern Division that the academy be authorized to carry 14 grades, adding one grade each year towards 1927 and that the name be changed to Philippine Junior College. Elder W. B. Amundsen was elected principal in 1927 until the year 1931.

**Baesa campus.** At the end of 1927, 26 hectares of land was purchased in Baesa, Caloocan, then part of the Rizal province for Php65,951.95, to accommodate the increasing number of enrollment. Prof. L. M. Stump, president of the college in 1931, directed the construction of the buildings. The school finally moved to Baesa campus in 1932. It was also in 1932 that the Far Eastern Division permitted the elevation of the junior college to a senior college naming it Philippine Union College (PUC). The successful years of PUC could be traced back to the missionary efforts of the administrators, teachers, students, and church members who worked hard without monetary rewards. The visionaries of the Baesa era composed and adopted the school song “Shine on Forever” in 1934.

**Silang campus.** The ever multiplying number of PUC enrollment has inspired the administration to purchase yet a bigger property of 165 hectares of land located in Puting Kahoy, Silang, Cavite in 1972. The same missionary spirit inspired the pioneers in the past had stimulated the administrators, faculty and students to work hard, sacrifice time, energy and effort. The pioneers left behind the conveniences of life in the city just to move to the new PUC ‘mountain’ location. The year 1979 saw the first batch of freshmen and sophomore students in this new campus and, in 1981, with the movement of the juniors and seniors from Baesa, the campus transfer was completed.

**Change of institution’s name.** Growing is a package of joy, crises and pain, which PUC experienced in all phases of its community existence. Through all these, PUC has kept on “shining.” On August 1, 1996, in accordance with Republic Act (RA) No. 7722 and by the virtue of the Resolution No. 132-96, Series of 1996, the Commission on Higher Education (CHED) granted PUC the long-awaited university status entailing the change of the school’s name from Philippine Union College to Adventist University of the Philippines (AUP).

On July 8, 2009, the Securities and Exchange Commission (SEC) approved the Articles of Incorporation and By-Laws of the new AUP, and was thus granted a Certificate of Incorporation under Company Registration No. CN200909866 for another term of 50 years.

**Organizational Structure**

AUP is a faith-based institution owned and operated by the Seventh Day Adventist Church. The university is governed by a 15-member Board of Trustees and managed by its President and three Vice Presidents: Academics, Finance and Operations, and Student Services.

**Strategic Plan**

The strategic planning process of the university is well planned utilizing both “top downand “bottom up” approaches where all
sectors had the chance to participate in the process. The strategic plan for 2012 to 2017 provides initiatives that will guide the university as it implements the mission and vision that states:

Adventist University of the Philippines is committed to provide quality Bible-based education, nurturing students for academic excellence, Christlike character, and exemplary service and Adventist University of the Philippines envisions to be a leading Adventist educational institution in the Asia Pacific region by 2020.

The focus of this plan is to enhance the students’ spirituality and commitment for service as they experience quality Christian education (AUP Strategic Plan 2012-2017).

To accomplish the mission and vision of the university, eight core values were articulated in the strategic plan. These core values unite the University despite the differences in experiences, preferences, practices, values, beliefs. The core values are well remembered using the acronym MINISTRY which stands for morality, integrity, nobility, innovation, servant leadership, transcendence, responding to the global mission of SDA church, and yielding to the majority’s decision to recognize the right of the majority—a-basic rule in any democratic process (AUP Strategic Plan 2012-17).

The University identified six strategic goals to achieve the vision and mission: transforming spirituality, excellence in teaching and learning, committed Christian service and ministry initiatives, excellent organizational stewardship, qualified and committed personnel, and effective institutional relations initiatives. Among these, two directions are of highest priority namely, 1) to enhance excellence in teaching and learning through the integration of faith and learning, and produce graduates with the passion for service in the practice of their professions, and 2) to renew the university’s identity as a residential university, provide effective structure and adequate resources to produce graduates who are faithful to the Adventist values and lifestyle (AUP Strategic Plan 2012-17).

The University president heads the strategic planning process, passing it on to the vice presidents, college deans, academic directors, and department heads. The strategic planning process and activities are presented to the faculty and staff.

To ensure that the mission, vision, and goals are being implemented in the university, assessment surveys are conducted to the Board of Trustees, alumni, and students. Further, the University has assessment system that monitors the performance of its faculty and staff. The Human Resource Department (HR) regularly conducts competency assessment to monitor the performance of the faculty and staff. Seminars and trainings for faculty and staff development have been developed based on the training needs survey.

Faculty and Staff Qualification and Achievement

Faculty and staff. AUP has committed faculty and staff who support the academic programs and activities of the university. Table 1 shows the total number of faculty and staff from 2008-2014 which include the denominational workers, insti-
tutional workers, probationary, and full-time contractual. Part time faculty and staff were not included in this study.

Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Faculty</th>
<th>Staff</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2009</td>
<td>264</td>
<td>163</td>
<td>411</td>
</tr>
<tr>
<td>2009-2010</td>
<td>255</td>
<td>162</td>
<td>417</td>
</tr>
<tr>
<td>2010-2011</td>
<td>253</td>
<td>162</td>
<td>415</td>
</tr>
<tr>
<td>2011-2012</td>
<td>259</td>
<td>153</td>
<td>412</td>
</tr>
<tr>
<td>2012-2013</td>
<td>263</td>
<td>155</td>
<td>418</td>
</tr>
<tr>
<td>2013-2014</td>
<td>255</td>
<td>167</td>
<td>422</td>
</tr>
</tbody>
</table>

Source HR Office of AUP

Faculty Qualifications and Achievements. CHED requires that all faculty teaching in the college level must be MA/MS degree holders. Thus, the VP- Academics encourages all faculty to upgrade or finish their master’s and doctoral degrees. Through the faculty development fund, SSD, CHED, DOST and some private funding, AUP faculty have finished their MA/MS and Ph.D programs.

The data in 2014 revealed that AUP has 42 faculty with doctorate degrees, 128 with master’s degree, and 72 with bachelor’s degrees.

Academic Support Services

The academic administration directly works hand in hand with the University Research Center; Community Extension Services; Records and Admission, Information, Communication and Technology and the University Library departments.

The Academic Programs

Adventist University of the Philippines (AUP), offers programs from pre-school to graduate school. There are 37 higher education programs, of which, 25 are baccalaureate; 6 masters; and 6 doctoral programs (EdD, PhD and MD). Table 3 shows the nine colleges and the programs offered operating under vertical articulation:

Table 3

<table>
<thead>
<tr>
<th>College of Arts and Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts in English</td>
</tr>
<tr>
<td>Bachelor of Arts in History</td>
</tr>
<tr>
<td>Bachelor of Arts in Music</td>
</tr>
<tr>
<td>Bachelor of Arts in Psychology</td>
</tr>
</tbody>
</table>
Bachelor of Science in Development Communications  
Bachelor in Tra-digital Fine Arts  
Master of Arts in Psychology  
Doctor of Philosophy in Psychology  

**College of Business**  
Bachelor of Science in Accountancy  
Bachelor of Science in Accounting Technology  
Bachelor of Science in Business Administration  
Bachelor of Science in Information Technology  
Bachelor of Science in Office Administration  
Master in Business Administration  
Doctor of Philosophy in Commerce  

**College of Dentistry**  
Doctor in Dental Medicine  

**College of Education**  
Bachelor of Elementary Education  
Bachelor of Secondary Education  
Master of Arts in Education  
Doctor of Education  

**College of Health**  
Bachelor in Medical Laboratory Science  
Bachelor in Nutrition and Dietetics  
Master in Public Health  
Doctor in Public Health  

**College of Medicine**  
Doctor of Medicine  

**College of Nursing**  
Bachelor of Science in Nursing  
Master of Science in Nursing  
Master in Nursing  

**College of Science and Technology**  
Bachelor of Science in Biology  
Bachelor of Science in Chemistry  
Bachelor of Science in Mathematics  
Bachelor of Science in Computer Science  
Bachelor of Science in Electronics Engineering  
Bachelor of Science in Electronics Technology  
Bachelor of Library and Information Science  

**College of Theology**  
Bachelor of Arts in Religion  
Bachelor of Arts in Theology  

Source: Government Recognition Certificates  

**Faculty Research**  
Adventist University of the Philippines envisions to be a leading institutions in Asia not only in academics but also in research. The University Research Center continues to develop faculty and staff to do research with the full support from the administration. Research capability of faculty through seminar/workshop, research collaboration has been strengthened to encourage more participation. Incentive schemes have been reviewed to motivate the undergraduate and gradu-
ate faculty in doing research (University Research Manual, Revised 2014). As a result, research involvement of faculty has increased per year. Of the number of faculty presented in Table 1, 176 were permanent faculty members of AUP. Of 176, 90 (51.14%) are actively involved in research from 2008 to 2014. About 51 of these faculty members have patents, published books and popularized articles and scientific papers in refereed journals both national and international.

The partnership of AUP to other three universities in Asia, i.e., Universitas Advent Indonesia (UNAI) at Bandong, Asia-Pacific Adventist College (AIU) in Thailand, and Universitas Klabat in Manado, Indonesia has encouraged more faculty to present their research outputs.

AUP is also a member of the Southern Tagalog Consortium for Industry and Energy Research and Development of the Department of Science and Technology (STCIERD-DOST IV). Seminar-workshop, research training, travel grants for research presentations, and research grants are some of the benefits of being a member of the consortium.

Research involvement of the faculty and staff of AUP is improving. The faculty from the College of Science and Technology, College of Health, College of Business, and College of Humanities regularly participate in National Academy of Science (NAST) annual conference. Accepted posters are presented in the national conference of the NAST.

**Enrolment Trends**

The enrolment trends of AUP is increasing from 2009-2014. These students come from Luzon, Visayas, Mindanao and from various countries around the globe. Table 4 shows the average enrollment in the elementary, high school, undergraduate and graduate for the last five years.

<table>
<thead>
<tr>
<th>Collegiate year</th>
<th>Elem</th>
<th>HS</th>
<th>UG</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td>439</td>
<td>544</td>
<td>2,774</td>
<td>325</td>
<td>4,082</td>
</tr>
<tr>
<td>2010-2011</td>
<td>508</td>
<td>548</td>
<td>2,842</td>
<td>345</td>
<td>4,243</td>
</tr>
<tr>
<td>2011-2012</td>
<td>441</td>
<td>528</td>
<td>3,082</td>
<td>342</td>
<td>4,393</td>
</tr>
<tr>
<td>2012-2013</td>
<td>447</td>
<td>541</td>
<td>3,247</td>
<td>372</td>
<td>4,607</td>
</tr>
<tr>
<td>2013-2014</td>
<td>434</td>
<td>548</td>
<td>3,420</td>
<td>358</td>
<td>4,760</td>
</tr>
</tbody>
</table>

Sources: AUP, AUPA, AUPE Records and Admission

AUP is also a community of foreign students. The majority of the foreign students are from Indonesia, Korea Africa, and the United States. Table 5 shows the average number of foreign students from 2009 to 2014. For the last 5 years, there were more than 700 international students enrolled at AUP, who came from more than 43 countries.
Table 5  
*Number of Foreign Students From 2009-2014*

<table>
<thead>
<tr>
<th>Collegiate year</th>
<th>Elem &amp;G</th>
<th>HS</th>
<th>UG &amp;G</th>
<th>Total</th>
<th># CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-2010</td>
<td>64</td>
<td>130</td>
<td>788</td>
<td>788</td>
<td>43</td>
</tr>
<tr>
<td>2010-2011</td>
<td>69</td>
<td>121</td>
<td>755</td>
<td>755</td>
<td>48</td>
</tr>
<tr>
<td>2011-2012</td>
<td>35</td>
<td>85</td>
<td>757</td>
<td>757</td>
<td>58</td>
</tr>
<tr>
<td>2012-2013</td>
<td>23</td>
<td>98</td>
<td>743</td>
<td>743</td>
<td>58</td>
</tr>
<tr>
<td>2013-2014</td>
<td>29</td>
<td>110</td>
<td>737</td>
<td>737</td>
<td>56</td>
</tr>
</tbody>
</table>

Sources: AUP, AUPA, AUPE Records and Admission  
* UG=Undergraduate, G=Graduate

**Student Performance**

The exemplary performance of AUP students in various areas such as arts, allied health, science, music, and business brought a name of the University to the general public.

AUP graduates continuously top the board examinations in programs such as Medical Laboratory Science, Nursing, Dentistry, Agriculture, Accountancy and other academic competitive tests. These achievements helped pave the way for the university to acquire Deregulated Status on October 22, 2001 and University status on October 27, 2003. AUP was awarded an Autonomous Status for the meritorious achievements of students, faculty and the University in general.

**Organizational Performance**

AUP is committed to provide quality Bible-based education nurturing students for ACE - Academic excellence, Christ-like character, and Exemplary service.

The meritorious achievement of the AUP in instruction, research, and community extensions, and for maintaining a tradition of integrity, excellence, and high quality performance in educational service resulted to the university's high performance. On March 7, 2009, the Commission on Higher Education again awarded AUP renewal of its Autonomous status from March 2009 to March 2014.

It is evident that AUP has policies and continues to formulate policies to improve its processes. The commitment to excellence is clearly defined in the strategic plans for each college. The strategic plans of the university particularly the academic departments have become the partners to the accrediting agencies in pursuing quality and academic excellence.

AUP in its quest to maintain its university and autonomous status is subjected to accreditation and certification. The institution is accredited by the Federation of Accrediting Association of the Philippines (FAAP) through the Association of Christian Schools, Colleges and Universities-Accrediting Agency, Inc. (ACSCU-AAI), and the Philippine As-
sociation of Colleges and Universities Commission on Accreditation (PACUCOA). It is also recognized and accredited by the International Board of Education and the Adventist Accrediting Association (IBE-AAA), with headquarters at the General Conference of Seventh-day Adventists, Silver Spring, Maryland, USA.

Part of the long range plan of AUP was to be ISO certified. On November 26, 2014, the academic and support services of AUP was ISO 9001:2008 certified by Societe Generale De Surveillance (SGS).

The Theology program is accredited by the Association of Theological Education in Southeast Asia (ATESEA) in 2003 was revisited in 2007 and on June 29 to July 1, 2014.

Twenty-one of its degree programs are accredited by the Association of Christian Schools, Colleges and Universities-Accrediting Agency, Incorporated (ACSCU-AAI). Seven degree programs are accredited by the Philippine Association of Colleges and Universities.

Nine programs are enjoying the highest level, i.e., Level 4; elementary school is Level 3, high school is Level 2. Five programs are in Level 1. Five programs are on candidacy status. Three have already undergone consultancy visit under PACUCOA, and another four are scheduled for preliminary visit by ACSCU-AAI. The level of accreditation of the theology program accredited by ATESEA is not indicated. Table 4 shows the list of programs and their accreditation status.

### Table 5

<table>
<thead>
<tr>
<th>Program</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  BS Accountancy</td>
<td>4</td>
</tr>
<tr>
<td>2.  Bachelor of Arts</td>
<td>4</td>
</tr>
<tr>
<td>(English, History, Psychology)</td>
<td></td>
</tr>
<tr>
<td>3.  BS Business Administration</td>
<td>4</td>
</tr>
<tr>
<td>4.  BS Nursing</td>
<td>4</td>
</tr>
<tr>
<td>5.  B Elementary Education</td>
<td>4</td>
</tr>
<tr>
<td>6.  B Secondary Education</td>
<td>4</td>
</tr>
<tr>
<td>7.  Bachelor of Science</td>
<td>4</td>
</tr>
<tr>
<td>(Biology, Chemistry, Math,)</td>
<td></td>
</tr>
<tr>
<td>8.  MBA</td>
<td>4</td>
</tr>
<tr>
<td>9.  MAEd</td>
<td>4</td>
</tr>
<tr>
<td>10. Elementary School</td>
<td>3</td>
</tr>
<tr>
<td>11. High School</td>
<td>2</td>
</tr>
<tr>
<td>12. Pre-school</td>
<td>1</td>
</tr>
<tr>
<td>13. BS Nutrition</td>
<td>1</td>
</tr>
<tr>
<td>14. MSN</td>
<td>1</td>
</tr>
<tr>
<td>15. EdD</td>
<td>1</td>
</tr>
</tbody>
</table>
 Aside from the program accreditation, FAAP awarded AUP a very prestigious award, the Institutional Accreditation from April 2010 to December 2015. With such award, AUP is one among the 10 of the 2,323 HEI’s in the country granted with Institutional Accreditation.

The International Board of Education-Adventist Accrediting Association (IBE-AAA) also granted a five-year institutional accreditation for Tertiary, High School and Elementary School.

**IX. DISCUSSION**

AUP, in its desire to achieve quality education and academic excellence, strives hard in order to achieve this. The journey to quality and academic excellence has been at the heart of the past and current leaders of AUP. Strategic management is widely used that paved the way to this vision. The quality and performance of the university have been evaluated by the national and international accrediting agencies and many other agencies including the Commission on Higher Education in order to achieve quality performance. The results of these various evaluations and other university documents were the basis of this study.

**X. CONCLUSION**

The journey to quality and academic excellence entails processes for supporting the mission, vision, and goals of the university. The support from the academic community was evident. The strategic planning process of the university is a significant tool that provides direction and guidance to the university for a period of time. The accreditation and re-accreditation processes and other evaluations for quality have helped the university achieved quality and academic excellence. The combined workforce of the administrators, faculty and staff of the university resulted to numerous achievements as manifested in the performance of the students, graduates, and faculty of AUP. AUP’s performance is evident.
by the various awards and recognitions as well as accreditation levels given by several agencies. Thus, the achievement of AUP is a product of hard work, persistence, and commitment of the previous and present management of the AUP.

References


Biblical Origin of Communication in the Context of Synergistic Communication Theory: Basis for Creating the 21st Century Communication Model

Dr. Romeo M. Barrios

Abstract

For many years Adventist denominational schools have been embracing the popular worldview of communication process described as Sender-Message-Channel-Receiver-Feedback model. Then in the last decade this model was challenged by a new metaparadigm called Synergistic Communication Theory (Barrios, 2003) by adding spiritual dimensions and extending the process beyond the communicator’s lifetime because communication is considered as “gift from God.” As a Church with eternal hope, it is imperative to view and teach communication based on Adventist standard. This study aimed at creating Christian communication model with the inputs of selected University theologians, educators, and Bible authorities from Adventist University of the Philippines.

This qualitative study asserts the idea of a paradigm shift. Because it is about time to change the old view of communication model presented as human-centered, static, one-dimensional, two-people-at-a-time process, and technology-driven! Using the armchair research, the open-ended questionnaire/opinionnaire methods, a brand new illustrated communication model was created, fitted for 21st Century Christians. With the Holy Bible as the major source of facts and data, the new communication model has been scholarly presented as God-controlled, continuous, and relationship-driven. Furthermore, the study confirms that spiritual salvation is man’s ultimate goal for communication.

I. INTRODUCTION

There is an apparent indication that communication is one of the most neglected theoretical courses among Adventist schools. Oftentimes, the teacher-learner classroom discussions on communication usually revolve only within secular and human levels. The divine principles and spiritual content of communication are gradually disregarded because of the overwhelming publicity of new technology and social media. Such technological hype is giving people the wrong notion that becoming an effective communicator is acquiring expensive, high-end gadgets that will provide unlimited possibilities to communicate. There is nothing wrong with technology. However, technology occupies only a small component of the
whole human communication process. And it cannot be placed above all other elements of communication most specifically, people or the communicators themselves because they are the inventors and programmers of technology with the sole purpose of assisting them in their work. Therefore, people are still the most important components of communication, and giving much importance to media more than people is anti-human!

Adventist schools are expected to be at the forefront of new knowledge in communication concepts, theories, and principles that will edify biblical truth and man’s spiritual salvation. But upon examining and observing how our teachers perform in their communication classes, they seem to be found wanting in theories and research. The most serious pedagogical weakness is that in the absence of instructional materials based on deep biblical concepts. Adventist teachers simply adapt the secular viewpoint of communication. I can easily relate with this. After spending about 30 years as communication teacher in a state university, I was surprised to know that there was no distinct Adventist course content in communication being used in our denominational schools. I have expressed such predicament in a series of paper presentations on Synergistic Communication Theory during the first and second Scholars’ Conference in 2013 and 2014, respectively. My first comment was about the laxness and mediocrity of communication teachers:

“The teaching of communication among Adventists has remained unchallenged in the past decades. Unchallenged, in the sense that the content of lesson plans and syllabi of teachers have never been updated five or ten years ago. Many merely parrot the old communication ideas their mentors taught them ages ago. Every school term they conveniently submit communication course outlines duplicated directly from the past years, as if the discipline had stopped giving them new knowledge.” - A Meta-analysis of Secular Theories and Biblical Foundations of Communication: Bridging Pedagogical Gaps (Barrios, 2013)

The second message was a direct recommendation of adopting the new paradigm that will re-tool teachers with spiritual foundations of communication:

The development of Synergistic Communication Model serves as a catalyst of change in communication field...The results of this study will make educators more motivated to teach their lessons on communication because the model does not only integrate the best communication theories of the world, but it has expanded the Christian precepts, and man’s Salvation, as well. -Developing a Metaparadigm Tool for Teaching Communication in Christian Schools: The Synergistic Communication Model (Barrios, 2014)

Like gears and motors that will regulate the intended output of this study, a thorough discussion of the Synergistic Communication Theory (Barrios, 2003) is a must. Because it will definitely change the landscape of our old, worn-out, outmoded view of human communication process, leading toward the development of a progressive and Christian view of communication metaparadigm.

**Research Objectives**

1. Revisit the Synergistic Communication Theory (Barrios, 2003) to establish the paradigm shift of communication process – from the secular worldview to the Biblical and God-controlled communication model.

2. Formulate the most comprehensive definition of effective communication that best represents the Biblical principles and the great hope of Christians for God’s plan of Salvation and Christ’s Second Coming.

3. Plot out the origin/beginning of
communication as recorded chronologically in the Bible, by analyzing the events and consequences of God-men communication, focusing on the following elements: a) period/time b) locale/place c) communicators d) message e) medium/channel f) feedback/result g)”noise”/barrier and h) ultimate goal/purpose.

4. Create/develop a communication model (or graphical representation of synergistic communication) based on Biblical origin, principles, and spiritual precepts for the 21st Century Christians.

II. METHODS

The credibility of this study lies on the longitudinal studies conducted by this researcher from 2003 to 2015. Synergistic concept was used as the independent variable in series of related researches that were presented in the span of more than a decade, both in the local and international conventions. This study is the third paper accepted for this annual International Scholars Conference. The consistent, assertive, and persevering attitude of the researcher to develop an Adventist paradigm of communication are the strengths and motivations of the study. Inputs on essential concepts for this study were derived from the author’s series of researches on synergistic communication in the last decade, namely:


2008 – Synergistic Communication. Adventist International Institute of Advanced Studies, Cavite

2012 – Synergistic Communication Theory: The Missing Link in TESOL Curriculum. TESOL Phils., Baguio City


2014 – Bridging Leadership Gaps, Barriers, and Miscommunications in Organization: The Synergistic Communication Perspective. (World Interdisciplinary Conference) – Lyceum of the Philippines University-Batangas City


2014 – “Cross-case Analysis of Basic Communication Theories Toward a Meta-theory-development of Human Communication” TESOL 3rd National Conference, Silliman University, Dumaguete City.

In addition to these series of study, as educator and academic head of the communication department of Adventist University of the Philippines, the author has consistently integrated synergistic concepts in his syllabi and course outlines in the university. Likewise, the synergistic communication concepts have been used as topic of many seminars, trainings, fora, church sermons, writings, and speeches, as well. It is the researcher’s hope this paper will be the climax of these study series because it will categorically create a graphical representation or model of synergistic communication theory.

The major methodology of this research is via armchair or desk research. The biggest portion of the time were spent in the thorough analysis of the Holy Bible. In addition to the use of several versions of the Scripture, a number of Bible supplementary
references were examined for factual validation.

Thirty full-time faculty members of Adventist University of the Philippines were chosen to answer the five-item open-ended questionnaire/opinionnaire on Biblical communication. Mostly with theology degree and have been in the denominational work as teachers, the respondents share their stored knowledge and Adventist insights of Bible-based communication. Their written responses, however, were not analyzed quantitatively but used as experts’ thematic focus inputs that reinforce the desk researches from the Scripture. A fishbone diagram (Fig.1) was adapted to represent the conceptual framework of the study.

III. RESULTS AND DISCUSSIONS

Synergism in the Bible

Synergy is derived from the Greek word synergos meaning “working together.” Webster’s New International Dictionary (2000 edition) defines synergism as the doctrine that human effort cooperates with divine grace in the salvation of the soul. Stephen Covey devotes a chapter about synergy in his best-selling book, The 7 Habits of Highly Effective People (2005) as habit # 6 Synergize. Covey labels the habit of synergy as “creative cooperation,” and he claims that “synergy is the highest activity in all life.” Here’s to underscore some of the synergistic principles in Covey’s book:

“What is synergy? Simply defined, it means that the whole is greater than the sum of its parts. It means that the relationship which the parts have to each other is a part in and of itself. It is not only a part, but the most catalytic, the most empowering, the most unifying, and the most exciting part. (pp. 262-263)

“They don’t realize that the very strength of the relationship is in having another point of view. Sameness is not oneness; uniformity is not unity. Unity, or oneness, is complementariness, not sameness. Sameness is uncreative...and boring. The essence of synergy is to value the differences.” (p.274)

Covey advocates life-changing principles of synergism. Valuing so much on healthy human relations and smooth interpersonal relationship through communication.

“…And the key to valuing those differences is to realize that all people see the world, not as it is, but as they are...The person who is truly effective has the humility and reverence to recognize his own perceptual limitations and to appreciate the rich resources available through interaction with the hearts and minds of other human beings. That person values the differences because those differences add to his knowledge, to his understanding of reality.” (p.277)

Ed Aurelio Reyes, founding president of the SanibLakas ng Taong Bayan Foundation, is the first Filipino who popularized the concept of synergism in multi-disciplinary application. The term “saniblakas” is a Tagalog coinage of two combined words meaning “cooperative strength.” Reyes once articulated: “Togetherness in synergy magnifies total capability of a group many times greater than the sum of capabilities they would have when they are working separately.” To date, he has extensively published fifteen synergistic paradigms – from human development, education, science, health, politics, social justice, to the arts. The SanibLakas foundation with the vision, “Human Development and Harmony,” is open for membership to “synergy-oriented individuals” who are committed “to build actual synergies” (Reyes, 2002).

Table 1. Synergistic Principles from the Bible (King James Version)

The Holy Bible has several connotative meaning of synergism. Although the term synergy was never used
<table>
<thead>
<tr>
<th>SOURCE</th>
<th>TEXT</th>
<th>INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Romans 12: 4,5</td>
<td>For as we have many members in one body, and all members have not the same office. So we, being many, are one body in Christ, and every one members one of another.</td>
<td>Synergy is like a human body; with different parts and functions but all belong to one body; all members function in harmony; the need for mutual dependence, respect, and care for each other.</td>
</tr>
<tr>
<td>Romans 8:28</td>
<td>And we know that all things work together for good to them that love God, to them who are the called according to his purpose.</td>
<td>Synergy works like a God who causes everything to work together for good.</td>
</tr>
<tr>
<td>Ephesians 4: 3-6</td>
<td>Endeavouring to keep the unity of the Spirit in the bond of peace. There is one body, and one Spirit, even as ye are called in one hope of your calling; One Lord, one faith, one baptism, One God and Father of all, who is above all, and through all, and in you all.</td>
<td>Synergy is Christian unity based on wonderful scriptural facts: there is one body (Christ's body); one spirit (the Holy Spirit); one hope (Eternal Life); one Lord (the Triune God);</td>
</tr>
<tr>
<td>1 Thessalonians 3:2</td>
<td>And sent Timotheus, our brother, and minister of God, and our fellowlabourer in the gospel of Christ, to establish you, and to comfort you concerning your faith:</td>
<td>Synergy is being a co-laborer, a fellow laborer, or helper working together for a common goal/mission.</td>
</tr>
<tr>
<td>1 Corinthians 14:26</td>
<td>How is it then, brethren? when ye come together, every one of you hath a psalm, hath a doctrine, hath a tongue, hath a revelation, hath an interpretation. Let all things be done unto edifying.</td>
<td>Synergy is coming together or assembling together in united purpose.</td>
</tr>
<tr>
<td>Hebrews 10:24-25</td>
<td>And let us consider one another to provoke unto love and to good works: Not forsaking the assembling of ourselves together, as the manner of some is; but exhorting one another: and so much the more, as ye see the day approaching.</td>
<td>Synergy is to edify others never to condemn nor discriminate.</td>
</tr>
</tbody>
</table>
Mark 16:20  
And they went forth, and preached every where, the Lord working with them, and confirming the word with signs following. Amen  
The result of synergy is unity of the people in the manner God cooperates with men.

Ephesians 4:15-16  
But speaking the truth in love, may grow up into him in all things, which is the head, even Christ: From whom the whole body fitly joined together and compacted by that which every joint supplieth, according to the effectual working in the measure of every part, maketh increase of the body unto the edifying of itself in love.  
Synergy is bringing things together in like manner Christ unifies all believers with different gifts.

Matthew 18: 19-20  
Again I say unto you, That if two of you shall agree on earth as touching any thing that they shall ask, it shall be done for them of my Father which is in heaven. For where two or three are gathered together in my name, there am I in the midst of them.  
Synergy operates intrapersonally and interpersonally, as well. God is aware of all human communication, and never abandons or leaves any one. Relationship for Him matters.

John 13: 34-35  
A new commandment I give unto you, That ye love one another; as I have loved you, that ye also love one another. By this shall all men know that ye are my disciples, if ye have love one to another.  
Christianity is a religion of synergy. Its goals are love, unity, harmony, peace, relationship, and holiness.
Biblical Origin of Communication in the Context of Synergistic Communication Theory: Basis for Creating the 21st Century Communication Model

in the Scripture, but its basic etymological meaning such as unity, cooperation, love, harmony, and relationship are purely etched in many Biblical texts. The best example of synergism in the Bible is the Holy Trinity – One God in Three Persons, living in unity, harmony, and in perfect communion. Another synergy metaphor is the Bible itself as One Book, One Story – from “In the beginning” through “Amen” it tells the story of Jesus Christ. In the following table are Biblical texts that reveal the principles of synergism:

Ten Key Concepts of the Synergistic Communication Theory

The Synergistic Communication Theory is a purposeful paradigm shift of concept change - from the secular viewpoint to a God-controlled human communication process. Because of the researcher’s desire to promote the Adventist view of communication, his belief about the concept of synergism grew stronger; that it became the byline of all his talks, sermons, and lectures. The theory, therefore, in its own right, has reached its full level of validation and acceptability in terms of oral discussions, academic interactions, and written examinations.

SCT is a compendium of the best concepts of thinkers in the world like Lasswell, Shannon & Weaver, Osgood, Schramm, Newcomb, Dance, and Berlo, among others. By cross-analysis of theoretical elements, by combining relevant concepts, and by adding Biblical dimensions into it, a distinctly Christian metaparadigm of communication was created. Thus, Synergistic Communication Theory is not a new concept but it was formulated by shifting the paradigms and by changing common, traditional view into another viewpoint, a new mindset, and thinking attitude.

Essentially, are the ten key concepts of SCT based on the popular communication theories, as well as the Biblical principles and Christian philosophies which remain a constant gospel message of God to humanity. To easily memorize the concepts, simply remember the mnemonic: Communication Is The Most Important Moving Course Toward Real Greatness. Every first letter represents a key concept, as follows:

Table 2. Ten Key Concepts of the Synergistic Communication Theory

(Barrios, 2003)

<table>
<thead>
<tr>
<th>Communication is Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>All human communication are continuation of the past. It began from God during Creation. The process continues up to this day in the most sophisticated way. People could never claim they are the original source of any message, thought, or idea. As far as human communication is concerned, it is unending; it has no beginning and it has no end; it is not static; it flows continuously; it is ever present even when people are silent, absent, or even mindless of things they do. Communication is a process, not a thing – things end and are bound with time, but a process is continues and endless. There is an old adage: “You cannot step on the same river twice.”</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Communication is Irreversible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once it is sent no one can undo it! Many times, people would wish to retrieve words they have spoken carelessly at the height of anger or for a broken promise. Sometimes they have been forgiven for the hurt they caused with another person, but the words they uttered usually remains in the mind and can’t be erased easily. The Bible counsels people to weigh their words carefully…(Prov. 12:18).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication is Transactional</th>
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<tbody>
<tr>
<td>Every time people communicate they work...</td>
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</tbody>
</table>
on two messages: the content and relational messages. Content is the most obvious topic or idea under discussion. But the less apparent message is the relational level — which describes how people feel, their attitude, their affinity, and degree of control with one another. (Adler & Elmhorst, 2013). Socially, they communicate differently with a friend, with their boss, with their parents, or with a child. (Osborn & Motley, 1999).

Communication is Multi-dimensional

People are inherently made up of physical, mental, social, and spiritual dimensions. When they communicate they are revealing these aspects simultaneously along with what they are saying orally. Communication does not exist in isolation. Everything is part of something. Everything is part and parcel of something, and eventually all parts affect other parts. Everything is relative.

Communication is Inescapable

There is a popular axiom, “One cannot not communicate.” Can we think of any human activity that does not involve communication? Absolutely none. “We send a rich stream of nonverbal messages even when we are silent. Facial expression, posture, gesture, clothing, and a host of behaviors offer cues about our attitudes. The impossibility of not communicating means that we send messages even by our absence. Failing to show up at an event or leaving the room suggests meanings to others. Because communication is unavoidable, it is essential to consider the unintentional messages we send.” (Adler & Elmhorst, 2013)

Communicators have Multiple Roles

All communicators assume all the roles/elements involved in the process. There is no specific role that a communicator does because communication is a continuous and dynamic process. At any given situation, they perform as senders, receivers, mediums, message, feedbacks, or even the noise that cause its breakdown. Multiplicity of roles is the concept of synergistic communication.

Communication is Complex

In reality, communication is not simple and easy. It is not the simple exchange of words that most people think it is. It is a complex, ongoing, dynamic, and changing process. More can go wrong than go right. And it falls apart if we don’t keep fixing it (Deep & Sussman, 1990). Generally, we communicate in two ways: nonverbally and verbally. Harold Sala (1985) quoted Norm Wright’s points how communication is often complicated by misunderstanding. Each statement comes six messages (at least), as follows: 1)What you mean to say 2)What you actually say 3)What the other person hears 4)What the other person thinks he hears 5)What the other says about what you said 6)What you think the other person said about what you said. Nonverbally, the meaning people get from others come less from what they say than from how they say it.

Communication is Transformational

Communication is the best channel toward achieving spiritual transformation. Transformation is the highest state of spiritual life whereby Christians put their full dependence upon the Will of God. To be transformed is to have a Christ-like character that loves and forgives. Ruth Haley Barton (2011) describes transformation as “the process by which Christ is formed in us…” Apostle Paul counsels Christians in Romans 12:2: Do not be conformed to this world but be transformed by the renewing of your mind. A change may only be physical, partial, and superficial but transformation is a thinking process, always mindful to be wholistic, substantial, and transcending.
Like a metamorphosed butterfly…which is ‘not just a better caterpillar,’ but a real transformation – inside out!

**Communication is Relational**

Relationship, love, unity, cooperation, and salvation are the ultimate goals of communication. Every time people communicate must have these highest goals in mind. Communication is a gift from God, thus, Christians should imitate His way of communication. “Communication is deeply rooted in God’s nature,” wrote Viggo Sogaard (1993), “and it is this nature he imparted to humanity when He created us in His own image. Communication is therefore not something accidental or supplementary for human beings, but it is the only way to be fully human. Furthermore, God has given us a mandate to communicate a message to others.” Sogaard (1993) writes, “When we look at God’s Incarnation, we are looking at the center of communication…By this action God was bending down to disclose himself through ordinary situations of human life…He taught us to seek relationships with those we try to reach …God achieved his communicational goals through love.”

**Communication is God-centered and God-controlled**

God is the first and original Communicator. As the Creator, He spoke and everything in this world were created. “The world in which we live is a gift of love from the Creator God, from ‘Him who made heaven and the earth, the sea and the springs of water’ (Rev. 14:7, NKJV). Within this creation He placed humans, set intentionally in relationship with Himself, other persons, and the surrounding world. . Today, He commissioned the Church, His body, to represent Him, and to communicate Him by His standards and methods: “Go ye therefore, and teach all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Ghost (Matthew 28:19).” The Bible clearly points out: “But I tell you that men will have to give account on the Day of Judgment for every careless word they have spoken. (Matt. 12:36).

**21st Century Definition of Christian Communication**

Defining communication in its truest sense is the sine qua non of an effective Christian teacher. Short of having a sensible definition of communication, many teachers simply use clichés such as “sharing of ideas,” “transfer of information,” or “conversation,” which are only partly true because of the absence of spiritual element in the context. Based on the result of this study, the most suitable definition of communication is as follows:

Communication is the unending process of exchanging thoughts, words, and actions within a person and with people, purposely driven by love, unity, cooperation, and holiness.

This definition literally gives us a contrasting perspective of the popular and secular worldview of communication with the Christian viewpoint called Synergistic Communication (Barrios, 2003) with the following premises:

1) The communicators or people themselves are the most important and essential key players in communication. They are never superseded by technology nor by any powerful media, i.e. they are to be treated as human beings who value relationships, worthy of respect, justice, and human dignity;

2) Communication is not a thing but a process; things stop and end but a process is continuous and unending. Communication process should never be described simply as information sharing nor technology transfer because these things may lapse after doing their
functions.

3) In communication, people are identical with their thoughts and actions. They send streams of verbal and nonverbal messages, consciously and unconsciously, deliberate and unintentional. In strictest sense, our messages include “everything we think about, everything we say and do, as well as everything we don’t do, nor think about when we ought to.” Generally, all human activities and experiences involve communication.

4) Every communication should aim at achieving love, unity, peace, cooperation, harmony, and relationship; it emanates from the individual and extends it to others continuously and beyond. Oneness in love should be the ultimate goal of human communication. Hurt feelings, destroyed reputation, rejection, misunderstanding, and conflicts may arise as barriers but people, by nature, still wish for love, harmony, and smooth interpersonal relationship. The root words are commune, community, and communion which denote sharing and relationship.

5) Communication process constantly operates within three interrelated levels: within the individual (intrapersonal), with another person and among other groups of people (interpersonal), and through technology (mass media). Inevitably, what a person does will eventually affect the whole community and beyond. Communication process is never static nor does it operate in isolation.

6) Communication has spiritual consequences. Aside from the fact that God is the first and original Communicator – He spoke and everything was created, communication is a gift from God. The Holy Bible is the record of His loving communication to humanity. His command is “…Love one another; as I have loved you, that ye also love one another. By this shall all men know that ye are my disciples, if ye have love one to another” (John 13:34-35KJV).

Table 3.

Common Fallacies in Communication Definition

<table>
<thead>
<tr>
<th>COMMON FALLACY</th>
<th>SYNERGISTIC CONCEPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication begins with a single sender.</td>
<td>Messages originate from all various sources, points, and channels. Communicators perform multiple roles such as the sender, receiver, message, channel, and feedback.</td>
</tr>
<tr>
<td>Communication is fixed and static.</td>
<td>Communication is unending, continuous, and infinite. It does not cease in one’s grave because good communication while living has eternal consequence.</td>
</tr>
<tr>
<td>Communication begins and ends at one point at a time.</td>
<td>Communication has no beginning, and it has no end. It is continuous, unstoppable, and simultaneous. We must know what to listen to amidst the noisy world.</td>
</tr>
<tr>
<td>Communication is mostly oral or spoken.</td>
<td>Communication is everything we think about, we say and do, as well as, we never think, say, and do when we ought to.</td>
</tr>
<tr>
<td>The ultimate goal of communication is transfer of information.</td>
<td>Communication is not only about transferring of information that once sent, it is done. It is about people with feelings who long for love, unity, harmony, and relationship. People are not machines that can be turned on and off.</td>
</tr>
<tr>
<td>Communication occurs at least between two people.</td>
<td>A person in solitude, when alone, and in personal contemplation engages in intrapersonal communication.</td>
</tr>
<tr>
<td>Advance technology makes communication effective.</td>
<td>Technology are meant only as ‘extensions of human hands and mind.’ The most effective forms of communication are via face-to-face, immersion, and being around with people you care as shown in Christ’s example of Incarnation.</td>
</tr>
</tbody>
</table>

**Rationale for a Paradigm Shift**

It is sad to say that many communication teachers nowadays do not use analysis nor critical thinking approach on subject matters they are teaching. According to the respondents and based on the facts derived from desk research, Table 2 explains the common fallacies of insensitive teachers in their discussions about communication. Thus, a paradigm shift in the course content is essential.
Biblical Records of God-Men Communication

The Holy Bible reveals the sacred truth that communication is a gift from God. Human communication, therefore, is a continuation of God’s message at the beginning of time. No person, except the prophets and Bible writers, could ever claim the right of ownership of the knowledge he/she had acquired. Neither one could boast of his gift, talent, or skill because God is the source of all wisdom.

Viggo Sogaard (1993) gave a vivid picture of God’s nature as a Communicator. Sogaard wrote: He “expressed” himself at the time of creation. He spoke, and things happened. He sought company with Adam, Abraham, Moses and David. He let his Son live in a social context, and he leads his people into a warm community of believers. Sogaard further revealed in his book, Media in Church and Mission, the four purposes of God’s communication with humanity: 1) God makes Himself known; 2) God wants to be understood; 3) God wants a relationship; and 4) God wants a response (pp. 12-14).

Ron Jones (2013), founder of the Titus Institute, published a scholarly article in social media entitled, “How has God Spoken to His people throughout the OT and NT?” The following are excerpts of Jones’ studious analysis:

“We know that God is a God who speaks to his people.

“God spoke to our forefathers (OT believers) through the prophets and has spoken to us (NT believers) in his Son.

“God spoke to the people of Israel through intermediaries, the prophets. When he spoke to the prophets, it always had to do with his redemptive plan, not personal issues in their lives unless it involved his redemptive plan.

“The pattern in both the OT and NT is God speaking to his people through intermediaries and those intermediaries receiving revelation only regarding matters involving God’s redemptive plan. Those intermediaries were then to speak to God’s people about righteousness. This involved preaching about what is good and right before God and about what is sin and evil before God which we as God’s people are to apply in our lives. Those intermediaries then wrote that revelation down which became the OT and NT.

“When we get to heaven we will have direct communication with God again. That is part of the blessing of redemption.”
Table 4.

<table>
<thead>
<tr>
<th>Period/ Place</th>
<th>Communicators (With God)</th>
<th>Message (Biblical Origin)</th>
<th>Medium/ Channel</th>
<th>Feedback/ Result</th>
<th>Noise/ Barrier</th>
<th>Ultimate Comm. Goal/ Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Creation/ Before time/ Eternity/ Eternal Kingdom</td>
<td>Holy Trinity</td>
<td>Father, I will that they also, whom thou hast given me, be with me where I am; that they may behold my glory, which thou hast given me: for thou lovedst me before the foundation of the world. John 17: 5, 24</td>
<td>Divine communication</td>
<td>Synergy of roles: Unity in love, oneness, and divine harmony</td>
<td>None</td>
<td>The Triune God was providing the following: a) Salvation for us (1 Peter 1:20-21); b) God was electing His people (Ephesians 1:4); and c) God was preparing a kingdom for us (Matthew 24:34)</td>
</tr>
<tr>
<td>OLD TESTAMENT</td>
<td>God to Himself</td>
<td>And God said, Let there be light: and there was light. Genesis 1:3</td>
<td>Through Moses, the Bible writer</td>
<td>God was pleased with everything He had made</td>
<td>None</td>
<td>The Creator is by nature a communicator. He “expressed” himself at the time of Creation.</td>
</tr>
<tr>
<td>During Creation/ Eternal Space</td>
<td>The Triune God</td>
<td>And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. Genesis 1:26</td>
<td>Divine intrapersona</td>
<td>Unity and oneness in the Holy Trinity: And God saw everything that he had made, was very good… (Gen 1:31).</td>
<td>None</td>
<td>The creation of man was part and parcel of the divine plan.</td>
</tr>
<tr>
<td>On the sixth day of Creation/ Eternal Space</td>
<td>The Triune God</td>
<td>And God blessed the seventh day, and sanctified it: because that in it he had rested from all his work which God created and made. Gen. 2:2-3</td>
<td>Through Moses, the Pentateuch Books writer</td>
<td>God rested</td>
<td>None</td>
<td>God is the Lord of the seventh day Sabbath</td>
</tr>
<tr>
<td>On the Seventh Day after the Sixth Day of Creation: The First Sabbath/ Perfect world</td>
<td>The Triune God</td>
<td>The Lord God commanded the man saying, Of every tree of the garden thou mayest freely eat: But of the tree of the knowledge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die. Gen. 2:16-17</td>
<td>Face-to-face</td>
<td>Adam heard the Creator’s instruction</td>
<td>Psychological, emotional, social, and spiritual inexperience</td>
<td>God endowed people with Free Will (Freedom of Choice), Man’s obedience was tested in the tree of the knowledge of good and evil.</td>
</tr>
<tr>
<td>After the First Week of Creation/ Garden of Eden</td>
<td>God-Adam</td>
<td>&quot;Where art thou?&quot; &quot;...I heard thy voice in the garden, and I was afraid, because I was naked; and I hid myself...&quot; Genesis 3</td>
<td>Only oral communication to Adam and Eve; but God sees everything</td>
<td>Because of disobedience they were expelled from the Garden of Eden</td>
<td>Sin</td>
<td>Man forfeited his direct and personal communication with God</td>
</tr>
<tr>
<td>The Fall of Man/ Garden of Eden</td>
<td>God-Adam and Eve</td>
<td>&quot;And God said unto Noah, The end of all flesh is come before me; for the earth is filled with violence through them: and behold, I will destroy them with the earth... Make thee an ark of gopher woodGen. 6:21</td>
<td>Face-to-face</td>
<td>“Thus did Noah according to all that commanded him, so did he (Gen. 6:22); He spoke to Noah five times over 950 years</td>
<td>Sin</td>
<td>&quot;God is fully capable of speaking to his people at any time in any way he so chooses. (Jones, 2013)</td>
</tr>
<tr>
<td>Period of Patriarchs Before and After the Flood (Antediluvian Period)/ The Planet Earth</td>
<td>God - Noah</td>
<td></td>
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</table>
God-Zacharias: Fear not Zacharias: for thy prayer is heard: and thy wife Elizabeth shall bear thee a son, and thou shalt call his name John. Luke 1: 13

Angel: Zacharias was unable to speak until John was born.

Disbelief: God has perfect plans for His children; they must have faith.

God-Mary: Hail, thou that art highly favoured, the Lord is with thee: blessed art thou among women…behold, thou shalt conceive in thy womb, and bring forth a son, and shalt call his name JESUS. Luke 1:26-38

Angel Gabriel: Submission of Mary to the divine plan

Public pressure being a virgin

God chooses holy people to pursue his redemptive plan.

Fig. 2 THE SYNERGISTIC COMMUNICATION THEORY MODEL (Barrios, 2015)
The 21st Century Christian Communication Paradigm
The model is based on the Biblical truth that communication originated from God before Creation. The God-persons of the Holy Trinity have been in constant communion and in perfect relationship even ‘before the foundations of the world.’ (Proverbs 8:22-36; John 17:5, 24) Thus, the plan of Salvation had been in the divine chronicle of the Triune God before the world was. (1 Peter 1:20-21; Ephesians 1:4; Matthew 24:34) Such truth is the foundation of genuine communication. Human communication, therefore, is a gift from God.

There are four major spheres in the model: i) the divine sphere (outermost) where the constant synergy of the Triune God exists: and where the Creator controls all the affairs, and fate of the entire human communication process; ii) the central and innermost circle is the human sphere (green) – the setting of human communication, led at first by a man created in the image of his Maker who was assigned to be responsible over his environment and his fellowmen. He is the key player in human communication process whose multi-dimensional faculties, i.e. his attitude, values, beliefs, affinity, orientation, experience, etc. (intrapersonal) have a direct influence in the way he communicates with other human beings (interpersonal). Likewise, every individual has to synergize with others in continuum; iii) the outer circle from the center in blue is the environment sphere with some elements of nature God uses in expressing Himself to humanity since the beginning of time; iv) the narrow gray circle is the technology sphere made up of compendium of man-made technology and gadgets, purposely made to assist people in communication; it implies that these human inventions have no way of replacing the perfect form of direct (face-to-face) communication as Christ demonstrated in His Incarnation.

The added element in the diagram is the circle of dots, symbolizing sin or “the presence and activity of darkness” which separates people from God. However, such communication barrier between people and God is only transient and incidental. God has an appointed time to vindicate Himself and put such darkness to an end.

The Synergistic Communication Theory Model is a paradigm shift of the popular communication model taught in mediocre schools for decades. Christians must heed the call to transform their mindset from the secular view of communication to a Biblical perspective of God-controlled/God-centered communication process. (Barrios, 2015)

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Biblical Origin of Communication in the Context of Synergistic Communication Theory: Basis for Creating the 21st Century Communication Model


Organic Gardening Program at AUP’s Partner Community: Impact Study

Rolyn Cadalig, Eunice Carpizo, and Eunice Aclan

Abstract

The study determined the increase of income and the other benefits of the Organic Gardening Program (OGP) initiated by the Community Extension Services Center (CESC) of the Adventist University of the Philippines (AUP). Monitoring form and interviews were used to collect the data from 15 families who were purposively selected among the 44 participants of OGP at Barangay Hoyo, the partner community of AUP in Silang, Cavite. The results show that the average weekly income of the participants from OGP was PhP170 or about PhP680 per month as reflected in the monitoring forms given to the participants at the onset of the five-month program. The highest weekly income from the OGP was PhP600 per week which is around PhP2,400. This family has also the highest gross monthly income and has only five family members. Five families got the lowest weekly income from OGP, PhP50 per week. From the interview data, the participants reported that OGP increased their income thus it has improved their economic status and it became a source of fresh and healthy food thus it alleviates food scarcity and malnutrition. The other benefits the participants obtained from organic gardening program included the following themes: stress relief and source of joy, improved social relations through giving, and health benefits. Thus, OGP positively impacted the economic, health, and social status of the participating families in the community of Hoyo. It is recommended that more families should be encouraged to join in OGP and more varieties of seeds should be provided by the municipality of Silang in cooperation with the Department of Agriculture to alleviate food scarcity, poverty, and malnutrition.

Keywords: Community Extension Services Center, organic gardening program, livelihood, food scarcity and poverty alleviation, malnutrition
I. INTRODUCTION

Poverty reduction is the primary goal of all nations. Establishing a sustainable organic garden may increase family income thus preventing hunger or malnutrition caused by poverty. Community people who usually suffer poverty are mostly the unemployed, elderly, full time housewives and working poor (Jael et al., 2014). They may have jobs but still their earnings are not enough to sustain the need for the whole family in a certain period of time. As a result, it causes malnutrition that further hinders the development of the future of the country. However, the government has a big role in eradicating this global problem. In the Philippines, the Department of Health (DOH), Education (DepEd), and Agriculture (DA) suggest that every Filipino family should have (organic) vegetable garden so as to increase source of family income as dying of hunger is one of the worst things that may happen to a family member (UNICEF, 2014).

Statistics shows that there are 805 million people in the world today who do not have enough food to lead a healthy active life (UNICEF, 2014). UNICEF’s study also shows that a proportion of stunted and underweight children was far higher than the national average and in the Philippines, about 28 million Filipinos are unable to buy food to meet their nutritional requirements and other basic needs as stated by FAO. Local Governance Performance Management System (LGPM, 2009) reported that the municipality of Silang has high poverty incidence because the rate of unemployment is still alarming and that many families live below poverty threshold. Children may choose to work instead of going to school to help the family with basic necessities such as food. Low family income impacts the education of children. Poor nutrition due to imbalance food intake may lead to many forms of illnesses or worse, even death.

The Commission on Higher Education mandates institutions of higher learning such as AUP to respond to serve the people in the community through extension services program so as to establish and promote the general well-being of the residents upon identification of their specific needs. These are designed primarily to increase livelihood security; to alleviate poverty and reduce illiteracy; to improve health and nutrition, and; to create governance system that promotes, supports, and sustains human development and protects and preserves the environment (Bidad & Campiseno, 2010). In response to this mandate, AUP CES initiated the Organic Gardening Program. This program was conceptualized after the assessment done by the College of Health of AUP in June 2013 showing that 105 out of 240 pupils were underweight at Hoyo Elementary School. The Bachelor of Science in Nutrition and Dietetics implemented feeding programs for two consecutive school years 2013-2014 and 2014-2015 but knowledge on nutrition and subsidiary feedings have not been enough to sustain a healthy living. Knowledge on nutrition and sustainable livelihood programs should go in hand to improve the quality of life in the community. Thus, organic gardening program was introduced in Barangay Hoyo and this study assessed the impact of this program to the community.

Objective of the Study

The purpose of this study was to evaluate the impact of the Organic Vegetable Gardening program at Barangay Hoyo, Silang, Cavite. It specifically determined the impact of the project to the program participants based on the income they generated and other benefits they gained from their participation in the program.

II. RELATED LITERATURE

Community Extension Services

Community Extension Services (CES) by its name and practice emphasizes the concept of “integrated extension services” over the concept of “dole-out outreach programs” to attain its ultimate
goal, i.e., sustainable development. CES serves as facilitator of development by helping people discover their hidden potential, by promoting visions, and by provision of alternative solutions. It aims to discover and train change agents among the people in the community promoting and building self-reliance (CES Manual, 2013-2018).

One of the functions of CES is to meet social needs or to provide the social services needed to combat social and economic ills of the society. Therefore, AUP have to move ideas along the road to action, to develop knowledge needed, and to apply useful knowledge in the solution of society’s major problems. This is carried on through the establishment of the extension programs and services like the organic gardening program (Bidad & Campiseno, 2010).

Generating a collective effort of the community allows the people to establish initiatives, develop independence and interdependence that can influence the key decision makers in various issues and challenges. Thus, it becomes a central tenet providing a holistic and participatory way to address community problems such as employment, underemployment, poverty, as well as some social and environmental issues (Untalan, 2009).

**Organic Gardening**

Albert Howard developed organic gardening concept in the year 1940. He thought the need of composting and recycling materials, which include sewage sludge for soil fertility onto farmland. His concept of soil fertility centered on building soil humus with an emphasis on how soil life was connected to the health of crops, livestock, and mankind (Heckman, 2006). Organic agriculture will likely to evolve in response to ongoing social, environmental, and philosophical concerns of community people (Heckman, 2006).

**Benefits of Organic Gardening**

Quoting the founder of the American Organic Movement, J.I. Rodale, “Healthy soil, healthy food, healthy people” (Rodale, 2015, para. 6) sums up the benefits of organic gardening.

**Healthy soil.** Organic soil is derived from peat, which is the accumulated plant residues of swamps and bogs, according to Beaumont (2014). Peat may be derived from trees and other woody plants, sedges, rushes, grasses, or sphagnum moss, Beaumont explained. Well-decomposed peat with considerable admixed mineral soil is known as muck, which is darker in color and stickier when wet, he added. Both peat and muck usually require lime and fertilizers, particularly phosphate, potash, and copper for maximum crop production, the author said. Organic soils may be found on home sites, but fairly large areas of them are sometimes located near enough to population centers to make them suitable for community garden, Beaumont further pointed out.

A high-quality soil is free of chemicals that might harm the plant and farmers can certainly till high-quality soil because it generates higher yields with less effort (Magdoff & Van Es, 2009). The soil should have a sufficient supply of nutrients throughout the growing season, the authors recommended.

A new magazine was mailed to 14,000 American farmers in the springtime of 1942. The magazine is all about organic farming and gardening. It promised that through organic methods will not only improve the soil fertility of gardens but it will command higher prices for premium crops. The man behind the magazine, Rodale believes that synthetic fertilizers and pesticides used by farmers made food less nutritious and consumers less healthy.

**Healthy people.** Projects in the community about organic gardening extend benefits beyond food security, as gardens provide fresh vegetables and families experience the wonderment of growing food products from seed to harvest. According to Lang, “It is widely recognised that regular contact with plants, animal and the natural environment can improve our physical health and mental well-being. When we
grow food..., we are engaging with the natural world at a pace that provides a welcome antidote to the stresses of modern life (Davies, Devereaux, Lennartsson, Schmutz, & Williams, 2014, p. 3). Indeed, watching plants we grow in our garden is relaxing, how much more in organic garden which relies on nature.

The participation of family members in the production of yellow and dark-green leafy vegetables at the household level may provide economically deprived families in the community with direct access to vitamin A-rich foods and other nutrients needed by the families especially undernourished children.

The process of gardening does not only provide good experiences but also involves physical exercise, which can improve their health.

Healthy relationships. Gardening has fostered a sense of responsibility that transcends disciplines bringing family together to improve their lives.

Family and social relationships can also be strengthened through community gardening; since community members provide advice and support to help overcome challenges and all receive the benefits the gardening project offers (Carney, Rdesinski, & Nichol, 2011).

Improved economic status. Carney et al. (2013) asked their participants about how much intake of vegetables they had, if they worry about scarcity of food, and if they were skipping meals before and after the gardening season. Their results showed that the frequency of vegetable intake by adults, several time a day increased from 18.2% to 84.8%, and the frequency of children’s vegetable intake of several time a day increased from 24.0% to 64.0%.

The total frequencies of sometimes and frequently worrying months before that food would be running out before they have money to buy more food was 31.2% which total frequencies decreased to 3.1% at the end of the gardening time. This study shows how gardening can improve the economic status of families in the community.

Gardening, can indeed enhance the food security of community people.

**Significance of the Study**

Organic Vegetable Gardening program determines to contribute to the following:

**Participating community.** This study may contribute to the existing knowledge on organic gardening and its relationship to the nutritional status and economic sustainability among families in the community. Further, it may determine the practicality and workability of larger projects in the future. This can provide prospective job opportunities for the community and create awareness on the roles and responsibilities of the residents and barangay officials in fighting hunger and poverty.

**AUP-CES.** This will serve as a guide and reference in establishing sustainable extension programs in the community. It will also link with other NGO’s and government organizations to its own even when AUP-CES will leave the community.

**AUP.** It will serve as reference in the allocation of budget for community extension services.

**LGU-Silang.** This study opened the opportunity for the Department of Agriculture, Silang to implement the field school of Integrated Crop Management Program in the area.

**III. METHODS**

This study used mixed method or quantitative-qualitative design to identify the impact of the Organic Gardening Program in Barangay Hoyo. It used quantitative paradigm to measure the supplemental income of the families from joining in the OGP. A monitoring form was given to each family to fill up every time they harvest vegetable from their garden and put value based on the market price. Monthly average income from the produce was computed and analyzed.

This study also used qualitative method to gain deeper insights from the participants.
on the other benefits and experiences of OGP.

Participants of the Study
There were 44 families who joined in the Organic Gardening Program (OGP). Fifteen families voluntarily participated in this study according to their availability when the researchers visited them house-to-house. The participants’ gross monthly income ranged from PhP2,000-14,000. The family members of the participants ranged from 3-13. They came from four areas of Barangay Hoyo: Kanluran (west), Silangan (east), Gitna (middle), and Ibaba (lower) where vegetable gardening was not yet widely practiced until the introduction of the OGP.

Data Gathering Techniques and Procedures
To measure the income of the participants, monitoring form was used. The form was given to every family at the onset of the five-month program so that they would be able to monitor their weekly income. The monitoring sheets were checked by the CES staff and AUP students to get the average weekly income of the OGP participants. The recorded weekly income of the participants of this study was tabulated.

At the end of the OGP, the participants were interviewed individually to find out the benefits they have acquired from their participation in the program. The one-on-one interviews were conducted by the CES staff. The recorded semi-structured interviews conducted in Tagalog were translated and analyzed.

IV. RESULTS
The results show that the average weekly income of the participants was PhP170 or about PhP680 per month. The highest weekly income from the OGP was Php600 per week which is around Php2,400. There were five families who got the lowest weekly income from OGP, i.e., Php50 per week.

As shown in Table 1, the family who got the highest monthly yield (PhP2,400 per month) has also the highest gross monthly income (PhP14,000) and has only five members. There were five families who got the lowest weekly income from OGP.

<table>
<thead>
<tr>
<th>Family No.</th>
<th>No. of Family Members</th>
<th>Occupation of Husband/Wife</th>
<th>Gross Monthly Income</th>
<th>Approximate Garden Income Per Week (In Peso)</th>
<th>Approximate Garden Income Per Month (In Peso)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>5</td>
<td>Painter/Community Health Worker</td>
<td>13,000</td>
<td>400</td>
<td>1,600</td>
</tr>
<tr>
<td>F2</td>
<td>5</td>
<td>Farmer/Factory worker</td>
<td>14,000</td>
<td>600</td>
<td>2,400</td>
</tr>
<tr>
<td>F3</td>
<td>13</td>
<td>Woodcarver/ Housewife</td>
<td>6,000</td>
<td>250</td>
<td>1,000</td>
</tr>
<tr>
<td>F4</td>
<td>8</td>
<td>Carpenter/Housewife</td>
<td>9,600</td>
<td>250</td>
<td>1,000</td>
</tr>
</tbody>
</table>
The increase in family income in the quantitative data is supported by the interview data. The participants of the study reported during the interview that their gardening helped them increase their family income supporting the quantitative data gathered through the monitoring form. The qualitative data derived from the focus group interview showed also other benefits the participants obtained from organic gardening program. These benefits included the following: source of income, source of fresh and healthy food, stress relief and source of joy, improved social relations, and health benefits. The verbatim words of the participants translated into English are presented under each theme below.

Source of Income

The participants considered organic gardening as a source of income. For example, Elen, a full time mother with three children said:

Malaki talaga ang tulong sa aking pamilya, may naibebenta ako at ginagamit ko pambaon ng mga bata sa school, at kahit papaano may pambayad din sa test paper at iba pang kailangan nila sa eskwelahan.

Gardening helps my family a lot. I can sell my produce to the market. I have extra money for their allowance in school, for their test papers and school supplies” Elenita. (35 years old, full time mother with three children)

Like Elen, Mila who is 25 years old with three children and a full time housewife also considers her organic gardening as a source of income. She said:

May kinikita, nakakatulong sa pangkonsumo araw-araw. Ang kinita pambili ng sabon panglaba ko sa araw-araw na uniporme, toothpaste, asin, mantika at iba pang kailangan.

I earned from my garden. My garden income has helped with our daily expenses such for buying detergent soap for my daily washing of uniforms, toothpaste, salt, cooking oil and other household needs. (Mila, 25 years old, full time housewife with three children)

Organic gardening as a source of income was also recognized by Laila, 45 years old with four children:

Malaking tulong sa pamilya, nakakabenta ako ng mga gulay kagaya ng pechay at mustasa. Itong mga gulay na ito ay madaling alagaan at madaling maharvest, ilang lingo lang. Madali ako kumita dito. Alam mo naman dito lang ako sa bahay wala naman akong trabaho kay a wala akong pera.Ngayon na nag-garden ako
may pambili na rin ng kailangan sa bahay. Pag may garden ka, malaking bagay kasi malaking tipid.

Gardening is a big help for my family. I can sell my produce such as pechay and mustard greens. These vegetables are easy to take care and can be harvested in just a few weeks. I can easily earn from these vegetables. You know being a full time housewife I don’t have money to contribute but by having a garden, I can earn from it to help me a lot in our daily expenses.

Eugenio, 36 years old, father of three children, and a former vegetable farmer for five years has earned much from his organic vegetable garden. Eugenio said:

Nakakatulong sa araw-araw naming pagkain. Basta magluto si misis ay kumukuha lang siya ng pang-ulam namin sa aming garden. At di lang yon, marami pa ako ng bigas at mga groceries namin. Minsan may naiiwan pa ako ng tubig at kuryente namin, nakakatulong uli ngayon ako para makapagbibayad ng mga bills na ini-isaat parapagkain sa bahay. (Eugenio, 36 years old, father of three children, and a former vegetable farmer)

Another participant who considered organic gardening as a source of income was Violy, 56 years old, mother of three children, a wife of a farmer. Violy shared:

It adds to our family income from farming because my husband is a farmer but our farm is far from here so I don’t go there. It’s good you have this gardening program so I become active with it. My husband usually plants pineapple, papaya and corn. I started to have my own organic garden in front of our house when you introduced this program which is good until now. I have planted vegetables which can yield fast produce such as pechay, tomatoes, raddish, Baguio beans, bitter gourd, and string beans. Violy, 56 years old, mother of three children, a wife of a farmer)

Source of Fresh and Healthy Food

Another theme that emerged from the interview data on the other benefits of organic gardening was source of fresh and healthy food. For example, Virgie, 58 years old, housewife with five children said:

It helps in our daily food because everytime my wife cooks she will just go to our garden to pick fresh vegetables. Not only that, I have a lot of yields from my mustard greens which I sell in Buklod in which I earn about PhP300.00 so I can buy rice and other grocery supplies. Sometimes I have extra money to pay our water and electric bills. It helps us a lot unlike before that I planted just a few so I also got lesser yield. Now I got encouraged to plant more especially now that I have all the seeds that you have given us. The more we sow, the more we reap. (Eugenio, 36 years old, father of three children, and a former vegetable farmer)
It’s good to have your own garden because you have fresh vegetables rather than buy them from the market. Life is so hard nowadays so we should have a source of vegetables especially that we don’t have livelihood. Most of us here are housewives, no job. In your [interviewers’] program, all you need is work hard, wake up early to take care for your plants, so that you will have source of food every day. (Virgie, 58 years old, housewife with five children)

Norie, who is 56 years old, childless, and taking care of her sick husband also counts her gardening as a source of fresh and healthy food. She said:
Mas maganda talaga ang may sariling organic garden kasi sigurado ako na organic kaysa palengke. Alam ko ang mga tinitindang gulay sa palengke ay may mga fertilizers. Ang mga kemikal sa pagkain ay hindi maganda sa kalusugan, di ba? Ang asawa ko ay mataas ang presyon at may allergy sa balat, kaya mas maganda pa rin talaga ang may sariling taniman ng gulay kasi makakapaghanda ka ng simple at malulusog na gulay kung talagang kinakailangan.

It’s better to have my own organic garden for I am sure that it is really organic compared to the vegetables in the market. I know that the vegetables sold in the market have fertilizers. Chemicals are not good for health, right? My husband has hypertension and skin allergy, so it’s better to have our own vegetable garden so that we can prepare simple but healthy food needed by our body. (Norie, 56 years old, childless, caretaker of sick husband)

Stress Relief and Source of Joy

Aside from source of income and food, gardening also lessens stress and is a source of joy, according to the participants of this study. Femmy, for instance, 63 years old, a housewife with five children (two of them are married) and three grandchildren all are staying with her in their house stated:
Bukod sa pag-aalaga ng aking mga apo, ako din naman ay natutuwa na mag-tanim sa aming garden sa likod ng bahay. Araw-araw ako ay laging pumupunta sa garden ko at nasisiyahan akong makita ang aking mga pananim, habang tinatanggali ko ang mga damo sa gulay na may alligator. It’s so nice to see my plants growing so robust until I harvest them. (Femmy, 63 years old, housewife with five children and three grandchildren all staying with her)

Like Femmy, Marie, 48 years old, a barangay health worker and housewife with one child, also releases her stress by gardening. Marie reported:
Sa pagtanim ng maghaharvest ay nagbantay ako ng mga damo sa garden ko. Kahit na maliit lang ang lote para sa pagtanim, ako rin ay magharvest ng katawan ng mga gulay. Tapos pag na-harvest ko na yong mga tinamih ko ay nagkahit na mahusay na takot sa kanyang pagiging masaya kung maaalisin mo ang problema mo sa pakiramdam.
Gardening lessens my worries over my problems because I am inspired every time I visit my garden. Although I got only a small space to plant, I still do gardening no matter what because I find joy in taking care of my vegetables. Sometimes I use empty water containers or plastics to plant so that I can grow more vegetables. Then at harvest time, I feel so good like I forget all the tiredness, all the sweats I have invested planting and all my problems. Gardening really makes me so happy! (Marie, 48 years old, a barangay health worker and housewife with one child)

**Improved Social Relations**

Giving of vegetable produce to neighbors and friends as well as time spent together by the family gardening improves social relations. This is one of the benefits of organic vegetable gardening presented by the participants of the study. For example, John, only 13 years old, Grade 6, with one sibling, contractor father, and overseas worker mother, said:

Nakakatuwa nga kasi pag naka-harvest ako ng gulay binibigyan ko ang mga kapitbahay at masayang-masaya sila na makatanggap ng gulay. Sabi nga ng isang ali na kapitbahay namin, “Alam mo napakabuti mong bata, kahit na wala ang mga magulang mo alam mo ang gagawin mo! Natutuwa ako sayo!”

*I feel joy when I harvest my vegetables and share some to our neighbors. My neighbors are happy to receive my vegetables. A mother said to me, “You know, you’re such a good boy! Even if your parents aren’t around, you know what you’re doing! I’m happy about you!”* (John, only 13 years old, Grade 6, with one sibling, contractor father, and overseas worker mother).

Eugenio also shared how he improved his social relations by OGP:

Madalas ang pag-tatamin namin ang nagiging paraan para magkaroon kami ng bonding sa pamilya, lalo na pag mag haharvest, puno ng tawanan at asarang. Yong tatro kong anak gustung-gusto nila yung mag-harvest ng mahahabang sitaw tapos tulung-tulong kaming mag-harvest ng pechay at pasasahan kahit na yon lang ang kadalasan na tanim ng garden namin ay masayang-masaya na kami. Pero naisip ko na magtanim pa ng iba’t-ibang klase ng gulay para mas marami pa akong maibigay sa mga kapitbahay sa tuwing bibisita sila dito sa amin.

*Very often, gardening provides bonding time for our family especially during harvest time when we fill the air with laughter and teasing. My three children love picking long string beans and we help each other harvest our pechay and mustard greens, the only vegetables we usually plant in our garden but we’re so happy. I think of planting more kinds of vegetables so that we will have more to share to our neighbors when they come visit us.* (Eugenio, 36 years old, father of three children, and a former vegetable farmer for five years)

William, 48 years old, corn vendor, and a father of seven children, also shared his joy of giving to others his vegetable produce. He said:

Kadalasan sa mga nahaharvest ko ay ibinibigay ko din sa mga kapitbahay, lalo na yong alam kong talagang nagangailangan talaga ibinibigay ko itong libre, saka ko nararamdaman na mas naging malapit ang loob namin sa isa’t-isa. Kung minsan binibenta ko yung iba, pero kung dito sa bahay pag pumunta sila, ipinamimigay ko na sa kapitbahay. Ayos lang naman sakin kahit na ubusin nila, eh di magtanim ulit basta nakatulong sa iba masaya na ako don!

*I give most of my vegetable produce to my neighbors for free especially to those who really need it then I feel that we become closer to each other. Sometimes, I sell some but if the neighbors come to our house, I just give my vegetables for free. It’s okay*
with me even if they take them all as long as I’m able to help. It makes me feel good to help others. Anyway, I can plant again! (William, 48 years old, corn vendor; father of seven children)

Another participant, Bernie, 33 year old tricycle driver also expressed how he improved his relationship with his friends through gardening. Bernie stated:

Because of organic gardening program, I feel a stronger relationship with my friends. We’re now happier unlike before when we didn’t care for each other, like if you want to plant, then you plant on your own. But now we do gardening together as friends and we feel the joy with each other. We do gardening with fun, teasing each other and above all, we share what we have in our garden. (Bernie, 33 years old, tricycle driver)

Health Benefits

Aside from the economic and social benefits organic gardening provided to the participants of the OGP, they also reported that the program also gave them health benefit. This benefit is shown by the following interview excerpts. For example, Eugenio shared:


Fresh organic vegetables for my family? Wow! It’s not scary anymore to eat vegetables because you’re safe illness like cancer. Nowadays many are suffering from cancers and food is one of the factors. But if you say organic vegetables, no toxic chemicals that may cause cancer, right? Another benefit of gardening is exercise. I don’t worry anymore that’s why I’m free from illnesses such as stroke, cancer and any illnesses. (Eugenio, 36 years old, father of three children, and a former vegetable farmer)

Yolly also shared how she benefited in terms of health from her organic gardening. She said:

I really love gardening that’s why I have flower garden, too. It is a therapy for me as it makes me forget my problems. I don’t usually take medicines. Gardening is a form of exercise. I can breathe clean fresh air. I’m surrounded with green leaves, plants that are relaxing. This helps me to stay healthy and worry-free. (Yolly, 56 years old, mother of three children, farmer’s wife, flower gardener)

V. DISCUSSION

Organic vegetable gardening is a big income booster for families particularly with only one parent working. In this study, most of the participants are full-time housewives.
Thus, gardening became not only an income booster but also a major source for healthy foods. Even if the average income reported by the participants is not much, only PhP680 per month, organic vegetables became readily available to the community people anytime they needed them for food. The participants reported that they did not have to go to the market anymore to buy vegetables as they would just pick them fresh from their garden. Aside from the intended outcome of the program to make OGP as a source of income and food to alleviate malnutrition, other benefits reported by the participants included the following: stress relief and source of joy, improved social relations, and health benefits.

Participants gained a special sense of delight and joy as they watched their plants grow. Gardening provided therapy and stress relief to them. Their participation to OGP convinced them to plant more kinds of vegetables. Overall, OGP provided them with good experiences as a family and as a community. It impacted their relationship with their neighbors through sharing of their garden produce. Participants were able to work together with their family members from soil preparation, planting, harvesting and selling produce around community and in the market place. Closer relationship between family members and among neighbors was enhanced.

The results of this study support the findings of Carney et al. (2013) who found that organic vegetable gardening helps solve food scarcity and improves food intake by the family. Their study showed vegetable intake frequency by adults, several time a day increased from 18.2% to 84.8%, and the frequency of children’s vegetable intake of several time a day increased from 24.0% to 64.0%. In this study, the participants reported that they did not have to worry about what to cook anymore because they could just readily pick from their garden anytime and they could eat more vegetables assured that they are chemical-free. Although the participants of this study did not mention about healthy soil as a benefit of organic gardening, as in Rodale’s quote, “Healthy soil, healthy food, healthy people,” they highlighted how it provides fresh and abundant food and makes people healthy. The improved social relationship among family members and neighbors is also consistent with the results of Carney et al. (2011) who found that gardening as an activity enhances social relationships.

VI. CONCLUSION AND RECOMMENDATION

As shown in both quantitative and qualitative results, OGP is a good source of extra income for families in the community. The quantitative results show that the average weekly income of the participants from OGP was PhP170 or about PhP680 per month as reflected in the monitoring forms given to the participants at the onset of the five-month program. The highest weekly income from the OGP was PhP600 per week which is around PhP2,400 per month. The participants claimed that their extra income can buy food and basic household needs such as detergent soap, sugar, cooking oil, and rice. Some participants reported that they were also able to pay their utility bills such as water bills, electric bills, etc. from the extra income they gained from gardening. OGP was also a direct source of fresh and healthy food as the participants did not have to buy vegetables from the market anymore. Therefore, although the average monthly income of the participants is not high, food scarcity and poverty have been alleviated by OGP as it provided the community with extra source of food, the most basic need of every family and other prime household commodities. Aside from source of income and food, the other benefits reported by the participants such as improved social relations among family members and neighbors as well as health benefits are big impacts of the Organic Gardening Program of the Community Extension Services of AUP. Thus, OGP was effective in improving the economic, health, and social status of the participating families in the community of
Hoyo, the partner barangay of the Adventist University of the Philippines.

From the results of the study, more families should be encouraged to join in OGP. It is also recommended that more varieties of seeds be provided by the municipality of Silang in coordination with the Department of Agriculture to alleviate poverty, food scarcity, and malnutrition in the community.

REFERENCES


Knowledge, Health Practices, and Diabetes Mellitus II Tendency

Eunice Carpizo, Dina Galang

Abstract

This study determined relationship of knowledge and health practices of the respondents to diabetes mellitus II tendency. It further determined the influence of the demographic and health profile to diabetes mellitus II tendency. Data from 101 respondents were analyzed using descriptive and inferential statistics. Results of the correlation analysis reveal that demographic profile such as education and income has a strong positive correlation but age has negative correlation to knowledge. Knowledge is strongly correlated to health practices when treated as a whole. However, when knowledge was correlated with the individual dimensions of health practices, only dietary intake emerged to be related. Age, body mass index, and waist-to-hip ratio showed a positive relationship and education indicated a negative relationship when demographic and health profiles were correlated to diabetes mellitus II tendency. However, health practices and their dimension, when correlated to diabetes mellitus II tendency, did not show any relationship. The predictors of diabetes mellitus II tendency, based on the model generated by AMOS, were age and body mass index. When the two are combined as one variable, it could explain a total of 22% of the magnitude of variance in diabetes mellitus II tendency.

Keywords: knowledge, health practices, Diabetes Mellitus II

I. INTRODUCTION

Diabetes is one of the most significantly increasing diseases in the world that causes more than 3.8 million deaths every year. According to the latest research, more than 366 million people worldwide suffer from diabetes and it is estimated to become 552 million by 2030 (Khardori, 2015). In the United States, 5.7 million of the 17.9 million people who have diabetes are unaware that they have the disease. Approximately 60 million people in Europe live with diabetes, of whom more than 50% are unaware of their condition (American Diabetes Association, 2008). About 89 million Asians are thought to be diabetic and it is expected to hit 170 million by 2025 (TimeAsia.com, 2008).

From the data presented by the International Diabetes Federation (IDF) in its Diabetes Atlas for 2009, the number of Filipino adults with Type II or acquired diabetes is 3.4 million out of a 51-million adult population with 4.9 million more on the brink of developing diabetes (Pazzibugan, 2009) and about 65 percent are not aware that they have diabetes.

Studies show that most of the morbidity and mortality in type 2 diabetes arise from long-term complications. Therefore, early detection and prevention would be expected to have a tremendous beneficial human, social,
Knowledge, Health Practices, and Diabetes Mellitus II Tendency

The importance of proper nutrition and physical activity in reducing rates of disease and death from chronic diseases has been well established (National Diabetes Fact Sheet, United States, 2005). Moreover, American Diabetes Association (2008) stated that the recently completed Diabetes Prevention Program (DPP) study showed that people with pre-diabetes can prevent the development of type II diabetes with dietary changes and increasing their level of physical activity. They may even be able to return their blood glucose levels to the normal range. The DPP also showed that some medications may delay the development of diabetes but diet and exercise worked better. Just 30 minutes a day of moderate physical activity, coupled with a 5-10% reduction in body weight, produced a 58% reduction in diabetes.

Objectives of the study

This study determined relationship of knowledge and health practices of the respondents to diabetes mellitus II tendency of the respondents. Specifically, the study aimed to attain the following objectives: (1) determine the knowledge level of the respondents on diabetes mellitus II; (2) determine the demographic profile of the respondents in terms of age, educational attainment, and income; (3) determine the health profile of the respondents in terms of body mass index and waist-to-hip ratio; (4) determine the health practices of the respondents in terms of smoking, dietary intake, and physical activities; (5) determine the respondents’ tendency to possibly have diabetes mellitus II; (6) determine the relationship of demographic profile and the level of knowledge, knowledge level and health practices, and demographic profile, health profile and health practices to diabetes mellitus II tendency; and (7) determine the best predictor of diabetes mellitus II tendency.

II. METHOD

Research Design

The study used correlational research. There were 101 respondents in the study who were male and female aged 20 – 55; willing to fast for eight to 10 hours; not yet diagnosed to have diabetes mellitus and willing to be pricked for blood screening.

Demographic Profile

Age. Twenty eight (27.42%) of the respondents were from age brackets 20-29, 16 (15.84%) came from age bracket 30-39, 36 (35.64%) from 40-49, and 21 (20.79%) from 50-55 years old. Majority of the respondents come from the age bracket 40-49 years old. According to Kolatkar (2009), diabetes is usually diagnosed among persons of this age bracket.

Educational attainment. The results of the study revealed that 1% of the respondents had no formal education, 27% had elementary education, 50% had attained secondary education, 14% were either undergraduate college level or college graduate, and 5% had postgraduate education. All of the respondents were literate, they can read and write, but more than half of them have only attained the lower level of education.
Occupation. The data show that most (58%) of the respondents are not employed (housewives, students, and unemployed) and 42% are employed (clerks, salesmen, drivers, etc). This can be attributed to the fact that most of the respondents have low educational attainment on which lack of education can limit job opportunities, including prospects for higher income, and personal and professional satisfaction.

Income. The biggest group of respondents (51%), in terms of income, belonged to the income bracket of 5,000 and below. The second (32%) comes from the income bracket 5,001 – 10,000. The study revealed that 88% of the respondents had an income below the poverty level and only about 12% of them had an income within or above the poverty level.

The poverty level as of 2006, according to NSO (2009), is PhP15,057 per month. Using this classification, the researcher would say that most of the respondents were considered poor.

Instrumentation

The instruments used in this study were glucometer, weighing scale, tape measure, height chart, and survey questionnaire. Accu-chek Advantage glucometer was used for measuring the glucose level in the blood taken from the respondents. Health-O-Meter weighing scale was used to determine the weight or mass of the individual respondents. A flexible plastic tape measure that consists of markings up to 50 inches or 150 centimeters was used to take the waist and hip circumferences of the respondents. Laminated paper height chart which consists of markings up to six feet and five inches was used to measure the respondent’s height. For the purpose of data gathering, the researcher adopted the questionnaire of Castillo (2003) for knowledge. Instruments for health practices were self-constructed based on previous studies and literature.

The data were treated using Excel statistics functions, SPSS and Analysis of Moment Structures (AMOS) software. Frequencies, percentages, mean and standard deviation were used to describe the variables included in the study. Pearson-correlation, through SPSS was the statistical treatment used to determine the relationship among independent, moderator, and dependent variables. Structural Equation Modeling (SEM), through AMOS, was used to determine the best predictor of diabetes mellitus II tendency.

III. RESULTS

Respondents’ Knowledge on Diabetes Mellitus II

The scores of the respondents are summarized in Table 1. The average score of the respondents’ knowledge on diabetes mellitus is 24.88. The respondents’ score on concepts related to diabetes mellitus II was very low and got a low score on the topics on what causes diabetes.
Table 1

**Average Scores of the Respondents**

<table>
<thead>
<tr>
<th>Questions</th>
<th>Perfect Score</th>
<th>Aver. Score</th>
<th>%</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is diabetes?</td>
<td>4</td>
<td>1.8712</td>
<td>46.78</td>
<td>Very Low</td>
</tr>
<tr>
<td>2. What causes diabetes?</td>
<td>9</td>
<td>4.8811</td>
<td>54.23</td>
<td>Low</td>
</tr>
<tr>
<td>3. Who are the people who are likely to have diabetes?</td>
<td>5</td>
<td>3.9405</td>
<td>78.81</td>
<td>High</td>
</tr>
<tr>
<td>4. What are the warning signs and symptoms of diabetes?</td>
<td>5</td>
<td>3.5148</td>
<td>70.30</td>
<td>Moderate</td>
</tr>
<tr>
<td>5. Can you prevent diabetes</td>
<td>1</td>
<td>0.8910</td>
<td>89.10</td>
<td>Very High</td>
</tr>
<tr>
<td>6. What can you do to prevent diabetes</td>
<td>6</td>
<td>4.3762</td>
<td>72.94</td>
<td>Moderate</td>
</tr>
<tr>
<td>7. Is the disease controllable?</td>
<td>1</td>
<td>0.8514</td>
<td>85.14</td>
<td>High</td>
</tr>
<tr>
<td>8. How can diabetes be controlled?</td>
<td>6</td>
<td>4.5544</td>
<td>75.91</td>
<td>High</td>
</tr>
<tr>
<td>Total Score</td>
<td>37</td>
<td>24.881</td>
<td>67.25</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

Note: 88-100 = Very High 75-86 = High 62-74 = Moderate 49-61 = Low below 49 = Very Low

Translating their total average raw score (24.88) into percentage, the percentage is 67.25. Using the scale indicated in Table 1, the knowledge level of the respondents on diabetes mellitus II is moderate. It was evident that the respondents knew the people who were likely to have diabetes and that diabetes can be prevented and can be controlled; however, they still lack sufficient knowledge whether diabetes is contagious, incurable, inherited, or fatal. They also lack knowledge about the causes of diabetes. This could be attributed to the fact that most of them are elementary and high school graduates. This is supported by the profile which shows that 77% of the respondents attained low level of education.

**Health Profile of the Respondents**

Body mass index. The body mass index (BMI) of male and female respondents was computed and were tabulated as presented in Table 2 using the Rating Scale for Body Mass Index of Philippine Academy of Family Physicians as guide.

Table 2 reveals that 56 of the respondents have BMI levels above the healthy normal
range. Of these, 27 have a BMI level of 23-24.9 and are considered at risk; 20 have a BMI level of 25-29.9 and are considered as obese I, and 9 have a BMI of above or equal to 30 and considered as obese II. On the other hand, only 38 have a BMI of 18.5-22.9 and classified as normal and seven have a BMI of less than 18.5 and are classified as underweight.

Table 2

*Tabulated BMI Results*

<table>
<thead>
<tr>
<th>BMI</th>
<th>N</th>
<th>Asia-Pacific Classification</th>
<th>Risk of Comorbidities</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=30</td>
<td>9</td>
<td>Obese II</td>
<td>Severe</td>
</tr>
<tr>
<td>25 - 29.9</td>
<td>20</td>
<td>Obese I</td>
<td>Moderate</td>
</tr>
<tr>
<td>23 - 24.9</td>
<td>27</td>
<td>At risk</td>
<td>Increase Healthy</td>
</tr>
<tr>
<td>18.5 - 22.9</td>
<td>38</td>
<td>(Normal Range)</td>
<td>Average</td>
</tr>
<tr>
<td>&lt; 18.5</td>
<td>7</td>
<td>Underweight</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Waist-to-hip ratio.** Another means of checking if the individual is at risk for diabetes is measuring waist to hip ratio. The waist-to-hip ratio of the respondents was computed. The results in Table 3 show that out of 21 males, only two males have more than 1.0 ratio and out of 80 females, 56 females have more than 0.85 ratio which indicates that 58 (57.43%) of the respondents have high risk of having diabetes and most of them were women.

Table 3

*Tabulated Waist-to-Hip Ratio Results*

<table>
<thead>
<tr>
<th>Male</th>
<th>Number of Males</th>
<th>Females</th>
<th>Number of Female</th>
<th>Health Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.95 or below</td>
<td>18</td>
<td>0.8 or below</td>
<td>12</td>
<td>Low</td>
</tr>
<tr>
<td>0.96 to 1.0</td>
<td>1</td>
<td>0.81 to 0.85</td>
<td>12</td>
<td>Moderate</td>
</tr>
<tr>
<td>1.0 +</td>
<td>2</td>
<td>0.85 +</td>
<td>56</td>
<td>High</td>
</tr>
</tbody>
</table>

**Health Practices of the Respondents**

**Smoking.** Out of the 101 respondents, there were only 20 who are smoking, 10 males and 10 females. They have smoked an average of nine sticks a day for an average period of 15 years.

**Dietary.** Table 4 summarized the dietary intake of the respondents according to food groups. Data clearly convey that in a day the respondents have five servings of meat, meat products, fish, and dried beans, five servings of bread, rice, and noodles, two servings of vegetables, one serving of fruits, and just enough sweets are included in their daily meal.
Knowledge, Health Practices, and Diabetes Mellitus II Tendency

Table 4
Dietary Intake of the Respondents Based on the Food Groups

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Recommended Dietary Intake Per Day</th>
<th>Dietary Intake Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, Poultry, Fish, Dry Beans, and Eggs</td>
<td>3 to 4 servings</td>
<td>4 servings</td>
</tr>
<tr>
<td>Meat Products (Sausages, Cheese)</td>
<td>2 to 3 servings</td>
<td>1 servings</td>
</tr>
<tr>
<td>Bread, Rice, and Noodles</td>
<td>5 to 8 servings</td>
<td>5 servings</td>
</tr>
<tr>
<td>Vegetables</td>
<td>3 to 4 servings</td>
<td>2 servings</td>
</tr>
<tr>
<td>Fruits</td>
<td>2 servings</td>
<td>1 servings</td>
</tr>
<tr>
<td>Sweet (sugar)</td>
<td>5-8 tabl spoon</td>
<td>&lt; 1 serving</td>
</tr>
</tbody>
</table>

The recommended number of servings is based on the Daily Nutritional Guide Pyramid for Filipinos (Claudio, Leocadio, & Escudero, 2008). In order to maintain health and have a low risk of developing chronic illnesses such as diabetes, healthy diet should consist of 40% to 60% of calories from carbohydrates, 20% from protein and 30% or less from fat. It should be low in cholesterol, low in salt and low in added sugar (Diabetes & Nutrition, n.d.)

The results in Table 4 show that the respondents’ daily intake per serving for the body building food is sufficient with an average of five servings which is within the recommended five to seven servings per day. The consumption of energy giving food is also sufficient with an average of five servings a day wherein five to eight serving is the recommended amount per day. Sweets were taken sparingly which is a sign of a healthy diet. However, the intake of body regulating food (vegetables and fruits) is insufficient. It lacks one to two servings each day.

Table 5
Liquid Intake Per Day

<table>
<thead>
<tr>
<th>Liquid</th>
<th>Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>5-6 glasses</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>3-4 glasses</td>
</tr>
<tr>
<td>Fruit-flavored juice</td>
<td>3-4 glasses</td>
</tr>
<tr>
<td>Soft drinks (8 oz)</td>
<td>3-4 bottles</td>
</tr>
</tbody>
</table>

Table 5 reveals that all of the respondents were drinking water with an average of five to six glasses a day. It is speculated that they supplement their fluid intake with fruit juices and soda drinks in an average of five to four glasses/bottles per day.

Physical activity. Of the 101 respondents, 78 were engaged in physical activities, while the 23 respondents did not indicate any engagement in any form of physical activities.

The respondents were engaged in the following physical activities: running, aerobics, biking, gardening, jogging, walking, swimming, mall touring, and dancing. Most of them spent 15 minutes for their physical activities, some for 30 minutes, and few beyond 30 minutes.
Diabetes Mellitus II Tendency

Using the chart for glucose level provided by the American Diabetes Association, data in Table 8 shows that 47 of the respondents have normal fasting blood sugar, 37 have impaired fasting glucose and 17 are probably diabetic.

Table 6
Glucose Level of Respondents

<table>
<thead>
<tr>
<th>Glucose Level</th>
<th>Respondents with Fasting Blood Sugar</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 to 99 mg/dL</td>
<td>47</td>
<td>Normal Fasting Glucose</td>
</tr>
<tr>
<td>100 to 125 mg/dL</td>
<td>37</td>
<td>Impaired Fasting Glucose (Pre-diabetic)</td>
</tr>
<tr>
<td>126 mg/dL and above</td>
<td>17</td>
<td>Diabetic</td>
</tr>
</tbody>
</table>

The result revealed that most of the respondents’ fasting blood sugar level is already beyond the normal range. It implies that those who have impaired fasting glucose are at risk of having diabetes in the future. Seventeen are, perhaps, already diabetic and they are unaware of it.

Relationship of Demographic Profile and Knowledge

Table 7 shows that there is a negative relationship between age and knowledge and a positive relationship of education and income to knowledge. This means that younger respondents are more knowledgeable about diabetes mellitus II. Further, those with high educational attainment and high income are more knowledgeable of diabetes mellitus II.

Table 7
Correlation of Demographic Profile and Knowledge

<table>
<thead>
<tr>
<th>Demographic Profile</th>
<th>Knowledge</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.233(*)</td>
<td>.019</td>
</tr>
<tr>
<td>Education</td>
<td>.422(**)</td>
<td>.000</td>
</tr>
<tr>
<td>Income</td>
<td>.289(**)</td>
<td>.003</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Relationship of Knowledge and Health Practices

The result of correlation in Table 7 indicates that knowledge is significantly related to health practices when considered as a whole. However, when knowledge was correlated with the dimensions of health practices, only dietary intake is positively related (p=.012) with knowledge.
Knowledge, Health Practices, and Diabetes Mellitus II Tendency

Table 8

<table>
<thead>
<tr>
<th>Smoothing</th>
<th>Diet Intake</th>
<th>Physic Activities</th>
<th>Health Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson r</td>
<td>-.051</td>
<td>.249(*)</td>
<td>.084</td>
</tr>
<tr>
<td>P-value</td>
<td>.612</td>
<td>.012</td>
<td>.405</td>
</tr>
<tr>
<td></td>
<td>.020</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

The results imply that a person who is knowledgeable about diabetes mellitus is more likely to be engaged in healthful practices and tend to eat healthy and nutritious food.

Correlates of Diabetes Mellitus II Tendency

Age, education, body mass index, and waist-to-hip ratio, were among the dimensions of health and demographic profile in Table 9 that indicates significant relationship to diabetes mellitus tendency. Age, body mass index, and waist-to-hip ratio showed a positive relationship, while education showed a negative relationship. Health practices did not indicate relationship with diabetes mellitus tendency.

Table 9

<table>
<thead>
<tr>
<th>Diabetes Mellitus Tendency</th>
<th>Smoking</th>
<th>Dietary Intake</th>
<th>Physical Activity</th>
<th>Health Practices</th>
<th>Age</th>
<th>Education</th>
<th>Occupation</th>
<th>Income</th>
<th>Body Mass Index</th>
<th>Waist-to-Hip Ratio</th>
<th>Health Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-.002</td>
<td>.029</td>
<td>-.120</td>
<td>-.043</td>
<td>.240(*)</td>
<td>.016</td>
<td>.043</td>
<td>.938</td>
<td>.247(*)</td>
<td>.258(**)</td>
<td>.250(*)</td>
</tr>
</tbody>
</table>

The result of the correlation means that, older respondents with low educational attainment, with higher body mass index, and waist-to-hip ratio, are more likely to have diabetes mellitus.

Predictors of Diabetes Mellitus Tendency

The predictors of diabetes mellitus tendency were determined using Structural Equation Modeling (SEM) through AMOS (Analysis of Moment Structures) software. Among the demographic and health profile and health practices, as shown in Figure 1, only age and body mass index emerged to be the predictors of diabetes mellitus tendency. Age is directly (0.36) and indirectly (0.20*0.23 = 0.046) related to diabetes mellitus tendency. The total effect of age to diabetes mellitus tendency is 0.406 or 40.6% (0.36 + 0.046) and
the direct effect of body mass index is 0.23 or 23%.

![Figure 1: Structural Equation Model of the Predictors of Diabetes Mellitus Tendency](Image)

IV. DISCUSSION

The result of the study shows that age, education, and income are significantly related to knowledge. The result explains the reason why the respondents got an average score in knowledge because half of them finished secondary level of education, have an average level of education, 40 years of age and above (57%), have low level of income (51% of them were earning 5,000 and below). It also explains why most of them scored low on the basic concepts and causes of diabetes. According to the study of Mehrotra, Bajaj, Kumar, and Singh (2000) and Al Shafaee et al. (2008), education is the most significant predictor of knowledge regarding risk factors, complications, and the prevention of diabetes. In a separate study done by Maty, Averson-Rose, Haan, Raghunathan, and Kaplan (2005) on education, income and incidence of type II diabetes mellitus, the study showed that education and income were associated with increased diabetic risk. Education is an important social determinant of health. Income is another important factor that interacts in many important ways with education as influences on health. People who are wealthy and well educated and who have high-paying jobs are much more likely to be healthier than the poor people. As economic status increases, so does their health status (Feinstein, Sabates, Anderson., Sorhaindo, & Hammond, 2006).

When knowledge and health practices are correlated, the only dimension of health practices that is related to knowledge is dietary intake as shown in Table 4. The result implies that when a person is knowledgeable he/she is engaged in healthful practices and tends to eat healthy nutritious food that will contribute to his/her wellness, or will not put him at risk to develop diabetes mellitus. Looking into the health practices of the respondents, particularly on the dietary intakes, Table 4 shows that daily intake per serving for body building food and consumption of energy giving food were just enough (5 servings per day) compared to the recommended number of servings which is 5-7 servings per day. The intake of body regulating food (vegetables and fruits) is insufficient. It lacks 1-2 servings each day. Bazzano (2008) said that adequate consumption of green leafy vegetables and fruits was associated with a lower hazard of diabetes. The respondents has low consumption of vegetables and fruits because most of them do not know that low consumption of green leafy vegetables and fruits increases the hazard of diabetes as indicated by their low scores in the basic concepts and causes of diabetes.

Among the dimensions of demographic and health profile and health practices that were correlated to diabetes mellitus tendency, only age, education, body mass index and waist-to-hip ratio indicated significant relationship with diabetes mellitus tendency. Results in Table 9 imply that as age, body mass index, and waist-to-hip ratio of a person
become higher and the lower the education a person has, the higher is the tendency to have diabetes mellitus. It explains the reason why out of 101 respondents in Table 6, 37 (36.63%) of them have impaired fasting glucose (pre-diabetic) and 17 (16.83%) are, perhaps, already diabetic and they are unaware of it because their knowledge level on diabetes mellitus is moderate. American Diabetes Association (2008), TimeAsia.com (2008), and the Magee (1999) stated that many people have diabetes but are not aware that they have the disease. According to WHO (2010), obesity and overweight pose a major risk for chronic diseases, including type II diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer. Overweight especially obesity, particularly at younger ages, substantially increases lifetime risk of diagnosed diabetes, while their impact on diabetes risk, life expectancy, and diabetes duration diminishes with age (Narayan, Boyle, Thompson, Gregg, & Williamson, 2007). Vasquez (2007) and her companions had analyzed 32 studies out of 432 publications. Their analysis showed that waist-to-hip ratio and body mass index were among the variables associated with type II diabetes.

The result of Structural Equation Modeling (SEM) through AMOS (Analysis of Moment Structures) software in Figure 1 showed that the best predictors of diabetes mellitus are age and body mass index. Age is directly (0.36) and indirectly (0.20*0.23 = 0.046) related to diabetes mellitus tendency. The total effect of age to diabetes mellitus tendency is 0.406 or 40.6% (0.36 + 0.046) and the direct effect of body mass index is 0.23 or 23%. Age and body mass index are consistent indicators of diabetes mellitus in all the results of the studies. This study supports the study of Kazumasa (2003), and Vasquez (2007) that body mass index is associated with type II diabetes; the study of Akazawa (1999) and Kolatkar (2009) that the risk for developing type II diabetes increases with age; and the study of Chien (2009) in China that age and body mass index were among the strong predictors of diabetes mellitus.

V. CONCLUSION

The respondents in this study have moderate knowledge on diabetes mellitus II. Most of them were overweight and obese. Their dietary intake is sufficient in energy giving and body building food groups but they lack in body regulating food group. Most of them have elevated fasting blood sugar which classifies them to be pre-diabetic and diabetic. Age, education, and income were related to knowledge. The more knowledgeable the person the better is the dietary practice. When age, education, body mass index and waist-to-hip ratio are correlated to diabetes mellitus, the correlation was significant. Age and body mass index were the predictors of one’s tendency to develop diabetes mellitus II.

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Filipino Adolescents’ Coping Strategies: A Confirmatory Factor Analysis

Jezamine De Leon and Edwin Balila

Abstract

This study used the descriptive research design to examine the coping strategies among selected Filipino adolescents. To achieve such the COPE Inventory was administered to a sample of 266 college students from one higher education institution in the Philippines from school year 2013 to 2014. The COPE Inventory was developed to assess a broad range of coping responses when they confront difficult or stressful events in their lives in general. Data gathered were validated through confirmatory factor analysis. The results suggested a four-model structure. Factor one showed that respondents utilized instrumental and emotional support as coping strategies. Factor two indicated the use of substances as another approach to cope. Furthermore, factor three revealed that respondents planned ways and took action as manners to deal with stress. Moreover, factor four showed that respondents used humor as a way to cope, respectively. Finally, overall findings of the study served as a basis for counselors, clinicians, educators, and researchers to further understand the underlying structures and nature of coping strategies among Filipino adolescents which may lead to improve practices in guiding the Filipino youth.

Keywords: Filipino adolescents, coping strategies, confirmatory factor analysis
I. INTRODUCTION

The national hero of the Philippines, Dr. Jose P. Rizal, once said that “the youth is the hope of every nation.” This statement implies that adolescents are crucial human commodities because future leaders, enterprisers, and professionals are coming from this group.

The adolescent stage is both challenging and critical. This is the time for having new responsibilities, experimenting on building identities, and a chance for both opportunities and risks (Papalia, Feldman, & Martorel, 2012). Associated problems and failures with adolescence are teenage drug, alcohol misuse, sexually transmitted diseases, teenage pregnancy, satanic cults, and defiant behaviors (Blonna, 2007). During adolescence, bodies and minds change and grow of which can be a problematic and stressful situation; and stressful life experiences may threaten the well-being of adolescents (Blonna, 2007; Zimmer-Gembeck & Skinner, 2008). As cited by the Anxiety and Depression Association of America in 2008, most college and university students in United States frequently experience daily stress (Retrieved at http://www.adaa.org/ on June 19, 2015). In support to this, Zimmer-Gembeck and Skinner (2008) cited that approximately 25 percent of adolescents will experience at least one significant stressor such as the death of a loved one or witnessing a traumatic event. Daily hassles and stressors among adolescents are related to bullying by peers, academic difficulties, interpersonal relationships, and family conflicts. Moreover, levels of stress may increase as an adolescent age due to significant life changes such as leaving home, finding a satisfying career path, and developing intimate partner relationships.

On the other hand, adolescent stage can be a period of excitement and joy (Blonna, 2007). According to Carrera (1981), most teenagers go through this period without major problems and enter early adulthood as strong, competent, and whole beings (Blonna, 2007). A successful transition and readiness to adulthood can be possible when an adolescent is equipped with important life skills such as coping strategies. As it is true that stressors are everywhere, coping focuses on what can be done to manage stressful situations (Ciccarelli & Noland White, 2012). Coping is vital for survival and is related to a constructive quality and meaning of life (Snyder, 1999).

Helping adolescents learn to cope with stress is not always easy (Blonna, 2007). In this sense, one important way to help adolescents cope in facing their lives is to understand and explore how they cope (Gibson-Cline, 2000). Yet, one of the challenges in the study of coping is coping itself. Studies on coping strategies can be unlimited and despite the rapid increase in research on adolescent coping over the last twenty years, there is still controversy about the dimensions of coping (Gelhaar, Seiffge-Krenke, Borge, & Cicognani, et.al, 2007). Added to the fact that different developmental, national, environmental, social, and cultural contexts may influence coping (Gibson-Cline, 2000).

Coping Strategies

Coping strategies is one concept consisted of two powerful words. In general, coping is defined as how a person deals effectively with something difficult while strategies is defined as a plan of action designed to achieve a long-term or overall aim. Different views, perspectives, and efforts have been made to understand coping strategies.

For Lazarus and Folkman, coping strategies refer to the constantly shifting cognitive and behavioral efforts to manage potential stressors that are appraised as threatening (Blonna, 2007). Further, coping strategies is composed of both cognitions and behaviors that are directed at managing problems and the negative emotions and distress it brings (Aldwin, 2007).
Lazarus, Folkman, and colleagues discussed two general types of coping (Carver, Scheier, & Weintraub, 1989). The instrument they developed called Ways of Coping Scale identified two ways on how people cope. The first way is known as Problem-Focused Coping which is aimed at problem solving or doing something to change or eliminate the source of stress. The second way is called Emotion-Focused Coping which is aimed at reducing or managing the emotional distress that is associated or brought about by the source of stress (Carver, Scheier, & Weintraub, 1989).

Another major development in the study of coping strategies was the one proposed by Charles Carver and colleagues. They developed the COPE Inventory an instrument used to measure a broad range of coping responses under stressful situations in general. The inventory has fifteen specific dimensions/scales such as planning, active coping, restraint, suppression of competing activities, use of instrumental social support, positive reinterpretation, acceptance, focusing on and venting of emotions, use of emotional social support, religious coping, humor, denial, substance use, mental and behavioral disengagement. Inquiries have been made about the possibilities of combining the scales and categorizing them as problem-focused or emotion-focused by Lazarus, Folkman, and colleagues (Retrieved from http://www.psy.miami.edu/faculty/ccarver/sclCOPEF.html on July 19, 2015).

Objectives of the Study
The study had two primary objectives. First, was to describe how Filipino adolescents cope under stressful situations through knowing the underlying structures of coping strategies among selected Filipino college students using the COPE Inventory by Charles Carver and colleagues. And finally, the overall findings of the study may serve as a basis for counselors, clinicians, educators, and researchers to further understand the nature and improve practices in guiding adolescents find healthy ways in coping with stress specifically in dealing with the Filipino adolescents.

II. METHODS
Research Design
This study utilized the descriptive method of research using survey. This approach allowed the researcher to understand and describe the nature of coping strategies among selected Filipino adolescents.

Population and Sampling Technique
Respondents of this study were composed of 266 selected Filipino college students from one higher education institution in the Philippines from school year 2013 - 2014. To avoid biases and serve the purposes of the study the random sampling technique was used.
Respondents’ Demographic Profile

Table 1  
*Gender*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>70</td>
</tr>
<tr>
<td>Females</td>
<td>196</td>
</tr>
<tr>
<td>Total</td>
<td>266</td>
</tr>
</tbody>
</table>

Table 2  
*Home College*

<table>
<thead>
<tr>
<th>Home College</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Arts and Humanities</td>
<td>69</td>
</tr>
<tr>
<td>College of Business</td>
<td>25</td>
</tr>
<tr>
<td>College of Dentistry</td>
<td>20</td>
</tr>
<tr>
<td>College of Education</td>
<td>17</td>
</tr>
<tr>
<td>College of Health</td>
<td>111</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>7</td>
</tr>
<tr>
<td>College of Science and Technology</td>
<td>15</td>
</tr>
<tr>
<td>College of Theology</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>266</td>
</tr>
</tbody>
</table>

Table 3  
*Age Group*

<table>
<thead>
<tr>
<th>Age Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18 years old and below</td>
<td>236</td>
</tr>
<tr>
<td>19 years old and above</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>266</td>
</tr>
</tbody>
</table>

Table 4  
*Religious Affiliation*

<table>
<thead>
<tr>
<th>Religious Affiliation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adventists</td>
<td>196</td>
</tr>
<tr>
<td>Non-Adventists</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>266</td>
</tr>
</tbody>
</table>

Instrumentation

This study used two instruments. The first one, Respondent’s Demographic Profile. It seeks information about the respondent’s gender, home college, age group, and religious affiliation. The second instrument aimed in measuring the respondents’ coping strategies through the use of COPE Inventory by Charles Carver. This inventory was developed to understand the different responses of people during stressful situations in general. Some responses are considered as dysfunctional while others functional. It has 60 items categorized into 15 different scales. All of these items were rated using a 4 point scale (1 = I usually don’t do this at all, 2 = I usually do this a little bit, 3 = I usually do this a medium amount, and 4 = I usually do this a lot).
Data Gathering
The researcher sought necessary permission to conduct data gathering. After such, a call to join in the research was disseminated. Those who volunteered gave their consent to participate in the study. The purposes of the study were made known to all the respondents; confidentiality was ensured and roles of the respondents were discussed also. After which, respondents were asked to go to the assigned classrooms where they answered the research instruments given them. The researcher was assisted by a Master of Arts in Psychology student to administer the said instruments. Also, the said student-researcher assistant was oriented about the nature of the study and the protocols used.

Analysis of Data
After the data had been gathered, the results were encoded and then computed using the Statistical Packages for Social Sciences. Frequencies and percentages were used to know the demographic profile of the respondents. Confirmatory factor analysis procedure specifically the principal component analysis was used to know the underlying structures of coping strategies and describe the nature of how Filipino adolescents cope under stressful situations. To establish fit, the following indexes were used for all tests: chi-square, degrees of freedom ratio, root mean square error of approximation, and comparative fit index.

III. RESULTS
Figure 1 showed the final model having four factor structures that indicated a good fit: Chi-Square = 357.465, df = 183, p=.000, RMSEA = .060, and CFI = .938. The COPE Inventory with 15 scales/dimensions was not confirmed in the final model. These results demonstrated that the new model is highly unique and distinct reflecting the underlying structures on how respondents cope. It can be said that the underlying structures on how they cope are seen in ways such as getting support, substance use, having plans and taking actions; and lastly the use of humor.

Figure 1:
Four-Factor Model of Cope Inventory Among Filipino Adolescents
Factor 1 had eight items from three scales of COPE Inventory. Scales on “use of emotional social support, use of instrumental social support, and focus on and venting of emotions” shared items for Factor 1. Scale on the “use of emotional social support”, loaded three items: item 1 “I discuss my feelings with someone”, item 52 “I talk to someone about how I feel”, and item 23, “I try to get emotional support from friends or relatives”.

Further, another scale about support, “use of instrumental social support” came out from the factor loadings that showed four items: item 4 “I try to get advice from someone about what to do”, item 30 “I talk to someone who could do something concrete about the problem”, item 45 “I ask people who have had similar experiences what they did”, and item 14 “I talk to someone to find out more about the situation”. Finally scale on “focus on and venting of emotions” loaded item 28, “I let my feelings out”.

Furthermore, factor 2 had four items from the scale on “substance use” alone: item 26, “I try to lose myself for a while by drinking alcohol or taking drugs, item 35 “I drink alcohol or take drugs, in order to think about it less”, item 53 “I use alcohol or drugs to help me get through it”, and item 12 “I use alcohol or drugs to make myself feel better”.

Moreover, factor 3 had five items from two scales. Scale on “planning” loaded two items: item 32, “I try to come up with a strategy about what to do”, and item 39 “I think about how I might best handle the problem”. Scale on “active coping” loaded three items: item 47 “I take direct action to get around the problem”, item 19 “I make a plan of action”, and item 58 “I do what has to be done, one step at a time”.

Finally, factor 4 had four items from the scale on “humor”: item 50 “I make fun of the situation”, item 36 “I kid around about it”, item 20 “I make jokes about it”, and item 8 “I laugh about the situation”.

IV. DISCUSSION

The study on coping can be diverse and one significant factor affecting how people cope is culture. According to Aldwin (2007), “culture can affect the stress and coping process”. Further, cultural context shapes the types of stressors that individuals might experience. Culture affects the appraisal of events and the choice of coping strategies that an individual uses in given situations. Finally, culture provides different institutional mechanisms by which people can cope with stress. The outcome of coping is not only psychological and physical but also social and cultural (Aldwin, 2007). This study reflected how Filipino adolescents cope. A new model on how Filipino adolescents cope has been proposed and may be further studied and validated.

The Filipino adolescents when in difficult situations or stressful events cope through finding support. As described by Lazarus and Folkman, support can be seen in twodifferent ways - emotional and instrumental (Carver, Scheier, & Weintraub, 1989). Emotional support refers to wanting moral support, sympathy, and understanding. Based on the findings of the study, Filipino adolescents under difficult situations or stressful events want someone they can talk to and someone who understands how they feel. They seek support from people where they can ventilate the distress or upset they are experiencing. The use of emotional support makes a person “feel better” (Papalia, Feldman, & Martorell, 2012). (On the other hand, Filipino adolescents find supports from someone they can get advise. This as described by Lazarus and Folkman is considered as social instrumental support. This way of coping is through looking for advise, assistance, or information. Also it is important to point out from whom Filipino adolescents find support. Interestingly,
significant people in the life of Filipino adolescents from which they draw support are friends and relatives.

These findings reflect the collective nature of the Filipino culture. In difficult times, the Filipino finds strength with others. Filipinos are open to others which results in camaraderie and a feeling of closeness to one another (Ortigas, 1999). Moreover, the findings in Factor 1 opened some curiosity. It showed that one significant coping resource of the respondents were friends and relatives although the COPE Inventory did not directly mention family or with parents. Aldwin (2007) mentioned that good relations with parents helps adolescents cope with problems that they face. Adolescents may turn more to their friends and siblings for social support than to their parents. A strong social support system or network of family and friends who can offer help when a person is in need is still the best coping strategy (Ciccarelli & Noland White, 2012).

Considering Factor 2, results were highly significant. The COPE Inventory has a scale on substance use with four items. Interestingly, all items came out on one factor. This significant result showed that Filipino adolescents’ has tendencies to use substances when they are under difficult or stressful situations. Using substances may give them time to lose themselves for a while, and for them not to think or think less of the problem. Further, alcohol or drugs may help them get through the problem and may make them feel better. According to Aldwin (2007) substance use makes the adolescent reduce distress. At the same time, adolescents may have the capacity and easy access to have substances.

Yet, literatures mentioned that substance use as a coping mechanism can be considered dysfunctional and maladaptive due to the negative consequences it can bring (De Leon, 2013). When used in excess substances may create more problems (Aldwin, 2007). On the other hand, literatures mentioned ways on how to lessen the use of substances as coping strategies. Adolescents who had good family problem-solving skills were less likely to engage in the use of alcohol, drugs, or cigarettes to cope with stress. Added to these, adolescents from families who can express emotions in healthy manner and resolve conflicts uses better coping, less use of avoidance, and substance use (Aldwin, 2007).

Moreover, findings on Factor 3 showed that Filipino adolescents when experiencing difficult situations may look for the best strategies to manage difficult or stressful situations and act on these strategies one step at a time. These ways of coping illustrates a problem-focused approach in coping (Carver, Scheier, & Weintraub, 1989). The cognitive abilities of adolescents support these findings. Problem-focused coping in adolescents can be more sophisticated and developed with the emergence of formal operations or the ability to think abstractly and apply these thoughts. Adolescents are on their way to adulthood. This means that adolescents have the capacity to find right ways in dealing with difficulties and stressful events in their lives (Aldwin, 2007). This illustrates that adolescents can learn healthy coping strategies. Thus it is important to teach and guide them important life skills such as healthy coping strategies.

Lastly, Factor 4 showed that Filipino adolescents may use humor when situations may be difficult or stressful for them. Humor is by making fun, kidding around, laughing, and making jokes about the situations. Humor is a highly significant coping strategy among the Filipino adolescents. Similarly on Factor 2, all items found in COPE Inventory reflecting humor came out on the final model also. Again, these findings reflected the Filipino culture. Joy and humor mean a cheerful approach to life. Laughing at oneself despite the mess one has is an important coping mechanism (Ortigas, 1999).
The findings of this study in one way showed the nature of how Filipino adolescents cope. With the aspect of understanding adolescents under stress, it is important to emphasize that the ways they cope are in finding support, substance use, planning on ways to solve the problem and act on it; and finally use of humor. These mentioned variables may need to be further studied and investigated.

Support as a way of coping may lead to inquiries such as where adolescents find support. Peers, siblings, parents, relatives, and the family in general could be coping resources for support. And who among these coping resources may be more influential and crucial in helping adolescents cope. Considering the use of substances as a way of coping looks alarming. Literatures mentioned the drastic effects and consequences of substance use. With these, it is important to know the access of adolescents to different substances. More efforts must be done to regulate the availability of substances among adolescents. Adolescents when under difficult or stressful situations cope by planning and acting on these plans. In doing so, an adolescent may feel competent thus helping build one’s identity and may remove learned helplessness. With these, coping strategies and other variables that may strengthened it can be studied such one’s perceived competence, self-efficiency and level of autonomy. Further, humor as way of adolescent coping is suggested to be further studied either as a functional or dysfunctional response.

The efforts of this study may help parents, agencies, and institutions guide adolescents cope. Open communication within the family especially between parents and the adolescent child is greatly encouraged. School curricula may include coping strategies as important life skills that adolescents need to learn. Other healthy coping strategies may be introduced and developed such as reframing, positive reinterpretation, acceptance, and turning to religion.

Finally, the results of this study may lead to further studies like exploring the final model of coping strategies across variance such as gender, age group, home college, religious affiliation, and other demographics. An in-depth study analyzing the model of coping strategies among the Filipino adolescents may further explain the factors revealed. It is also important to consider a wider scope of population representing the entire Philippines and compare results to a multicultural context. Other variables that may be associated to coping strategies and its outcomes may be conducted to fully understand coping strategies.

V. CONCLUSION
The difficulties and challenges that life brings are faced by Filipino adolescents in different coping strategies. Finding instrumental and emotional support from peers and relatives and at the same time the use of substances and finding humor are coping strategies that the Filipino youth may use when they experience stressful events. They do such acts with the goal to “feel better”. Also, it is important to remember that Filipino adolescents have the capacity to find right ways when in difficult situations. Understanding these mechanisms provides a strong foundation for dealing, helping, and guiding Filipino adolescents cope adaptively.

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Perceived Effects of Service Learning Program on the Academic Development of Pre-Service Teachers

Jeremiah Fameronag & Josephine Fameronag

Abstract

The research paper ascertained the perceived effects of service-learning program (SLP) on the academic skills development of pre-service teachers in one of the universities in the Philippines. The study utilized pre-experimental design among 187 students measured in different times. The researcher employed a two-part quantitative questionnaire and one semi-structured questionnaire to determine the perceived effects. The result revealed that SLP has high effects on the academic skills development of students. Respondents further explained that SLP helped them value the importance of proper lesson planning, employing differentiated instruction, and mastering classroom management to be a more effective educator.

Keywords: Service learning program, pre-experimental design, academic development

I. INTRODUCTION

In 2008, Teachers Matter was the theme chosen for the World Teachers’ Day – a belief majority, if not all, upholds. Teachers do matter that in fact, it is an accepted naked truth that teachers occupy the central role in maneuvering and developing the outcome of educating the country’s future generations. Hanushek (2013) of Stanford University sympathizes, “Over the last two decades, research on student achievement has pinpointed the central role of teachers. While other factors—families, peers, neighborhoods—are obviously elements in a student’s learning, it is the school and particularly the teachers and administrators who are given the public responsibility for the education of our youth. There is a general consensus that improving the effectiveness of teachers is the key to lifting student achievement, although questions remain about how best to do this” (p.23).

Thus, it is very critical how pre-service teachers are trained, supported, and developed. National Council for Accreditation of Teacher Education (NCATE, 2014) believes that preparing pre-service teachers is important since well-prepared teachers are more likely to produce higher student achievement and to remain in teaching. Further, teacher preparation helps candidates to develop the knowledge and skills they need.

Unfortunately, many pre-service teachers failed to develop their academic skills while in training. These academic skills “are what we call transferable skills, which means
these will stand (pre-service teachers) in good
stead both when looking for employment and in
their) future careers” (Smale & Fowlie, 2009).
Underdeveloped academic skills of students,
when not honed, are carried over that results to
unpromising, underprepared career execution.
Australian Government Primary Principals
Association (2014) reported,
“Principals in Australian Government
Primary Schools are encountering newly
qualified teachers who have not mastered
basic literacy and numeracy concepts together
with some who have hardly seen the inside of
a classroom. Inconsistencies between teacher
training institutions, course content and
outcomes are generating teachers with widely
varied competencies, including some who are
simply not ready to teach. In order to train and
produce high quality future teachers, we need
the government to outline a clear vision for
world-class pre-service education in Australia”

Unfortunately similar problem exists here,
in the Philippines. Acedeo (n.d.) of The World
Bank reported that teacher education graduates
are weak in subject matter content. Recent
graduates’ four years or more of academic
preparation proved inadequate, making them
ill prepared to educate the next generation.
The trend of the result of the recent licensure
examinations for teachers where on average, a
dismal 24% of test takers only pass, manifests
the situation the education system is in.

Objectives of the study
This study determined the perceived effects
of SLP towards the academic skills development
of pre-service teachers.

Significance of the Study
Results precipitated from this study are
intended to contribute to the body of knowledge
in training and honing the academic development
of pre-service teachers and are believed to be
significant to the following: 1) curriculum
developers - their desire to search for effective
strategies in developing the academic skills of
students can be fulfilled by processing the result
of this study. They may implement or enrich to
come up with a better methodology in helping
pre-service teachers reach their fullest potentials;
2) professors of pre-service teachers – they
are the main molders of tomorrow’s teachers.
The result from this study will help them to
initiate, adopt, or enrich strategies found to be
effective; 3) pre-service teachers – they are
the main recipient of this study. The result of this
endeavor may help them develop their academic
skills; 4) researchers – this study may inspire
other thirsty researchers to quench their hunger
for solution in developing the academic skills
of pre-service teachers by conducting similar or
parallel study.

Theoretical Foundations

Service-Learning Program. Service-
Learning Program, which, recently, has
been gaining positive support in holistically
developing students in many countries around
the world, can be traced to Dewey’s ideal of
experiential education. Today, we call it the
integration of community service and the school
curriculum.

Service-Learning Program (SLP) is a teaching
and learning strategy that combines practical
real-life experience, with academic theory. SLP
integrates meaningful community service with
instruction and reflection to enrich the learning
experience, foster students’ sense of civic
engagement, and sharpen their insights into
themselves and their place in the community
(Fayetteville State University (n.d.) & Indiana
University Bloomington, (n.d.).

In short, SLP provides an opportunity for
students to apply what they have been learning
in the class in a more practical setting. They are
involved in the community service related to the
course they are taking. In SLP, “students learn
not only social issues but also how to apply the
new knowledge to action that addressed real
problems in their own communities” (Torres &
Sinton, as cited in Duke University, n.d.).

Several authors and researchers gave various
definitions of SLP. But even though it seemed
that coming up with just a single definition is
effusive, “all agree that service learning programs
are a powerful tool to address important social
issues that communities in general face today”
(Casey, 2006).
Experiential Learning Theory (ELT). “Experiential learning theory (ELT) draws on the work of prominent 20th century scholars who gave experience a central role in their theories of human learning and development – notably John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, Carl Rogers and others – to develop a dynamic, holistic model of the process of learning from experience and a multi-linear model of adult development” (Armstrong & Fukami, 2008). The primary focus of higher learning education according to ELT is to engage students in a process that best enhances their learning. This process may include feedback on how effective is the effort they are investing in. For ELT, education must be a continuous reconstruction of experience (Dewey, 1897).

The works of the prominent scholars are integrated into six prepositions, which they all share (Armstrong & Fukami, 2008):

Learning is best conceived as a process, not in terms of outcomes. For learning to take place, the focus must be on the process that includes feedback on the affectivity of the learning effort.

All learning is re-learning. It is important that students’ prior knowledge is accurate, activated, and integrated with the new, more refined ideas.

Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Without conflicts, differences, and disagreements learning process will not take place. For someone to learn, it is imperative that s/he solves the opposing conflict.

Learning is a holistic process of adaptation. Learning is not only what happens in the mind. The other aspects must also be involved – feeling, perceiving, and behaving.

Learning results from synergistic transactions between the person and the environment. The way a human learns is greatly influenced by his/her interaction with his environment. The decisions and choices learners make are determined by the events they lived through, and those events influence their future choices.

II. METHODS

Research Design

The researcher made use of pre-experimental research design particularly the one-shot case study. According to Babbie, (2015), pre-experimental design exists because sometimes, the conditions for full-fledged experiments are impossible to meet. In one-shot case study, the researcher measures a single group of subjects, made them exposed to a treatment and makes observations after the administration of the experimental stimulus (Babbie, 2015, & Sharma, 2014). on a depended variable following the administration of some experimental stimulus” (p.222). The single experimental group is exposed to a treatment and observations are made after the implementation of that treatment.

Population and Sampling Technique

Students during the collegiate years 2013-2015, whose classes in the College of Education included SLP as part of the curriculum, were purposely included in this study. There are around 187 students identified who have taken classes with SLP. This includes those who are regular students and Licensure Examination for Teacher (LET) Unit Qualifiers.

This study uses purposive sampling because it is “based on selecting the individuals as according to the purposes of the researcher as his controls. An individual is selected as part of the sample due to good evidence that he is a representative of the total population” (Calmorin & Calmorin, p. 104).

Instrumentation

Survey questionnaire was used determined the perceived effects of SLP towards the academic skills development of students. Questionnaire is the most common technique in management research (Veal, 2005).

The researcher used the Service Learning Program Questionnaire and the SLP Evaluation Questionnaire respectively. Both of these questionnaires are self-constructed, garnering ideas and concepts from various sources. The researcher sought the help of experts [College Dean, Department Chairs, Graduate Professors, and College Professors] to validate the
instruments. Several revisions were done until it finally received the approved state.

In distributing the quantitative instrument, the researcher secured the class roster from AOLIS and personally contacted the respondents and asked permission to conduct a research. This took place after their final grades have been encoded to limit the possibility of students’ bias. After their verbal agreement, questionnaires were distributed. It took about 10-15 minutes for respondents to return the filled in ones. The distribution and collection of questionnaires happened in various occasions in the span of two collegiate years.

Further, to support the quantitative data, the qualitative questions were given to students’ right after the completion of their SLP. The qualitative data served as the evaluation and reflection of their personal experience in participating in SLP.

Data Analysis
Data was treated to find the mean, standard deviation and frequency. As for the qualitative data, in order to extract the themes that lead to identification of SLP’s effect to students, inductive method was employed. The researcher identified the most common occurring theme through coding and then combined the open codes into one overarching concept.

III. RESULTS AND DISCUSSION

Table 1
Descriptive results of items under Academic Skills Development

<table>
<thead>
<tr>
<th>Area</th>
<th>Mean</th>
<th>SD</th>
<th>Verbal Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gave me an opportunity to apply what I have learnt in class.</td>
<td>4.50</td>
<td>0.64</td>
<td>Very High Effect</td>
</tr>
<tr>
<td>2. Made me realize the practical application of the academic materials learnt in class.</td>
<td>4.55</td>
<td>0.61</td>
<td>Very High Effect</td>
</tr>
<tr>
<td>3. Taught me the importance to be an expert in the academic materials I am learning.</td>
<td>4.14</td>
<td>0.96</td>
<td>High Effect</td>
</tr>
<tr>
<td>4. Gave me a chance to personally assess how much I have learnt in class.</td>
<td>4.33</td>
<td>0.71</td>
<td>High Effect</td>
</tr>
<tr>
<td>5. Made me utilize my multiple intelligences</td>
<td>4.42</td>
<td>0.70</td>
<td>High Effect</td>
</tr>
<tr>
<td>6. Provided an occasion to share knowledge acquired from previous classes.</td>
<td>4.34</td>
<td>0.66</td>
<td>High Effect</td>
</tr>
<tr>
<td>7. Help me understand the course material better.</td>
<td>4.30</td>
<td>0.95</td>
<td>High Effect</td>
</tr>
<tr>
<td>8. Helped me see the connection between academic learning and real life experiences.</td>
<td>4.50</td>
<td>0.79</td>
<td>Very High Effect</td>
</tr>
<tr>
<td>9. Gave me a glimpse of what I would be in the future.</td>
<td>4.30</td>
<td>0.95</td>
<td>High Effect</td>
</tr>
<tr>
<td>10. Convinced me that learning is more than classroom discussion.</td>
<td>4.12</td>
<td>1.31</td>
<td>High Effect</td>
</tr>
</tbody>
</table>

OVER-ALL MEAN 4.35 .49 High Effect

Through SLP, students realized the practical application of the academic materials learned in class, with the highest mean (4.55) and SD (.61), which is interpreted as having very high effect. Next in line is how SLP gave them opportunity to apply what they have learned in class and how SLP helped them see the connection between academic learning and real life experiences both with a mean (4.50) and SD (.64) and (.79) respectively, and both are interpreted as having high effect.

The lower means lie in the perception that SLP taught students the importance to be an expert in the academic materials they are learning with a mean (4.14) and SD (.96) and the perception that SLP convinced them the learning is more than classroom discussion with a mean (4.12) and SD (1.31), which are both interpreted as having high effect.

This quantitative result is also supported by the themes that emerging from the question, what
Lessons have you learned after participating in SLP. The lessons learned by students are lesson planning, classroom management, and differentiated instruction.

**Lesson planning.** As included in NCBTS, writing lesson plans is one of the competencies pre-service teachers must develop. By participating in SLP, respondent KJ realized the importance of having an effective lesson plan in teaching. He recalled, “through SLP, I learned the importance of planning for teaching.” Respondent IT expounded under similar note as he expressed, “planning is basically the most important part of any project. If the planning (were) good, our SLP would have been a lot better. Plan and prepare ahead of time”. Similarly, respondent JC reflected how developing a thorough lesson plan could lead to better results. She realized “that if you are really prepared for class, you will be equipped for it… A thorough preparation would be (better)...”

Respondents’ responses were in congruence to what literature postulated. According to Coulter (as cited by Williams, 2009), “more than just an opportunity to do good for others, Service Learning Program provide an essential links between the academic skills that students are developing and the real world contexts that give these skills value”. SLP helps students to meet standards expected of them (such as lesson planning) (Purmensky, 2009).

**Differentiated instruction.** Respondent JG said that through SLP, “he has learned the importance of (differentiated) activities”. He even stressed that teachers must really be careful in choosing activities because “this will really affect the students’ learning process.” Respondent PB supported the observation and added that “teachers must take several experiments (in teaching strategies)”. A foreign student, Respondent DN, also realized how “students are very eager to learn when they have different types of activities with fun yet educational”.

On a similar note, literature commends how SLP can contribute in helping students appreciate personal learning styles that may lead them to utilization of differentiated instruction in teaching. Nendel and Miller (2011) commented that one of the reasons for the academic growth that occurs in SLP may be the flexibility of application of skills and knowledge by students. When students bring their own experiences, learning styles, and understanding of the content, students make connections and learn in their own unique way.

**Classroom Management (CM).** Several respondents conveyed how SLP helped them see that they must develop their CM strategies. Respondent DN recalled how she had to apply several techniques learned in class “so that learners could focus on the activity than to be bothered by the noise”. Respondent PB also resorted to creative CM strategy by “clap(ping) and call(ing) their attention” in order control the noise.

Purmensky (2009) also expressed similar views by saying that SLP can also help pre-service teachers in developing skills including classroom management. Instead of waiting for their internship, students can immediately utilize classroom management skills techniques in the classroom.

The general result that service learning program contributes to the academic development of students corroborates with Conrad and Hedin’s as cited in Billig & Vaterman, 2003) review of studies. In their review, they identified personal growth and development, intellectual development, and academic learning as the impact areas for programs that combine service and learning. Williams, as cited in Billig & Vaterman, 2003) also identified positive impact of service learning program on student’s personal, career, affective, and academic development. Similarly, Rootas cited in Billig & Vaterman, 2003) identified outcomes of service learning program in six domains: cognitive development, academic development, academic engagement, civic development, social development, moral development, and personal development.

**IV. CONCLUSIONS**

The responses of students showed their positive perception on the effect of SLP in developing their academic skills. Their responses in the follow-up questions also revealed that SLP opened their appreciation to things they have been learning in class such as lesson planning, differentiated instruction, and classroom management. This study concluded that by exposing students to SLP, their academic skills will be developed and competencies being honed in class will be highly appreciated. This study recommends teacher education institutions to include SLP as part of instructional strategy to give students not only to help students see the practical application of theoretical materials they are learning.
but also to appreciate the beauty of learning through service.

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Perceived Effects of Service Learning Program on the Academic Development of Pre-Service Teachers

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Service Learning of Nutrition and Dietetics Students in the Community: A Phenomenological Study

Merlina. Idaosos, Eunice Aclan, Ruchelle Oasan

Abstract

The qualitative study described the shared experiences of Nutrition and Dietetics (ND) senior students of the Adventist University of the Philippines in their two-month service learning in the community. Specifically, this phenomenological study answered the following research questions: (1) What have Nutrition and Dietetics students experienced in their community exposure? (2) What are the issues and challenges the participants experienced in their community service learning? (3) How has the community exposure of the participants impacted their professional outlook? Focus group interview (FGI) was used to collect data from six participants selected through purposive sampling. The FGI was conducted by the researchers themselves in a conducive place for 53 minutes. The audio-recorded interview data were transcribed, analyzed, and interpreted. The findings revealed that the community service learning of the ND students did not only focus on applying the knowledge and skills on their specialization but also integration of faith and learning as they shared God’s love and other aspects of their learning at AUP including health and hygiene, science, livelihood, and values. The participants found it challenging how to plan meals according to the available local resources and to design programs that suit the needs of their target groups and hold them long for lectures. The participants’ actual community experience also taught them how to be flexible in handling various situations; leave their comfort zones to serve the poor and needy; interact with and respect different people of various ages, education level, and economic status; and extend their services to the community not just to comply with university requirements but to show love to the less privileged people. The participants’ service learning experience also made them realize their crucial role as ND specialists to promote proper nutrition and good health to the community people.

Keywords: Nutrition and dietetics, community immersion, service learning
I. INTRODUCTION

Service learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities (Learn and Serve America National Service Learning Clearinghouse as cited in OCESL, 2015). It is also defined as a method in which students learn and develop through active participation in thoughtfully organized service experiences that meet actual community needs and that are coordinated in collaboration with the school and community (Waterman, 2013).

Kendall (as cited in Seider, Rabinowicz, & Gillmorr, 2012) stressed that service learning can be characterized more narrowly as a form of experiential education in which students combine the carrying out of needed tasks in the community with intentional learning goals and with conscious reflection and critical analysis. In addition, it is a method of encouraging student learning and development through active participation in thoughtfully organized service that is conducted in, and meets the needs of, a community (EPA, 2011).

Service learning can help promote knowledge of human cultures, intellectual and practical skills, personal and social responsibility, and integrative and applied learning (Sheafer, 2014). Service-related experiences that are not tied to a course curriculum, at least as a mandatory requirement, might have more positive impacts for students in terms of their overall value of civic engagement and feelings of empowerment (Pedersen, Meyer, & Hargrave, 2015).

“True education prepares the student for the joy of service in this world and for the higher service in the world to come” (White, 1948, p. 57). This indicates that there is an added element that is vital for life and learning- one that incorporates time, and space, integrates the social arena and emphasizes service. The fourth element in the Adventist Education is social dimension, after the physical, mental and spiritual dimensions, in which service to humanity is the key component. The concrete concept of SDA Education is shown in the life of Jesus to grow in wisdom [mental], stature [physical], and in favor with God [spiritual] and in favor with man [social] (Luke 2:52). Later in His Ministry, Jesus went to Galilee, teaching, preaching, healing every disease and sickness among people (Matt. 4:23 1984). Here again we see the four facets: teaching, preaching, healing and associating with others- in essence, the cognitive, spiritual, physical and social dimensions.

The responsibility to serve God and humankind is clearly taught in the Bible as mentioned by Paul that through love serve one another (Galatians 5:13). This statement depicts service as a way of life. The Bible showed different examples of service rendered to God and humankind. But the greatest example however, comes from the life of Jesus. His first miracle at the wedding of Cana which showed that the highest position is held by one who serves. Matthew emphasized that if one wants to be great among you must be your servant, and whoever wants to be first must be your slave (Matthew 20: 26, 27).

The best way to incorporate the four dimensions in Adventist Education is by fostering the principle of service in all the instructional settings, according to Taylor (2013). One approach that has proved effective is through service learning as volunteerism provides important service opportunities in many educational institutions but service learning has proved more challenging to implement, Taylor pointed out.

Studies on service learning have been conducted such as by Astin, Vogelgisang, Ikeda, and Yee (2000); Seider (2013); Seider, Gillmore, and Rabinowiz (2011) but their focus is more on the social and cognitive aspects of service learning. For example, Astin et al. explored the comparative effects of service learning and community service on college undergraduates’ cognitive
Service Learning of Nutrition and Dietetics Students in the Community: A Phenomenological Study

and affective development. This qualitative study, however, covers holistic educational approach which includes all aspects of Adventist education, i.e., cognitive, physical, social, as well as spiritual domains of learning. This is in line with AUP’s philosophy that states, “The work of education and the work of redemption are one: to restore in humanity the lost image of God through the harmonious development of the mental, physical, social, and spiritual faculties.”

Furthermore, previous studies were mostly quantitative while this reported study is qualitative which provides in-depth insights and rich experiences of ND students. This is to provide a better understanding of service learning in the community from an Adventist institution perspective.

II. METHODS

This study used the qualitative research design, specifically phenomenological approach to explore the experiences of the participants on service learning in the community. The participants of this study were six senior undergraduate Nutrition and Dietetics (ND) students of AUP who experienced service learning in the community. These students were among the 26 students in their batch who took Community Nutrition as a course. This course is a requirement for all ND students of AUP for them to have community exposure. Participants were chosen through purposeful sampling based on the criteria, i.e., should be a senior ND student who experienced community service learning within the academic year 2014-2015.

Data were gathered through semi-structured focus group interview (FGI). Guide questions were prepared prior to the interview. The FGI was conducted by the researchers themselves in a quiet air-conditioned room. Prior to the interview, the participants were briefed on the purpose and conduct of the focus group interview. They were told that since their participation was voluntary, they could withdraw anytime if they wished to.

The interview which lasted for less than an hour was audio-recorded using a MacBook Air QuickTime Player. The recorded interview data were transcribed by an expert transcriber and were analyzed, and interpreted by the researchers themselves following Miles, Huberman, and Saldana’s (2014) interactive analysis flow model. The participants were assigned pseudonyms to preserve confidentiality.

III. RESULTS

The results of the study were presented according to the themes that emerged based on the following research questions: (1) What have Nutrition and Dietetics students experienced in their community exposure? (2) What are the issues and challenges the participants experienced in their community service learning? (3) How has the community exposure of the participants impacted their professional outlook?

Experiences of ND Students in Their Community Exposure

To answer Research Question 1, “What are the experiences of Nutrition and Dietetics students in their community exposure?” four major themes emerged: planning and implementing a program, application and imparting of knowledge, leaving an impact in the community exposure, and realizations.

Planning and implementing a community program. One major theme that emerged from the data on the participants’ experience in their community exposure is how to handle a community-based nutrition program. For example, Patricia said:

_During our community exposure, we had to assess first the community of the things or the problem that has or had to be corrected. (Patricia, Group 2)._}

Like Patricia, David also shared his experience on what they exactly did in the commu-
Every Monday and Wednesday, we had visitation. We gave them checklist, of course, and during Tuesday and Thursday we had our lecture and to maximize the time, we had the time for the kids. (David, Group 1)

Alex, from a different group than David, said they visited their clients every day but did similar routines as the group of David did. Alex shared:

We visit them every day, we give them lectures, tips, activities, and games. (Alex, Group 2)

**Application and imparting of knowledge.**

Asked what they have learned in their community exposure that they could not possibly learn in the classroom, Patricia answered:

First of all the application of what we have learned in the classroom because you cannot appreciate what you have learned if you don’t apply it. For example, you learned the reference value of underweight children you cannot really learn that well unless you experience it in the field. You will understand that or it would retain in your mind that these values represent the underweight children, these values represent the overweight, these values represent the malnourished mothers, the non-breastfeeding mothers, something like that. (Patricia, Group 2)

Patricia shared how she appreciated her learning when she had the chance to apply it in the community. Grace also explained how she gained not only how she applied her learning in ND but also how she shared to the community people the knowledge she has acquired in the classroom.

We taught them how to prepare food for the preschool and the school age because it is a problem for those types of children to eat healthy foods. But we need to emphasize on the healthy foods like how to use their local ingredients, how to turn them into something colorful or creative, about how to hide the vegetable so that the children will not be discouraged in eating it. Then aside from that, we printed the recipes then gave each one to the parent that’s for their use. (Grace, Group 3)

David highlighted the importance of service learning particularly the practical application of knowledge learned in the university to the community. David expressed his desire to apply his community service learning in his own region as he expressed in the following excerpt:

There are a lot of knowledge that we can apply in practical ways and manage in the communities, like I can also apply back in our region. Of course, I have already knowledge in how I can make plans for the community because I was there, so I can be able to make a very good plan for the community. I can also relate because I was once in the place. (David, Group 1)

**Developing soft skills and values.**

Another theme that emerged from the data is the participants’ skills and values development. For example, Raymond developed patience, resourcefulness, problem-solving skills, and flexibility in his community service learning experience. He said:

Because when you go there [community], they lack resources so you have to be patient. Oh, walang ganito, walang ganyan! (We don’t have this or that!) Like one time we had our program in the barangay hall and we cannot use the hall. We cannot plug in our laptop because they are using the extensions and everything and of course it is quite malayo (far) and sometimes we are using our own money so we need to be patient and resourceful. We learn to solve our problems. (Raymond, Group 3)

David portrayed how his experience in the community that developed flexibility in various situations. He said:
We need to adjust or we need to design a program that will really suit or fit in to their [community people’s] needs. Then the facilities, the transportation and, of course, the weather we had that even though it’s about around December, we cannot be sure the weather would be fair or it would be rainy. It is difficult for us, especially the place or the venue that we will be having or the venue being used by the community but it is big challenge and yet a very happy experience for us that we being senior, we already applied all our skills, knowledge especially handling those situations we need to adjust. (David, Group 1)

David further explained about good communication skills practice in the community.

I mean we need also to fit in our knowledge like the words we’ll be using. Of course, we need to suit their knowledge because we cannot use scientific or English terms that they don’t understand. So, somehow it’s kind of challenging.

David also learned to respect others, young and old, in the community.

For me, I had this experiment in the community that if you make yourself trying to be superior you will find out later on that people will not like you. But I tried to respect even small kids and in all ages we respect them and then they just gave back the respect. (David, Group 1)

Respect to others was also mentioned by Patricia in the following excerpt.

Say “po” and “opo” even though you are just like almost the same age with them because some of them are still young and then you have to show respect.

Aside from patience, flexibility, resourcefulness and respect, Patricia also highlighted selflessness for service and professionalism. Patricia stated:

For the values, for me, first you have to be selfless to care for others. You have to disregard the things that are making you comfortable. And then, second, you have to show professionalism. Even though you are still a student, you have to be professional, to come on time, and also you have to master your craft. (Patricia, Group 1)

Professionalism for Patricia means reporting to duty on time and mastery of one’s work. She also mentioned that when serving others, one does not have to think of herself or himself alone. Indeed, service learning is a good way to practice professionalism and service to others especially the poor and the needy. Patricia also said that she developed her communication and interpersonal skills in her community service learning experience. She said:

Being in the fourth year, I somehow felt I want to explore more and then also it was a good experience because it is challenging and also with the interaction with the people it help developed good PR.

Public relations (PR) requires communication skills, thus Patricia developed it by interacting with people in the community. Alex also learned how to deal with people and handle various situations in his exposure in the community. Alex said:

I learned how to deal with people, older, young, and new people we meet. Like we have asked them to do what they could do. We learned how to handle those kinds of situations, how to make them do this or do that without offending them or reprimanding them.

Leaving an impact to the community. The participants reported how they left an impact to the community where they served. For example, Patricia shared the memorable experience she had on how she made an impact during her com-
Service Learning of Nutrition and Dietetics Students in the Community: A Phenomenological Study

I remembered we did an assessment on the children and then when the results came out, there was a child whose name is “Justin” who has an anthropometric measurement and he didn’t know it and even the parents didn’t know about it. And they were surprised of the finding and they were shocked and then they were like panicking. I thought to myself like it’s good that they found out because it is still early like he is still a child we could still save him or make him normal. (Patricia, Group 2)

Upon knowing the case of “Justin”, the participants of this study reported that they did their best to help the parents and the boy to get healed. When Justin became normal, they felt that it was an impact they left to the community especially that the parents were so thankful of the ND students who helped them get normal weight.

Raymond also expressed how he left an impact in his exposure to the community by letting the people learn nutritious vegetables existing in their backyards they were not aware of. They also demonstrated how to cook them which the community people appreciated. Raymond said:

We do demonstrations in-relation to our course because we have a lot of available herbs available or vegetables but some of them don’t know that is a vegetable some of them they don’t know... that these vegetables can be cooked into a lot of recipes... They have like Chinese malunggay but they don’t know that it is vegetable. They thought it’s just a flower or like a fence. (Raymond, Group 3)

David also shared how he felt the impact of the service his team rendered in the community during their service learning. David said:

I noticed that because it is a rural type area and one thing common in the family is that, they have lots of children in every family and sometimes the mother and father are not there to focus on caring in their children. I have noticed that in simple ways we made them fulfil this when we start in our program, the mothers said, “oh, my son they are really like yung parang dati hindi sya nagtotoothbrush ng everyday pero ngayon nagtotoothbrush na 3 times a day.” We saw the improvements of the children, their hygiene like that because we taught them how to brush their teeth and the lesson for hygiene.

Realizations. After the two-month community service learning, the participants shared their realizations. Patricia, for instance, described how she realized that she cannot stay in her comfort zone forever as expressed in the following excerpts. Patricia said prior to the service learning program:

I remember that I am [was] not very much excited before we began the community service because I was thinking that we don’t usually do it as students of going to barangay. This means that we are going out from our comfort zone because we have to go there every day and it will cost us not just our time but also our money and our resources. (Patricia, Group 2)

Although Patricia was not excited of doing community service at first, she realized that:

When we started our community program, I realized that our purpose to be there is not for ourselves. We are there to be able to help them [community people], to reach them out so I started thinking, I should not focus on what makes me comfortable anymore. I should think of what would make them comfortable by extending our helping hand, by giving help through nutrition lectures, demonstrations, and different activities that would help them in their daily lives especially in gardening, teaching their children good hygiene and then how they would be able to utilize their garden product vegetables and
the fruits that grow. (Patricia, Group 2)

Raymond also shared a similar realization with Patricia as follows:

At first I really don’t want to be involved in the community. I thought the work there is like you are being exposed in the sunlight, the heat, the pollution but when we already immersed in the situation, I really felt the need of ND in the community. There should be at least one nutritionist or registered nutritionist in every barangay, or every community, or every town to focus or to see to it that their community is already in development or healthy community.

Realizing the need for an ND in every community, Raymond expressed:

When we were in the community, I felt that I want to work in the community but not to the extent that I will stay there or spoon-feed the parents but I want to adopt a barangay or I want to give a program that would really benefit the parent. So, one thing for sure that I learned that there is really a need of ND in the community, in each community not only in Barangay Hoyo but in the community around the Philippines.

Issues and Challenges the Participants Experienced in Their Community Service Learning

To answer Research Question 2, “What are the issues and challenges the participants experienced in their community service learning?” three major themes emerged, i.e., lack of understanding of community’s needs, difficulty of holding the people long, and misconception of people about ND’s work.

Lack of understanding of the community’s needs. One of the challenges the participants encountered during their two-month community exposure was to understand their clients’ needs and to adjust their programs to such needs. For example, Raymond said:

Our great challenge is to comprehend the needs of the community if they really need our knowledge or information on healthy foods. If they don’t really need those things then they will not be interested to listen and they will take it for granted. So, we need to adjust to really fit the program to their needs.

Alex also shared similar experience as Raymond’s in terms of open-mindedness and flexibility to the specific needs of the community people. Alex voiced:

At first when I heard the word community, it sounds like funny or it’s kinda easy for us especially we are already in fourth year wherein we have already gained a lot of knowledge, experiences all throughout our stay here in AUP. But then when we went to the community, we found out that there are a lot of challenges faced like you need to adjust yourself, of course, to the people or the target group especially the parents or persons, the target group like, for example, their needs. (Alex, Group 2)

Difficulty of holding the people long. Another challenge faced by the participants in their service learning was the problem of keeping the people to stay during set activities. David said:

Our target group was the parents and we cannot hold them long especially in giving lectures. Lectures last for two hours or even one hour because they had a lot of activities, and a lot of household chores like they need to plant, they need to wash their clothes and they need to look after their kids. So we cannot really hold them long. We cannot teach more especially the application part because the time is very limited even though we can spend the whole day in the community but we cannot maximize if some mothers were very busy which is a challenge for us. (David, Group 1)

Misconception of people about ND’s work. The participants also considered it challenging when some community people thought of them
Service Learning of Nutrition and Dietetics Students in the Community: A Phenomenological Study

as medical doctors because they were wearing white uniforms. Patricia reported:

One of the challenge[s] I remember is that some of the family members [they] thought of us as a doctors but we are not really doctors yet. So, we cannot give them prescription or anything else because we are not yet doctors... we cannot give the full information yet but we did a research then we asked our professors how to handle this kind of situation and then they are able to help us. And then when we came back we are able to tell them, “Okay, ma’am/sir, this is what you gonna do concerning this problem...” (Patricia, Group 1)

How Community Service Learning Impacted the Participants’ Professional Outlook

Two themes emerged to answer Research Question 3, “How has the community exposure of the participants impacted their professional outlook?” They were: understanding and appreciating the ND profession integration of faith and learning

Understanding and Appreciating the ND Profession

Some of the participants understood and appreciated their chosen career when they were exposed to the community. For example, Joana said:

Personally, I didn’t know about my course, or I was confused about my profession because I know the target is about health until I got into the community service which made me feel the idea that people need us. The people need to be informed about health, about food and that is really important because it starts with us. (Joana, Group 3)

Joana also stated how she developed confidence and appreciation to her chosen career, which is ND. Joana said:

I gained more confidence especially on the part of our main job which is of course to impart to others what we know because after all what we teach them has a great impact on their lives, it could actually change their lives and it could make me feel like that our profession is really needed not just in community but globally. (Joana, Group 3)
Integration of Faith and Learning

The second theme that emerged from the data that shows how the service learning experience of the participants impacted their professional outlook was how they integrated faith and learning in the community. For example, Patricia said:

_The most fulfilling part for me is that aside for sharing the knowledge I have as a Nutrition and Dietetics student is, I was able to share with them [the community people]. First of all, the love of God, especially to their children because there were afternoons that we do children activity, so we were able to teach them about Jesus, about God, and about the Bible so that’s the first. Second is the relationship that we have built together with the mothers, the grandparents. I think that is the most special thing that we were able to make relationships and bond with the people._ (Patricia, Group 2)

Indeed, Patricia did share God’s love and grace by bonding with the people in the community. Other participants also reported that by giving their time and sharing their knowledge about healthy lifestyle, they were able to spread God’s love to humanity. Patricia continued:

_We are able to share what we have learned in school. We are able to share not just what we have learned but also share ourselves our time because there are days that we went there even though we’re not scheduled to give nutrition lectures. We went there just to talk with them. Asking them how are they, how was their family. So, going to the community isn’t just that we perform our duties and responsibilities and requirements in school. We went there to be able to make friends with them. It is one of the good things that we’ve learned._

IV. DISCUSSION

The results show that service learning is essential for ND students to know the needs of the community people to be the basis for planning and for actual implementation. The participants saw the need to adjust to the people in the community, understand their needs, and realize the purpose of service learning. They found it challenging to be out of their comfort zones and serve the needy people, to become selfless in reaching out to others in the community. They integrated faith and learning by sharing their knowledge on the importance of health and nutrition in their community programs and activities. The participants’ reported impact of their community service shows how learning takes place outside the classroom. In this case, the participants did not only apply their ND knowledge but they integrated other learnings in other disciplines such as science and health as they also gave lectures on gardening and hygiene apart from nutrition.

The results of the study is supported by Taylor (2013) who says that service learning is essential in educational institutions in learning various aspects of development including spirituality. In the longitudinal study of college graduates by Astin et al. (2000), 82% reported that the service experience enhanced understanding of the academic materials, better application of class learning to real world situation and students’ pursuit on service-related career. Overall, participation in service learning showed positive effects: high academic performance (GPA), writing skills, critical thinking skills, leadership, values, self-efficacy, choice of service career, courage, compassion, love, appreciation, teamwork, humility, and enjoyment by serving others, (Astin, et al., 2000.) The participants of this study reported learning values, critical thinking and problem-solving skills, love for others, appreciation of their career, and fun or enjoyment in serving others.
Ellen G. White in her Ministry of Healing highlights the results of service. She notes that service shapes character, develops talents and provides purpose in life. She observes that service learning deters temptation and offers enduring happiness. Most importantly, it deepens one’s relationship with Christ and prepares one for heaven (Child Guidance, 1954). Indeed, the participants of this study developed their love for others without expecting something in return as they went beyond the call of duty or their university requirement.

Service learning changed the perspective of the students who were at first hesitant of going out to the community being unwilling to give up their comfort zone, their comfortable life inside the university. But when they discovered reality in the community, i.e., poverty and hardship in the community, their minds were opened and their unwillingness to serve at first was replaced with enthusiasm. They became willing to share their knowledge, their time, and even their money to the community people and they found joy and fulfillment in giving themselves in service for others.

V. CONCLUSION

The study’s rich and in-depth data provided an understanding of the importance of service learning in the context of an Adventist institution. The actual service learning of Nutrition and Dietetics students in the community proved to be very beneficial than when they will just be learning theories in the classroom. The findings revealed that service learning enhanced the understanding and appreciation of ND students towards their profession. The findings also revealed that the community service learning of the ND students did not only focus on applying the knowledge and skills on their specialization, i.e., ND, but the participants also integrated faith and learning as they shared God’s love and other aspects of their learning at AUP including health and hygiene, science, livelihood, and values.

In their community exposure, the participants experienced real situations that challenged them to apply critical thinking and problem-solving skills, creativity, resourcefulness, communication and interpersonal skills, and flexibility. The participants actualized their meal planning according to the available local resources. They designed and redesigned programs based on the needs of their target groups. Thus, service learning is a holistic program that caters to the needs of the students to bridge the gap between theory and actual practice. However, for it to be more meaningful, service learning program should involve the students more closely at the planning stage. Students should be brought to the community first to do the needs assessment including survey of the available resources in the community so that their program implementation will be smooth.

REFERENCES


Service Learning of Nutrition and Dietetics Students in the Community: A Phenomenological Study


Students’ Career Choices: A Guide For Senior High School Preparation

Elmie Lynn Lagajino, Mercedes Ibanez, Joan Mel Guirguiz, Agapito Tuting, & Jolly Balila

Abstract

This study was conducted to determine what Senior High School (SHS) track and strands Adventist University of the Philippines (AUP) should offer starting school year 2016-2017 based on the career choices of 160 AUP Academy grades 7 to 9 students. DepEd mandates four tracks in SHS under the K+12 program, namely: Academic, Sports, Arts and Design, and Technical-Vocational (Tech-Voc)-Livelihood tracks. For each track, specialization strands are offered. Descriptive statistics were used. Variables on profile, awareness of track offering and interpersonal, intrinsic and extrinsic motivation were assessed. Results showed that 98% of the respondents would proceed to SHS. A total of 49% would pursue courses under the academic track while 13% would take sports, 8% will take the arts and design track, while 3% will take the track on technical-vocational and livelihood. A total of 95% were planning to still enroll in AUP for collegiate degrees. The researchers recommend that AUP prepare and enhance facilities for the academic track, particularly in the sciences, engineering, and business strands. It should also prepare programs and facilities in sports and arts, but also device strategies to make other strands attractive. Likewise, AUP should maintain its Adventist Christian standards, while parents continue to support their children’s career choices.

Keywords: Assessment, Career Choices, Junior High School, K-12 Program, Senior High School, Strands, Tracks
I. INTRODUCTION

School years 2016-2017 and 2017-2018 is a turning point in the educational system of the Philippines. This is because of the addition of the 2-year senior high school level which comprise grades 11 and 12 to fully implement the final phase of DepEd’s K-12 program, also known as RA 10533 or the Basic Education Act all throughout the country. The Philippine government declared the start of a fundamental overhaul of the country’s educational system under a policy called K-12 Program in 2012 (Okabe, 2013).

The senior high school which is an upper secondary education program consists of a common core curriculum with four tracks namely: Academic, Technical-Vocational, (Tech-Voc), Livelihood, Sports, and Arts. Each of the tracks has specialization strands which students with the help of their parents and guidance counselors can choose from.

According to SAMEO INNOTECH (2012), the learning goal in the new “K to 12” curriculum is the acquisition of the following 21st century skills; 1) learning and innovation skills, 2) IT and media skills, 3) effective communication skills, and 4) life and career skills. The “K to 12” Program aimed at promoting holistic skill development leading to employment and higher education.

A comparative data on the length of basic education and pre-university education in Asia was explained in the article “Additional Years in the Philippine Basic Education” by SEAMEO- INNOTECH (2010). It showed that the Philippine education system provides only 10 years for the basic education cycle and as preparatory education for the collegiate level while most of the countries worldwide have either 11 or 12 years of basic education. The basic education system in the Philippines became a disadvantage for Filipino professionals who desired to work abroad and students who desired to study outside the Philippines (Cabansag, 2014).

For many years the present curriculum has led parents to spend so much money and resources for education yet many students drop out of school or end up jobless after graduation. Philippine economy has been suffering over the years partly due to its idle and jobless citizens brought about by this job mismatch. According to Nicholas Antonio T. Mapa, associate economist at the Bank of the Philippine Islands, despite robust economic growth, unemployment among college graduates was expected to stay high due to a mis-match between the degrees completed and the jobs that were available.

To avoid mismatch, CHEd has consistently encouraged incoming freshmen to enroll in what it regarded were “in-demand” courses. According to CHED, for academic years 2014-2015 to 2017-2018 the “in-demand” courses are agriculture, engineering, science and math, information technology, teacher education and health sciences (Obang, 2014).

The new curriculum intends to alleviate the economic status of the country by providing better job opportunities and wider options for the graduates, as well as to help students choose which programs are relevant to their interests and career choices. With the new educational reform in place, SDA schools, despite their sectarian status, should provide a common curriculum guide or model to operate and comply with the Philippine Government’s vision and
Objectives in implementing the Senior High School program, without compromising the tenets of the church; for as a traditional SDA adage would say, “We should be the head and not the tail.” The first phase of this study is a survey of the career choices of AUP Academy students.

Objectives of the study

The study seeks to determine the answers to the following:

1. Percent of the respondents who will proceed to senior high school.

2. Percent of the respondents that will choose the Academic, Sports, Arts and Design, and the Technology-Vocational, Livelihood Tracks.

3. Percent of the respondents who will study in AUP.

4. Reasons why the respondents will study in AUP?

5. The necessary preparations for the senior high school track/strand offerings based on career choices of the learners?

Theoretical Framework

This study is anchored on the curriculum theory (CT) which is an academic discipline devoted to examining and shaping educational curricula. The interpretation of CT in this context is the lifelong learning path an individual takes. MacDonald (1971) states that CT is fundamentally concerned with values, the historical analysis of curriculum, ways of viewing current educational curriculum and policy decisions, and theorizing about the curricula of the future. He further cited Jerome Bruner who said that curriculum theory also depends on a multiplicity of factors: the situation, the human goals, the hypothesizing, and the testing. It is actually intelligence operating in the real world. An assessment of students’ interests among the four tracks offered in the senior high school level, the school facilities, personnel, and programs, values or philosophies that are essential to the school, the community support groups will all contribute to the lifelong learning of the individual and the development of the community towards nation building in the real world. Findings on the study of junior high school career choices will help determine the kind of curriculum senior high schools should prepare.

Choice theory by William Glasser plays a major role in this study. According to Glasser as cited by Charles (2008), the fundamental premises of the school are: that all people are curious by nature; that the most efficient, long-lasting, and profound learning takes place when started and pursued by the learner; that all people are creative if they are allowed to develop their unique talents; that age-mixing among students promotes growth in all members of the group; and that freedom is essential to the development of personal responsibility. This is why the school should take the student’s career choices seriously and a basis for offering specialized courses. In the classroom, mentors “help students envision a quality existence in school and plan the choices that lead to it.

II. METHODS

Research Design

Descriptive survey was used in the study in which the goal is to describe a single variable or when multiple variables are involved, to
obtain separate description for each variable (Gravetter & Forsano, 2003).

Population and Sampling

Purposive sampling was used since the study involves students in all grade seven, eight and nine levels enrolled in AUP Academy during the school year 2014-2015. They are the first three batches that will experience senior high school or grades 11 and 12 starting school year 2016-2017. AUP Academy has been chosen by the researchers since it has the largest enrollment among Seventh-day Adventist high schools in North Philippines.

Respondents of the Study

Among the 160 respondents, 80 or 50% of them are Grade 9 students, the first batch of students under the K to 12 Curriculum, 31% or 49 were Grade 8 and the rest are Grade 7 students. Male respondents are 83 or 52% and the 48% or 77 are female.

III. RESULTS

Respondents Who Will Proceed to Senior High School

Results of the study shows that most of the respondents (98%) are planning to enroll in Senior High School and the rest (2%) are still undecided if they will pursue their studies.

Figure 1. Respondents’ Career Choice/Track

Most of the respondents (78 or 48.75%) are planning to enroll in Academic Track; Eight percent (13 or 8%) are in Sports Track like safety and first aid, fundamentals of coaching, fitness, sports and recreation leadership; Five percent (8 or 5%) will enroll in Arts and Design Track, while 3 or 1.88% will enroll in Tech-Voc, Livelihood track.

After senior high school twenty-eight or 17.5% of the total respondents are dreaming of being in medical field, 22 or 13.85 want to be engineers, 14 or 8.8% will be in business, eight or 5% want to be a programmer or computer technician, some respondents want to be in sports, to be dentist, architect, pilot, chef, musician and other careers.
Figure 2. Academic Track Strands

Respondents’ School Choice

Among the 160 respondents, 152 or 95% are planning to enroll in AUP, 5 or 3% will go to public or government operated schools and the rest will enroll in other private schools (refer to Figure 3).

Figure 3. Respondents’ School Choice Reasons for Enrolling at AUP

Table 1 presents some of the reasons why the respondents are still planning to enroll in AUP. Around 48 or 30% still want to study in AUP because this is an Adventist and Christian school and they want the culture of the school. Twenty-one (21 or 13%) perceived that it was their parents’ choice. Other reasons why the respondents are still planning to enroll in AUP are because of the school’s location, environment, curriculum and good and qualified teachers.

Table 1

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<tr>
<th>Reasons for enrolling at AUP</th>
<th>Freq</th>
<th>Percent</th>
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<td>Christian/Adventist school</td>
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<td>30</td>
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<tr>
<td>Parent’s choice/decision</td>
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<tr>
<td>Location/near to their home</td>
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<td>School Environment</td>
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Students’ Career Choices: A Guide For Senior High School Preparation

IV. DISCUSSION

The greatest strength of the K-12 Program is that graduates can already be employed especially if they have nothing to spend for college. This is because of the in-depth specialization in the courses of senior high school and their age which makes them qualified for work not only in the Philippines but in other countries as well since the credentials are recognized worldwide. This may as well solve the problem of unemployment in the country;

according to the Commission on Higher Education (CHED), only 40% of over 500,000 graduates every year become employed one year after finishing college, and 18% of all unemployed Filipinos are college graduates. The National Statistics Office said that 21.3% of all unemployed Filipinos are new graduates (Silverio, July 2014). The result of this study was trying to prove that education is important as that 98% of the respondents are planning to enroll in Senior High and most of the respondents (78 or 48.75%) are planning to enroll in Academic Track.

Another interesting result from these students was that they will still enroll in AUP for the reason that this is an Adventist Christian school. As what James, Baldwin, & McInnis (1999) found in their study that the field of study preference, courses, and institutional reputation of the universities has been the more important factor for choosing schools among college students. AUP is becoming well known because of the excellent performance of graduates and the university as a whole

Parent’s choice is a number one reason for choosing a career according to the respondents of this study. Choosing a career is usually considered a major turning point in a student life. Research suggests that family, school, community, and social and economic factors are likely to influence students’ career decision (Ferry, 2006). Of these factors, parents have the greatest influence on which career the child would choose (Knivetton, 2004). According to Olamide & Olawaiye (2013, p.33), “how the young people of today meet the problems of tomorrow will depend upon the amount of success they make in planning for that tomorrow”. Planning for the children’s brighter tomorrow is primarily the responsibility of the parents, teachers and school counselor.

Other influences for career choice among students are accessibility because the school is near their homes, and qualified teachers.

Education is universally recognized as the answer to any socio-economic related problems of the world. Everybody looks up to education to provide solution for poverty, ignorance, drought, excessive rainfall, mental deficiency, joblessness, bad government, poor communication system, hunger and inadequate shelter among other things. So, every individuals would aspire for higher quality of education. This may be attributed to the results of this study that most of the respondents would proceed to senior high school choosing the academic track. Revealed in this study was the specific academic track that respondents are planning to pursue. Some prefer to enroll in the medical field (17.5%), in engineering (13.85 %), business (8%), computer programming or technical courses (5%),

<table>
<thead>
<tr>
<th>School curriculum</th>
<th>12</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good/qualified teachers</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>
Students’ Career Choices: A Guide For Senior High School Preparation

V. CONCLUSION

The researchers conclude that majority of the students will enroll in senior high school and that the majority priority choice of the students is the Academic track, particularly in the field of medicine and engineering under the STEM strand and business under the ABM stand, and the Tech-Voc Livelihood track particularly the computer strand; but there are also a number who choose to take other academic strands and those under the specialized tracks of Sports, Arts and Design, and Tech-voc/Livelihood. The motivational factors that influenced the choices of the respondents are the Christian education, environment, parents’ choice, school location, qualification of teachers, and school curriculum. Christian education and environment were the two main reasons for enrolling at AUP.

VI. RECOMMENDATIONS

To School Administrators: To enhance facilities and programs in the field of medicine, engineering, business, and computer and to find creative means to make the curriculum of other courses attractive to learners and parents, courses such as education, theology, psychology, sports, arts, and tech-voc/livelihood.

To guidance counselors: To assist students in their career choices so that even as early as grade 7, they already have something in mind.

To classroom teachers: To enhance classroom instruction and content on the priority courses.

To the parents: To continue supporting the child’s career choices.

To the student: To find ways and means to acquire the maximum knowledge and skills they need in their chosen field of specialization.

To faculty and staff: To continue and strengthen Adventist Christian values and relationships to sustain an Adventist Christian environment for the students. Ellen G. White (2005), stated in the story of Patriarchs and Prophets, that the student should be led to see God even in the sciences and in all the works of creation.

Teachers should copy the example of the Great Teacher, who from the familiar scenes of nature drew illustrations that simplified His teachings and impressed them more deeply upon the minds of His hearers. The birds caroling in the leafy branches, the flowers of the valley, the lofty trees, the fruitful lands, the springing grain, the barren soil, the setting sun gilding the heavens with its golden beams—all served as means of instruction. He connected the visible works of the Creator with the words of life which He spoke, that whenever these objects should be presented to the eyes of His hearers, their thoughts might revert to the lessons of truth He had linked with them.

To future researchers: To conduct a similar study in other SDA schools that will implement senior high school; and an assessment of other essential variables.

REFERENCES


Department of Education. (n.d.) Senior high school planning guide.


A PRELIMINARY STUDY ON THE BASIC EDUCATION FILIPINO TEACHERS’ PSYCHE: WHAT MAKES THEM TICK?
Belle Manlapig

Abstract

This study was conducted to find out what teachers in the basic education consider the most important motivating factor(s) in their job and to determine whether their motivation level is affected by gender, age, educational attainment, and length of service. Fifty teachers, half coming from the public and the other half from private schools, were surveyed. The result gave the following ranking of the indicators in decreasing order of importance: 1) relationship with superiors and colleagues, 2) mission/vision of the school, 3) job security, 4) work environment, 5) the work itself, 6) salary, 7) benefits, 8) challenging tasks, 9) recognition, and 10) promotion. However, the Kendall Coefficient of Concordance indicated that the respondents had no consensus in ranking the said factors. This implied that there was a significant variation in the motivator as deemed important by each respondent. Thus, in this preliminary study, it showed that the said factors were equally important to the teachers. Gender, age, educational attainment and length of service did not significantly result to varying degree of motivation level among the teachers. It is recommended to get a wider scope of sampling to represent the entire country in order to obtain a conclusive understanding of what really makes the Filipino teachers motivated.

I. INTRODUCTION

The positive correlation between teacher’s motivation and performance level is supported by results of many researches (Gottelman & Yekhlef, 2005). Thus, in the current drive of the Department of Education to strengthen its workforce, the teachers in particular, there is a need to clearly determine which factor(s) will have the greatest effect on the basic education Filipino teachers’ motivation that will translate to increasing the quality of service being delivered. Having a deeper understanding on the effect of gender, age, educational attainment, and length of service to the level of motivation of teachers will also guide the school administrators and policy makers in addressing teachers’ concerns. It is in this context that this study was conducted.

Statement of the Problem

This study determined what makes
the basic education Filipino teachers motivated. Specifically, it sought answers to the following questions:
1. What is the ranking pattern of motivation indicators among the Filipino teachers?
2. Is there a consensus among the respondents in ranking the motivation indicators?
3. Is their level of motivation affected by gender, age, educational attainment and length of service?

Hypotheses
1. Salary and benefits are the prime motivators among Filipino teachers.
2. There is a consensus among the Filipino teachers in rating the most important factors that affect their level of motivation.
3. Gender, age, educational attainment, and length of service do not result to significantly different motivational levels among teachers.

II. REVIEW OF RELATED LITERATURE
Motivation
The significance of a teacher in nation building cannot be overemphasized. Teachers are in the forefront of molding the youth to become productive and responsible citizens. However, the declining quality of education in the country identifies teacher factor as one of the contributors. Like in many developing countries, issues like demoralized and fractured workforce, little and delayed payment, neglected educational and training needs, bureaucratic processes affecting effective job performance and career progression, declining status, high attrition rates, constant turnover, lack of confidence and varying levels of professional commitment are experienced (“What Makes Teachers Tick?”, 2002).

In response to the said problems, the current government administration allocated the highest budget among the government sectors. According to DepEd Secretary Luistro in 2013, this additional budget would be used to 61,000 additional teachers, construct 66,000 classrooms and 90,000 toilets for public schools to erase the backlog (Education in Crisis, 2013). Another approach of the government addressing concern for the teachers is by raising its basic pay. Angara’s Senate Bill No. 61 aims to raise the current base pay of P18,549 to P33,859. It is hoped that with this salary package, the government will be able to attract the best and the brightest graduates of the country to become teachers.

The positive correlation between teacher performance and quality education is well-documented (Gottelman & Yekleff, 2005). Hence, the government is right in alleviating the economic status of the teachers in order to make them more focused with their job. However, in the case of other developing countries, it is not only the salary that needs to be considered to make the teachers highly motivated and more effective. In a study done by the Save the Children which involved developing countries, they identified the following factors which also need to be considered (Guajardo, 2011).

1. Address basic needs first followed by intrinsic motivators.
2. Interconnectedness

Factors identified in the decline are:

a. workload and challenges
b. remuneration and incentives
c. recognition and prestige
d. accountability
e. career development
f. institutional environment
A Preliminary Study on the Basic Education Filipino Teachers’ Psyche: What Makes Them Tick?

In Rawalpandi, Pakistan, a study was conducted by Alam (2011) to examine the motivational level of secondary school teachers. The result showed that teachers were not satisfied with their socio-economic status, choice of profession, students’ behavior, and examination stress.

The above scenario may apply to the Philippine situation as well. It is then very important to analyze the psyche of Filipino teachers in order to come up with the right solution since motivation is also culture-based. Different motivational theories underscored differences in human nature, which would be necessary to understand and identify the most applicable in the case of the Filipino teachers. To cite some of the most important theories, Maslow’s hierarchy of needs identified five levels in increasing importance. The four levels (lower-order needs) are considered physiological needs, while the top level of the pyramid is considered growth needs. The lower needs must be satisfied before higher-order needs can influence behavior. The levels are as follows: self-actualization which includes morality, creativity, problem solving, etc.; esteem that includes self-confidence, self-esteem, achievement, respect, etc.; belongingness which includes love, friendship, intimacy, family, etc.; safety - includes security of environment, employment, resources, health, property, etc.; and physiological which includes air, food, water, sex, sleep, other factors towards homeostasis (Warrilow, 2011).

The reinforcement theory of BF Skinner identified four types of operant conditioning that would determine the consequences of a behavior on the future occurrence of the same behavior. In positive reinforcement, a behavior is strengthened when it has been rewarded. Negative reinforcement, on the other hand, strengthens a behavior by withdrawing the stressor as a consequence of a behavior. Extinction weakens a behavior by giving nothing when a behavior is exhibited. For instance, not giving any recognition for a job well done may cause the person in giving extra effort. Last among the operant conditioning type is punishment given as a consequence of a behavior.

Cognitive evaluation theory recognizes two motivation factors: intrinsic and extrinsic motivators. Intrinsic motivators make people do the things that make them feel satisfied without giving them any external reward as opposed to external motivators. Herzberg’s two factor theory proposes hygiene factors and motivators. Hygiene factors are those whose absence cause dissatisfaction but when present does not result to motivation. Motivators are factors which do not cause dissatisfaction when absent but make people motivated in the work when present (Warrilow, 2011).

There are only a few available literature that involve studies on motivations of Filipino teachers. In the study conducted by De Guzman (2005) among teachers from Manila as respondents, reported that the students, the uniqueness of the teaching profession, and the nature of the teaching-learning process were the three significant motivators of the teachers. In another study conducted in Cebu, the teachers’ length of service, salary, incentives, and commitment influence the motivation of teachers (Dayagbil, 2013).

Job satisfaction among Cotabato teachers were found out to be significantly affected by age, educational attainment, and length of service but not by gender and
civil status (Usop, Askandar, & Kadtong, 2013). A research on midcareer teachers in Misamis Oriental also showed highly motivated, outstanding teaching performance among the teachers surveyed. Master’s degree holders have significantly better performance while the same level of performance was found between male and female elementary and high school teachers. Teaching performance did not decline with age (Gallarita & Eleguen, 2012).

Job Satisfaction

According to Teck–Hong and Waheed (2011), job satisfaction is an emotional response accompanying actions or thoughts relating to work. This satisfaction is an attitude; it is possible for a worker to be satisfied with his job. Bisen and Priya (2010) consider it as an attitudinal variable that can be considered as a global feeling about the job.

Locke (as cited in Aamodt, 2010) developed the idea known as discrepancy theory. This theory suggests that a person’s job satisfaction comes from what he/she feels is important rather than the fulfillment or unfulfillment of needs. Dissatisfaction will occur when a person receives less than what he/she wants. Furthermore, he said that “employees come to a job with certain needs, values and expectations. If there is a discrepancy between these needs, values and expectations and the reality of the job, employees will become dissatisfied and less motivated “ (Aamodt, 2010, p. 371).

In other words, job satisfaction depends on employees’ perceptions (beliefs). One perception is the employee’s assessment of what the job and work environment is currently providing. The second perception is what the employee wants the job to provide or what he believes the job should provide. One’s satisfaction is determined by the correspondence or agreement between these two perceptions. If an employee believes “what is” equals “what should be”, satisfaction will result. Dissatisfaction is predicted if the employees believe “what should be” exceeds “what is“. This is called an “under reward” discrepancy (Bisen & Priya, 2010). Job satisfaction creates confidence, loyalty, and ultimately improved quality in the performance of the workers. Sirota, Mischkind, and Meltzer (as cited in Tanner, 2007) mentioned some benefits of job satisfaction. First, it can be seen as yielding ethical capital, as promoting job satisfaction in the work place is the “right thing to do” from a humanistic perspective. Second, it can reduce the costs of employee turnover, which can include lost productivity, temporary staffing wages, overtime pay, recruitment costs and training costs for new employees. Loyal employees are likely to stay in their jobs longer, resist competition job offers, refrain from actively seeking other employment and recommend the organization to others as potential employees and customers.

Farrel (as cited in Redmond & Powell, 2011) stated that employees’ response to dissatisfaction in the workplace can take four forms, each differ from the other on two dimensions, active versus passive and constructive versus destructive.

1. Exit refers to behavior aimed at leaving the company, such as looking for a new job. Exit is destructive and active response.
2. Voice refers to employees’ initiative to improve conditions at the organization, for example, offering ideas on how to do the business. Voice is an active and constructive
response.
3. Loyalty is the employee’s attitude of trust toward the organization. It can manifest itself as passive but optimistic and constructive.
4. Neglect occurs when an employee shows absenteeism, shows up late to work and expends less effort at work. Neglect is passive and destructive.
Clayton Aldefer (as cited in Aamodt, 2010) simplified Abraham Maslow’s five basic human needs in ERG theory with three categories: existence needs, relatedness needs, and growth needs.

Existence needs. These needs co-relate with Maslow’s first two levels which are the basic requirements for material existence: psychological and safety needs. In a work context, this need is satisfied through pay, fringe benefits, a safe working environment and some measures of job security (Warrilow, 2011).

Pay. Syptak, Marshland, and Ulmer (1999) mentioned the old adage “you get what you pay for, tends to be true when it comes to staff members. Kokemuller (as cited in Rhinendy, 2013) stated that fair salary is important in the most basic sense to attract and retain employees. Salaries and benefits comparable to other organization salaries may help raise satisfaction and motivate high performance. If individuals believe they are not compensated well, they will be dissatisfied working for an organization. If companies wish to produce a competitive product, they must also offer competitive wages.

Fringe benefits. When a company hires an employee, salary is not the only way of being paid. Fringe benefits are a form of compensation that does not show up on paycheck. It might be the incentive that makes a prospective employee work for a certain company or the thing that makes him go elsewhere for work.

Joseph (2011) said that fringe benefits are provided by companies in addition to money paid in the form of salaries, wages, commission or bonuses. Fringe benefits increase over an employee’s tenure, giving him more incentive to stay with a particular company. Companies may make a variety of fringe benefits available to employees. Common benefits may include retirement plans such as pensions, insurance products for life, health and disability paid vacation time and sick days, family and bereavement leave and health and wellness programs.

Job security. Job stability and medium to long-term security ensures that employees are motivated enough to be committed to organizational objectives and goals and reap to commensurate rewards and benefits (Dutta, 2011). When striving for job security, an individual offers his dedication and commitment to his task in an organization and focuses his skills and capabilities on being consistent performer. A secure and stable job with the right challenges gives peace of mind.

One of the most important reasons every worker aims for job security is to be able to provide for his family, be it a growing one or elderly parents. A stable job with an adequate compensation package, financial incentives and other benefits should ideally provide medium-to long-term financial security. In addition, Thornton (2011) describes job security as employees’ assurance or confidence that they will keep their current job. Employees with a high level of job security have a low probability of losing their job in the near future. Job security is also affected by a worker’s performance,
success of the business, and the current economic environment. A lack of job satisfaction can be a source of distraction and result in excess stress and low morale that hinder employee’s overall performance. Although the economy and job performance are the two most influential factors of job security, security may be increased through other avenues such as collective bargaining agreements, employment contracts or labor legislation that prevents arbitrary layoffs by the company.

**Working environment.** The environment in which people work has a tremendous effect on their level of pride for themselves and for the work they are doing. Keeping up to date facilities and equipment and making sure employees have adequate workspace may decrease dissatisfaction (Syptak, Marshland, & Ulmer, 1999). In addition Guidoccio (2011), managers and supervisors must take active steps to ensure that workplaces are safe and productive.

**Relatedness Needs.** These needs to co-relate in Maslow’s third and fourth levels focus on the desire to establish and maintain interpersonal relationships with family, friends co-workers and employers, including the need to interact with other people. In a work context and given the amount of time most people spend at work, this need is normally satisfied to some extent by their relationships with colleagues and managers, such as interpersonal relations, supervision and management (Warrilow, 2011).

**Interpersonal Relations.** Syptak, Marshland and Ulmer as cited in Redmond and Powell (2011) as cited in Rhinendy (2013) added that it is becoming more important for an employer to recognize the delicate balancing act (work-life balance practices) that its employees perform between their personal life and work life. Policies that respond to common personal and family needs can be essential to maintain job satisfaction. According to Martins and Coetzee as cited in Lumley,Coetzee, Tladinyane and Ferreira (2011), “Work fulfils an individual’s social factor need” (p.104). Therefore, having friendly and supportive co-workers leads to increases job satisfaction. Allowing employees to develop a social aspect to their job may increase satisfaction as well as develop sense of teamwork. Co-workers relationships may benefit the organization as a whole given that, teamwork is a very important aspect of organizational productivity and success. Moreover, when people are allowed to develop work relationships, they care more about pulling their own weight and not letting co-workers down.

**Supervision.** Supervision is the act of management by overseeing the activities of a person or group. The owners of companies hire supervisors to ensure employees are using company time productively and effectively. A supervisor is team leader, coach, overseer, area manager or facilitator in a company or department of a company they work for. The job of a supervisor is to properly instruct the employee on how to perform their work duties. If the skills the supervisor have are effective, it will show in the department’s overall performance (Girard, 2011). According to Spector, “an immediate supervisor’s behavior is determinant of job satisfaction” (Lumley, Coetzee, Tladinyane & Ferreira, 2011, p. 103).

To decrease dissatisfaction in this area, it requires leadership skills and the ability to treat all employees fairly. Supervisors should be taught to use positive feedback whenever possible and establish a set of means of employees evaluation and
feedback so that no one feels singled out (Syptak, Marshland, & Ulmer, 1999). Robbins as cited in Lumley, Coetzee, Tladinyane and Ferriera (2011) wrote that employee satisfaction increases when the immediate supervisor is understanding, friendly, offers praise for good performance, listens to employee’s opinions and shows personal interest in them” (p. 103). In addition, if the supervisor is supportive, fair and knowledgeable, then these will lead to JS among worker who show loyalty and sincerity toward their supervisors. The whole attitude towards work will change if supervisor is good (Bisen & Priya, 2010).

**Management.** Managers must know the right management style to use with employees. Some employees prefer close supervision. They expect their supervisors to assign them daily tasks and check their work. Others like autonomy and they best respond to a leadership style that encourages creativity and self-sufficiency. Many companies use participative leadership style through which employees have some input in company strategies. However, when top managers make all the decisions, it can cause job dissatisfaction among talented employees (Suttle, 2011).

In addition to this, an organization’s policies can be a great source of frustration for employees as well if policies are unclear or unnecessary or if not everyone is required to follow them. Although employees will never feel a great sense of motivation or satisfaction due to policies, this can decrease dissatisfaction by making sure that policies are fair and equally applied to all.

**Growth Needs.** These needs co-relate to Maslow’s fourth and fifth levels which are about the fulfilment of desires to be creative, productive and to complete meaningful tasks in order to build and enhance a person’s self-esteem through personal achievement. These needs are all about personal development. In a work context, a person’s job or profession can provide a significant satisfaction of growth needs through recognition, advancement and achievement (Warrilow, 2011).

**Recognition.** Recognition is considered a form of positive reinforcement and serves as a motivator. Employees work even harder because their work is valued and appreciated (Suttle,2011). Since individuals at all levels of the organization want to be recognized for their achievement on the job, taking time to acknowledge a job well done may lead to satisfaction. Positive and constructive feedback boosts an employee’s morale and keeps them working in the right direction (Syptak, Marshland & Ulmer,1999). Guettler (2011) suggests recognition and reward be given to employees who do exceptional job. Employers must let the workers know they are noticed and appreciated. It is important to employees’ motivation to help individuals believe that the work they are doing is meaningful.

**Advancement.** According to Suttle (2011) the most ambitious employees often strive for more responsibilities as they gain experience. So, responsibility is a major factor that can influence job satisfaction. Employees who take on more responsibilities can learn more in their current positions. Subsequently, they are more prepared for promotions when positions are open. Employees who are goal-oriented seek advancement opportunities in companies. Thus, they have a greater chance of being satisfied with their jobs when they get promoted within their organizations. When feasible, employers must support their em-
ployees by allowing them to pursue further education which will make them more valuable to practice professionally and be fulfilled.

**Achievement.** Most individuals sincerely want to do a good job. To do so, they must be placed in positions that use their talents and are not set up for failure. Set clear achievable goals and standards for each position, and make sure employees know what those are. Individuals must receive regular, timely feedback on how they are doing and should feel adequately challenged in their jobs, but not to overload them with challenges that are too difficult or impossible, as that can be paralyzing. Thus, it is important to make sure that employees are in the proper positions to utilize their talent and enhance satisfaction. When employees are in the proper role and feel a sense of achievement and challenge, their talents will be in line with the goals best suited for them.

**III. METHODOLOGY**

Fifty basic education teachers from Quezon City and Pasay City were randomly selected for the survey. Twenty-five came from the public schools and the other half were from private schools. The samples were distributed across the demographic variables such as age, gender, years of service, and educational level. A set of questions targeting variables on demographics, motivating factors such as job requirement, intrinsic and extrinsic motivation which might affect job satisfaction were rated by respondents. Respondents were also asked to rank the following in terms of importance as motivator with 10 as the most important and 1 as the least important: salary, benefits, relationship with superiors and colleagues, job security, promotion, the work itself, mission/vision of the school, challenging tasks, work environment and recognition. Analysis of relationships among the variables was done using one-way ANOVA. Determining any consensus in the ranking of the factors was done using the Kendall Coefficient of Concordance.

The data for the respondents’ profile is summarized in Table 1. In terms distribution with respect to gender, female teachers outnumber its male counterpart. Sixteen (16) per cent of the sample came from the male population and eighty-four (84) per cent were female. In the age bracket, we can see that midcareer teachers (bracket 31-40 and 41-50) make up the bulk of the sample comprising forty-six (46) per cent of the population followed by the youngest representatives from the 20-30 bracket representing forty (40) percent of the sample and the remaining fourteen (14) per cent was represented by teachers 51 years and above. The highest academic achievement attained by the respondents showed a majority from the bachelor’s degree with seventy-two (72) per cent, master’s degree holder with twenty-six (26) per cent and two (2) per cent for the doctorate degree holder. The distribution with respect to length of service showed that the bulk came from the 21 years and up bracket comprising twenty-six (26) per cent closely followed by the beginning teachers at bracket 1-5 years with twenty-four (24) per cent and 6-10 years with twenty-two (22) per cent. Midcareer teachers (combined 11-20 bracket) make up a total of twenty-eight (28) per cent.
Table 1.

Respondents Demographic Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Gender</td>
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<td>16</td>
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<tr>
<td>Female</td>
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<tr>
<td>Age</td>
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<tr>
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<td>31-40</td>
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<td>41-50</td>
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<td>8</td>
</tr>
<tr>
<td>51 and above</td>
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<td>Educational attainment</td>
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<td>2</td>
</tr>
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<td>Masters</td>
<td>13</td>
<td>26</td>
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<tr>
<td>Bachelors</td>
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<td>72</td>
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<td>Years of Service</td>
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<tr>
<td>1 – 5</td>
<td>12</td>
<td>24</td>
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<tr>
<td>6 – 10</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>11-15</td>
<td>8</td>
<td>16</td>
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<td>16 -20</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>21 and up</td>
<td>13</td>
<td>26</td>
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</tbody>
</table>

IV. RESULTS AND DISCUSSION

Ranking of Motivation Factors of Teachers

The respondents ranked the following motivation indicators in terms of perceived importance: salary, benefits, relationship with superior and colleagues, job security, promotion, the work itself, mission/vision of the school, challenging tasks, work environment, recognition. A score of 10 points was given to the factor they consider most important and 1 for the lowest score. The Kendall coefficient of concordance is subsequently calculated to determine whether the respondents have a consensus in ranking the indicators. Summary of the result is shown in Table 2.

Table 2.

Ranking of Motivation Factors of Teachers

<table>
<thead>
<tr>
<th>Rank</th>
<th>Indicator</th>
<th>Cumulative score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Relationship with superiors and colleagues</td>
<td>318</td>
</tr>
<tr>
<td>2</td>
<td>Mission/Vision of the school</td>
<td>307</td>
</tr>
<tr>
<td>3</td>
<td>Job security</td>
<td>297</td>
</tr>
<tr>
<td>4</td>
<td>Work environment</td>
<td>286</td>
</tr>
<tr>
<td>5</td>
<td>The work itself</td>
<td>284</td>
</tr>
<tr>
<td>6</td>
<td>Salary</td>
<td>281</td>
</tr>
<tr>
<td>7</td>
<td>Benefits</td>
<td>271</td>
</tr>
<tr>
<td>8</td>
<td>Challenging tasks</td>
<td>267</td>
</tr>
<tr>
<td>9</td>
<td>Recognition</td>
<td>247</td>
</tr>
<tr>
<td>10</td>
<td>Promotion</td>
<td>214</td>
</tr>
</tbody>
</table>

Kendall’s Concordance W = 0.098

From the data in Table 2, it can be deduced that the teachers gave intangible motivators of
prime importance. Salary and benefits do not appear to be the prime consideration of the teachers. This is consistent with the report of Carr et al. (2011) that we cannot generalize whether increasing the pay will increase the performance of public servants including teachers in the low- and middle-income countries. Filipino teachers are still idealistic giving more consideration to the nobility of the work itself and their relationship with people. With the low Kendall concordance, however, it implies that there is a significant difference in the standards used by the raters thereby resulting to weak consensus. This result is not totally unexpected knowing that each individual has his/her own motivators as explained by the abounding motivational theories. Thus, there is no single factor that can be considered most important in motivating Filipino teachers which is good news for school administrators and policy makers. It means that it is not only through the economic reasons that we can motivate our teachers but we can take advantage as well of the things which are inexpensive and can be controlled by the administrators like relationship with colleagues, clear mission/vision of the school, and a conducive work environment.

The Effect of Gender, Age, Educational Attainment and Length of Service to Level of Motivation of Teachers

Another aspect studied was the relationship between motivation level and gender, age, educational attainment and length of service of teachers. Fifteen questions were asked to probe their motivation level and the data were analyzed using one-way ANOVA. Interestingly, the results showed that male and female teachers showed no significant difference in their motivation level (Table 3). Gallarita, Conrad & Eleguen (2012) also reported in their study of performance of male and female teachers in Misamis Oriental noted that teaching performance was the same for both genders. Hence, regardless of gender, teachers can perform their job efficiently and effectively.

Another aspect studied was the effect of age on the motivational level. Data analysis showed that motivation level does not significantly vary among the four age brackets (20-30; 31-40; 41-50; 51 and up). This means that motivational level does not significantly decline as the teacher grows older. Hence, teachers can still be effective regardless of age (Table 4).

No significant difference was also noted in the motivation level of teachers with respect to their highest educational attainment (Table 5). Teachers have the same degree of motivation whether they are bachelor’s degree or graduate degree holder.

The last variable studied was the effect of length of service (Table 6). Again, there is no significant difference in the motivational level of teachers with respect to length of service. Teachers remain to be motivated no matter how long they have rendered service to students.
A Preliminary Study on the Basic Education Filipino Teachers’ Psyche: What Makes Them Tick?

Table 3.
One-Way ANOVA of the Effect of Gender

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One-Way ANOVA of Effect of Educational Attainment

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Table 6.
One-Way ANOVA of Effect of Length of Service

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<td>47</td>
<td>483.08</td>
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Conclusion and Recommendations

In the research conducted, a total of 50 respondent teachers from public and private schools were surveyed as a preliminary study on the overall behavior of Filipino basic education teachers towards motivation in their work. The result aims to serve as a guide to school administrators and policy makers in improving job motivation of the teachers since this is important if they were to deliver quality education.

The respondents ranked the following indicators in decreasing order of importance: relationship between superiors and colleagues, mission/vision of the school, job security,
work environment, the work itself, benefits, challenging tasks, recognition and promotion. Thus, it can be said that Filipino teachers can be motivated not simply by offering them monetary incentives but also by addressing their social needs like good relationships with superiors and colleagues and a work environment that would help in their job performance.

Gender, age, educational attainment and length of service did not show any significant effect in the motivational level of the teachers. Their willingness to serve does not decline with age and so with their length of service. Bachelor’s degree holders showed to be as motivated as the graduate degree holders. Male and female teachers showed the same degree of motivation, hence, both have the potential to become excellent teachers.

In order to make the study more conclusive and encompassing of the behavior of all Filipino basic education teachers, it is recommended that sampling be done in the entire archipelago. The students’ performance from the surveyed areas must also be obtained and analyzed so as to get a clear picture of the degree of motivation of the teacher and student performance. This would lessen the subjectivity of the survey since the ratings were given based on their personal perception only. The DepEd can then make the corresponding policies that would implement the corrective measures necessary in order to keep its teachers motivated and the students achieve.

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A Preliminary Study on the Basic Education Filipino Teachers’ Psyche: What Makes Them Tick?


Socio-Cognitive Development, Peer Pressure and Ego Strength of Children in Conflict with the Law

Buyisile Mbulawa and Flor Villa Marticio

Abstract

This study aimed to determine the socio-cognitive development, peer pressure, and ego strength of children who are in conflict with the law from three institutions in the Philippines. It also aimed to determine the relationship between the variables, and whether gender, age, family structure, and socio-economic status would predict any significant difference in the ego strength of the respondents. This study utilized 145 respondents from Quezon City (120 respondents), Mandaluyong City (four respondents) and Dasmariñas City (21 respondents). Among the respondents, 130 were male and 15 were female. The purposive sampling technique was used in selecting the desired sample. To determine the relationship between the variables, this study used the descriptive correlational method of research design. The results of the study showed that there is a significant relationship between socio-cognitive development and ego strength which implies that the higher the cognitive, emotional, and interpersonal skills, the higher the chance that a child will have high ego strength. Peer pressure was also found to have a significant relationship with ego strength implying that the higher peer pressure a child has, the higher the chance of having high ego strength and the lower the peer pressure the lower the ego strength. The findings also showed that the respondents’ gender and family structure had no significant difference in the level of ego strength except for socio-economic status which had a significant difference with the ego strength of fidelity. Lastly, the regression analysis presented interpersonal skills as predictors of hope, purpose, and fidelity; both cognitive and interpersonal skills predicts will while emotional skills predicts purpose.
1. INTRODUCTION

Childhood is a stage of self discovery when children learn different things from both parents and peers. The first few years from birth is when parents and other significant people play a big role in a child’s life, but later on as they start interacting with their peers from school and the playground they pick up a few things from them. If a child is not well trained in the early years, such neglect could pose as threat when children look for answers concerning life challenges from their peers. If they meet with the wrong kind of friends and do not have firm ego strength, such mistake and lack might lead to their problematic behaviors. Parents are usually the primary source of social and emotional support for children during their first years of life. However, peers begin to play a significant role in a child’s social-emotional development in later years (Welsh, Robert, Clancy, Berman, & Keith, 2010). The strength of the ego though depends on a number of factors. Some people are born with a strong ego and some are born with a weak one. The developmental tasks also either add or lessen the strength of the ego (Varma & Gupta, 2008).

Erik Erikson described ego development as psychosocial and that at every stage of the human life cycle there should be mastery of the developmental tasks for each stage. However, each stage may bring with it a normal developmental crisis or disequilibrium that comes about when an individual tries to cope with the demands of a certain stage (Lesser & Pope, 2007).

According to Staik (2012), people with little or weak ego strength have unrealistic expectations and their thinking patterns are out of balance and this blocks them from developing healthier ego strengths and instead makes them prone to problematic behavior patterns. Erikson believes that there is a disruption of identity during adolescence resulting from both physical and social factors that force the adolescent to consider alternatives. He continued to say that adolescents need to develop a vocational identity and philosophy, the lack of which will result in self doubt, role confusion and indulgence in self destruction activities (juvenile delinquents or personality aberration) (Ogena, 2011).

The 1980 crime report statistics from the United States showed that about one fifth of all persons arrested for crimes were under 18 years old. In the 1970s, juvenile arrests increased in almost every serious crime category and female juvenile crimes more than doubled. During the most recent five year period studied, juvenile arrests decreased slightly each year. Unofficial report, however, suggests that a higher percentage of juveniles are involved in minor criminal behavior; grossly underreported common offenses that include vandalism, shoplifting, underage drinking, and using marijuana (Roberts, Barry, Clancy, & Noam, 2005).

The Department of Social Welfare and Development, Philippines shows 5,825,425 children and youth who are at risk. Three million children are disabled, 246,011 are street children, 64,000 are victims of armed conflict, 2,400,000 are exposed to hazardous working conditions, 4,097 are sexually abused, 11,317 are in conflict with the law, 3,694 are abandoned and neglected and 100,000 are commercial sexually exploited (Celia & Leones, 2006).

More Filipino boys than girls come in conflict with the law. This is because they are given greater freedom to roam the
Socio-Cognitive Development, Peer Pressure and Ego Strength of Children in Conflict with the Law

streets, where they are more likely to use violence, drugs and alcohol when joining gangs and succumbing to peer pressure. The usual age range of a young Filipino offender is 14-17 years old. One suggested reason for older teenagers committing the most crimes lies in the struggle of transitioning from childhood to adulthood, during which time issues concerning independence, intimacy, identity, intellect, and integrity surface (Don Bosco Forum, 2009).

According to an article by Grapi-kom (2012), under the Christian Convergence for Good Governance, the statistics presented by the Philippine National Police from 2011 show a decline in crime from 2009-2010. However, crimes involving minors is alarming. Children as young as eleven years old are involved, in not just petty crimes but serious offenses as well. Most children who normally stay in the streets are used by syndicates and are involved in gang movements like the “ba-tang hamog”, a group of 14-19 year old boys. They rob random vehicles in traffic places like Makati and EDSA. No studies have been made yet that discusses the ego strength of these children in conflict with the law.

Environmental factors such as poverty, inadequate education, high degree of unemployment, lack of positive role models, and absence of opportunity can place pressure on young people to escape these problems through mind altering substances. Peer pressure, a second major influence after environmental factors explains why young people get involved in problematic behaviors, and which is why peer pressure was included as one of the variables for this current. The personal characteristics of adolescents have been noted to increase the risk of alcohol and other substance abuse. These characteristics include poor coping skills as response to the powerful emotional pain often experienced in adolescence, relationship and achievement problems at school (Zastrow, Kirst, & Ashman, 2010).

According to Monahan (2008), social functioning is associated with a number of positive outcomes such as good interpersonal relationships, adaptive coping mechanisms when under stress, better mental health, and a decrease in problem behaviors (Holsen, Smith, & Frey, 2008) and less substance use. The study of Shepherd and Edelman (2009) showed a correlation between low ego strength and high score on social anxiety, revealing ego strength underlying coping, and personal functions. Such study further shows that ego strength is indicative of psychosocial adjustment and maturity.

Studies have already been conducted on ego strength but none has been done yet relating ego strength with children who are in conflict with the law. Ego strength is important in one’s psycho-social-emotional and cultural development, and when dealing with the self and others around. This study relates the influence of the socio-cognitive development and peer pressure on the functions of the ego strength. It attempted to increase the awareness of the community, the institutions where the respondents are affiliated with, and the respondents themselves. A program to help young people is encouraged through this study.

II. METHODS

A descriptive-correlation research design was used to determine the relationship between socio-cognitive development, peer pressure, and ego strength. The
respondents of this study were children who are in conflict with the law and are residents of Quezon City, Manda-uyong City and Dasmarinas City, Cavite. One hundred and forty-five children were used in the actual study from these respective places to answer the questionnaires. The purposive sampling technique was used in this study, where the children were chosen based on their age, gender and the institution they are held in.

The researcher used three self-constructed instruments for data gathering. Socio-cognitive development was measured using the socio-cognitive scale, which is composed of 36 items. Peer pressure questionnaire was composed of twenty items. Ego strength scale measure hope, will, purpose, competence and fidelity.

The data gathered was treated using the Statistical Packages for Social Sciences (SPSS). Mean and standard deviation were used to measure the respondents’ level of socio-cognitive development in terms of cognitive skills, emotional skills and interpersonal skills, the level of peer pressure of the respondents, and the level of the respondents’ ego strength in terms of hope, will, purpose, competence and fidelity. Pearson Product-Moment Correlation Coefficient measured the significant relationship between socio-cognitive development and ego strength, the significant relationship between peer pressure and ego strength, and the significant relationship between ego strength and the demographic variables. One way-ANOVA was used for getting the significant differences between variables. Multi-ple regression analysis was used to find out which among the variables predicts ego strength.

III. RESULTS

Socio-cognitive Development

The results suggests that the respondents have a high level of cognitive skills ($M=2.98; SD=35$). They are aware of their cognitive skills and put them to use. They get involved in activities that use their cognitive abilities and do not face any difficulties. In terms of emotional skills, the respondents have high level ($M=2.72; SD=0.44$) as well. This is manifested by being able to remain calm even under pressure. Moreover, the respondents interpersonal skills is high ($M=2.94; SD=0.38$). This could mean that they do not have difficulty relating with and helping other people. The results of this study showed that the respondents have a high level of interpersonal skills.

Peer pressure

Peer pressure is the group’s insistence and encouragement for an individual to be involved in a particular way. The result suggests that the respondents’ have a high level of peer pressure ($M=2.69; SD=0.35$). They are easily influenced by their peers on a lot of issues, both negative, such as “My friends encouraged me to have pre-marital sex”, and positive, such as “I get good grades because my friends encourage me to”.

Ego Strength

The respondents have shown to have high level of hope ($M=2.80; SD = 0.34$) which means that they have the belief that their needs will be met and they have a high level of self confidence. Moreover, the respondents will is high
Socio-Cognitive Development, Peer Pressure and Ego Strength of Children in Conflict with the Law

(M=2.62; SD=0.42). The results imply that the respondents will was averagely high, though most questions were answered with disagree and have a low interpretation. This means that some of them doubt their capability which is evident by a low score in the item, “I like being a leader”.

The conflict of initiative vs. guilt produces the ego strength of purpose. The result suggests that the respondents have low (M=2.56; SD=0.30) level of purpose which means that they lack the ability to envision and pursue their goals in life. In other words respondents have a low purpose in life.

The respondents’ competence is high which imply that the respondents are able to use their physical and cognitive abilities to finish tasks that are put before them. The respondents score high in the item “I finish what I start” which goes to show that their level of competence is really high (M=2.64; SD=0.39).

The mean of 2.81 (SD=0.40) suggests that respondents have high fidelity. This emerges from adolescents’ identity crisis. This is supposed to mean that they feel a sense of duty to self and others. However that is not the case here, many of them agree that they accept themselves which denotes a high level of self acceptance, but then when it comes to dealing with others, they mostly agree that they are “not loyal to anyone”, with the answers they gave, somehow questions their sense of fidelity is somewhat questionable.

Relationship between Socio-Cognitive Development and Ego Strength

The results show a Pearson correlation of .514 and a significant value at .000 level of significance. These results signify a positive relationship between socio-cognitive development and ego strength.

Cognitive skills are positively correlated to ego strength, as shown by a Pearson correlation of .329 and a significant value at .000 level. Emotional skills are also positively correlated to ego strength as shown by a Pearson correlation of .277 and a significant value of .001 level. Inter-personal skills likewise show to be positively correlated to ego strength with a Pearson correlation of .522 with a significant value of .000 level. This implies that the higher the level of a child’s socio-cognitive development the higher the ego strength.

Relationship between Peer pressure and Ego Strength

Peer pressure positively relates with ego strength (r=.272, p=.001). This implies that the higher the peer pressure, the higher the level of ego strength.

Moreover, the results show that there is a relationship between peer pressure and hope with a Pearson correlation of .228 and a significant value at .006. This implies that the higher the peer pressure the higher the level of hope.

The results also show that there is a relationship between peer pressure and purpose with a Pearson correlation of .217 and a significant value at .009. This implies that the higher the peer pressure the higher the level of will.

Furthermore, the results show that there is a relationship between peer pressure and purpose with a Pearson correlation of .210 and a significant value at .011. This implies that the higher the peer pressure the higher
the level of purpose.

Moreover, the results show that there is a no significant relationship between peer pressure and competence with a Pearson correlation of .024 and a significant value at .775. This implies that peer pressure has no bearing in the respondents’ level of competence.

Similarly, the results show that there is a no significant relationship between peer pressure and fidelity with a Pearson correlation of.154 and a significant value at .065. This implies that peer pressure has no bearing in the respondents’ level of fidelity.

The findings of this study show that the influence of caregivers, parents and peers is necessary as one goes through the different stages of psychosocial development. This influence is seen from infancy through adolescence and if adapted well an individual will have these different ego strengths.

**Predictors of Ego Strength**

Interpersonal skills has shown to predict ego strength. The variance accounted for is 27.2% and has unstandardized coefficient of .303 with a t value of 7.318 at .000. This shows a positive correlation, showing that the higher the respondents interpersonal skill, the higher the level of ego strength. Likewise, inter-personal skills of the respondents predict hope, purpose and fidelity which is accounted for 20.1%, 8.1% and 12.7% respectively. Both cognitive skills and interpersonal skills predict will with variance accounted for 10.3% and 2.9% respectively. Only emotional skills predict competence (\(R^2\) change= 12.7%).

**Difference on Ego Strength**

Ego strength does not differ regardless of the respondents age (\(F= .357; p=.784\)), family structure (\(F=.909; p=.405\)) , and socio-economic status (\(F= 1.691; p=.188\)). Nonetheless, only fidelity differs in terms of socio-economic status (\(F= 3.404; p=.036\)). Respondents from “have enough for everyone” (\(M=2.89; SD=0.43\)) has highest fidelity level than those who are “poor” (\(M=2.59; SD=0.32\)) and “poor but striving” (\(M=2.81; SD=0.40\)).

**IV. DISCUSSION**

**Socio-cognitive Development**

The study of Howard and Jenson (2003) shows that delinquent youth have a number of specific cognitive deficits when compared with none delinquents. McGloin and Pratt (2003) also supported Howard and Jenson’s findings that cognitive ability mediates the effect of concentrated disadvantages on both the early onset and the onset of delinquency. However, the results of the current study differ from these previous studies as the findings of this study show that the respondents have a high level of cognitive skills which means it does not take a low cognitive ability for someone to be delinquent. This means that delinquent children may have a high or low cognitive skill and this will not affect their behavior. Different studies have shown the importance of emotional skills for children. The study of Gunderson (2010) has shown that skills such as regulation and recognitions of emotions, sharing, listening, waiting for one’s turn and showing consideration for others has shown to be connected to popularity and acceptance by others. Bukowski, Buhrmester and Underwood (2011) and Santrok (2012) noted that emotions play a
role in peer relations.

Children who have good emotional skills can relate well with others.

The results of this study showed that the respondents have a high level of interpersonal skills. Social skills are closely linked to development and the interpersonal skills needed by a five year old will not be adequate for a twelve year old (Mental Health Foundation of Australia, 2007).

**Peer pressure**

Geary’s (2005) study is consistent with the research findings of the current study which shows the strong influence peers have on each other. The result of this study only strengthens the idea that peers certainly influence each other—positively and negatively. In other words, adolescents can be influenced to do good or bad by others. Contemporary wisdom holds that children contribute significantly to one another’s development (Ladd, 2005). Beginning in the early years, the development of human beings seems to require input from socialization agents who are either mature as well as those who are not. Whether it is an interaction between toddlers or teenagers, it is evident that peers are a necessity, not luxuries in human development.

**Ego Strength**

The present study has shown that the respondents have a high level of hope, will and competence and because they trusted someone during infancy and developed the ego strength of hope, it helps them to believe in themselves and build their own views of the future. This is supported by the theory of Erikson which states that the trust learned in infancy is basic for fidelity in adolescence. Adolescents need to learn how to trust others before they can have faith in their own views about the future. They should have developed hope during infancy and couple with that the other ego strengths—will, purpose and competence, in which each is a prerequisite for fidelity (Feist & Feist, 2006).

Schultz and Schultz (2009) said that fidelity includes sincerity, genuineness and a sense of duty in one’s relationship with other people. Adolescents are said to no longer need parental guidance once they establish their internal standards of conduct. They now have confidence in their own religion, political view and social ideologies. During this stage of fidelity, the adolescent is ready to learn to be faithful to an ideological point of view. Fidelity consists of the ability to sustain loyalties freely pledged in spite of unavoidable differences in value systems. Without an outlet for fidelity, young people will either have a weak ego or suffer ‘confusion of values’ or search for a deviant group to be loyal to (Engler, 2009). This would explain the deviant behaviors such as, stealing, vandalizing, underage drinking and use of drugs.

Ages 12 to 18 are a stage where adolescents resolve the crisis of basic ego identity. This is where the self image is formed and there is an integration of ideas about oneself and what others think. Shaping an identity and accepting it are difficult tasks and are often filled with anxiety. People who come out of this stage with a strong sense of self identity are ready to face adulthood with confidence. Those who fail on the contrary, experience an identity crisis, which is confusion between the roles of childhood and adulthood (Schultz & Schultz, 2009).

**Relationship between Socio-Cognitive**
Development and Ego Strength

The finding of this study shows that having a high level of socio-cognitive development will help one to have a high level of ego strength. This finding is supported by Stang and Story (2005) who said that during adolescence teens develop a stronger recognition of their own personal identity and this includes personal moral and ethical values and feelings of worth and self esteem. Social interactions, particularly with peers are crucial to socio-cognitive development. Social interactions contribute indirectly by fostering the growth and role-taking skills and providing the experience children need to learn what others are like (Shaffer & Kipp, 2010).

Relationship between Peer pressure and Ego Strength

In terms of the relationship between peer pressure and ego strength, the present study established a positive realationship. Erikson notes that adolescents whose development has restricted their access to acceptable social roles or made them feel that they cannot measure up to the demands placed on them may choose negative identity. Adolescents with a negative identity may find support for their delinquency image among peers (Santrok, 2012). Ego strength keeps us from losing our individuality to the forces and demands of the society (Feist & Feist, 2006). However, according to Spokek and Saracho (2013), ego strength allows children to stand up to pressures. Children will not conform to peer pressure if they are confident and have developed optimal ego strength.

The findings of this research show that once a child builds the trust needed with the caregiver, they build up their hope and this helps them to form good relationships with other people. This finding is supported by Schultz and Schultz (2009) who said that hope is the sense that childhood needs and desires will be met. A lack of this sense of hope makes children to approach life with uncertainty and fear and this hinders their exploration for involvement in activities and relationships. Infants’ most significant interpersonal relations are with their primary caregivers ordinarily their mothers. Children’s creative skills have been linked to individual skills and talents including ego strength and divergent thinking skills (Spodek & Saracho, 2013). It is at this stage that children learn to communicate more effectively—to walk, climb, push, pull and hold on and let go of objects. They take pride in these skills. If they are able to exercise them, the ego strength will is acquired but failure to results in feelings of doubt (Schultz & Schultz, 2009). Similarly, the respondents of this current study have shown that being hopeful and trusting others improves one’s interpersonal skills. The higher the ego strength of hope the higher the interpersonal skills.

The findings of this research show that the higher the interpersonal skills are, the higher is the level of purpose. This finding is supported by Feist and Feist (2006) who said that the ego strength of purpose develops during the play age stage where children interact with their age mates. Motor and mental abilities continue to develop, and the children’s initiatives are channeled towards realistic and socially accepted goals. This means that once the child feels the sense of purpose they are able to set standards that can be accepted by them and others. Once that happens, good relationships are formed.
Socio-Cognitive Development, Peer Pressure and Ego Strength of Children in Conflict with the Law

between them and their peers.

If children are scolded, humiliated, or rejected, they are likely to develop feelings of inferiority and inadequacy. Praise and reinforcement, on the other hand, promotes feelings of competence (Schultz & Schultz, 2009). This supports the findings of this study that when children have a high level of competence, their emotional skills are high too. When children know how to control their emotions i.e., when they know when and where to use emotions, they become competent in what they do. Children who have effective strategies or emotional skills for dealing with disappointments or losses or any other upsetting events that they might come across in life are likely to bounce back than those who do not (Mental Health Foundation of Australia, 2007).

Predictors of Ego Strength

The findings of this study have shown that having interpersonal skills will help one to develop the ego strength of fidelity. This is supported by Schultz and Schultz (2009) who stated that fidelity includes sincerity, genuineness, and a sense of duty in one’s relationship with other people. This begins at the ages of 12-18 when adolescents resolve the crisis of basic ego identity. Adolescents need to learn how to trust others before they can have faith in their own views about the future, which shows the relationship between interpersonal skills and fidelity. If they lack this fidelity, young people will either have a weak ego or suffer “confusion” of values or worse, search for a deviant group to be loyal to (Engler, 2009).

Difference on Ego Strength

The present study shows that ego strength is the same regardless of age, family structure, and socio-economic status. Don Bosco Forum (2009) mentioned that the usual age range of a young Filipino offender is 14-17 years old. This is because they are given greater freedom to roam the streets, where they are more likely to use violence, drugs, and alcohol when joining gangs and succumbing to peer pressure. Furthermore, the results imply that there is no significant difference in the family structure and the ego strength to the respondents, which means that, whether the child comes from a family that has both parents or just one of the biological being present, has no bearing in their ego strength. This result is supported by Skolnik (2012) who said that it is not just coming from a one-parent family that is the problem. There are also other factors that affect an adolescent’s ego strength.

The finding of this study shows that socio-economic status has no significant relationship with the ego strength of the respondents. Although children living in poverty are particularly likely to enter school with a range of social and behavioral difficulties with over 40% showing difficulties in social competence and 20% exhibiting disruptive behavior. To a great extent, children’s reduced social competence and emotional well being reflects the effects of poverty and most crucially the impact of poverty. However the same study showed that not all children in the face of socio-economic adversity are affected the same (Hartas, 2011).

The research finding of Sigelman and Rider (2010), however, has shown that parents of
adolescents who belong to middle to high socioeconomic status tend to provide more stimulating and support-ive home environment for their children than those from low socio-economic status. The result is higher academic achievement, better adjustment, better health, better cognitive functioning and better adjustment in adulthood. This however, does not mean that coming from a poor socio-economic status will make one a delinquent as supported by the finding of this study.

V. CONCLUSION

The present study concludes that socio-cognitive development is related to ego strength. Children who see themselves as having a high level of the skills that are found in the socio-cognitive development such as cognitive, emotional and interpersonal skill will be more satisfied in dealing with themselves and others. However, children who lack or have a deficit in any of the skills under socio-cognitive development will have a hard time adjusting to the environment in which they live in and will have difficulty dealing with ‘self’. Peer pressure was also found to be related to ego strength which means that when children are under pressure from their peers they tend to improve their ego strength.

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Harmony of the Principles of Design
With God’s Perfect Creation

Reuben Abaya Pagaduan

Abstract

The study determined how the principles of design are revealed in nature. Photos from nature were taken to show the elements and principles of design through God’s creation. Five categories of sample photos from nature were evaluated, i.e., flowers, leaves, stones, faces (people), and insects. The elements of design used were line, shape, color, tone, texture and space while the basic principles considered were unity, balance, and dominance. The result of the study showed that unity, balance, and dominance are seen in the samples being studied. God’s character is reflected on His creation which implies that as nature shows unity, human beings should relate well with their fellowmen: nature displays dominance to show God-like character to others, in contrast with the character of the world, and nature portrays balance so that people will always remember to be fair in dealing with others and to wholistically develop the mental, physical, spiritual, and social aspects of life.

I. INTRODUCTION

God’s book of nature is open for us to study and from it we are to gain more exalted ideas of His greatness and unexcelled love and glory “(White, 1855, para. 5).

The principles of design as seen in nature pave the way to enormous resources. One can draw inspiration, motivation as well as open visions and ideas from nature that will aid students of visual arts and design in their quest for good and better understanding of beauty, love, harmony, and appreciation.

The study proposes a visually dynamic way of looking and seeing beyond what is ordinarily seen, just-passing view in nature. It examined the reason of what makes nature i.e., a flower in the field, its design, quiet graces that is attractive to behold (Song of Solomon 2:1 KJV); likewise a stone, that looks insignificant, turns out to be meaningful and symbolic (Job 19:23,24); rightly polished will yield beauty equals the splendor of a palace (White, 2014).

The seemingly useless and disturbing insect if observed closely will reveal a stunning well-thought of stylized design at par with the digitalized design in the modern world; the refreshing visual poetry of leaves that encompass the design elements, can quietly teach that “curved lines” are more numerous in nature (Lantry, 1980), and how significant a line is in the visual world (Cox, 2011). Human beings as family exemplify
best in reality the spiritual application of unity, dominance, balance (principles of design) through their relationship with each other.

The study of the Design Principles as revealed in nature can impact an individual, inspiring him more to be keen, observant, sensitive, and aware towards his surroundings; every individual needs his/her fellowmen, the quality also that makes up a good and effective visual creative (Baker, 2015).

**Research Problem**

The purpose of this study was to evaluate through the chosen and photographed nature, using the design elements of art: line, shape, color, tone, texture and space and the design principles of art: unity, balance, and dominance, as guide to visually prove into revealing further God’s love and His character. Specifically, the study answered the following research questions:

1. How do design elements and principles implicate the character of the designer?
2. Do Solomon’s description and standard of beauty manifest and reflect the design principles?
3. Can the design principles reveal spiritual connection applicable to daily living, and in a way tap into increasing an individual’s sensitivities and keen observance?
4. How potent is the knowledge of the design elements and their principles via nature in awakening and inspiring the love and care for sustainable environment?

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**Figure 1. Design tools in nature and the visual arts**
Harmony of the Principles of Design With God’s Perfect Creation

Taken, for example, amidst nature, a flower to survey, to fully appreciate and see truly its beauty that reflects God’s character, principles of design should be considered alongside. The senses should be awakened to see and behold the following at work:

In repetition with rhythm, there is harmony, in variation with contrast there is variety, in harmony with variety there is dominance, in harmony with variety there is balance, in harmony with variety there is movement, and in dominance with balance with movement, visually produces unity.

II. METHODOLOGY

Five elements from nature were photographed revealing close-up to semi close-up details of each. Then descriptive observations were recorded. The selections of nature to be photographed and documented are randomly done in choosing the ones that are often seen along the ordinary path and setting.

The specific elements from nature used as samples are: flowers, leaves, stones, insects and the human body and face. A DSLR camera Nikon D7000 gadget has been used to capture the details of the chosen subject/elements. A WYSIWYG or ”what you see is what you get” principle is used as subjects are taken picture by a digital camera. WYSIWYG refers to the situation in which the display screen portrays an accurate rendition of the printed page (The Oakland Tribune, 1996). ‘WYSIWYG’ pronounced ‘whizzywig’. A form of the phrase had been used as advertisers in the USA since at least the 1940s to indicate a ‘straight forward’, ‘no fuss’ form of trading. An advert for a film sportster camera in the Charleston Gazette came close to ‘what you see is what you get’ in November 1949: “You just sight, press a button and what you see, is what you get.”[The Phrase Finder. n.d para. 4)]

The precise phrase came into print some years later. For instance, this text from an advert for a house sale in the Oakland Tribune, May 1966: “so with the exception of landscaping and decorator furnishings, what you see is what you get.”(The Phrase Finder. (n.d) para.2

For each specific subject used, five types were considered, namely:

**Flowers:** Bud/s, Full bloom flowers, petalled, non-petaled, showing complementary colors

**Leaves:** Lined, curved, shaped, textured, showing negative and positive space

**Insects:** Bees, fly, dragonfly, bug, frog

**Stones:** pebbles, rocks, boulders, precious, semi-precious

**Human beings:** Old lady, man, woman, child, family

For each type under a category of five subjects, a close-up, semi-close up and normal angle shot have been applied.

III. RESULT

**Flowers**
“Art will never be able to exist without nature” (-Pierre Bound)
Designs in nature are a series of thrilling discovery upon closer look and observation, the overlapping position of the flowering bud has been seemingly cut, sliced by a knife and placed contrastingly on top of each other.

The colors of green to yellow green combined with pink design and fashion. The industry’s designers upon summer and spring arrival would use these combo colors to represent brightness, fresh, fun and if designed in the right way, these color combination can actually be gender neutral as well as pleasing to the eye.

Nature can reveal endless designs, ideas, and concepts. There is no limit to the possibilities one can achieve as one awakes in God’s magnificent artistry in designs in nature by creative thought and thrilling observations.

Grace and beauty can sum up to what is called “visually appealing. Take for example this flower in her ethereal garb of green and the purest of white, its petals, including its thin graceful lines that extend beautifully soft in the air. It also reflects the character of its Creator and Designer.

To quote a designer who has been immersed for many, many years in the world of codes, algorithms, arduino boards, has these words as he returns to nature as his inspiration.

“Let’s face it, nature will never go out of fashion or boring. There’s always something new to be discovered, even in our back gardens. Now who could fail to be inspired by that?” (St. Clair, 2015, para. 3).

Radial balance occurs when all the elements radiate out from a central point and the visual weight is distributed equally. Radial balance creates a strong focal point in the center of the design.

Radial symmetry should remind us of God who is the same yesterday, today and forever. In a world of changing philosophies, what an assurance that God is always there, and always the same.

The radial symmetry design principle is commonly found in flowers. A radial balance occurs when all the elements radiate out from a central point and visual weight is distributed equally. Radial balance creates a strong focal point in the center of the design.

Radial symmetry should remind us of God who is the center of our lives, yesterday, today and forever. In world of changing philosophies, what an assurance that God is always there, always the same, a dependable foundation (Lantry, 1988). “For I am the Lord I change not;” (Malachi 3:16 KJV).

As you examine the blossoms of hundreds of radial-shaped elements of the flower, treasure God’s many unchanging promises: “Every good and perfect gift is from above, coming down from the Father of lights with whom there is no variation or shadow due to change.” James 1:17RSV

“There is unspeakable beauty and potential to be found in nature. It entices...
me and is an invitation I just have to ac-
cept” (Jil Ashton-Leigh 2015, para. 4).
Have you been thrilled in your discov¬ery of how God combines lines, curves, fig¬
ures, and forms in nature?
Sometimes nature’s shapes are so unusual that they cannot be de¬fied.
Yet God arranges them in such a way that they provide pleasing relation¬
ships with each oth¬er.
As God combined the forms in nature, He arranged everything to give a feeling of rhythm in which spaces and masses alternate in a regular way. All parts are in pro¬portion. Everything God made functions for the purpose for which He made and de¬signed it for.

**Human Beings**

God created the whole universe, everything that we see and last of all He created man. Man is special and is the crown of God’s creation. Gen. 1:26; Psalms 8:5, 6 KJV.

Man’s physical features can be an integral part of learning the design principles at work. It can reveal valuable lessons and inspire students of art aiding and moti¬vating them further to deeper and worthy ideas.

By observing closely the old woman’s face, the artful creases through the varied types of lines can map a visual story that can challenge the im¬agination of the students of life and art.

It can help open one’s sensitivities, a quality essential to those who would like to in¬crease their creativity.

The genius of Leonardo da Vinci vouched God’s crowning glo¬ry of His creation by using the human body as example of perfect balance and proportion.

Here is the master’s clear illustration of his famous “Vitruvian Man” in words: for the human body is so designed that the face, from the chin to the top of the forehead and the lowest roots of the hair, is a 10th part of the whole height, the open hand form the waist to the tip of the middle fin¬ger is just the same; the head from the chin to the crown is an eighth and with the neck and shoulder from the top of the breast to the lowest roots of the hair is the sixth from the middle of the breast to the summit of the crown is a fourth. If we take the height of the face itself, the distance from the bottom of the chin to the underside of the nostril is onethird of it; the nose from the underside of the nostrils to a line between the eye¬brows is the same; from the lowest roots of the hair is also a third, comprising the fore¬head. The length of the foot is one sixth of the height of the body; to the forearm, one fourth, and the breadth of the breast is also one fourth. The other members, too, have their own symmetrical proportions, and it was by employing them that the famous painters and sculptors of antiquity attained to great and endless renown.

Similarly, in the members of a tem¬ple these ought to be the greatest harmony in the symmetrical relations of the different parts to the general magnitude of the whole.
They again, in the human body the central point are naturally the navel. For if a man be placed flat on his back, with his hands and feet extended, and a pair of compasses centered at his navel, the fingers and toes of his two hands and feet will touch the circumference of a circle describe these form. Just as the human body yields a circular outline, so too a square figure may be found from it. For if we measure the distance from the soles of the feet to the top of the head, and then apply that measure to the outstretched arms, the breadth will be found to be the same as the height, as in the case of plane surfaces which are perfectly square.—Morgan (n.d)

A young woman’s face, coupled with King Solomon’s poetic description of beauty, would be the best example for the principles of design combined.

“Your neck is like an ivory tower
Your eyes like the pools in Hesbon
By the gate of Bath Ribbin.
Your nose is like the tower of Lebanon
Which looks toward Damascus.
Your head crown you loke Mount Carmel,
Which looks toward Damascus.
Your head crown you loke Mount Carmel,
And the hair of your head is like purple;
A king is held captive by your tresses.
How fair and how pleasant you are,
O love, with your delight!
This stature of yours is like a palm tree,
And your breasts like its clusters.
I said, “I will go up the palm tree,
I will take hold of the branches,”
...the fragrance of your breath like apples
and the roof of your mouth like the best wine,”

Song of Solomon 7: the Maiden’s Beauty, 4-5; 6-9

By analogy and spiritual application, the great delight of the beloved over his maiden help us to understand that this shows us how much God loves us. As the bridegroom rejoices over the bride, so shall your God rejoice over you, —Isaiah 62:5

“And above all these put on love, which binds everything together in perfect harmony,”—Colossians 3:14.

Unity occurs when all of the elements of a piece combine to make a balanced, harmonious, complete whole. Unity is another of those hard-to-describe art terms but, when it is present, your eye and brain are pleased to see it.

Nothing matches the beauty of the crowning glory of God’s creation exemplified in perfect unity/harmony of a family. An innocent face of a child can exude and exemplify ideals that visual designers/artists are always looking for: freshness, newness, full of potentials...

As we are in our spiritual journey, we can only be reminded of Christ’s words:

“Truly, I say to you, unless you turn and become like children, you will never enter the kingdom of Heaven. Whoever humbles himself like this child is the greatest in the Kingdom of heaven. —Matthew 18:2–4 ESV

It is by our childlike character, that we be humble and teachable having the full of potential to do greater works for the Master
and be of service to our fellowmen.

Rocks and Stones
Nature is full of many awe-inspiring things from majestic mountains to carpets of flowers. There is much creativity inspired by nature, but it is often of valley and streams. Rarely do we see the smaller pieces that make up such grand pictures. There are few people who appreciate the beauty of a single leaf, or a single drop of water. It is even rare to find a person who finds beauty in rock, diamond on the rough.

For most people, rocks are only beautiful if polished up and set in gold or silver. It takes an appreciative, a humble spirit to be able to see the beauty and usefulness of each rock. The varying shapes and forms compose an interesting overall view, seen together in a setting, from an almost insignificant size to the biggest one produce a wonderful visual effect.

In our daily journeys, we often pass by the humblest of rocks, those that decorate our gardens, or the ones that are simply buried in the dirt at the park. Although most of us see rocks, if we see it all though humble and quiet they seem to be, they do not lack their own impressiveness. Useless many times as we see and pass by them, but, overturned, they serve as shelter and home, a protection to the smallest creatures of the earth.

Some of the most striking and beautiful imagery of the Bible is based upon the rocks. They are a symbol of God: “Yahweh is my rock and my fortress (2 Samuel 22:2; Ps. 18:2, 71:3); to Christ as the source of living water for spiritual refreshment (1 Cor. 10:4). The rock is also a symbol of hardness. Therefore, the breaking of the rock exemplifies the power of God (Jer. 23:29).

The rock is also a symbol of that which endures, “Oh that they...were graven in the rock forever!” (Job 19:23, 24)

Rocks, stones, come in all shapes and sizes, from large and smooth, to small with jagged edges. They come in different colors and patterns, swirled, grays and pale creams, deep browns and smooth reds. Like fingerprints, or people themselves, no rock is like any other. Simple, lowly or ‘humble’ rocks are like the simple people who do their job and live their lives and sometimes struggle to do it. These rocks do not sparkle, they are not movers and shakers, yet they play a part in the world, even if it is just as a child’s toy (“Diamonds in the Rough”, 2015).

Let the natural beauty of the world that is seen in these semi-precious stones teach and inspire us to seek deeper into the vast resources that the natural world could offer. Divine guidance will lead us to find the God of nature from all the rich resources of the good and the beautiful stones from His love and wisdom.

“My son, if thou wilt receive my words, and hid my commandments with thee; thou incline thine ear unto wisdom, and apply thine heart to understand.” Yea, if thou criest after
knowledge, and liftest up thy voice for understanding:
If thou seekest her as silver and searchest for her as for hid treasures; then thou shalt understand the fear of the Lord giveth wisdom: out of his mouth cometh knowledge and understanding.” (Proverbs 2:1-6)

Leaves
A line is a basic element of art referring to a continuous mark, made on a surface, by a moving point.
A line is long relative to its width. It can define a space, create any outline or pattern, unply movement or texture, and allude to mass or volume. Line is absolutely essential in creating art.
Curved lines are more graceful and more numerous in nature. The soft curved lines are not only more beautiful to the eye but more relaxing. In this exciting stressful world, God placed the restful curved line everywhere as a reminder to “come part” and enjoy the quiet calm and peace of knowing Him.

“Strength and beauty are in the sanctuary.”
Psalms 96:6
Strength + Beauty = Character

In nature, if we only learn to be observant and learn to look closely, we can see and enjoy God’s design ideas. He combines the various plane geometric figures, giving beauty to form the character of His created masterpiece. “Everything in nature is colored.” —Paul Cezanne.
Color is an attribute of things that result from light; they reflect, transmit or emit in so far as the light causes a visual sensation that depends on its wavelengths.
The beauty of complimentary colors is seen in nature. Just one of the many beauties of complementing (complimentary) colors is nature portrayed on leaves.
See them everywhere, perhaps on our daily walks, by our neighbors’ garden, but may have overlooked their beauty and message. Let our daily encounter with nature make us more observant and sensitive as “Nature testifies of God,”(White, n.d para.1 Also the renowned poet William Wordsworth expressed, “Come forth into the light of things let nature be your teacher.”

Insects
The beauty and the organized, balance, and systematic way of the design in an insect eye exactly resembles the digitalized way of presenting images in matrix form and dot per inch.
The digital wave has taken the world, leaving behind the analogue in the annals of history. But if we look closely with inhibited observance, with awe and wonderment we can indeed exclaim the words of the wisest man
on earth: “There is nothing new under the sun. Is there a thing of which it is said, “See, this is new?” It has been already, in the ages before us.” Eccl. 1:9, 10 RSV

Stunning indeed how the principles of symmetry in balance work perfectly in the insect’s eye that can match the modern world concept of design.

The science artist said: “Some insects may seem repulsive first, but close observation reveals their expressive power” (Whaley, 2014, para.5).

John Hallmen (2010), a Swedish photographer who has been fascinated by insects his whole life has these words that can open a nature enthusiast’s/student’s eyes further: how they react,” “looking at a fly portrait. “It’s a pleasure to show people who are not interested in bugs something they haven’t seen before and watch some people will find even more disgusting than they’d ever imagined while others will be surprised to find them quite beautiful. Sometimes you’ll find them covered in dew that forms in small spherical droplets; this can turn a tiny gray unsuspicious fly into a shimmering jewel!” The Daily Mail Reporter 2010 (para. 7)

Almost any subject can look interesting if you look closely enough.

“Life is not so much a matter of discovering something new as it is a matter of rediscovering what has always been present” (-W. Ralph Ward, n.d. __)

IV. DISCUSSION

“Always remember the importance of detail”, the researcher can still clearly hear these words that were repeatedly said by his college lecturer. Whilst they seemed unimportant and irrelevant to him at the time, they have over the years taken on a much greater significance and have become ingrained in his philosophy and nature photography.

This attention to detail undoubtedly brings wonder and is certainly worth taking a little time for a closer look. Indeed, when this attention is applied to even the most commonplace of nature subjects there is clearly an extraordinary display of beauty and orderliness to be found. These combine to create patterns in nature that require only an observant and discerning eye to behold. This vision instills a lasting appreciation of the simplicity and beauty of the natural world and with this understanding and harmony there is everlasting enjoyment.

The natural world in all its glory has a myriad of examples for us to photograph but we can start with the common things that we tend to overlook. Simply because of their familiarity they offer the very best opportunity for observation. Here we can find patterns in nature that can be circular, linear and random or indeed a combination of all three. Sometimes they are obvious and sometimes they require a little effort and imagination to search out. Nature is full of patterns that interact and play off of each other that are well worth seeing. They offer a different view on our world that if we are honest, with our ever-increasing hectic lifestyle we often take for granted. With a discerning eye for detail, pattern and color we can look at any natural object as simply a series of shapes composed of lines, curves and circles. Then consider ways in which these shapes and patterns relate with one another. Often it is this interaction that provides such
a rich and diverse array of patterns that can satisfy even the most inquisitive amongst us and provide the opportunity for unique photo subjects (McDermott, 2015).

**V. CONCLUSION**

Upon observance of each chosen element from nature, each photographed elements reflected the visible design principles of design embibed on seeing and observing; God’s character is revealed.

In nature and design principles, unity points to the character of God, in unity there is love that produces harmony. Harmony coupled with variety using repetition, rhythm, contrast, and variation will visually yield balance, dominance, and movement, that causes a unifying sense that ultimately reflects unity, which is the goodness and character of God.

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Harmony of the Principles of Design With God’s Perfect Creation


Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

Richard Kasenda and Susy A Jael

Abstract

The study aimed to determine the effects of laughter on quality and hours of sleep, systolic and diastolic blood pressure among the elderly and made use of a quasi-experimental interrupted time-series design. Forty participants were selected through purposive sampling, 20 were randomly assigned to experimental group and 20 to control group. Findings revealed that in the control group the baseline mean for quality of sleep and post intervention was average. In the experimental group, the baseline mean for quality of sleep and first week post intervention was average, while in the second week post intervention was good. The hours of sleep was highest in the experimental group on the second week post intervention. The mean of systolic and diastolic was lowest in the experimental group on the second week post intervention. There was a significant difference in the experimental group in the quality of sleep, hours of sleep, and systolic blood pressure between baseline and second week post intervention, but no significant difference in the diastolic blood pressure. There was a significant difference in the pattern of change across the three time period in quality of sleep, hours of sleep, and systolic blood pressure between control and experimental group, while no significant difference in the diastolic blood pressure. Gender and educational attainment made no significant difference in the quality of sleep, hours of sleep, and systolic blood pressure, while there was a significant difference in diastolic blood pressure.

I. INTRODUCTION

Elderly are an extremely diverse individual who possess a broad range of abilities and needs in all domains of function. They continue to experience a varied loss of physical, mental, and independence. This reality, along with the varied lifestyles, environmental conditions, and life histories creates the need for highly individualized nursing care. This scenario posts a challenge to the care givers especially to the nurses.
The United Nations has reported that the number of persons 60 years old and older worldwide is estimated to be two billion by the year 2050 as compared with about 841 million in 2013 (UN, 2013). In 1950, there were 55 million men and women in Asia ages 65 and above, while in 2000, there were 207 million. Moreover, the report claimed that by 2050, the elderly population is projected to be 865 million. In Indonesia, in the year 2010, there were 18.04 million elderly citizens, and by 2020 it is estimated to reach 28.8 million (Webadmin, 2012).

Aging is associated with major physical, psychological and sociological change. One of these is in relation to sleep. Sleep serves to rest body organs, conserve energy, preserve bio-rhythm and restore mental alertness. According to The American Geriatrics Society (2009), elderly with sleep disorders are more likely to develop hypertension, depression, cardiovascular, and cerebrovascular disease. Carskadon and Dement, (2005) found out that there is a strong association between sleep disorders and illness or early death. They claimed that as many as 50% of older individuals complain about sleep problems, including disturbed or “light” sleep, frequent awakenings, early morning awakenings, and undesired daytime sleepiness. In Indonesia sleep disorders strike 50% of people aged 65 years or older who were living at home, 66% of people who live in facilitated maintenance, and approximately 20% -50% of elderly reported insomnia (Stanley, Mickey & Patricia, 2006).

Laughter is a part of everyday life, and recently it is receiving increased attention as a form of therapy. According to a study done by Hae and Chang (2011), laughter therapy is considered to be useful, cost-effective, and easily accessible intervention that has positive effects on sleep quality in the elderly. Laughter relaxes the whole body, relieves physical tension and stress. Laughter improves the function of blood vessels and increases blood flow, which can help protect against a heart attack and other cardiovascular problems. Laughter dissolves distressing emotions. Laughter helps relax and recharge. It reduces stress and increases energy, enabling a person to stay focused and accomplish more (Seagel & Smith, 2014).

Many older individuals have high blood pressure arising from the vasoconstriction associated with aging, which produces peripheral resistance (Eliopoulos, 2014). According to Miller as cited by Laughing Diva (2014), the benefits of laughter can decrease blood pressure and increase blood flow through the expansion of the inner lining of arteries. A study done by Peeples (2011) found out that laughter therapy dropped 6 mmHg (Peeples, 2011). Moreover, according to America Medical Journal and Association for Applied and Therapeutic Humor (2013) ten minutes of laughter drops 10-20mmHg in blood pressure.

According to Touhy and Jet (2012), blood pressure, especially systolic blood pressure, increases with age, with a leveling off or decrease of the diastolic pressure for persons about 60 years of age and older. Arterial wall stiffening consistently increases and baroreceptor activity decreases, which is thought to be associated with changes in catecholamine level. Erber (2013) stated that, over time the walls of the arteries become less elastic and blood pressure often increases. Mauk (2014) added that as persons age increases, the systolic blood pressure tends to rise, and the risk of stroke associated with hypertension also rises.
Research has shown that many elders suffer from physiological disorders that include sleep disorder and changes in the blood pressure. Thus, prevention and effective treatment of the disorder in old age can lead to significant reduction in sleep deprivation, morbidity, mortality, medical illnesses and health care costs. In this study, the researcher has examined the effect of laughter therapy on quality of sleep, hours of sleep, systolic and diastolic blood pressure.

II. METHODS

This study utilized the quasi-experimental interrupted time-series with pre and post-test research design. Time series design involves the collection of data over an extended time period, with multiple data collection points to both before and after intervention to a single group of participants (Polit & Beck, 2010).

The research design used in this study is summarized in Figure 1.

Figure 1. Time Series Design Utilizing Experimental and Control Group

<table>
<thead>
<tr>
<th>Expt</th>
<th>O₁</th>
<th>X₁</th>
<th>X₂</th>
<th>O₂</th>
<th>X₃</th>
<th>X₄</th>
<th>O₃</th>
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</thead>
<tbody>
<tr>
<td>Control</td>
<td>O₄</td>
<td>O₅</td>
<td>O₆</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where:

- O₁: pre observation of quality and hours of sleep and blood pressure on the experimental group.
- X₁: intervention of laughter therapy immediately after the pre-measurement.
- X₂: intervention of laughter on the first week, on Wednesday.
- O₂: post observation of blood pressure on Wednesday of the first week, 15 minutes after intervention. Post measurement of quality and hours of sleep on Thursday 9:00 AM.
- X₃: intervention of laughter therapy on the second week, on Tuesday.
- X₄: intervention of laughter therapy on the second week, on Wednesday.
- O₃: post observation of blood pressure on Wednesday of the second week 15 minutes after intervention. Post measurement of quality and hours of sleep on Thursday 9:00 AM.
- O₄: initial observation of quality and hours of sleep and blood pressure on first week on the control group, on Tuesday.
- O₅: observation of blood pressure in the first week, on Wednesday, and measurement of quality and hours of sleep on the first week on Thursday.
- O₆: observation of blood pressure on the second week on Wednesday and measurement of quality and hours of sleep on the second week on Thursday.

Forty participants were selected through purposive sampling, 20 were randomly assigned to experimental group and 20 to control group. Subjects in the experimental group had the laughter therapy for 25 minutes a day for two times a week, total of four (4) times in two weeks. The subjects in the control group did not receive any intervention. Both the experimental group and control group filled out the questionnaire on sleep quality, and hours sleep and their blood pressure was measured.

The participants were given a complete and detailed explanation about the nature and the purpose of the study. The researcher emphasized to the target participants that participation is voluntary, and that they have the freedom to withdraw from the study anytime. Moreover, it was explained that confidentiality and anonymity would be observed. A signed written consent was secured after the explanation and before the
Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

conduction of the study. Fifteen minutes after the last intervention, debriefing was done by the researcher. The participants were allowed to express their feeling and thoughts about the study.

III. RESULTS

Quality of Sleep, Hours of Sleep, Systolic and Diastolic Blood Pressure

The data in Table 1 reveals that the mean for quality of sleep and hours of sleep are highest in the experimental group on the second week after the intervention. Also, the mean of systolic and diastolic are lowest in the experimental group on the second week after the intervention. This result of the study shows that laughter therapy improved the quality of sleep from fair to good and increased the hours of sleep and decreased the values of systolic and diastolic. The quality of sleep in the control group did not improve statistically from a rating of fair, however, the quality of sleep of the participants from the experimental had improved from fair to good after the laughter therapy.

Table 1.
Descriptive Statistics of Quality of Sleep, Hours of Sleep, Systolic and Diastolic Blood Pressure in the Control and Experimental Group.

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Post 1st week</th>
<th>Post 2nd week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Control Quality of sleep</td>
<td>10.80</td>
<td>2.73</td>
<td>12.50</td>
</tr>
<tr>
<td>Control Hours of sleep</td>
<td>6.40</td>
<td>1.23</td>
<td>6.45</td>
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<tr>
<td>Control Diastolic</td>
<td>81.50</td>
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<td>79.75</td>
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<tr>
<td>Experimental Quality of sleep</td>
<td>11.05</td>
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<td>12.50</td>
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<tr>
<td>Experimental Hours of sleep</td>
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<td>6.30</td>
</tr>
<tr>
<td>Experimental Systolic</td>
<td>122.50</td>
<td>9.25</td>
<td>118.25</td>
</tr>
<tr>
<td></td>
<td>80.75</td>
<td>7.99</td>
<td>79.50</td>
</tr>
</tbody>
</table>

Legend: Fair, 9-12 Good 13-15

Difference in the Quality of Sleep, Hours of Sleep, Blood Pressure Between the Baseline and Post Intervention in the Experimental Group

Table 2

Difference in the Quality of Sleep, Hours of Sleep, Systolic and Diastolic Blood Pressure
Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
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<th>p</th>
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</thead>
<tbody>
<tr>
<td>Quality of sleep</td>
<td>11.05</td>
<td>2.26</td>
<td>14.05</td>
<td>1.19</td>
<td>-5.62</td>
<td>.000**</td>
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<tr>
<td>Quality of sleep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours</td>
<td>5.75</td>
<td>1.33</td>
<td>8.25</td>
<td>1.45</td>
<td>-3.77</td>
<td>.001**</td>
</tr>
<tr>
<td>Systolic</td>
<td>122.50</td>
<td>9.25</td>
<td>114.75</td>
<td>7.69</td>
<td>11.46</td>
<td>.000**</td>
</tr>
<tr>
<td>Diastolic</td>
<td>80.75</td>
<td>7.99</td>
<td>77.75</td>
<td>7.16</td>
<td>1.98</td>
<td>.062</td>
</tr>
</tbody>
</table>

**Sig at .01

The result in Table 2 shows that there was a significant difference in the experimental group between baseline and second week post intervention specifically on the quality of sleep, hours of sleep, and systolic blood pressure. However, the data reveals that there was no significant difference in the diastolic blood pressure.

Difference in the Pattern of Change across the Three Time Period Between Control and Experimental Group in the Quality of Sleep

The result in Table 3 shows that there was a significant interaction of time and group (time*group) for quality of sleep, $F = 49.71$, $p = .00$. This indicates that the difference in the pattern of change in quality of sleep across the three time period is significantly different between the control and experimental group. Further, it was noted that in the three time period in the experimental group the pattern of change for quality of sleep is increasing from baseline to post intervention second week while in the control group it is decreasing from baseline to post intervention second week.

Table 3

Difference in the Pattern of Change Across the Three Time Period Between Control and Experimental Group in the Quality of Sleep

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F</th>
<th>P</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of Sleep</td>
<td>27.62</td>
<td>2</td>
<td>13.81</td>
<td>20.6</td>
<td>.00</td>
<td>.35</td>
</tr>
<tr>
<td>Quality of sleep *group Error</td>
<td>68.72</td>
<td>1.5</td>
<td>44.33</td>
<td>49.7</td>
<td>.00</td>
<td>.57</td>
</tr>
<tr>
<td>Error (Quality of sleep)</td>
<td>51.00</td>
<td>76</td>
<td>.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SS-Sum of Squares, df-degrees of Freedom. MSS-Mean Sum of Squares, E2-Partial Eta Square

Difference in the Pattern of Change across the Three Time Period Between Control and Experimental Group in the Hours of Sleep
Table 4

*Effect of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F</th>
<th>P</th>
<th>Eta^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of Sleep</td>
<td>7.20</td>
<td>2</td>
<td>3.60</td>
<td>9.70</td>
<td>.00</td>
<td>.20</td>
</tr>
<tr>
<td>Hours of sleep*group</td>
<td>8.60</td>
<td>1.48</td>
<td>5.79</td>
<td>11.58</td>
<td>.00</td>
<td>.23</td>
</tr>
<tr>
<td>Error (Hours of sleep)</td>
<td>28.2</td>
<td>76</td>
<td>.37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 shows that there was a significant interaction of time and group (time*group) for hours of sleep, $F = 11.58, p = .00$. This indicates that the pattern of change in hours of sleep across the three time period is different between the control and experimental group. Further, it was noted that in the three time period in the experimental group the pattern of change in hours of sleep is increasing from baseline to post intervention second week while in the control group the pattern of change is decreasing from post intervention first week to post intervention second week.

**Difference in the Pattern of Change Across the Three Time Period Between Control and Experimental Group in the Systolic Blood Pressure**

Table 5

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F</th>
<th>P</th>
<th>Partial Eta^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic</td>
<td>261.25</td>
<td>2</td>
<td>140.62</td>
<td>25.96</td>
<td>.00</td>
<td>.40</td>
</tr>
<tr>
<td>systolic*group</td>
<td>323.71</td>
<td>2</td>
<td>161.67</td>
<td>29.88</td>
<td>.00</td>
<td>.44</td>
</tr>
<tr>
<td>Error (systolic)</td>
<td>411.66</td>
<td>76</td>
<td>5.41</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result shows that there was a significant interaction of time and group (time*group) for systolic blood pressure, $F(2) = 29.88, p = .00$. This implies that the difference in the pattern of change in systolic blood pressure across the three time period is different between the control and experimental group. Further, it was noted that in the three time period in the experimental group the pattern of change in the systolic blood pressure is significantly decreasing from baseline to post intervention second week, while in the control group the pattern of change is almost the same across the three time period.

**Difference in the Pattern of Change across the Three Time Period Between Control and Experimental Group in the Diastolic Blood Pressure**

There was no significant interaction of time and group (time*group) for diastolic blood
Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

pressure, $F(2) = 2.47, p = .09$. This implies that the difference in the pattern of change in diastolic blood pressure across the three time period is not different between the control and experimental group. Further, it was noted that in the three time period in the experimental group the pattern is decreasing from baseline to post intervention second week, while in the control group the pattern of change is decreasing from baseline to post intervention first week while increasing from post intervention first week to post intervention second week.

Table 6

*Difference in the Pattern of Change Across the three Time Period Between Control and Experimental Group in the Diastolic Blood Pressure.*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MSS</th>
<th>F</th>
<th>P</th>
<th>Partial Eta$^2$ Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diastolic</td>
<td>48.75</td>
<td>2</td>
<td>24.37</td>
<td>1.12</td>
<td>.33</td>
<td>.029</td>
</tr>
<tr>
<td>Diastolic</td>
<td>109.91</td>
<td>2</td>
<td>53.96</td>
<td>2.47</td>
<td>.09</td>
<td>.061</td>
</tr>
<tr>
<td>*group Error</td>
<td>1660.00</td>
<td>76</td>
<td>21.84</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Diastolic)

SS-Sum of Squares, df-degrees of Freedom, MSS-Mean Sum of Squares

**Difference in Three-Time Period in the Quality of Sleep, Hours of Sleep, Systolic and Diastolic Blood Pressure Considering Gender and Educational Attainment.**

The result shows that there was no significant difference on quality of sleep, hours of sleep, systolic and diastolic blood pressure in the baseline and second week post intervention, when gender was considered. While there was no significant difference in the quality of sleep, hours of sleep, and systolic blood pressure in the first week post intervention when gender was considered, it is noteworthy that there was a significant difference in the diastolic blood pressure. Further, that the diastolic mean was higher in male than in female during the first week post intervention and that the difference was statistically significant.

Table 7

*Gender Differences in the Three-time Period of the Quality of Sleep, Hours of Sleep, Systolic and Diastolic Blood Pressure on Experimental Group.*

<table>
<thead>
<tr>
<th></th>
<th>Male M</th>
<th>SD</th>
<th>Female M</th>
<th>SD</th>
<th>t</th>
<th>P</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of sleep</td>
<td>11.00</td>
<td>2.30</td>
<td>11.10</td>
<td>2.33</td>
<td>-.09</td>
<td>.87</td>
<td>NS</td>
</tr>
<tr>
<td>Hours</td>
<td>5.60</td>
<td>1.64</td>
<td>5.90</td>
<td>.99</td>
<td>-.49</td>
<td>.10</td>
<td>NS</td>
</tr>
<tr>
<td>Systolic</td>
<td>124.0</td>
<td>8.43</td>
<td>121.0</td>
<td>10.2</td>
<td>.71</td>
<td>.93</td>
<td>NS</td>
</tr>
<tr>
<td>Diastolic</td>
<td>80.50</td>
<td>6.43</td>
<td>81.00</td>
<td>9.66</td>
<td>-.13</td>
<td>.32</td>
<td>NS</td>
</tr>
<tr>
<td>Post-Int 1st</td>
<td>12.40</td>
<td>1.50</td>
<td>12.60</td>
<td>2.27</td>
<td>-.23</td>
<td>.60</td>
<td>NS</td>
</tr>
<tr>
<td>Quality of sleep</td>
<td>6.20</td>
<td>1.31</td>
<td>6.40</td>
<td>.69</td>
<td>-.42</td>
<td>.08</td>
<td>NS</td>
</tr>
<tr>
<td>Hours</td>
<td>121.0</td>
<td>8.09</td>
<td>115.5</td>
<td>10.1</td>
<td>1.3</td>
<td>.57</td>
<td>NS</td>
</tr>
</tbody>
</table>
Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>Pre-Int</th>
<th>Post-Int 1st</th>
<th>Post-Int 2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diastolic</td>
<td>80.50</td>
<td>78.50</td>
<td>79.00</td>
</tr>
<tr>
<td>Post-Int 2nd Quality</td>
<td>14.10</td>
<td>14.00</td>
<td>14.00</td>
</tr>
<tr>
<td>Hours</td>
<td>7.10</td>
<td>6.90</td>
<td>7.10</td>
</tr>
<tr>
<td>Systolic</td>
<td>116.0</td>
<td>113.5</td>
<td>113.5</td>
</tr>
<tr>
<td>Diastolic</td>
<td>79.00</td>
<td>76.50</td>
<td>76.50</td>
</tr>
</tbody>
</table>

Further results revealed that there was no significant difference in the quality of sleep and blood pressure in three-time period when educational attainment was considered.

The mean in the baseline, post intervention first week and second week are not significant in all levels of education. The mean for the category “no school” and “college” were decreased from baseline to post intervention particularly during the second week, but the mean of elementary and high school was slightly increased.

On the other hand the result also showed that there was no significant difference in the systolic blood pressure in three times period for no school, elementary, high school and college. The mean for the category, no school, high school, and college were increased from baseline to post intervention second week, but for elementary there was a decrease but not significant.

**IV. DISCUSSION**

Among the elderly, laughter can significantly improve the quality of sleep and increase hours of sleep and could decrease the systolic blood pressure. Although, the decrease in the diastolic blood pressure was not statistically significant, it is noteworthy that there was a decrease in its value. The result also implies that the more the client experience laughter then the more it can improve the quality of sleep, the higher will be the hours of sleep, and the higher will be the decrease in the systolic and diastolic blood pressure values. The result of the study is consistent with the findings of the study of Ko and Youn (2011). Their study found out that laughter therapy has positive effects on the quality of sleep. Moreover, Stacy (2011) claimed that 15 minutes of laughter is equal to the benefits of two hours of sleep. Further, the result of the study supports the claim of Preidt (2014), Ghodsbini, Ahmadi, Jahanbin, and Shariff (2015). According to them laughter lowers the blood pressure and increases blood flow. Moreover, according to research that was conducted by O’riondan (2008) subjects who laughed had reduced their systolic blood pressure for more than 6 mm Hg. Moreover, a study done in Japan by Miller and Knepper (2014) reveals that laughter can drop 5 to 7 mmHg in systolic blood pressure, lowering the likelihood of blood vessel stiffness. America Medical Journal added (2013) that ten minutes of laughter drops 10-20mmHg in blood pressure. Epstein (2014) stated elderly are at a higher risk of having high blood pressure, and laughter helps to balance or lower blood pressure by increasing vascular blood flow.

The result also implies that gender made a significant influence on the diastolic blood pressure, but not with the quality of sleep, hours of sleep, and systolic blood pressure among the elderly. The study done by Abel as cited by Capps (2014) found that, there was no significant gender difference on measure of sense of humor. The result of the study done by Silva, Andersen, De Mello, Bittencourt, Peruzzo and Tufik (2008) also found no significant differences between genders in the percentage of REM sleep and sleep efficiency. The result of this study also supports that sex differences were noted with males having higher systolic blood pressure and diastolic blood pressure than the females (Jervase, Barnabas, Emeka, & Osondu, 2013). The result implies that educational attainment made a significant effect on the diastolic blood pressure but made no influence on quality of sleep, hours of...
sleep, and systolic blood pressure among the elderly. The result of the study is not consistent with the results in previous related studies done. According to study done by Patel, Grandner, Xie, Branas, Gooneratne (2010) they found that poor sleep quality is strongly associated with education. Their study suggests that education is significantly mediated only to those with low education. In addition, study done by Eder, Zou, Grote, and Hedner (2011) found that lower educational attainment was associated with sleep problems. The research study that was conducted by Zawisza, Adamczyk, Galas, and Brzyska (2014) found out that the level of education has an effect in the sleep duration. The lower the education the extreme is the sleep duration (≤ 5 or hours/day). On the other hand, the result of this study supports the research done by Gulliford, Mahabir and Rocke (2003) that there is no association of systolic blood pressure with education in women. While in men there was weak evidence that the prevalence of hypertension was not associated with educational attainment. There is no consistent association between education and blood pressure in men.

V. CONCLUSION

Based on the findings of the study, the result implies that laughter therapy can improve the quality of sleep, increase the hours of sleep, and decrease the value of systolic and diastolic blood pressure among the elderly. Moreover, the more is the laughter experience, the better is the quality and hours of sleep, and the higher is the reduction in the systolic blood pressure. Gender and educational attainment as a modifying variable made no significant difference in the quality and hours of sleep, and to the systolic blood pressure. On the other hand, gender and educational attainment made significant changes in the diastolic blood pressure among the elderly.

RECOMMENDATIONS

Nurse educators need to emphasize in their teaching the beneficial effects of laughter to sleep and blood pressure. Nurse practitioners need to include laughter therapy as part of their intervention to the elderly clients and to encourage elderly to make laughter as their lifestyle. Health care administrators should provide a nurse who will take an active role in creating and implementing laughter therapy program.

For future research, the study can be replicated utilizing a higher number of population and a longer period of implementing laughter therapy. It is also recommended to consider the amount of laughter exerted by the participants, the type of personality of the participants, and to utilize other forms of laughter therapy. Moreover, it is recommended to utilize other population groups to strengthen and widen the empirical evidence of laughter therapy.

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Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia

HbxsolC&pg=PA16&lpg=PA16&dq=laughter+has+no+significant+difference+on+gender&source=bl&ots=KjfTu6w3IT&sig=rznFK16cEk_PzBLPo91gVIYhglo&hl=en&sa=X&ei=AF32VKmqMsK2mAWp&ved=0CDcQ6AEwBG#v=onep-age&q=laughter%20has%20no%20significant%20difference%20on%20gender&f=false


Gulliford, MC, D Mahabir and B Rocke (2003). Socioeconomic inequality in blood pressure and its determi nants: cross-sectional da-ta from Trinidad and Tobago


Effects of Laughter on Quality and Hours of Sleep and Blood Pressure among Elderly in Indonesia


Touhy and Jett (2012). Toward Healthy Aging (8th ed). Human needs &
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Experiences of College Students on Bullying

Maria Julita SJ. SibayaN, Vimdane Merialles
Renaleen Tomagan, Ron Maru Serquina
Gloria Ayako & Camille Amparo

Abstract

A Phenomenological Qualitative Study on the perception and experiences of 3rd and 4th year college students was conducted in Adventist University of the Philippines. A survey was performed to identify participants for the said study. The researchers then conducted an interview using a semi-structured questionnaire that would allow the participant to share as much information as possible to answer the questions that were raised. A total of 11 participants were interviewed for this research. Results revealed that the views on bullying as perceived by the participants were represented by major two themes namely, Torment and Depreciation. Experiences was represented by three major themes namely, Denouncement, and Physical Violence. Lastly, effects of bullying were represented by two major themes, Positive and Negative.

I. INTRODUCTION

The world as we know today offers many circumstances that preoccupy an individual. In the light of the demands of everyday life, one may become oblivious and non-chalant with the many issues that plague our society. In October 22, 2013 in the town of Sparks, Nevada, a 12 year old boy, armed with a 99-millimeter semi-automatic handgun open fired at a middle school killing a teacher and leaving two other students wounded. The shooter is believed to have been bullied. This is just another statistic of bullying related violence that made headlines after the Columbine High School Shooting in 1999. An organization Make Beats Not Beat Downs reported that harassment and bullying have been linked to 75% of school shootings in 2009.

The Center for Disease Control and Prevention in 2012 released its latest statistics that showed 20.1% reported being bullied on school property in the 12 months preceding the survey; he prevalence was higher among females (22.0%) than males (18.2%). 16.2% reported being bullied electronically (email, chat room, website, texting) in the 12 months preceding the survey; the prevalence was higher among females (22.1%) than males (10.8%). Locally the Department of Education reported that as of September 2013 there were 1165 cases of bullying nationwide that accounts for 80% of school related violence as compared to 20% or 291 cases of child abuse. This prompted the DepEd to launch a child protection policy through DepEd Order Order no.40, s.2012 to promote zero- tol-
Experiences of College Students on Bullying

The researchers utilized currently enrolled 3rd and 4th year students of the Adventist University of the Philippines who are in the different colleges namely: CON, COB, CST, CAH, COT, COD, COE, COH, for the second semester of the school year 2013 – 2014. Sampling technique used is criterion sampling. Students from each college who experienced bullying are included in the study group.

A semi-structured questionnaire was used as the instrumentation for the study of which the participants were asked during the interview. It served as guiding questions so that the researcher may extract enough information based on the participants’ view and experiences related to the study.

Prior to the conduction of the study, permission was obtained from the college deans of the 8 colleges through an official letter. Upon approval, the researchers identified students that fit the profile required by the study by conducting a brief survey asking if they have had been bullied or happen to know someone who have been bullied. Identified students were asked if they would like to volunteer and take part in the study. They were asked to sign the consent for a video recorded interview which will be scheduled according to the time most convenient for them. A well-lighted, well ventilated interview room was prepared within the College of Nursing building. There was one interviewer, and external observer from the psychology department who took notes and interpreted nonverbal expressions, and one transcriber of the interview process. In order to establish rapport and create a comfortable atmosphere, the interview began with a discussion on how they are coping with their studies and how they feel about taking part

II. METHODS

This study employed a descriptive phenomenological research design that determined the perception and experiences of college students on bullying. Phenomenology is a philosophy and a research method designed to explore and understand people’s everyday lived experiences (Shoza, 2012). This was so adapted to qualitatively describe and examine the perception and experience of the students in relation to the said phenomenon.

The absence of statistics that reflects collegiate levels and with the law clearly limiting its breadth to only high school students and younger, the researchers are persuaded to delve deeper into the issue of Bullying on a much deeper note that will account for the experiences of the older collegiate population. This phenomenon has long been ignored or disregarded by society and even treated lightly but in truth, integrates a very delicate concern to our growing community. It is the researchers’ goal to know how bullying is perceived and deeply understand its effects to those who experienced it so that awareness and remediation be done as deemed necessary.
of this study. It was soon followed by a brief discussion about the research study being conducted which will serve as an introductory phase to the interview. The interview sessions were held for about 30 minutes utilizing 3 reflective questions. A conversational style of questioning was performed rather than the utilization of the conventionally ridged and formal questioning in order to encourage students to eloquently share their emotions and experiences. The students were thanked and provided with a simple token of appreciation for their participation.

Content and thematic analysis using the Colaizzi method was employed in this study. The following steps represent Colaizzi process for phenomenological data as cited in Shosha’s study (2012).

1. Each transcript was read and re-read in order to obtain a general sense about the whole content.
2. For each transcript, significant statements that pertain to the phenomenon under study was extracted. These statements were recorded on a separate sheet noting their pages and lines numbers.
3. Meanings were formulated from these significant statements.
4. The formulated meanings were sorted into categories, clusters of themes, and themes.
5. The findings of the study were integrated into an exhaustive description of the phenomenon under study.
6. The fundamental structure of the phenomenon were described.
7. Finally, validation of the findings were sought from the research participants to compare the researcher’s descriptive results with their experiences and this was studied in contrast with the interpretation by the external observer.

To ensure validity of the results, Data Triangulation was done wherein the researchers’ themes were studied in contrast with the external observer and the literature gathered lastly, validation of identified themes and results of the participants through follow-up consultations. A licensed psychologist/guidance counselor was invited to serve as an external observer during the interview process. The non-verbal observations made were noted and studied in contrast with what was verbally expressed in order to achieve triangulation. The non-verbal observations helped give the transcribed interviews a more significant perspective.

III. RESULTS
A total of 11 currently enrolled 3rd and 4th year students who fit the criteria participated in the study. The research aimed to answer three questions from which main themes have been identified. The three main questions focused mainly on definition of bullying, the experiences of being bullied and the long term effects of having been bullied.
Table 1: 
**College Students’ views on Bullying**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torment</td>
<td>Insult, Physical Violence</td>
</tr>
<tr>
<td>Debasement</td>
<td>Oppression, Degrading</td>
</tr>
</tbody>
</table>

The main themes formulated under the view of college students on bullying were Torment and Debasement. The subthemes under the main theme, Torment, were Insult and Physical Violence. Whereas Debasement was derived from the subthemes Oppression and Degrading.

According to Demanet (2012), Bullying is defined as antisocial behavior in which an individual bully or a group of bullies, willfully and repeatedly hurts other people, either physically or psychologically, and in which an imbalance of power exists between the perpetrator(s) and the victim.

The following sub-themes were lifted from the participants based on their personal views:

1. Insult. It is defined as, “to do or say something that is offensive to; to do or say something that shows a lack of respect for someone; to behave with pride or arrogance; to treat with insolence, indignity, or contempt. According to Mr. H (2012), bullying was also defined as spreading false accusations or rumors that are offensive or shows disrespectful comments about a person. On this particular context that Johnson (2012), mentioned that verbal bullying has become more dominant than physical bullying. She also defined bullying as a verbal harassment.

2. Oppression. Webster (2012) defines it as unjust or cruel exercise of authority or power. A sense of being weighed down in body or mind. An example shared was “harassment, like making fun or making one feel inferior to the other.” A part of the bullying definition described above mentioned, “an imbalance of power exists between the perpetrator and the victim.” This specifically points out the direct unjust exercise of authority among the bullies towards their victims. Negative emotions come to fore because of inability to cope with unpleasant experiences. Psychological instability and inferiority complex are made possible because of such inadequacy (Estoque, 2006). According to Bott (2012), Bullying is any behavior that takes advantage of an imbalance of power between the harasser and the target-based on size, age, ability, language, social status, socioeconomic circumstance, intelligence, athletic ability, appearance, wardrobe, gender identity, gender expression or lifestyle, sexual identity culture, religion, race, or heritage. Bullying is a form of aggressive behavior manifested by the use of force or coercion to affect others, particularly when the behavior is habitual and involves imbalance of power (Manuel, 2013).

3. Degrading. It is defined as to treat someone poorly and without respect. To make
the quality of something, worse. Bullying is any action or behavior that is intended to harm or disturb or cause the individual or group targeted to feel harmed, disturbed, or embarrassed. Being bullied can take over a person’s life. That individual lives in fear and rarely escapes from that fear (Bott, 2012). Mr. H (2012) pointed out that a person will feel defeated from the bullying attacks at some point in their lives. Manuel (2013) added that bullying is any severe or repeated use of written, verbal or electronic expression, or a physical act or gesture or any combination by one or more students directed at another student that has the effect of actually causing or placing the latter in a reasonable fear of physical or emotional harm.

4. Physical Violence. The definition of bullying mentioned, “to willfully and repeatedly hurt other people, either physically or psychically” (Demanet, 2012). Out of the 11 participants, three have expressed their view of bullying to be in the form of physical violence. An example of physical violence that was shared was “nanununtok.” According to Miller (2012), bullying consist of physical violence which is the use of physical force to intentionally inflict pain on another person. Bullying encompasses behaviors that create a hostile, intimidating or offensive environment. Evidences suggest that hostile behaviors are on the rise in bullying occurrences (Mr. H, 2012). As stated by Manuel (2013), bullying can include verbal harassment, physical assault or coercion and may be directed repeatedly towards particular victims. The word insult is mainly referred to by the participants as saying something offensive, as to physical violence, which is the use of physical force to inflict physical pain to someone, is combined into one word as torment. In the context of Webster (2012), torment was defined as an extreme physical or mental pain. On the other hand, Oppression is the excessive use of power or authority over someone and degrading is known to be an act of making someone feel disrespected and of worsen value. These two contexts are combined in one word which is debasement. It is defined as to lower the value or reputation of someone or something: to make someone or something less respected.

Table 2:

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depreciation</td>
<td>Insult, Physical Violence</td>
</tr>
<tr>
<td>Denouncement</td>
<td></td>
</tr>
<tr>
<td>Physical Violence</td>
<td></td>
</tr>
</tbody>
</table>

Depreciation, Denouncement and Physical Violence were the main themes formulated under the bullying experiences. The subthemes that are categorized under the main theme, Depreciation, are as follows: Assault on Persona, Assault on Physical Attributes, and Assault on Ability. No subthemes were classified under Denouncement and Physical Violence.
Based on the transcribed experiences, the statements were divided into five subthemes. Firstly, there were four statements noted to be an assault to the persona which is the person’s way of behaving or talking with other people. This is the image or personality that a person presents to other people. There were seven statements that directly attacked the person’s physical attributes, which are the physical appearance presented to other people. There were five statements that attacked the capacity of the person’s ability, classified as Assault on Abilities. There were three statements that passed judgment on the person, and so we classified it as Judgmental Comments. Lastly, seven statements revealed the use of physical force to inflict pain to the person, which is classified as Physical Violence.

Miller (2012) states that, bullying can also be understood as microaggression, a concept borrowed from the field of critical race theories that focuses on how people of color experience unconscious and conscious affronts throughout the course of daily interactions. Microaggressions are “the everyday verbal, nonverbal, and environmental slights, snubs or insults, whether intentional or unintentional, that communicate hostility, derogatory, or negative messages to target persons based solely upon their marginalized group membership.

The participants of this study enumerated the following experiences:

1. **Assault on Persona.** Persona is defined by Webster (2012) as the way you behave, talk, with other people that causes them to see you as a particular kind of person: the image or personality that a person presents to other people. An example of an experience shared was, “They called me ‘gay.’” Personal frustration could come into play where the cause of frustration might be the individual himself (Estoque, 2006). This particular experience directs to the attack on the persona of a person.

2. **Assault on physical attributes.** According to Estoque (2006), there are several examples of personal frustrations such as low intelligence, physical deformity, a lack of skill or even insecurities which hampers the attainment of a certain objective. This particular experience attacked the physical appearance of the participants. An example of an experience that was shared was, “teasing of my fingers.”

3. **Assault on Ability.** Bullying was defined by Bott (2012) as any behavior that takes advantage of an imbalance of power between the harasser and the target based on size, age, ability, etc. An example of an experience shared by our participant was, “mocking me because of my mistake.” Shallcross (2013) mentioned that college students may be targeted for being too smart while other schools, students may be bullied for being not smart enough.

4. **Denouncement.** Webster (2012) defines this as, to publicly state that someone or something is bad or wrong: to criticize someone harshly and publicly. Three out of 11 participants have expressed that their experience of bullying has involved a form of denouncement. An example of an experience that was shared was, “you are going to have a heart problem and die soon.” According to Miller (2012), this bullying experience includes threats, or rumors that intentionally inflict social cruelty on someone. Estoque (2006) mentioned that this particular instance aims to distort or fal-
5. Physical Violence. As mentioned by Miller (2012), physical violence is the use of physical force to intentionally inflict pain on another person. This include, hitting, kicking, pushing, stealing, sexual misconduct, killing someone. An indirect way of inflicting physical force is by physically moving away from someone as means to be hurtful. Seven out of 11 participants have shared that their experience of bullying has involved a form of physical violence. An example that was shared by one of our participants was, “teacher slapped me in front of class 3 times... on the cheek.” As Demanet (2012) mentioned, “willfully and repeatedly hurts other people, either physically or psychically” is bullying. The pleasure at causing harm to others and dominating non-consenting others in a relationship are both risk factors present for those who move on to larger forms of violence, such as campus shootings (Shallcross, 2013). As mentioned by Manuel (2013), bullying involves a great deal of physical aggression such as shoving and poking, throwing things, slapping, choking, punching and kicking, and beating, stabbing, pulling hair, scratching, biting, scraping, and pinching.

Table 3:

<table>
<thead>
<tr>
<th>Themes</th>
<th>Subthemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Resilience, Self-Awareness,</td>
</tr>
<tr>
<td></td>
<td>Motivation</td>
</tr>
<tr>
<td>Negative</td>
<td>Trauma, Retaliation,</td>
</tr>
<tr>
<td></td>
<td>Avoidance, Suicidal Ideation</td>
</tr>
</tbody>
</table>

Lastly, the main themes formulated under the long term effects of bullying were Positive and Negative. Resilience, Self-Awareness, and Motivation were the subthemes categorized under the main theme, Positive. Whereas, Avoidance, Trauma, Retaliation, and Suicidal Ideation were the subthemes that were categorized under the main theme, Negative.

According to Estoque (2006), emotions principally divided into two parts, the positive emotions and the negative emotions. Since emotion is inevitable in human experience and since emotion affects the physiology of man, its best that one has emotional maturity and is able to control his emotions. Furthermore, there are no firm standards of emotional maturity and controlling emotions such as there are for physical development. Nor are there easy rules to follow in attaining it. Behavior, derived from a combination of reason and emotions, has a mixture of origins. It may originate partly in one’s genetic code, partly in learning, chemistry, and in the values of the society in which one resides.

It has been noted that all of the bullying has occurred during their elementary and high school years. While bullying is still experienced at present, they are able to manage based on their learned response after their previous experience of bullying. The partici-
The participants of this study enumerated the following long-term effects of bullying.

1. **Resilience.** Webster (2012) defines resilience as the ability to become strong, healthy, or successful again after something bad happens. Always take control of the options and changes that are being made. It is better to be a friend than enemy. It is better to make peace than make war. It is better to forgive than to seek retribution or revenge (Estoque, 2006). Of the 11 participants, there were nine respondents that showed resilience. An example of their statement is “bullying can’t change my heart.” Estoque (2006) added some individual run from the source of frustration, others fight while others face the very source of frustration. When a person is well adjusted, a person copes with it in logical and ethical manner ensuring the satisfaction of his needs.

2. **Self-Awareness.** It is defined as the knowledge and awareness of your own personality or character. According to Manuel (2013), victims often make positive statements about themselves or about the resolution of the problem. This is to counteract the negative bullying effects on the bullied. Three responded with an effect of self-awareness. As mentioned by Videbeck (2011), self-awareness is the process by which a person gains recognition of his or her own feelings, beliefs and attitudes. A person must learn to accept these differences among people and view each other as a worthwhile person regardless of that person’s opinions and lifestyle. A person can accomplish self-awareness through reflection, spending time consciously focusing on how one feels and what one values or believes.

3. **Motivation.** It is the process of giving someone a reason for doing something: the condition of being eager to act or work: a force or influence that causes someone to do something. Two responded with a sense of motivation. One of the statements made was, “I want to be more successful.” Motivation can come in different forms. According to Adler (1997), he cited, if they have understanding, encouraging parents, they may compensate for their inferiorities and transform their weakness into strength. He added that the Goldstein’s master motive, in fact, it is the only motive that the organism possesses. What appear to be different drives such as hunger, sex, power, achievement, and curiosity are merely manifestations of the sovereign purpose of life, to actualize oneself.

4. **Avoidance.** Webster (2012) defined it as obsolete, an action of emptying, vacating, or clearing away. An act or practice of withdrawing from something or someone. Out of the 11 participants, three have responded with an act of avoidance. One of the participants shared that “I would just ignore them.” Manuel (2013) mentioned that people who then opt to ignore the abuse or the bullying act. There are a number of reasons why other people prefer not to intervene. Typically, they are worried that they would worsen the situation or risk of becoming the next bullied/victim. According to Estoque (2006), avoid emotion-provoking situations, this pertains to situations where experience, particularly negative emotions dominate the situation.

5. **Trauma.** Webster (2012) defined it as a very difficult or unpleasant experience that causes someone to have mental or emotional problems usually for a long time. Out of the 11 participants, only three have
mentioned an effect of trauma due to their experience. One of the shared experience was “I’m afraid to stand in front of class.” As mentioned by Manuel (2013), they often become shy type, timid and anxious. As a result, their self-esteem declines.

6. Retaliation. It is defined as to do something bad to someone who has hurt you or treated you badly: to get revenge against someone. Aggression is also closely related to this because it is defined as motivated by a desire for a noxious outcome. It is a behavior whose goal is the injury of some person or object (Hoyenga, 1984). Nine out of the 11 participants have responded with an effect of retaliation. One of the shared experience was “I became more aggressive.” Furthermore, aggressive behavior has been related to an aggression motive such as anger or hostility. A distinct aggression motive would represent a need, desire, or drive that could be satisfied only by aggressive behaviors. Estoque (2006) suggested a way to cope with such bullying experience. He mentioned to find substitute outlet. Sigmund Freud has a relative term for this concept, displacement. Though displacement is a form of a defense mechanism, some problems simply have no direct solutions. Thus, the utility of an indirect solution is a better alternative than no solution at all. He added that displacement is the expression of an impulse or emotion that is redirected from a more threatening source to a less threatening source. According to Shallcross (2013), for bullied persons, there can be an anger and resentment present. Victims often become bullies (Johnson, 2012).

7. Suicidal Ideation. This is defined by Webster (2012) as wanting to kill yourself: showing a desire to kill yourself: destructive to one’s own interests. Four have expressed suicidal ideation. An example of the statements made was, “Relapses… every now and then I just want to end it all. I actually have plans on how to do it. It is more of a back-up plan.” According to Shallcross (2013), not every student bullied will become suicidal, but that can be an ultimate choice and there is no second chance. As mentioned by Estoque (2006), introjection is known as internalization. This refers to the incorporation of external standard or values into the ego or self-structure in a way that an individual is not affected by external factors. This defense mechanism is very closely related to the ideation of committing a suicide of a person.

IV. DISCUSSION

Based on the results of the study, the following conclusions may be drawn:

1. Bullying is defined by the participants as an act to insult, oppress, degrade and inflict physical violence to an individual repeatedly overtime.

2. Bullying experience are predominantly composed of assault on persona, assault on physical attributes, and assault on ability, denouncement and physical violence.

3. Long-Term effects of bullying are divided into two main themes: Positive and Negative. Resilience, Self-awareness, Motivation, and Indifference fall under the Positive effects of bullying, while Trauma, Retaliation, Avoidance, and Suicidal Ideation are categorized under the Negative effects of bullying.

Considering the statements given by the participants of the study and the findings of this study, the researchers concluded that:
Experiences of College Students on Bullying

1. The definitions that come into the minds of the participants are composed of insult, oppression, degradation, and physical violence.

2. The episodes that were experienced by the participants were assault on persona, assault on physical attributes, and assault on ability, denouncement and physical violence.

3. The Long-term effects of bullying on our participants were Resilience, Self-awareness, Motivation, Avoidance, Indifference, Trauma, Retaliation and Suicidal Ideation.

After meticulous study and analysis of the participants’ statements and with the psychologist’s professional opinion, the researchers recommend that to overcome the negative effects in their present behavior, counseling and stress debriefing be made available or be done as needed especially certain participants that have been identified and endorsed to need urgent attention due to suicidal ideation which is a prolonged effect. Furthermore, we strongly encourage that the participants be informed that there is help available for them and that they are entitled to take that opportunity.

Since the study revealed that bullying is represented in several different types, the researchers recommend that teaching with complete awareness of the actions and gestures shown to students be exercised at all times to promote a more harmonious environment for learning. This will minimize if not eliminate the occurrence of bullying in the classroom and clinical setting. To the academe, we recommend that they should conduct special programs to be able to identify the students which had a bullying experience in the past and be able to address the negative effects brought about by such incidents. To the nursing practice, we recommend them to shed awareness to the nursing population to be able to intercept the factors that could lead to the spread of this social problem and come up with a solution the problems in existence.

Further research should be done regarding the topic to help improve the relationship of teachers, clinical instructors, and students among themselves. We recommend for the future researchers to conduct a Quantitative Study based on our research. Furthermore, to look into having a study of the perspective of the Bully and not from the victim.

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Experiences of College Students on Bullying

downs: http://www.makebeatsnotbeatdowns.org/facts_new.html


Development of a Healthy, Nutritious, and Delicious Tiesa (Pouteria campechiana) Polvoron

Doreena Jean M. Padilla, Olivia I. Saddul, Gladys Mae R. Laborde, Maribel C. Balagtas & Lorcelie B. Taclan

Abstract

Canistel fruit also known as tiesa, has a scientific name Pouteria campechiana, is a yellow-colored tropical fruit but unlike other fruits, it is not juicy and sweet. The development of tiesa into polvoron was the main purpose of this study. Tiesa fruit was dehydrated and ground. Results showed that ground dehydrated tiesa fruit has a dark orange color and gritty texture. This was added to the classic recipe for polvoron. Three trials were conducted to standardize the procedure and ingredients. The developed tiesa polvoron is a low fat, sweet delicacy. It is a good source of calcium, phosphorus, and vitamin C. It has more fiber, niacin, and vitamin A compared to the classic polvoron. This research also determined the acceptability of tiesa polvoron in terms of appearance, aroma, flavor, and texture. The respondents of the study were 60 grade two students of Puting Kahoy Elementary School who were selected through purposive sampling. The respondents evaluated tiesa polvoron using a modified sensory evaluation form based on seven point facial hedonic scales. Frequencies and percentages were analyzed using Microsoft Excel. The study revealed that tiesa polvoron were liked very much in all the criteria. These results led to the conclusion that tiesa polvoron is healthy, nutritious, and delicious.

Keywords: Pouteria campechiana, healthy, nutritious

I. INTRODUCTION

Canistel fruit (tiesa) is an indigenous fruit with high nutritive value. It is an excellent source of carotene (provitamin A) which is needed for healthy eyesight. It also has fair levels of carbohydrates, niacin, ascorbic acid, iron, protein, calcium, phosphorus, thiamin, and riboflavin (Balerdi, 2014).

On the other hand, many people, especially children do not like to eat tiesa. Some do not like its appearance while others do not like its taste and texture. For this reason, many disregard this fruit. This is the reason for its cheap price in the market.

The Philippines is blessed with this indigenous fruit which, if processed and sold can be a source of income for the family or even a profitable commodity for business and industry.
Polvoron is a popular delicacy in many Philippine households. It is one of the Filipino favorite snack or dessert. It is powdery and sweet made from a mixture of toasted flour, powdered milk, sugar, and melted butter. Other ingredients like pinipig or chopped nuts may be added.

This study was conducted to enhance the sensory characteristics of tiesa from a neglected fruit to a mouthwatering delicacy. Specifically, this study aimed to establish a standardized recipe for tiesa polvoron; to determine the nutritional content of tiesa polvoron; to calculate the selling price of tiesa polvoron; and to conduct a sensory evaluation in terms of appearance, aroma, flavor, and texture of tiesa polvoron.

II. METHODS

I. Materials

Equipment.
- Freezer: used to keep the shape and firmness of polvoron.
- Grinder: used to reduce the size of dehydrated tiesa.
- Multi Commodity used as a heat Pump Dryer (MCHPD): to remove the moisture content of tiesa. This help lengthen the shelf life.
- Stove: used to provide heat for cooking.

Utensils.
- Cellophane: used to wrap the polvoron
- Covered container: used in freezing the tiesa polvoron
- Measuring cups: used in measuring the flour, sugar and butter
- Mixing bowl: used as a container in combining all the ingredients
- Polvoron molder: used to shape the polvoron mixture
- Scraper: used to remove the excess ingredients in the molder to make the sizes equal
- Sifter: used to separate and remove the large pieces of tiesa grounds
- Skillet: used to toast and melt the ingredients
- Spoon: used for pressing the polvoron ingredients in the molder
- Weighing scale: used for measuring the ingredients by mass or weight
- Whisk: used to mix all the ingredients in the mixing bowl
- Wooden spoon: used in mixing the ingredients during cooking

Ingredients.
- Tiesa grounds
- All-purpose flour
- Powdered full cream milk
- Sugar
- Butter

II. Procedure

Figure 1 shows the development process of tiesa polvoron.

Preparation of tiesa. Tiesa was obtained at the market. Some were also collected from the neighborhood where the fruit usually fell off the trees but disregarded by many. The fruit was washed, peeled and cut into 3mm thickness before dehydration.

Dehydration and grinding process. The dehydration was done using the Multi Commodity Heat Pump Dryer
Development of a Healthy, Nutritious, and Delicious Tiesa (Pouteria campechiana) Polvoron (MCHPD). This drying condition ensures that the original nutritional properties of tiesa were retained after 24 hours of dehydration. Grinder was used to reduce the size of dehydrated tiesa. After grinding, tiesa grounds were produced. The tiesa grounds is not powder-like rather it is raisin-like creating a chewy texture.

**Determine product specification.** Tiesa polvoron is a yellow and sweet delicacy. The shape is round or any other desired shape depending on the availability of the molder. It can be wrapped in colorful cellophane like the classic Filipino polvoron. It also has a chewy texture due to the presence of fruit grounds. The aroma is inviting that complements its sweet and milky taste. Tiesa polvoron is packed with essential nutrients for the body.

**Determine the ingredients and procedure.** The classic Filipino recipe for polvoron was modified by incorporating tiesa grounds to produce tiesa flavored polvoron. Tiesa grounds were used as the main ingredient of polvoron. Skimmed milk, sugar, and butter were added to come up with a tasty and nutritious polvoron.

Three experimental trials were done before recipe standardization to determine the best proportion of ingredients.

**Figure 1: Process Flow of Tiesa Polvoron**

First experiment. Table 1 shows the ingredients and the quantity of each ingredient for the first experiment. The purpose of the first experiment was to determine if tiesa polvoron is acceptable even without flour. The tiesa grounds were roasted in low fire for three minutes. In a mixing bowl roasted tiesa grounds, milk, and sugar were combined. Butter was melted in low fire and put into the dry mixture. The mixture was shaped using polvoron molder. The finished product was placed in the freezer for 15 minutes.

**Table 1:**
Recipe for the first experiment of tiesa polvoron

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Household Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiesa grounds</td>
<td>½ cup</td>
</tr>
<tr>
<td>Powdered Whole Milk</td>
<td>½ cup</td>
</tr>
<tr>
<td>White Sugar</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Butter</td>
<td>2 tablespoons</td>
</tr>
</tbody>
</table>

Second experiment. Table 2 presents the ingredients and the measurement of each ingredient for the second experiment. The purpose of the second experiment was to compare the acceptability of polvoron with all-purpose flour and without all-purpose flour made in the first experiment.

In the second experiment flour was added. In addition, skimmed milk and brown sugar were used instead of whole milk and white sugar to make it healthier. There were little changes in the procedure used in the first experiment. The tiesa grounds were roasted in low fire for three minutes. In addition, all-purpose flour was heated for two minutes separately. In a mixing bowl roasted tiesa grounds, milk, and sugar were combined. The butter was heated in low fire and combined with the dry ingredients. After mixing well the mixture was shaped using polvoron molder. The finished product was placed in the freezer for 15 minutes.

Recipe for the second experiment of tiesa polvoron

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Household Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiesa Grounds</td>
<td>½ cup</td>
</tr>
<tr>
<td>All Purpose Flour</td>
<td>½ cup</td>
</tr>
<tr>
<td>Powdered Skimmed Milk</td>
<td>½ cup</td>
</tr>
<tr>
<td>Brown Sugar</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Butter</td>
<td>2 tablespoons</td>
</tr>
</tbody>
</table>

Third experiment. Table 3 shows the ingredients and the measurement of each ingredient for the third experiment. The purpose of the third experiment was to compare the acceptability of tiesa polvoron with the ratios of 3:1 and 1:1 (tiesa grounds: all-purpose flour).

Recipe for the third experiment of tiesa polvoron

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Household Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiesa Grounds</td>
<td>¾ cup</td>
</tr>
<tr>
<td>All Purpose Flour</td>
<td>¼ cup</td>
</tr>
<tr>
<td>Powdered Skimmed Milk</td>
<td>½ cup</td>
</tr>
<tr>
<td>Brown Sugar</td>
<td>¼ cup</td>
</tr>
</tbody>
</table>
Butter 2 tablespoons

Determine the acceptability of the product. The produced polvoron in each trial were evaluated by fourth year nutrition and dietetics students and faculty. On the third trial, in addition to the usual evaluators, graduate students of Doctor of Public Health evaluated the product. The evaluators answered the sensory evaluation form and gave their comments and suggestions to improve the product in terms of appearance, aroma, flavor, and texture.

Standardize the product. In generating a standardized product that ensures the quality and quantity production of tisa polvoron, the researchers did another three trials using the recipe on the third experiment. The same ingredients, measurements, utensils, and equipment were used for the three trials. In addition, the same procedure was applied for the three trials. The purpose of recipe standardization is to produce tisa polvoron with the same taste, color, texture, and aroma on different trials. Accuracy in measurements and specification of ingredients, materials, and procedure were observed.

Colored cellophane which is commonly used in the polvoron products was adopted in this study because these materials are proven and tested as an effective packaging material for polvoron products.

**Determine the nutritional value.** Food Composition Table (FCT; 1997) and Microsoft Excel 2013 were used in determining the nutrient content of tisa polvoron. Edible portion (EP) weights of each ingredient were also determined. The nutrient content was calculated using the following formula:

\[(\text{FCT Value} ÷ 100) \times \text{EP wt. (g)}\]

Nutrient adequacy ratio was also computed based on the recommended energy nutrient intake (RENI) and diet prescription for 7-9 years old. The formula used to determine the adequacy was:

\[(\text{Nutritional Content} ÷ \text{RENI}) \times 100\]

**Determine the selling price.** Selling price (SP) was determined using the factor method. Food cost was 40%, thus the mark-up used was 2.5 The formula for computing the retailed price is:

\[(\text{Total Cost ÷ Yield}) \times \text{Mark-up} = \text{SP}\]

**Evaluation of the product.** Purposive sampling was employed in the selection of the respondents of this study. Purposive sampling is based on selecting the individuals as samples according to the purposes of the researchers as the controls (Calmorin et al., 2007). The chosen respondents were 60 grade two students from Puting Kahoy Elementary School. Target group were children because they usually ignore tisa fruit. The respon-
Dents evaluated tiesa polvoron using a modified sensory evaluation form based on seven point facial hedonic scales. The students were instructed to evaluate the acceptability of tiesa polvoron in terms of appearance, aroma, flavor, and texture by checking the facial hedonic scales as a reflection of their feelings for the product during the evaluation.

III. RESULTS AND DISCUSSION

The results presented include the standardized recipe for tiesa polvoron, nutritional value, selling price, and acceptability in terms of appearance, aroma, flavor, and texture.

I. Standardized recipe

Three experiments were done to determine the ingredients and procedures needed to create tiesa polvoron based on its determined specification. In addition, three trials were conducted to determine the exact measurements of the ingredients, equipment, utensils and procedures needed to come up with a uniform quality and quantity. The recipe standardization is useful for recipe enlargement.

According to the evaluators, the appearance of the product in the first experiment was acceptable; however, most evaluators dislike the consistency and taste. The texture of the tiesa grounds that made it difficult to chew was the main reason for unacceptable product.

On the second experiment, most of the evaluators liked the polvoron with all-purpose flour more than without all-purpose flour in terms of appearance, aroma, flavor and texture.

On the third experiment, most of the evaluators choose the 3:1 ratio of tiesa grounds and all-purpose flour in terms of appearance, texture, and taste on the third experiment.

The recipe created on the third experiment was used in standardized recipe trials. Table 4 shows the standardized recipe of tiesa polvoron. The yield of the recipe is 24 pieces. The polvoron contains 20g mixture per piece. It can be done for 30 minutes.

These are the procedures in making tiesa polvoron:
- Measure all the ingredients.
- Slightly roast the tiesa grounds and all-purpose flour separately for three minutes in low fire.
- Combine all the dry ingredients in the mixing bowl.
- Melt the butter and put the melted butter in to the dry mixture.
- Press the molder in the polvoron mixture.
- On a plate, push the ejector handle to release the molded polvoron.
- Place it in a container and freeze.
for 15 minutes.

Table 4:

*Standardized recipe of tiesa polvoron*

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>HH Meas.</th>
<th>EP wt.(g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiesa Grounds</td>
<td>¾ cup</td>
<td>180</td>
</tr>
<tr>
<td>All Purpose Flour</td>
<td>¼ cup</td>
<td>60</td>
</tr>
<tr>
<td>Powdered Skimmed Milk</td>
<td>½ cup</td>
<td>120</td>
</tr>
<tr>
<td>Brown Sugar</td>
<td>¼ cup</td>
<td>60</td>
</tr>
<tr>
<td>Butter</td>
<td>2 T</td>
<td>30</td>
</tr>
</tbody>
</table>

II. Nutritional value

Table 5 presents the nutritional content of tiesa polvoron per piece. It also shows recommendation for each nutrient based on the Recommended Energy Nutrient Intake (RENI), and diet prescription of children ages 7-9 years old.

Tiesa polvoron is energy-providing food, where one piece (20g) of polvoron provides 60 kcal. Carbohydrate is the main energy provider; it has 9.6 g (38kcal) per piece while fat provided the least, with only 1.2 g (11 kcal) per piece.

Table 5:

*Nutritional content and nutrient adequacy ratio of one piece(20g) tiesa polvoron*

<table>
<thead>
<tr>
<th>Nutrients</th>
<th>Nutrient Content</th>
<th>RENI/Diet Rx</th>
<th>NAR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kcal)</td>
<td>60.00</td>
<td>1600.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>2.50</td>
<td>43.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>1.20</td>
<td>47.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>9.60</td>
<td>249.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Dietary Fiber (g)</td>
<td>0.70</td>
<td>25.0</td>
<td>2.8</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>76.00</td>
<td>700.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Phosphorus (mg)</td>
<td>50.00</td>
<td>500.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>0.50</td>
<td>11.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Vitamin A (µg RE)</td>
<td>22.00</td>
<td>400.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Thiamin (mg)</td>
<td>0.03</td>
<td>0.70</td>
<td>4.36</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>0.05</td>
<td>0.70</td>
<td>7.14</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>0.08</td>
<td>9.00</td>
<td>0.89</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>4.00</td>
<td>35.00</td>
<td>11.00</td>
</tr>
</tbody>
</table>

Table 5 also presents the nutrient adequacy ratio (NAR) expressed in percentage. It is based on 7-9 years old nutrient requirements.

Results show that one piece of tiesa polvoron provides a variety of nutrients. A food product with ≥10% of RENI is a good source of nutrients based on the guidelines for use of nutrition and health claims from Codex International Food Standards (2013). This criteria shows that tiesa polvoron is a good source of calcium, phosphorus, and vitamin C.
The amount of other nutrients, however, provided in one serving of tiesa polvoron was not adequate to declare that tiesa polvoron is a good source of these nutrients. On the other hand, tiesa polvoron is low in fat as its fat content is \( \leq 3 \) g per portion or reference amount customarily consumed (RACC) as stated in Codex International Food Standards (2013). The developed tiesa polvoron has lower fat content than the usual polvoron because of the replacement of whole milk to skimmed milk.

In addition it is a source of fiber. It contains 0.7g fiber per portion (20g) or 3.5 g per 100g. Codex International Food Standards (2013) stated that products containing 3 g of fiber per 100g of food can claim that it is a source of dietary fiber.

### III. Selling price

Table 6 indicates the computation for the food cost of the product. Possible retail price of each polvoron is presented after table 6.

**Table 6:**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>EP wt. (g)</th>
<th>Unit Price per gram</th>
<th>Total Php.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiesa grounds</td>
<td>180</td>
<td>0.120</td>
<td>21.6</td>
</tr>
<tr>
<td>Flour</td>
<td>60</td>
<td>0.052</td>
<td>3.12</td>
</tr>
<tr>
<td>Milk</td>
<td>120</td>
<td>0.284</td>
<td>34.08</td>
</tr>
<tr>
<td>Sugar</td>
<td>60</td>
<td>0.06</td>
<td>3.6</td>
</tr>
<tr>
<td>Butter</td>
<td>30</td>
<td>0.3</td>
<td>9</td>
</tr>
</tbody>
</table>

**TOTAL PRICE** 71.40

\[
(71.40 \div 24) = 2.98 \text{ Food cost} \\
1.98 \times 2.5 = 7.45 \text{ Selling price}
\]

Based on the costing, the total food cost to make 24 pieces of polvoron is Php. 71.40. Thus, the food cost for each polvoron is Php. 2.98, and the selling price per piece is Php. 7.45. The mark-up used was 2.5. This included the utility fee, packaging material and mark-up for man power.

The usual price of polvoron is ten pesos per piece, thus, the price of tiesa polvoron is a reasonable price.

### III. Sensory evaluation

The chosen respondents were students from the grade two level (children ages 7 – 9 years old) at Puting Kahoy Elementary School. Sixty pupils were given a chance to taste and evaluate the tiesa polvoron.

Figure 2 illustrates preference rating from evaluators regarding the sensory attributes of tiesa polvoron in terms of appearance, aroma, flavor, and texture.

Most of the students (85%) like very much the appearance and combination of white and orange color of the tiesa polvoron. Only one student (2%) like it slightly.
Results also show that 50 (83%) students indicated that they like very much the taste of tiesa polvoron, while 6 (10%) like it moderately and only 4 (7%) neither like nor dislike the tiesa polvoron.

Sensory evaluation on texture shows that 50 (83%) students liked very much the texture or the mouth feel of tiesa polvoron. On the other hand, 3 (5%) students dislike the texture very much.

Results indicate that 51 (85%) students liked very much the aroma of the tiesa polvoron and only 3 (5%) dislike moderately the aroma.

The results reveal that majority of the students like very much the tiesa polvoron in terms of appearance, aroma, flavor, and texture. Thus, tiesa polvoron is acceptable among the grade 2 elementary students.

**Figure 2.** Preference ratings on each sensory attributes of tiesa polvoron

**IV. CONCLUSION**

Overall, the development of polvoron with tiesa as the main ingredient is possible. The development of tiesa polvoron changed the sensory attributes of tiesa from an undesired fruit to a mouthwatering delicacy. This polvoron is considered as healthy snack and dessert because it is low in fat but a source of dietary fiber. It is also a good source of minerals such as calcium and phosphorus; and vitamins such as vitamin C. The tiesa polvoron was acceptable among grade 2 elementary students in all sensory attributes evaluated, with appearance and aroma to be the most preferred attributes. Tiesa polvoron can be sold at a reasonable price of P7.45 per piece.

The development of tiesa polvoron contributes to the wide range of polvoron choices. It gives not just a sweet treat but a healthy and nutritious flavored polvoron.
REFERENCES


EFFECTS OF 24-HOUR FASTING ON THE IN VITRO PHAGOCYTIC ACTIVITY OF NEUTROPHILS

Alain Justin Berbano, Richardson Delas Alas, David Hendrik Putra Palar, Ma. Estrella H. Sales, RMT

Abstract

The ability of the immune system to effectively protect the body from infection depends on various factors, one of which is proper diet. Fasting, the practice of withholding food for a period of time has been practiced all over the world mainly as part of a religious ritual. The main emphasis of this study is to elucidate the effects of fasting on the human innate immunity. This research aims to investigate whether fasting would cause a significant change in the neutrophilic phagocytic activity during a 24-hour religious fast. The study was performed on 20 healthy students who fasted for 24-hours. Blood samples were collected before and after the fasting period and analyzed for white blood cell count and phagocytic activity. The paired T-Test comparing before and after fasting values, showed that there is a significant increase in all of the measured parameters for phagocytosis constituting an average of 54.24% increase on the overall activity of neutrophils after the fasting period. Statistical analyses provided no evidence that the change in white blood cell count is related to the phagocytic activity which leads to the conclusion that an increase in phagocytic index is associated with enhanced function rather than the decrease of number of leukocytes.

I. INTRODUCTION

Ancient cultures, according to the World Research Foundation, believed fasting - a partial or total abstention from all foods, or a select abstention from prohibited foods - could purify the soul. A growing number of practitioners of a type of alternative therapy called metabolic therapy as studied by Chiu, Bianchi, Franchi-Gazzola & Bussolati in 2012 believe that the body has environmental toxins and other harmful substances that can be removed by fasting or detoxifying the body.
They claim that fasting allows the body to focus energy on cleansing and healing itself. According to these practitioners, fasting helps the immune system work more efficiently, allowing more oxygen and white blood cells to flow through the body, help the body burn more fat, help increase energy, and allows other healing functions to improve. A study by the University of Berlin (2013) on new therapeutic approach to fight cancer revealed similar results.

However, fasting is not only practiced for health reasons. Almost all major religions of the world have a form of fasting incorporated in their beliefs (Brown & Mussett, 1984). While religious fast is partaken primarily for spiritual purposes, it also has the potential to greatly affect one's physical health (Desai, 2000). Accordingly, the health effects of religious fasting have recently been the subject of scientific inquiry, with most of the research being performed measuring health parameters during Ramadan, a time period in which Muslim pilgrims subject themselves to a partial fast wherein meals are only taken at the start and the end of a day thereby inducing a fast lasting for an average of 12 hours/day for 40 days (Latifynia, Vojgani, Ghargozlou & Sharifian, 2009).

A cross sectional study by Khazaei, Bokaean & Jalili in 2013 involving 90 athletes during the month of Ramadan showed a positive increase of C4 and IgA levels among the participants. The increase in C4 and IgA demonstrated protective effects on an individual’s immune system against infection. In another study by Hiramoto et. al. in 2008, it has also been observed that a nutritional stress of a 36-hour fast increased the number of neutrophils in the peripheral blood in both the elderly and young adult subjects.

A study conducted by Chia Wei et al. (2014) on the effects of prolonged fasting (48 – 120 hours of fasting) on the immune system of mice that were administered with chemotherapeutic drugs. The study showed that cycles of prolonged fasting protected hematopoietic cells from chemotoxicity and induced immune system regeneration, shifting stem cells from a dormant state to a state of self-renewal to reverse immunosuppression. Prolonged fasting also lowered levels of IGF-1, a growth-factor hormone that Longo and others have linked to aging, tumor progression and cancer risk.

Measurement of neutrophil parameters is an area of interest in immunology because neutrophils play a critical role in host defense. Neutrophils constitute an organism’s first line of defense against external aggression and represent one of the key nonspecific host defense cell populations responsible for the phagocytosis of many microbial, bacterial, fungal and viral pathogens. (Stevens, 2010) Phagocytosis is defined as the ingestion of particles by cells, and this process involves the binding of (opsonized) particles to the surface of phagocytic cells, followed by the internalization and destruction of these particles. The killing and microbicidal functions of neutrophils are facilitated by the metabolic pathways involving the activation of NADPH oxidase system and the myeloperoxidase (MPO). (Todar, 2008)

Neutrophils are also known to be involved in the synthesis and release of immunomodulatory cytokines that influence both T cell and B cell activities. (Pyne, 1994)
Like every other cellular function, phagocytosis is an energy requiring mechanism that is inhibited by an inadequate supply of glucose (Segal, 2005). However, it has also been noted that excessive glucose in the blood may also decrease phagocytic activity (Van Oss, 1971). This phenomenon can be observed in patients with poorly managed cases of diabetes mellitus. DM patients are characterized by elevated blood glucose levels and lowered resistance to infection. Diabetes mellitus patients present physiological impairments, including diminished immunological function and inflammatory responses (chemotaxis, phagocytosis and killing), leading to higher susceptibility to bacterial and fungal infections. (Hotamisligil, 2006) Studies done by Wilson & Reeves in 1986, Alba-Loureiro et al in 2006 & Kempf et. al in 2007 have suggested that a possible cause of these weaker immune responses is neutrophil dysfunction caused by hyperglycemia. Similar findings have been observed in obese animal models. (Nabi, Islam, Rahman & Biswas, 2005; Slavov, Dzhelebov, Andonova & Girginov, 2009 & De Sourza Ferreira, 2012)

Since most of the study centers on the effects of prolonged fasting on the immune system, this study explored the effects of 24-hour fasting on one of the major functions of human innate immunity – neutrophil phagocytosis.

II. MATERIALS AND METHOD

Sampling

This study was approved by the Department of Medical Laboratory Science of the Adventist University of the Philippines (AUP), and written informed consent was obtained from all subjects before the beginning of the study. The group of subjects included in this study consisted of 20 healthy AUP college students (5 females and 15 males). The selected group was ideal in this study for two reasons. (1) All of the subjects are Christians with the majority being Seventh-day Adventists and were committed to observing a religious fast during the testing period. This enabled the research to obtain results from this event. (2) Since all the participants are students enrolled in AUP and residing in the dormitories, it can be considered that the similarities in their demographics like diet, levels of stress, physical exertion may have limited possible confounding factors.

Phagocytic Index Evaluation

Blood samples from the subjects were collected 2-hour postprandial for the non-fasting state, and a 24-hour fasting blood specimen for the fasting state. Each subject served as his own control and the 2-hour post prandial value was the control for each subject. Blood samples were collected in heparin tubes for the phagocytic assay, and EDTA tubes for complete blood count (CBC).

A sample of 0.9 ml freshly drawn heparinized blood was mixed in siliconized tubes and stoppers with 0.1 ml of the opsonized bacterial suspension of Staphylococcus aureus. This was rotated mechanically end to end at 37oC for 30 minutes. Blood smears were prepared on glass slides. (Latifynia et. al, 2000 and Heit, B, 2001) Prepared blood smears from the patients were stained with Wright stain. Cells were counted under oil-immersion, and 40 cells were counted to obtain a reliable result.
Effects of 24-Hour Fasting on the In Vitro Phagocytic Activity of Neutrophils

Blood smears were also prepared from the heparinized blood samples prior to bacterial inoculation to serve as ‘check slides’.

These slides were viewed to inspect for presence of toxic granulations. The Phagocytic Index was recorded as the mean number of bacteria in the first 40 neutrophils viewed under the microscope while the Phagocytic Percentage is the percentage of PMNs that has participated in ingestion of more than three staphylococci. Phagocytic Activity, which serves as the overall picture of Neutrophilic Phagocytosis, is then computed by finding the product of Phagocytic Index and Phagocytic Percentage. Parameters for phagocytosis are explained by the following formulas. (Hellum, 1977)

Phagocytic percent
\[ \text{Phagocytic percent} = \frac{\text{No. of phagocytic Neutrophils}}{\text{Total No. of Neutrophils Observed}} \]

*phagocytic Neutrophils = PMNs that phagocytized at least three staphylococci

Phagocytic Index
\[ \text{Phagocytic Index} = \frac{\text{No. of Staphylococci in Phagocytic Neutrophils}}{\text{Total No. of Neutrophils Observed}} \]

Phagocytic Activity
\[ \text{Phagocytic Activity} = \text{Phagocytic \%} \times \text{Phagocytic Index} \]

This procedure for Phagocytic Activity has been reviewed and evaluated by UERM’s chief pathologist, Dr. Araceli P. Jacoba, MD, FPSP.

Preparation of Bacterial Suspension

*Staphylococcus aureus* pure culture was purchased in UP Diliman Department of Microbiology, subcultured at 37°C in Blood Agar Plate and harvested during exponential growth. A 1:10 ratio of pooled Serum to Bacterial suspension was prepared and incubated for 30 min at 37°C under continuous agitation to opsonize the bacteria with antibodies from the serum sample.

The “coated” bacteria was centrifuged and resuspended in NSS. It was then washed three times with NSS and suspended in Hanks balanced salt solution (HBSS) and adjusted to a final bacterial concentration of 18% transmittance at a wavelength of 420 nm. (Ordeonez et al., 2008)

Medium

Hanks balanced salt solution containing 7g of NaCl, 350 mg of NaHCO3, 350 mg of KCl, 200 mg of MgSO4 * 7H2O, 55 mg of Na2HP04 * 2H2O, and 55 mg of KH2PO3 per liter without addition of the usual amount (0.09 %) of glucose at pH 7.4.

Complete Blood Counts

Complete Blood Count was determined using Horiba Pentra XLR hematology analyzer that utilizes Double Hydrodynamic Sequential System Principle.

III. RESULTS

The study population, aged 19–27 years old, consisted of 15 male and 5 female college students from AUP. Twenty-six people volunteered for the study but due to various limitations and circumstances (including the lack of transportation, volunteers with CBC parameters outside the normal range and volunteers that prematurely broke their fast) some blood samples were considered unsuitable, leaving only 20 volunteers eligible for study. For statistical analyses, a paired t-test was used to compare the phagocytic index, phagocytic percent and phagocytic activity.
Effects of 24-Hour Fasting on the Vitro Phagocytic Activity of Neutrophils

between the samples collected and processed before and after fasting. Statistically significant changes were seen both in phagocytic index: \( t = 4.371, p<0.05 \) and phagocytic percent: \( t = 4.539, (p<0.05) \) as displayed in Table 1. The mean phagocytic index before fasting was 6.12±0.90 and 8.16±1.70, \( (p<0.05) \) after the fasting period. Additionally, the mean phagocytic percent was 78%±6% and 87%±5% \( (p<0.000) \) before and after fasting, respectively.

Table 1
Descriptive Statistics and T-test Results for Phagocytic Index and Phagocytic Percentage

<table>
<thead>
<tr>
<th></th>
<th>Before Fasting</th>
<th>After Fasting</th>
<th>95% CI for Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Phagocytic Index</td>
<td>6.12</td>
<td>0.90</td>
<td>8.16</td>
</tr>
<tr>
<td></td>
<td>1.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phagocytic percent</td>
<td>0.78</td>
<td>0.06</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\* p < .05.

Since both Phagocytic Index and Phagocytic Percentage have shown significant increase after the fasting period, it naturally followed that Phagocytic activity, the computed value derived from the product of both of the fore-mentioned parameters, was also shown to have significantly increased at the end of the 24-hour fasting period.

Results in Table 2 show a statistically significant difference in mean phagocytic activity before and after fasting. Mean Phagocytic activity was reported to be 4.80±0.89 and 7.08±1.66 before and after fasting, respectively \( (p<0.05) \). This constitutes an average of 54.24% increase on the overall activity of Neutrophils after the fasting period.

Table 2
Results of T-test and Descriptive Statistics for Fasting and Phagocytic Activity

<table>
<thead>
<tr>
<th></th>
<th>Before Fasting</th>
<th>After Fasting</th>
<th>95% CI for Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Phagocytic Activity</td>
<td>4.80</td>
<td>0.89</td>
<td>7.08</td>
</tr>
</tbody>
</table>

\* p < .05.

A Pearson product-moment correlation coefficient (PPMCC) was computed to assess the relationship between the change in WBC Count and the change in Phagocytic Activity. Results in Table 3 show that change in WBC is not correlated with change in
Phagocytic Activity, \( r (20) = -0.352, p = 0.128. \)

Table 3

*Correlation of Changes in WBC Count and Phagocytic Activity*

<table>
<thead>
<tr>
<th>Change in WBC Count</th>
<th>( r )</th>
<th>Sig</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.352</td>
<td>.128</td>
<td>NS</td>
<td></td>
</tr>
</tbody>
</table>

Statistical analyses in Table 3 provided no evidence that the number of WBCs is related to the phagocytic activity. This would lead to the conclusion that an increase in phagocytic index is associated with enhanced function rather than the decrease of number of leukocytes.

Figure 1 illustrates the percent increase in all of the parameters for phagocytosis. It can be noted that the increase in Phagocytic Activity was principally due to the increase in the Phagocytic Index rather than the Increase in the Phagocytic Percentage.

*Figure 1.* Bar graph showing the percent increase in parameters on phagocytosis before and after fasting period.

Figure 2.1 shows scatter plots that graphically illustrate a strong positive correlation between phagocytic index and phagocytic activity while Figure 2.2 illustrates a weak positive correlation between the phagocytic percentage and phagocytic activity. This further supports that the change in phagocytic activity is mainly due to the phagocytic index rather than the phagocytic percentage.

*Figure 2.1* Scatter plots representing before and after fasting values of phagocytic index (y
axis) versus phagocytic activity (x axis).

![Scatter plots representing before and after fasting values of phagocytic percentage (y axis) versus phagocytic activity (x axis).](image)

**Figure 2.2** Scatter plots representing before and after fasting values of phagocytic percentage (y axis) versus phagocytic activity (x axis).

Table 4 shows the summary of Complete Blood Count values of all participants. These values were within the laboratory normal range for both male and females during each of the time periods in which blood was drawn. Furthermore, it also exhibits significant trends in CBC parameters following the 24-hour fasting period.

Analysis of subjects’ CBC showed that Total WBC count, RBC, Hemoglobin and Hematocrit were significantly increased at 0.05 significance level. Percentage and absolute counts of Neutrophils were also increased at the end of the fasting period while Lymphocyte, Monocyte and Eosinophil percentages and absolute counts have all significantly decreased. Other statistical results did not have significant differences.

Table 4

<table>
<thead>
<tr>
<th></th>
<th>Before Fasting</th>
<th>After Fasting</th>
<th>Sig CI for Mean Difference 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>RBC</td>
<td>5.04</td>
<td>0.37</td>
<td>5.20</td>
</tr>
<tr>
<td></td>
<td>HGB</td>
<td>14.75</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>HCT</td>
<td>44.41</td>
<td>3.99</td>
</tr>
<tr>
<td></td>
<td>MCV</td>
<td>88.16</td>
<td>5.49</td>
</tr>
<tr>
<td></td>
<td>MCH</td>
<td>28.78</td>
<td>2.13</td>
</tr>
<tr>
<td></td>
<td>RDW</td>
<td>12.35</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>PLT</td>
<td>351.05</td>
<td>53.64</td>
</tr>
<tr>
<td></td>
<td>MPV</td>
<td>8.0</td>
<td>0.49</td>
</tr>
</tbody>
</table>
### IV. DISCUSSION

The innate immune system, which includes phagocytic cells, forms the first line of defense against microbial disease, especially extracellular pathogens. Neutrophils or polymorphonuclear cells (PMN) function as phagocyte by following chemotactic cues to locate sites of inflammation or infection and removing the injurious agent through engulfment & digestion. The role of neutrophils as primary responders during bacterial infection is crucial. It slows the spread of infection and allows the immune cells to mount a more specific response towards the pathogen. (Czerkinsky & Holmgren, 2005)

In this study, the function of neutrophils was evaluated based on three parameters: the phagocytic percentage, which shows how many of the observed neutrophils are able to undergo phagocytosis; phagocytic index which reflects the ability of neutrophils to engulf bacteria and phagocytic activity which determines the overall function of the neutrophils. Results showed a significant increase in all three parameters after a 24-hour fast. The significant increase in Phagocytic Activity following the 24-hour fasting period establishes that there is a relationship between a 24-hour fast and Neutrophilic Phagocytic Activity. Increase in these parameters may have protective effects on the responses to infection and other pathogenicity.

The above results for index of and percent phagocytosis, for example, demonstrate that roughly 480 staphylococcus would be phagocytised by 100 PMNs before fasting, while after fasting, this number would reach 708. Therefore, it seems that after fasting, the immune system may respond more actively to infection (by gram positive bacteria, for example) than before fasting.

Since a significant increase in WBC count was observed before and after fasting, PPCMC was performed to establish that the increase in WBC was not the cause of the increase in phagocytic activity. The result showed no correlation between the increase in WBC count and phagocytic activity, therefore the increase in phagocytic activity was due to
Effects of 24-Hour Fasting on the Vitro Phagocytic Activity of Neutrophils

enhanced function of the neutrophils. Scatterplots correlating phagocytic activity and phagocytic index and phagocytic activity and phagocytic percentage was prepared to show whether phagocytic index or percentage positively influenced the rise in phagocytic activity. It showed that the increase in phagocytic index or the ability of individual neutrophil to engulf bacteria was a major factor in the increase in phagocytic activity. The number of neutrophils that were able to phagocytose at least 3 bacteria as shown by the phagocytic percentage also increased by 11.4% but is not strongly correlated to the increase in phagocytic activity.

The increase in phagocytic activity might be due to several mechanisms that were described by earlier studies. This includes an increase in the titer of opsonins, enhanced chemotaxis, decreased glycemic level and generation of newer, more viable white blood cells. In a study that was conducted by Khabazaei on the effect of fasting on the immune system of athletes during Ramadan, they have observed that fasting seems to have positive effects on increasing the serum levels of C4, IgA levels. C4, a complement protein, can be cleaved into C4a and C4b, of which C4b is an opsonin. An opsonin is a molecule that coats target antigen and serves as signals for phagocytes to engulf. IgA on the other hand is an antibody that plays a critical role in mucosal immunity that prevents infectious diseases in gut and lung tissues. Titer of opsonins and number of opsonized bacteria are variables that are directly proportional to Phagocytic Activity. (Gentile, Conte & Formisano, 2004)

Another possible reason for enhanced phagocytic activity is enhanced chemotaxis or movement of phagocytes towards the antigen. In a study on two groups of male and female mice in fasting conditions, an increased immunoglobulin levels in colon mucus and cortisol, interleukin 10 (IL-10), and interferon gamma (IFN-γ) in plasma were shown. (Hiramoto et. Al, 2008) Treatment of PMNs with IFN-γ was demonstrated to have significant effects on signal transduction, gene expression, functions of phagocytosis and cell killing. (Shalaby et al., 1985; Walker & Ward, 1992)

After 24-30 hrs, liver glycogen stores are mostly depleted and glucose levels drop and maintained at 75-80 mg/L (Warade, 2014). This marginal decrease in glucose level after 24-hour fasting can be implicated to cause a positive increase in phagocytic activity where lowering of blood glucose levels of diabetic patients or experimental animals has been reported to have significant correlation with improvement of neutrophil functional activity (Van Oss, 1971)

A very recent study conducted in the University of California (published June of 2014) has shown intermittent, prolonged fasting induces changes that trigger stem cell-based regeneration of new immune system cells. In particular, “prolonged fasting reduced the enzyme PKA, shifting stem cells from a dormant state to a state of self-renewal”. In mice, it was described that fasting cycles “flipped a regenerative switch,” changing the signaling pathways for hematopoietic stem cells, which are responsible for the generation of blood and immune systems. (Chia-Wei et al, 2014) These findings support this study’s data that revealed a significant increase in CBC pa-
rameters like RBC count, Hemoglobin, Hematocrit, WBC count including the relative count for all 5 WBC types – neutrophils, lymphocytes, monocytes, basophils and eosinophils.

V. CONCLUSION

This study was intended to determine if there is a relationship between a 24-hour religious fasting on neutrophilic phagocytosis. The study found that 24-hour fasting significantly enhanced the neutrophils capacity to engulf bacteria, which may be an important beneficial effect of religious fasting. These observations become meaningful when it is recognized that phagocytosis is the rate limiting step in the reduction of viable organisms. Thus, diet may play a key role in the control of resistance to infection.

VI. RECOMMENDATIONS

The design of future studies that would employ the use of more analytic test methods which makes use of flow-cytometric test systems that simultaneously measures phagocytosis and production of reactive oxygen species (ROS) of neutrophils is recommended to confirm and to have a more accurate reading of the parameters that have been measured in this study. This would also give the future researchers a more complete set of data that would describe neutrophil activity under fasting conditions.

The researchers also recommend a follow-up study regarding the duration of the beneficial effects on the neutrophil phagocytic activity after the 24-hour fasting period.

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Effects of 24-Hour Fasting on the Vitro Phagocytic Activity of Neutrophils


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The Great Controversy Between Michael and the Devil in Jude 9: A Theological Analysis

Rico Taga Javien

Abstract

The epistle of Jude is shrouded with rich theological significance, in spite of its shortness. Theological themes like order of salvation, faith, mission, worship, judgment, great controversy, second coming, and the end of the world, and others are interwoven in the fabric of Jude.

This epistle was written with an in-depth pastoral concern that endangered the corrupting influence was detrimental to the saints. Supposed to be the godly men, yet in irony and paradox, abuse God’s grace, and even denied the divinity of the Lord. In fact, 17 out of 25 verses to be exact has been intended space for the great controversy involving human and extraterrestrial beings from Genesis onward. The sudden appearance of Michael, the Archangel heightens the conflict. Scholars from the different camps admit Jude 9 where Michael appears contending the devil over the body of Moses, is the most perplexing text in the entire epistle. Few scholars have the idea that the conflict involves with Moses resurrection to glory. Satan by all means struggled to prevent him to be resurrected and taken from his territory, for he belonged to his kingdom. However, Michael rebukes him, for Moses as faithful servant of God belongs to His kingdom by creation and redemption. This means that the great controversy does not end with death but even extended in the resurrection. The name Michael in the books of Daniel, Revelation, and Jude are all in the context of intense violence, war, death, and resurrection. Michael is the heavenly warrior who defends victoriously for His people who will end the great controversy.
I. INTRODUCTION

The epistle of Jude by its virtue of being small tends to be forgotten and neglected. But, its littleness is shrouded with rich theological significance. In its truest sense, this canon is indeed a multum in parvo, a Latin phrase that means much in little. In Scripture nothing is unimportant, for this reason,

Jude contains the seal of the divine imprint, all written across in each verses. The content of Jude suggests its nature as pastoral-redemptive and ecclesiastical concern but highly theological, eschatological and soteriological epistle. It has its end-time orientation toward an intense tension or conflict on both horizontal and vertical dimensions. Out of 25 verses, 17 are space occupied for the arena of spiritual vigorous conflicts. The controversy were involved by earthly and heavenly powers. Jude heightens the spiritual battle by using four biblical and historical realities. First from the Exodus of Egypt, were people were saved but later lost those who did not continue to believed (5), second the fallen beings, the “angels who did not keep the proper domain” (6, 9); third, the destroyed historical cities of Sodom and Gomorrah (7), lastly, return to Genesis, for Cain the first religious murderer, and reverts to Numbers for Balaam and Korah (11).

The conflict seems escalating from micro to cosmic battle by the sudden appearance of “Michael the Archangel” (9) in the scene. Scholars confessed of the striking problem within Jude 9. For example, Albert Barnes (1979: 393) asserts that Jude 9 “has given more perplexity to expositors than any part of the epistle.” This is the interpretative problem has been expressed by Bernard E. Seton (1985:114) when he points out that “Jude inserts the surprising reference of Michael.” This is the center of discussion of this study. However, seeing through the corridors of end time conflict, Ellen G. White (1950: ix) declares that the “great controversy between good and evil will increase in intensity to the very close of time.”

Some pertinent questions arise from Jude 9: First, what is the theological intention and implication of the sudden appearance of Michael in this epistle? This divine name rarely appears in Scripture, one in Dan 12:1 and the other in Rev 12:7. Is there any interpretational theological correspondence among the writers who used this particular name for the conflict of the end-time events? What is the issue involved in Michael with the devil in Jude? How relevant is this concern in relation to human salvation? These questions are under consideration.

Jude’s Theological Significance

The epistle of Jude consists of 25 verses but it has a quite numbers of theological themes. Just to mention a few, for instance Jude discusses first the ordo salutis-- the order of salvation, the divine calling [all English italics is mine for emphasis], particularly to those who are “called” “sanctified” and “preserved” saints (1). It deals with faith, the contending faith delivered to the saints and its divine quality, as the “most holy faith” (3, 20). It presents sin and its ramifications and final consequences (5,7, 8,10-13, 15,16).

It has a mandate for mission (3, 22); so with initial and final judgment and punishments both fallen angels and human rebelliousness (6, 7, 15);
The Great Controversy Between Michael and the Devil in Jude 9:
A Theological Analysis

and also salvation (3, 23, 25). Jude defies the idea of once saved, always saved (5, 6, 11). It concerns with the “great controversy” or conflict between human and supernatural levels (6, 9, 13); likewise it pays attention to prophetic utterance either through type, person, event or institution (7, 14, 17). It holds the doctrine of God: Father, Son, and Spirit (1, 17, 20, 21, 24-25). The topic about angels both faithful and fallen is carefully noted (6, 8, 9). The phrase “the Lord rebuke you” (9) is the intertext idea on Sanctuary in Zechariah 3.

Jude speaks about the corrupting and perverting influence apostasized leaders that even the agape meal “love feasts” (4, 12). It endorses the necessity of prayer and praise to glorify God, the purpose of the church existence (20, 24, 25). It has definitely points to the second coming of Christ, the hope of eternal life by the faithful and doom of the wicked (14, 21, 24). In the Parousia hinges also the idea of last things, the eschaton, the end of world, the end of evil and sin (see Robert M. Johnston, 1995:192, 193). Jude covers an extended subjects from biblical protology to eschatology.

Intertextuality

Since intertextuality according to Ganoune Diop (2005:135,135) as “science and art of associations and connections” Jude has several texts that function as echo, allusion or innerbiblical connections in other parts of the Bible. Jus to mention a few, particularly from the Old Testament, there are some pointers or word markers for righteous people like Adam and Enoch (Gen 4:1, 17), so with Moses directly alludes from Deuteronomy (34:6). It has the reference of the wicked people and places such as “Cain” again from Genesis (Gen 5:9ff); “Korah” and “Balaam” in Numbers (16:1; 23:27) “Sodom and Gommmorah” (Gen 19:1, 29). The phrase “the Lord rebuke you” is an allusion from Zechariah (3:3).

Moreover, terms like “archangel” is linked with 1 Thessalonians (4:16), “faith” from Acts (6:7) and Peter (1Pet 1:1), “angels” and “stars” are connected with Revelation (12:4, 9). The name “Michael” links with Daniel (12:1) and Revelation (12:7). Above all, these subjects mentioned here are directly or indirectly attached to continual spiritual conflict, where Jude (3) reminds the faithful believers that the entire Christian life is spiritual battle.

The references of intertextuality in context of conflict, therefore suggests that Jude deserves careful attention and consideration. Since the conflict has to do with Michael “raising up” of Moses to immortal life as shown later. It alerts readers that issue of resurrection tends to move toward in the end time (9, 14). Since death and resurrection belong to the eschatological events, Norman Ericson (1996:433) asserts that the “overarching theological perspective of Jude is eschatology.” Eschatology is imbedded with judgment and salvation and divine protection, of which entirely reflected in the use of New Testament of the Old Testament (see G. K. Beale [2012:54-92]).

“Contend” in the Biblical-Theological Context

After the introduction and greetings, Jude in a straightforward manner declares the purpose of his epistle. He reminds the “called,” “sanctified,” and the “preserved,” to “contend” [italics mine for emphasis] their faith. The term “contend” is a translation from the Greek epagonizesthai in which occurs only in here. This word is translated
in many versions such as in NKJV, NIV, NASB, as “contend” but “defend” NLT, “fighting” BBE, “fight” GNT, “wrestle” or “struggle.”

To Jude this word “contend” sets the whole 17 verses in a stage of conflict against false teachers, ungodly men, and supernatural fallen beings, and heighten with Michael, the divine warrior and defender. The term ephagonizestai means combat, contest and it is related to the another Greek word “pale” says Klyne Snodgrass (1996:339) and translated “wrestle” or “struggle” “battle or combat.” Moreover, Ralph Earle (1986:455) links it with another word “diakrino” of Jude 3, 9, translated “contending.” This is a contending and defending faith.

Once more, Edwin A. Blum (1989:388) asserts that the word “contend” or “struggle” ephagonizestai occurs only here in the New Testament. The word portrays an “intense effort in wrestling match.” Theologically, Warren W. Wiersbe (2007:1023, 1026) claims that the Christian life is a “battle ground, not a playground.” Also, Craig S. Keener (1993:754) notes that the “writers often applied the language of battle or athletic contests ‘contend’ to spiritual and moral battle.” To Edgar W. Smith (1988:766,768) the Greek words “pale” means to wrestle and “epagonizomai” also means to contend are both athletic imagery. The term diakrino (Jude 9) means “dispute” related to “wrestle” and “contend.” This is also affirms by Johnston (ibid., 199) the word “contend” means struggle strenuously and also implies confrontation, as in a wrestling match” but depicts here in the context of spiritual warfare, the concept of the great controversy.

Divided Interpretive Perspectives on Jude 9

It is a fact, that Jude 9 is the oxymoron of the entire book. Thomas R. Schreiner (2003:458) declares this “is a difficult verse.” He confesses that the “puzzling element in Jude is the reference to the argument over the body of Moses between Michael and the devil.” As Barnes (ibid., 393) asserts that Jude 9 has given “perplexity to expositors that any other part of the epistle.” In the same vein, Wiersbe (ibid.,1026) expresses that “we have no information about the conflict between Satan and Michael over the body of Moses.” Likewise, Peter H. Davids (2006:61) sighs that the “exact issue between Michael and the devil is not stated.” The same complaints by Matthew Henry (1976:1373) that “Interpreters are at loss what is meant here.” This cumulative perspective suggests that Jude 9 is difficult verse.

There is a tension of the interpretative perspectives regarding the appearance of Michael in the epistle. In fact, writers tend to focus more on the intertestamental apocryphal view of angels rather Michael. George R. Knight (2009:256) asserts that the “identity of Michael, while it may be of interest to modern scholars, it is not crucial point in Jude’s illustration.” In a sense, Knight sees Michael is just to strengthen Jude’s argument and illustration of then apostate leaders who defies authorities. In connection to this idea, Johnston (ibid., 202) points out that Jude 9 only “contrast the attitude of the archangel Michael with the attitude towards the angels exhibits by the false teachers.” It appears that both Knight and Johnston put the conflict only in the horizontal level rather the vertical dimension, that is, the human and supernatural conflicts.
Moreover, William Barclay (1976:183) notes that the “Jews believed in a fall of angels” and the “Book of Enoch is behind the thoughts of Jude.” In a similar idea but with some distinction, Douglas J. Moo (2002:238) points out that the Jews in relation to Michael particularly during the “intertestamental period had fascinating with angels, speculating about their significance and constructing elaborate hierarchy of relationship.” Michael, the archangel was to them the highest rank. This is also the idea of Blum (ibid., 390) when he construes that God assigned angels stipulated responsibilities, like dominion and set place for them, but because of “rebellion, God has kept and reserved these fallen angels in darkness.” Apparently fallen angels are in bondage while others are bound and active among mankind as demons.

The Issue over Moses’ Body
The conflict between Michael and the devil confront interpreters of Jude to the question of the phrase “over the body of Moses.” Why they were disputing the body of Moses? On what particular issue it involves? The book of Deuteronomy records Moses death. But before he died God had shown him the Promise Land, probably through his physical eyes or in panoramic view on the top of Mount Pisgah (34:1,4). Moses died after seeing the Promise Land, then, “He [God] buried him in the valley in the land of Moab, opposite Beth Peor, but no one knows his grave this day” (34:6). No exact location was given in detail.

There were some speculations as to what happened when Moses died. To Knight (2009:255) the “discussion on Michael disputing the devil over the body of Moses appear to be a bit of esoteric to most modern Christians.” To Henry (ibid., 1373) the claims that interpreters “are at loss what is meant by the body of Moses.” Some think the Devil wished to show the Israelites where Moses was buried, knowing that they would then adore his body; and that Michael was sent to resist the discovery. These are just few of the surmise what happened to Moses body.

The fact is, Jude has not indicated or given any why Divine and the devil contented the body or Moses. Much more he has not provide hint concerning the result of the conflict. However, in retrospect just before Jesus faced Calvary, in Mount Transfiguration Moses appeared with Elijah, Francis D. Nichol (1980:7, 706) notes that, “Jude now reveals that the dead body was the subject of dispute between Christ and Satan.” Conclusively, “it may be concluded that the Lord triumphed in the contest with the devil and raised Moses from his grave, making him the first known subject of Christ’s resurrecting power.”

Resurrection of Moses
The last part of the text gives the hint to solve the problem at hand: “no one knows his grave this day.” This phrase is an echo in the New Testament concerning Christ resurrection, meaning an empty grave. Frank B. Holbrook (2000:977) clarifies that Michael who name means “Who is like God” simply “ignored the claims of Satan on the body of Moses with simple rebuke as he proceeded to resurrect the decease patriarch.” The angels who guarded the Lord’s tomb announced for those looking for the body of Jesus “He is not here, for He is risen” (Matt 28:6; John 20:2).
E. G. White (1958:478-479) describes it well that: “Moses grave was guarded by the angels.” And that “as the Prince of Life and the shining ones approach the grave, Satan was alarmed for his supremacy. With his evil angels he stood to dispute an invasion of the territory that he claimed as his own.” But Jesus did not enter into dispute but just rebuke him. So, Moses was “raised to immortal life” and “he came forth from the tomb glorified, and ascend with his Deliverer to the city of God.” This was the central point of dispute between the Michael and the devil.

R. Leaney (1967:90) asserts that Moses has died and that “Michael is sent to take his body. The devil tries to refuse to allow this on the ground that he rules the material world.” John R. W. Stott (1995:192) tells that, “Over time, the moving story of God digging the grave of his servant was elaborated into a story of the righteousness of Moses being allowed into heaven.” The devil holds his claims for Moses was a murderer and does not deserved to taken from his territory. Stott points out that in “Jude 14-15 of what happen when Jesus returns.”

The Bible claims and declares that Satan is a “prince of the power of the air” (Eph 2:2). He is the “deceiver of the whole world” (Rev 12:9) and the “god of this world” (2Cor 4:4). Jesus explicitly declares three times that the Devil is “ruler of this world” (John 12:31; 14:30; 16:11). As the “god” and “ruler of this world” Satan claimed and contended with Michael that the body of Moses belonged to him and in his kingdom.

This implies that the “great controversy” does not even end in death but in the resurrection. White (1940: 116) notes that, “Many look on this conflict between Christ and Satan as having no special bearing on their own life; and for them it has little interest. But within the domain in every human heart this controversy is repeated.” In fact, she (1948: 3, 253) stresses that the “Christian life is a constant battle and a march. There is no rest from this warfare.” Or to use Holbrook (ibid., 969) words that the “unrelenting war between God and Satan, between good and evil on both cosmic and personal levels.”

The conflict of Michael and the devil is now clear. The devil claims Moses body for he was a sinner and therefore he has the right to stay in his territorial kingdom. But Michael “contending with the devil” (9) by the virtue of creation and redemption has the absolute claims over of His faithful servant. This conflict in Jude 9 has end-time theological application. White (1950:659) points out that “For six thousand years his [devil] prison house [earth as burial place] has received God’s people, and he would have held them captive forever; but Christ has broken his bonds and set the prisoners free.” This micro conflict with the body of Moses mirrors the conflicts between Christ and Satan in the grand resurrection of the righteous at the Parousia. Because Satan claims as White (ibid., 663, 671) notes that as “rightful owner of the world and whose inheritance has been lawfully wrested from him.” The devil is so “determines not to yield the great controversy.”

Theologically, the great controversy starts when believers had the faith-relationship with Michael-Jesus Christ, throughout life, and extends even in the grave. By all means Satan prevented any of his captives be taken by Christ. At the ascension of the Lord, once again, the surest testimony of hope was that “when He ascended on
The Great Controversy Between Michael and the Devil in Jude 9: A Theological Analysis

Michael’s sudden appearance in Jude is built on theological understanding that earthly activities that are related to the experience of salvation have always repercussions in heaven. To use Siegfried Schwantes (1986:334) words that the biblical interpreter “stands in the biblical teaching that no phase in the experience of salvation is merely an earthly affair.” It insists on its effects in heavenly realm as these three related experiences of salvation illustrate.

For instance, repentance, it seems this is subjective experience taking place in the heart. Jesus affirms this idea, when He concluded the parable of the lost coin: “I tell you there is joy in presence angels of God over one sinner who repents” (Luke 15:10). It is interesting that from human heart activity has the repercussion in heaven. This is also true to public confession of faith in Christ. The Lord declares “For whoever is ashamed of Me and My words, of him the Son of Man will be ashamed when He comes in His own glory, and in His Father’s and of the holy angels” (9:26). Again, “But whoever denies Me before men, him I will also deny before my Father in heaven” (10:33). Men may forgive, the church may pardon, but if is not ratified in heaven, it is invalidated. Once more, Jesus claims: “whatever you bind on earth will be bound in heaven, and whatever you loose on earth will be loosed in heaven” (16:19).

Thus, repentance, confession, and forgiveness are never confined to earthly affairs. To some extend, this principle is connected with the conflicts that Jude portrays from the beginning of earth’s history, from Cain to the coming of the Lord.

Earthly Conflicts and Its Repercussions in Heaven

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Jude, Daniel and Revelation Theological Unity

The appearance of Michael in Daniel 12, Revelation 12, and Jude 9 is remarkably amazing. The three biblical references, intrinsically depicts all in the context of struggle, war, violence, death and also the resurrection. They contain the same theological motif and content. Holbrook (ibid., 977) sees that Michael “depicting as fighting against the challenger” the arch enemy of God’s government, characters, and people. Ranko Stefanovic (2002:386) sums it up that Michael in Daniel 12:1 “protects God people in the final days of earth history. In Jude 9 he is the archangel and here in Revelation 12:7, he is the commander of the heavenly army.” However, Stefanovic (2013:142) concludes that the name “Michael is an eschatological name for Christ.” He is the end-time cosmic defender of God’s people.

According to Jacques B. Doukhan (1987:100, 101) the name “Michael plays in its semantic function. Mi-ka-el means ‘who is like God!’ In biblical tradition this interjection expresses the intensity of human awe towards God’s unexpected victory (Ex 15:11-12). The expression is generally used in connection with war.” He stresses that the phrase “at that time Michael shall stand” occurs in relation to victory of a king who takes rule and in Dan 12:1, Michael, the last king to achieve His victory and take His rule. Also in the context of the resurrec-
The Great Controversy Between Michael and the Devil in Jude 9: A Theological Analysis

Furthermore, Doukhan (2000:183) notes that the word “rising” in Hebrew “amad” belongs “to the context of war and is performed by a soldier who resists and overcomes his enemy.” The victory of Michael, the divine warrior and defender of His people, was more glorious, since it situates in defeating death, hopelessness, intense trouble and violence, intense suffering and trouble.

In addition to this, William H. Shea (1996:175,177) estimates that Michael in Dan 10:13,21 “is involved in a local, limited problem.” However, in the scene of Dan 12:1 “He is involved” in the “final and universal conflict, the conclusion of battle and evil.” Shea’s position is clear that “wherever found, all the Michael passages in the Bible is portrayed as the leader in the battle on the side of God.” He is defending His people for victory.

It is the assertion of Beale (ibid., 661) that Daniel 10:2; 12:1 are alluded to Rev 12:7 are adduced in support. Of relevance also is legal relationship between Michael and the devil in Jude 9 and Michael legal witness in defense of Israel’s righteousness.

The name of Michael appears in Revelation (12:7) in the context of the cosmic battle. Michael and “his angels fought with the dragon [Devil] and his angels fought.” Beale insightful connection of the name of Michael asserts that “Dan 12:1, Rev 12:7 and Jude 9 are to be understood within the above context of Michael defending Israel in the heavenly courtroom against Satan’s accusation.”

In this view of all three references of Michael, the battle is universal, but fought in the terrestrial and heavenly places, between God’s and His forces against the forces of the devil the Devil and his forces. It is a spiritual battle between righteousness and wickedness.

Shea (ibid., 177) explains that on the Old Testament “does not tell us everything there is to know about Michael.” However, he argues that in order to “fill out the picture we need to go to Jude 9 in the New Testament, where Michael is identified as the archangel with the power of resurrection.” Shea points out further, that moving to Revelation (12:7), where “we find that he was a leader of the heavenly host against and his evil forces.” In connection to salvation, Beale (ibid., 651) portrays Michael as the “last great deliverer in the great battle in the end time. His redemptive work on earth unleashes the effect in heaven of His victory.”

In relation to the resurrection, Charles A. Wanamaker (1990:173,174) asserts that the term archangels referring to Michael and in connection to the blast trumpet of God, “are all intended to called those who sleep [in Christ] to the resurrection.” Thus, Daniel, Revelation, and Jude portray Michael in the same theological theme, the “great controversy” while serving the Lord and also during the resurrection of the people of God.

II. CONCLUSION

Jude’s epistle is small but rich with theological significance. In this epistle, he depicts the past, present, future, and the end of the biblical, historical, eschatological and theological great controversy. He starts with pastoral reminders to the “called,” “sanctified,” and the “preserved” saints to “contend” their “faith” the “mostholy faith” as
a sacred responsibility. He contends that Christian life under God is a conflict, while alive serving the Lord, and even at death, as in the case of Moses, a sort of “special revelation” regarding his “special” resurrection.

Those involved of the conflicts were the terrestrial and heavenly beings. Michael makes the difference, in Daniel, Revelation, and Jude—He is the divine warrior and defender of His people. His appearance in the Scripture, all depicts in the intense contexts of war, struggle, violence, death, and resurrection. The great controversy does not end with death, but goes even at the resurrection as in case point of Moses. All these have innate theological implications and relevance as the great controversy comes to a close.

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Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

Litton Halder, Leilanie Arce, Orlex Yllano

Abstract

Lead (Pb) is a toxic heavy metal that is ubiquitous in our environment. Exposure to Pb is a threat not only to humans and other organisms but to the entire environment as well. This study assessed the Pb-bioaccumulation and bioconcentration abilities of eight plant species in Pb-contaminated sites. Atomic Absorption Spectroscopy (AAS) results indicated that higher Pb concentrations were determined in the root tissues of plants compared with the shoot tissues. Species with high amount of Pb in root tissues were Mimosa pudica (1495.45 ppm), Centrosema pufescens (1149.1 ppm), Eleusine indica (916.65 ppm), Panicum antidotale R.(756.35 ppm), Cyperus rotundus (534.4 ppm), Cynodon dactylon (516.35) and Dichantium sericeum (397.55 ppm). More so, C. dactylon accumulated the highest shoot Pb (8.05 ppm), followed by M. pudica (4.4 ppm), D. sericeum (4.3 ppm), C. pufescens (2.15 ppm), P. antidotale (2.15 ppm), E. indica (3.3 ppm) and R. communis (1.95 ppm). Among these species, C. pufescens had the highest bioconcentration factor (BCF) and thus, can efficiently bioconcentrate Pb. These results revealed the ability of these eight species to bioaccumulate Pb in their tissues. Finally, plant species that can efficiently concentrate Pb from the soil into the root and shoot tissues are the promising species for phytoremediation of Pb-contaminated sites.

Keywords: heavy metal, Pb, plants, bioaccumulation, phytoremediation
I. INTRODUCTION

Heavy metal contamination is a major problem in the environment. There are different sources for heavy metal such as natural and manmade, and industries and air borne sources. Human activity has also introduced additional processes that have increased the rate of redistribution of metals between environmental compartments, (Garrett 2013) particularly contamination in the soil due to industrialization, urbanization, mining, and many other anthropogenic activities (Ying et al. 2014).

Many shooting ranges are contaminated by heavy metals and the used bullets have been also known as a primary source. Once the bullets perch on soils, toxic metals such as lead (Pb), copper (Cu), nickel (Ni), antimony (Sb), and zinc (Zn) can be released into the soils and further can be transformed into available forms threatening the surrounding environment (Ahmad et al. 2011). Chronic accumulation of these heavy metals does not only jeopardize soil ecosystems services by decreasing the soil quality for crop growth, but also, it does disturb the activities of soil organisms (Sunitha, 2014).

According to Hosono et al. (2011) it can contributes also to the degradation of marine ecosystems by reducing species diversity and abundance. Furthermore these could have severe effects as toxic or carcinogenic to human through food chains (Fu and Wang 2011).

Plants have various ways to adapt to Pb-stressed environment which are manifested in their anatomy, morphology, physiology and even in their molecular components (Yllano, 2001). These include avoidance, resistance and tolerance mechanisms. However, there are some plant species that are sensitive to Pb. These varied mechanisms exhibited by plants are now utilized to manage these heavy metal contaminated areas.

Phytoremediation is the biotechnological application of plants to detoxify pollutants, and an ideal and modern technique for environmental clean-up (Ziarati et al 2014). This technology was presented as a cost-effective and environmental friendly technology that has an additional aesthetical result (Hazrat et al. 2013).

II. METHODS

Soil Collection and Soil Pb Determination

One kilogram soil was collected at 0 to 23 cm depth in different spots from each bay of two military firing site in Luzon. Soil samples were thoroughly cleaned, air-dried and sieved through a 20-mesh screen.

Soil analysis for Pb concentration was done at the Department of Agriculture, Philippines Coconut Authority Plant Tissue Analysis Laboratory, Philippines and Bureau of Soils and Water Management, Diliman, Quezon City, Philippines, respectively.

Identification of Plant Samples

The 8 weeds species growing in comparable sites in two fully operational firing ranges in Luzon, the Camp Sto. Domingo in Sta. Rosa, Laguna and the Camp Vicente Lim in Calamba City were collected, identified and classified at the Jose Vera Santos Herbarium, Institute of Biology, University of the Philippines (UP), Diliman, Quezon City.
**Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species**

**Determination of Pb content in plant tissues**

Collected plant species were thoroughly rinsed with tap water to remove adhering soil particles and then washed with distilled water, were air dried for 6 h and finally dried in an oven at ~60 to 65 °C for 3 d. Plant root and shoot Pb accumulation were determined using Atomic Absorption Spectroscopy (AAS).

**Determination of Bioconcentration Factor (BCF)**

The exact expression of bioconcentration factor (BCF) for vegetation is defined as: BCF = Cp/Cs Where: Cp is the concentration in the plant tissue and Cs is the concentration in soil (De Jesus and Yllano, 2005).

The concentration in plant tissue is given in units of mg kg⁻¹ dry plant tissue and the concentration in soil is in units of mg kg⁻¹ dry soil (Modified from Manahan 1992).

**Statistical Analyses**

Data on the total amount of Pb in the soil, root and shoot tissues of plants, and determination of bioconcentration factor (BCF) where subjected to Analysis of Variance (ANOVA), Duncan’s Multiple Range Test (DMRT) and correlation.

**III. Results**

Fig. 1. The Pb soil profile of different distances in site 1 firing range (SEM; n=3). (Means with same letters are not significantly different at p ≤ 0.05; missing bar means smaller to be seen).

The lead concentrations of distances 1 to 9 (fig.1) of site 1 were recorded at 249.42 ppm, 216.40 ppm, 947.42 ppm, 304.72 ppm, 1146.43 ppm, 4268.22 ppm, 274.52 ppm, 1043.37 ppm and 1922.48 ppm, respectively.

It was noted that the distances 1-9 were far higher than the control (10.00 ppm). The DMRT results revealed that the soil Pb concentrations of distances 1, 2, 3, 4, 5, 7 and 8 were not significantly different at p≤0.05 while the soil Pb concentration of distance 6 was significantly different from the soil Pb concentrations of distances 1, 2, 3, 4, 5, 7, 8 and 9 at i≤0.05. Results also indicated that the soil Pb concentration of distance 9 was significantly different from all distances.

Fig. 2. The Pb soil profile of different distances in site 2 firing range (SEM; n=3). (Means with same letters are not significantly different at p ≤ 0.05; missing bar means smaller to be seen).

Figure 2 shows the soil Pb concentrations of different distances in site 2 were higher than the control. The Pb concentrations of distances 1 to 9 in site 2 were as follow: 1395.77 ppm, 4152.23 ppm, 7087.00 ppm, 955.55 ppm, 3347.08 ppm, 4426.42 ppm, 274.52 ppm, 1043.37 ppm and 1922.48 ppm, respectively.
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

ppm, 1074.45 ppm, 2417.20 ppm, and 3810.85 ppm, respectively.

ANOVA result revealed significant difference among distances, whereas DMRT analysis revealed that the soil Pb concentration of distance 1 was not significantly different from the soil Pb concentration of distances 4 and 7 but significantly different from the soil Pb concentration of distances 2, 3, 5, 6, and 8) and 9 at \( p \leq 0.05 \). Similarly, the soil Pb concentration of distance 2 was not significantly different from the soil Pb concentrations of distance 6 but significantly different from the soil Pb concentrations of the distances 1, 3, 4, 5, 7, 8 and 9 at \( p \leq 0.05 \). Likewise, the soil of distance 3 was significantly different from all eight distances at \( p \leq 0.05 \). It was further analyzed that soil Pb concentration of distance 4 was not significantly different from the soil Pb of distances 1 and 7. Moreover, these were significantly different from distances 2, 3, 5, 6, 8 and 9. The soil Pb concentration of distance 5 was not significantly different from the soil Pb of the distances 9 but significantly different from the distances 1, 2, 3, 4, 6, 7 and 8.

The soil Pb concentration of distance 6 was not significantly different from distance 2 but significantly different from the soil Pb concentrations of distances 1, 3, 4, 5, 7, 8 and 9. The soil Pb concentration of distance 7 was not significantly different from the soil Pb concentrations of distances 1 and 4 but significantly different from the soil Pb of the distances 2, 3, 5, 6, 8 and 9. Similarly the soil Pb concentration of distance 8 was significantly different from the soil Pb of the distances 1, 2, 3, 4, 5, 6, 7 and 9. Likewise, the soil Pb concentration of distance 9 was not significantly different from the soil Pb of the distances 5 but significantly different from the soil Pb concentrations of the distances 1, 2, 3, 4, 6, 7 and 8.

Fig. 3. The Pb soil profile of different bays in site 1 and site 2 firing range (SEM; \( n=3 \)). (Means with same letters are not significantly different at \( p \leq 0.05 \); missing bar means smaller to be seen).

ANOVA results revealed significant difference in the levels of Pb in different bays. DMRT analysis indicated that the Pb in soil in different bays were significantly different from one another.

The soil Pb concentration of the control (10.00 ppm) was lower compared to the six bays. Among the bays, bay 1 had the lowest Pb level of 471.08 ppm while bay 4 had the highest soil Pb of (4211.67 ppm). This means that bay 4 in site 2 was used very often and for many years compared with bay 1 in site 1. Bay 2 had the highest concentration of Pb (1906.46 ppm) in site 1 whereas bay 4, had the highest concentration of Pb (4211.67 ppm) in site 2.
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

The Pb soil profile of site 1 and site 2 with the control \((n=9)\). (Means with same letters are not significantly different at \(p \leq 0.05\); missing bar means smaller to be seen).

The figure above, shows the soil Pb concentrations of site 1 and site 2 together with the control. Soil in site 2 had higher Pb concentration \((3185.17 \text{ ppm})\) than the soil in site 1 \((1173.14 \text{ ppm})\) and the control \((10 \text{ ppm})\). Moreover, the concentration soil Pb of site 1 and site 2 were very higher than the soil Pb concentration of the control.

**Taxonomic identification of the eight weed species in the firing ranges**

<table>
<thead>
<tr>
<th>Species</th>
<th>Family Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrosemapufescens</td>
<td>Leguminosae</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Cyperus rotundus</td>
<td>Cyperaceae</td>
</tr>
<tr>
<td>Dichanthium sericeum</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Eleusine indica</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Mimosa pudica</td>
<td>Legum Mimosoideae</td>
</tr>
<tr>
<td>Panicum antidotale Retz</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Ricinus communis</td>
<td>Euphorbiae</td>
</tr>
</tbody>
</table>

The list of different plants species in site 1 and site 2 from two firing ranges are shown in Table 1. There were 8 types of plant species collected, identified and classified from two sites. The most common families of plants were the Gramineae.

![Graph of Pb soil profile](image)

The lead concentrations in root and shoot tissues of distances 1 to 3 in bay 1 site 1 of Mimosa pudica with the control were recorded (fig.5) as follow: 219.45 ppm and 65.70 ppm of Pb 91.60 ppm and 32.45 ppm, 27.10 ppm and 80.65 ppm, respectively.

![Graph of Pb concentration in Mimosa pudica](image)

![Graph of Pb concentration in Panicum antidotale](image)

![Graph of Pb concentration in Panicum antidotale](image)

Table 1:
*List of plant species in two firing ranges*

<table>
<thead>
<tr>
<th>Species</th>
<th>Family Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centrosemapufescens</td>
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<tr>
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<td>Cyperaceae</td>
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<td>Dichanthium sericeum</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Eleusine indica</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Mimosa pudica</td>
<td>Legum Mimosoideae</td>
</tr>
<tr>
<td>Panicum antidotale Retz</td>
<td>Gramineae</td>
</tr>
<tr>
<td>Ricinus communis</td>
<td>Euphorbiae</td>
</tr>
</tbody>
</table>
three distances had higher accumulation of Pb in root and shoot tissues than the control species (2.15 ppm) and (2.60 ppm) in its root and shoot tissues, respectively.

Fig. 7. Pb concentration in the root and shoot tissues of Centrosema pufescens in three distances in bay 1 (site 1) with the control.

The above table showed the Pb concentration in the root and shoot tissues of Centrosema pufescens from three distances in bay 1 (site 1) with the control were as follow: (350.55 ppm and 89.95 ppm) (682.40 ppm and 35.6 ppm) (1149.05 ppm and 84.75 ppm) from distance 3 respectively.

Fig. 8. Pb concentration in the root and shoot tissues of Dichanthium sericeum from three distances in bay 2 (site 1) with the control.

Results revealed that the Eleusine indica had accumulated highest amount of Pb (89.9 ppm and 64.40 ppm) in its root and shoot tissues from distance two and then from distance one (27.45 ppm and 3.95 ppm) and least from distance three (23.5 ppm and 8.3 ppm), while all distances were obtained higher amount of Pb than the control.

Fig. 9. Pb concentration in the root and shoot tissues of Eleusine indica from three distances in bay 2 (site 1) with the control.

Results in the table above indicated,
that the Cyperus rotundus had accumulated Pb in its root and shoot tissues (36.60 ppm and 4.10 ppm), (177.7 ppm and 57.25 ppm) and (349 ppm and 43.55 ppm) respectively from all three distances.

Fig. 11. Pb concentration in the root and shoot tissues of Panicum antidotale Retz- from three distances in bay 3 (site 1) with the control.

Among the 3 distances in bay 3 site 1 (fig.11) the Panicum antidotale Retz had the following Pb accumulation in its root and shoot of (17.85 ppm and 11.85 ppm), (135.25 ppm and 43.35 ppm) and (61.80 ppm and 12.95 ppm) respectively .

Results also showed that distance 2 accumulated the highest amount of Pb among the 3 distances.

Fig. 12. Pb concentration in the root and shoot tissues of Dichanthium sericeum from three distances in bay 3 (site 1) with the control.

Results showed in figure 12 that the Dichanthium sericeum had accumulated Pb in its root and shoot tissues (638.35 ppm and 235.80 ppm), (240.05 ppm and 89.20 ppm) and (243.10 ppm and 56.95 ppm) respectively from all three distances.

Fig. 13. Pb concentration in the root and shoot tissues of Cyperus rotundus from three distances in bay 3 (site 1) with the control.

The above results showed that the Cyperus rotundus had accumulated Pb in its root and shoot tissues (29.60 ppm and 23.20 ppm), (139.85 ppm and 91.25 ppm) and (303 ppm and 112.20 ppm) respectively from distances one, two and three.

Fig. 14. Pb concentration in the root and shoot tissues of Dichanthium sericeum in three distances in bay 4 (site 2) with the control.

Dichanthium sericeum had obtained the highest amount of Pb in its root tissues (49.9 ppm, 369.35 ppm and 1397.55 ppm respectively) than from the shoot tissues (8.65 ppm, 28.70 ppm and 163 ppm respectively) from all three distances.

Fig. 14. Pb concentration in the root and shoot tissues of Dichanthium sericeum in three distances in bay 4 (site 2) with the control.
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

shoot tissues of Dichanthium sericeum in three distances in bay 5 (site 2) with the control.

Whereas, in bay 5 (site 2) of fig.14 Dichanthium sericeum had accumulated the following amount of Pb (124.55 ppm, 81.90 ppm and 700.80 ppm respectively) which were higher than the shoot tissues (16.45 ppm, 50.60 ppm and 27.05 ppm respectively) from all three distances.

Fig. 15. Highest total Pb concentration of different plant species in site 1 and site 2 from two firing ranges.

Fig. 16. Total Pb concentration of different plant species in various locations.

Figure 16 shows that total accumulation of Pb in different plant species in various locations in site 1 and site 2. Results showed that the total accumulation of Pb by Mimosa pudica (172.32 ppm) was not significantly different from the total accumulation of Pb by Dichanthium sericeum (170.37 ppm), Eleusine indica (72.50 ppm) and Cyperus rotundus (222.73 ppm) but significantly different from Panicum antidotale Retz (499.55 ppm) and Centrosema pufescens (797.43) at p≤0.05.

Total Pb concentration of Panicum antidotale Retz (4499.55 ppm) significantly different from Mimosa pudica (172.32 ppm), Centrosema pufescens (797.43 ppm, Dichanthium sericeum (170.37 ppm), Eleusine indica (72.50 ppm) and Cyperus rotundus (222.73 ppm) respectively at p≤0.05.

Result also revealed that the total Pb concentration of Centrosema pufescens (797.43 ppm) was very significantly different from all other plant species stated above at p≤0.05. The total Pb concentration of Dichanthi-
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

Dichanthium sericeum (170.37 ppm), Eleusine indica (72.5 ppm), and Cyperus rotundus (222.73 ppm) were not significantly different from Mimosa pudica (172.32 ppm) but significantly different from Panicum antidotale Retz (499.55 ppm) and Centrosema pufescens (797.43 ppm) at $p \leq 0.05$.

Results also indicated that the total Pb concentration of Centrosema pufescens was the highest (797.43 ppm) and the Eleusine indica was the lowest (72.5 ppm).

Table 2: List of Pb tolerant plant species with high root Pb

<table>
<thead>
<tr>
<th>Species</th>
<th>Root Pb (ppm)</th>
<th>Control Root Pb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mimosa pudica</td>
<td>1495.45</td>
<td>4.40</td>
</tr>
<tr>
<td>Dichanthium sericeum</td>
<td>397.55</td>
<td>4.30</td>
</tr>
<tr>
<td>Centrosema pufescens</td>
<td>1149.05</td>
<td>2.15</td>
</tr>
<tr>
<td>Eleusine indica</td>
<td>916.65</td>
<td>3.3</td>
</tr>
<tr>
<td>Panicum antidotale Retz</td>
<td>756.35</td>
<td>2.15</td>
</tr>
<tr>
<td>Cyperus rotundus</td>
<td>534.40</td>
<td>1.80</td>
</tr>
<tr>
<td>Cynodon dactylon</td>
<td>516.35</td>
<td>8.05</td>
</tr>
<tr>
<td>Ricinus communis</td>
<td>42.05</td>
<td>1.95</td>
</tr>
</tbody>
</table>

Table 2 above exhibited the list of heavy metal tolerant plant species in site 1 and site 2 from two firing ranges with high concentration of Pb in their roots with the control. Results indicated that the highest accumulation of Pb in roots tissues of eight plant species in site 1 and site 2. Mimosa pudica accumulated 1495.45 ppm, Dichanthium sericeum 1397.55 ppm, Centrosema pufescens 1149.05 ppm, Eleusine indica 916.65 ppm, Panicum antidotale Retz 756.35 ppm, Cyperus rotundus 534.40 ppm, Cynodon dactylon 516.35 ppm, Ricinus communis 42.05 ppm of Pb in their roots respectively.

Plants listed in table 2 also showed the gradual decrease of concentration of Pb in their roots from top Mimosa pudica 1495.45 ppm) to bottom Ricinus communis 42.05 ppm) in site 1 and site 2. As shown in the table, there was higher accumulation of Pb in the root of the 8 plant species than those of the control. Mimosa pudica accumulated 4.40 ppm, Dichanthium sericeum 4.30 ppm, Centrosema pufescens 2.15 ppm, Eleusine indica 3.30 ppm, Panicum antidotale Retz 2.15 ppm, Cyperus rotundus 1.80 ppm, Cynodon dactylon 8.05 ppm, Ricinus communis 1.95 ppm respectively in the control. Among the control plants, the concentration of Pb in root tissues of Cynodon dactylon (8.05 ppm) was the
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

The heavy metal tolerant plant species with high concentration of Pb in shoots was shown in table 3. Results indicated that the highest accumulation of Pb in shoots of eight plant species in site 1 and site 2 were Cynodon dactylon 307.55 ppm, Mimosa pudica 198.00 ppm, Cyperus rotundus 112.20 ppm, Panicum antidotale 95.20 ppm, Centrosema pufescens 89.95 ppm, Dichanthium sericeum 9.20 ppm, Eleusine indica 64.40 ppm, and Ricinus communis 10.10 ppm of Pb in their shoots respectively.

Results revealed that the plant species Mimosa pudica accumulated (1495.45 ppm) more Pb in the root whereas plant species Cynodon dactylon accumulated (307.55 ppm) more Pb in the shoot.

Plants list in the table 3 also showed that the concentration of Pb in root tissues of Dichanthium sericeum was the highest and Ricinus communis was the lowest among the control plants.

In addition, the concentration of Pb in root tissues of plants from site 1 and site 2 was higher than the control species.

Table 4:
List of Pb tolerant plant species with high concentration of Pb in their roots and shoots.

<table>
<thead>
<tr>
<th>Species</th>
<th>Total Root Pb (ppm)</th>
<th>Control root shoot Pb (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mimosa pudica</td>
<td>1693.45</td>
<td>6.95</td>
</tr>
<tr>
<td>Dichanthium</td>
<td>486.75</td>
<td>14.10</td>
</tr>
</tbody>
</table>
Table 4 showed the list of heavy metal tolerant plant species in site 1 and site 2 from two firing ranges with high concentration of Pb in their roots and shoots. Results revealed that the highest accumulation of Pb in roots and shoots of eight plant species in site 1 and site 2. The plant species, Mimosa pudica 1693.45 ppm, Dichanthium sericeum 1486.75 ppm, Centrosema pufescens 1239.00 ppm, Eleusine indica 981.05 ppm, Panicum antidotale Retz 851.55 ppm, Cynodon dactylon 823.90 ppm, Cyperus rotundus 646.60 ppm, and Ricinus communis 52.15 ppm of Pb in their roots and shoots respectively. Results indicated that the plant species, Mimosa pudica was the most heavy metal tolerant species (1693.45 ppm) whereas Ricinus communis was the least heavy metal tolerant plant species (52.15 ppm) in site 1 and site 2, whereas the following plants species obtained different amount of Pb in the control: Mimosa pudica accumulated 6.95 ppm, Dichanthium sericeum 14.10 ppm, Centrosema pufescens 3.95 ppm, Eleusine indica 6.05 ppm, Panicum antidotale Retz 4.75 ppm, Cyperus rotundus 7.70 ppm, Cynodon dactylon 9.85 ppm, Ricinus communis 3.55 ppm respectively.

The above table also showed that the bioconcentration of Pb in root and shoot tissues of Dichanthium sericeum (14.10 ppm) was the highest and Ricinus communis was the lowest (3.55 ppm only) among the control plants.

It was also noted that concentration of Pb in the root and shoot tissues of plants from site 1 and site 2 were higher than from the control species.

**Determination of the bioconcentration factor (BCF) of different plant species in the firing ranges**

Plants selectively take up heavy metals like Pb at varying nobilities. The uptake of heavy metals from the media was greatly affected by their intrinsic properties and interaction with the physico-chemical factors. In determining the uptake of metal by plants in relation to the available metal in the media, bioconcentration factor (BCF) results were shown in figure 17 below.
Fig. 17. The bioconcentration factor (BCF) of different plant species in site 1 and site 2 from two firing ranges.

Figure 17 revealed that the BCF of the plants Dichanthium sericeum (22.01 %), Eleusine indica (14.26 %), Mimosa pudica (41 %), Cyperus rotundus (19.50 %), Pannicum antidotale Retz (54.78 %), Centrosema pufescens (86.50 %), Cynodon dactylon (55.78 %) and Ricinus communis (1.36 %) BCF, respectively.

IV. DISCUSSION

Determination of the Pb Concentration of Soil Samples from various distances of two firing ranges

Lead is naturally present in all soils. It occurs generally in the range of 15 to 40 parts lead per million and can increase soil lead levels to several thousand ppm in populated area (Allen 2012)

Among the various distances in contaminated site, (site 1 and 2) the greater amount of Pb were noted in distances 3, 6, and 9 (Fig.1 and 2) which could be due to higher deposition of bullets in the area. Bullets usually hit these targets compared with the other distances. These results could be associated to the proximity of the source and bioavailability of lead in the soil (Danse et. al, 1995). Figure 3 indicated that the soil Pb concentration of the control (10.00 ppm) was lower compared to the other six bays.

In terms of bays, bay 2 had the highest concentration of Pb in site 1 while bay 4, had the highest concentration of Pb in site 2. These two bays were often used for military exercise which made the concentration of Pb higher compared to the other four bays. Whereas between the two sites, results in figure 4 emphasized that site 2 which bay 4 belongs had higher Pb concentration than the soil in site 1 which was also higher compared to the amount obtained by the Pb contaminated soil (23.5±0.1 mg/kg) of rice paddies within Cam Pha, Quang Ninh province, Northeastern Vietnam (Martinez et al. 2013).

When the two sites were compared, it was observed that site 2 was more often used as a training ground for shooting than site 1 which might have been contributes to the high accumulation of Pb in the soil.

Determination of total amount of Pb in the root and shoot tissues of the plant species

The values obtained by the root and shoot of Mimosa pudica in bay i,site1 (fig.1) were lower compared to the Pb accumulation values of hyperaccumulators such as Brassica juncea – 21100 (2390 µg g-1), Brassica juncea – 184290 (2310 µg g-1) and Ambrosia artemissifolia (2050 µg g-1) (Huang et al. 1997) but higher than Thlaspi rotundifolium 130 – 8200 mg kg-1(Cunningham et al.1997).

Plant species from distance 1 and 2 of Pb in the root showed higher accumulation than in the shoot tissues. However, the shoot tissues of the plant species from dis-
Bioaccumulation and Bioconcentration of Pb in the Tissues of Eight Weed Species

Distance 3 had accumulated more Pb than the roots.

Mimosa pudica had accumulated relatively high amount of Pb in its root and shoot tissues in all three distances than the control whereas the highest amount of lead were observe from distance 1 instead at distance 3. It was observed that some firing activities were done at very short distances. In addition, the bays were elevated so when the rain pours down, some of the Pb from the higher ground to down slope would rundown and dissipate together with the soil, resulted the high levels of lead in the soil than the safe amount (Holly, 2014).

The values that were shown in figure 6 were comparable with Thlaspi rotundifolium, which is reported to accumulate shoot Pb concentrations of 130-8200 mg kg-1 (Cunningham at al. 1997).

Lead uptake from the contaminated soils at Westhoughton Gun Club was mainly noticeable in the root samples, which contained 470 mg/kg (23.5 ppm), though lead was also abundant in seed and stem samples containing 148 mg/kg (7.40 ppm) and 62 mg/kg (3.10 ppm), respectively (Mellor and McCartney 1994), which were much less than Panicum antidotale Retz. Results determined that Panicum antidotale Retz had accumulated the highest amount of Pb from distance 1 but not from distance 3, where the highest Pb soil concentration was noted. As such, the bullets would fall and accumulate due to the elevation of the soil, as rain pours down, some of the soil would erode and carry with it most of the Pb in those areas. These account for the high accumulation of Pb in distance 1.

Figure 7 also revealed that the plant had accumulated more Pb in its root tissues than the shoot tissues from all three distances were comparable with Sesbania grandiflora which accumulation of Pb content was higher in root (118mg(-1) dry weight) than in shoot (23mg(-1) dry weight). (Malar at al. 2014). Centrosema pufescens had accumulated highest amount of Pb in its root tissues from distance 3, then from distance 2 and least from distance 1.

Comparing with the control, Centrosema pufescens had accumulated more Pb in its root and shoot tissues from all three distances. It was also observed that Centrosema pufescens had accumulated highest amount of Pb in distance 3. The data for soil analysis showed that at this distance, the soil had accumulated higher Pb than the soil in distances 1 and 2.

The values that were shown in figure 8 were relatively lower as compared with the accumulation of Pb in the shoot tissues of T. caerulescens (58 µg g-1), A. artemisifolia (75 µg g-1), Triticum aestivum cv Scout 66 (120 µg g-1), Thlaspi rotundifolium (79 µg g-1), B. juncea – 21100 (129 µg g-1), B. juncea – 531268 (97 µg g-1) and Zea mays cv Fork (225 µg g-1) (Huang et al. 1997).

It was determined that plants had accumulated the highest amount of Pb from distance 2 followed by distance 1 and least from distance 3 in its root and shoot tissues. Soil analysis showed that the distance 3 had more accumulation of Pb in its soil but the Dichanthium sericeum had accumulated less amount of Pb in its root and shoot tissues from distance 3. Results also revealed that the Dichanthium sericeum had accumulated Pb in its root and shoot tissues more from all three distances than from the control. The plant collected in distance 3 was very young, which might account for the low concentration of Pb in its shoot and
roots tissues. Younger plants had less ability to bioaccumulate Pb from the soil. In addition to this, most often the center of the bay becomes the target area. For this reason, the bullets would fall at the center of the bay and that might have been accumulated there.

Figure 9 showed that the Eleusine indica had accumulated Pb in its root and shoot tissues from all three distances were much higher than the Pb accumulation values of radish (Raphanus sativa L.) (Han and Lee 1996).

Results showed that the Eleusine indica had accumulated highest amount of Pb in its root and shoot tissues from distance two compared with two other distances. It has been observed that there were many bus tires at the center of the bay to catch the falling bullets during firing activity this was because military people also shoot their guns at the center of the bay whereas greater Pb accumulation in the root and shoot tissues of Cyperus rotondus demonstrated in figure 10 correlates with increasing concentration of Pb in the soil of distance 3 (De Jesus, 2005).

while the results showed in figure 11 on Pb concentration in the root and shoot tissues from the three distances in bay 3 (site 1) by Panicum antidotale Retz was comparable with Cucurbita moschata 33.08 µg g-1 (Diaz and Massol 2003).

This also revealed that the Panicum antidotale Retz had accumulated the highest amount of Pb in its root and shoot tissues from distance 2 and then from distance 3 and lowest from the distance 1. This was because military people also used to shoot their guns at the center of the bay during their training.

The values that are shown in Figure 12 on the Pb concentration in root and shoot tissues of Dichanthium sericeum from bay three (site 1) were relatively lower as compared with the accumulation of by T. rotundifolium and Potamogeton sp., which accumulated 1100 mg kg-1 and 11,000 ppm d.w. 11,000 mg kg-1 of Pb, respectively (Reeves and Brooks 1983).

Figure 12 also revealed that Dichanthium sericeum had accumulated comparatively high amount of Pb in its root tissues than the shoot tissues from all three distances and with the control.

The values shown in figure 13 on Pb concentration in the root and shoot tissues of Cyperus rotundus were comparable with the Pb accumulation of Calotropis procera leaves in Vieques (30.05 µg g-1) (Diaz and Massol, 2003).

In terms of Pb root shoot uptake of Cyperus rotundus, it had accumulated significantly high amount of Pb in its root and shoot tissues from distance 3 than from distances 1 and 2. This was due to the fact that there was more Pb in the soil of distance 3. The increase in accumulation and uptake of Pb in the root and shoot tissues could be attributed further to its proximity of the Pb source. This contention supports the study of Tung and Temple (1996).

The lead levels obtained in root and shoot tissues by Dichanthium sericeum from three distances in bay 4, site 2 (fig.14) were comparable with some agronomic crops, such as corn and pea, which can accumulate a shoot Pb concentration greater than that of Thlaspi rotundifolium (Cunningham et al. 1997). Results demonstrated that Dichanthium sericeum had accumulated the highest amount of Pb in its root and shoot tissues from distance 3 than among all distances. This was due to high concentration of Pb in the soil in distance 3.

The trend of results that was shown
in Figure 15 on Pb concentration in the root and shoot tissues of Dichanthium sericeum in three distances in bay 5 (site 2) was also observed in the study on birch in Pb contaminated soils (Klassen et al., 2000).

Results also indicated that Dichanthium sericeum comparatively accumulated less amount of Pb in its root tissues from distance 2 than from distances 1 and 3 whereas accumulation of Pb in its root and shoot tissues in all three distances were higher than the control.

Figure 16 showed that among various plant species, Mimosa pudica accumulated the highest amount of Pb in its root and shoot followed by Dichanthium sericeum while Ricinus communis accumulated the lowest amount of Pb in its root and shoot tissues.

Results indicated in figure 17 that the total Pb concentration of Centrosema pufescens was the highest and the Eleusine indica was the lowest whereas the Pb concentration of different plants by the control, was lower compared with plants from site 1 and site 2.

Plants list in table 6 showed the gradual decrease of concentration of Pb in their roots from top (Mimosa pudica 1495.45 ppm) to bottom Ricinus communis 42.05 ppm) in site 1 and site 2. As shown in the table, there was higher accumulation of Pb in the root of the 8 plant species than those of the control. This also showed that the concentration of Pb in root tissues of Cynodon dactylon (8.05 ppm) was the highest and Cyperus rotundus was the lowest (1.80 ppm only) among the control plants.

Plants that were listed in table 7 showed the accumulation of Pb in their shoot from highest to lowest. The plant species Mimosa pudica had accumulated (1495.45 ppm) more Pb in the root whereas plant species Cynodon dactylon accumulated (307.55 ppm) more Pb in the shoot. Results showed that the accumulation of Pb in the roots and the shoots of different plants are varied.

Among the Pb tolerant plant species with high concentration of Pb in their roots and shoots in table 8, It indicated that the plant species, Mimosa pudica was the most heavy metal tolerant species (1693.45 ppm) whereas Ricinus communis was the least heavy metal tolerant plant species (52.15 ppm) in site 1 and site 2. These results could be comparable to Miscanthus sinensis, Imperata cylindrica, Indocalamus tessellatus and Toddalia asiatica, which had absorbed also less heavy metals than the accumulators. Huan et al. 2012).

Result also demonstrated that concentration of Pb in the root and shoot tissues of plants from site 1 and site 2 were higher than from the control species.

The literature defined a Pb-hyperaccumulating plant that can accumulate at least 1000 mg Pb/kg (Cunningham at al., 1998). According to this value, Mimosa pudica (1693.45 ppm), Dichanthium sericeum (1486.75 ppm) and Centrosema pufescens (1239.00 ppm) were found hyper accumulators in this study.

Results also demonstrated that the plant Centrosema pufescens had the highest BCF (.8652 = 86.52 %), which was relatively comparable with the root BCF (1.01) of Brassica juncea (211000) (Huang and Cunningham 1996) and the plant Ricinus communis had the lowest BCF (1.36 %) which was lower compared with the BCF of Acasia victoria (5.14%) Mahdavi et al. 2014).

This means the plant Centrosema pufescens (86.52 %) had the maximum
translocation and absorption of heavy metal (Pb) from the soil in its roots and shoots in site 1 and site 2 whereas the plant Ricinus communis (1.36 %) had the lowest translocation and absorption of Pb from the soil. Plants Dichanthium sericeum (22.01 %) and Cyperus rotundus (19.50 %) had quite similar translocation and absorption of heavy metal from the soil in their roots and shoots in site 1 and site 2. Plants Panicum antidotale Retz (54.78 %) and Cynodon dactylon (55.78 %) had also obtained similar translocation and absorption of heavy metal from the soil in their roots and shoots in site 1 and site 2. These values were relatively comparable with the root BCF value (0.756) of T. aestivum (cv. Scout 66).

Mimosa pudica (41 %) had the medium translocation and absorption of Pb from the soil in site 1 and site 2. Plant Eleusine indica (14.26 %) had the 2nd lowest translocation and absorption of Pb from the soil in its roots and shoots. Results showed that plants Centrosema pufescens had taken up higher amount of Pb from the soil and accumulated in its roots and shoots, whereas the plant Ricinus communis had taken very least amount of Pb from the soil and accumulated in its roots and shoots.

Determination of Bioconcentration Factor (BCF)

Results demonstrated that the BCF of the plants Dichanthium sericeum (22.01 %), Eleusine indica (14.26 %), Mimosa pudica (41 %), Cyperus rotundus (19.50 %), Panicum sp. (54.78 %), Centrosema pufescens (86.50 %), Cynodon dactylon (55.78 %) and Ricinus communis (1.36 %) BCF respectively were below the root BCF of other hyperaccumulator plants such as T. caerulescens (2,004), Brassica juncea (531268) (1.384), and T. rotundifolium (2.54) (Huang and Cunningham 1996).

The BCF of Panicum sp. (54.78 %) and Cynodon dactylon (55.78 %) were comparable with the BCF of Zea may (cv. Fiesta) 0.59 = 59 % (Huang and Cunningham 1996).

Results revealed that the plant Centrosema pufescens had the most phytoremediation ability among all other plant species in site 1 and site 2. It is followed by Cynodon dactylon and Panicum antidotale Retz respectively.

V. CONCLUSION

This study identified eight plant species with high concentration of Pb in their root and shoot tissues. The highest Pb accumulation is in Mimosa pudica and the lowest is in Ricinus communis. Correlation analysis demonstrated that the plant species total accumulation of Pb is positively correlated with plant’s root and shoot Pb accumulation. The highest BCF is found in Centrosema pufescens and the lowest in Ricinus communis among these eight plant species. Mimosa pudica, Dichanthium sericeum and Centrosema pufescens have the hyperaccumulation capacity of Pb in their root and shoot tissues. Therefore these plants could be valuable species for the phytoremediation of Pb-contaminated sites.

VI. RECOMMENDATION

Hyperaccumulating plant species found in this study could be used for phytoremediation of contaminated sites and
those sites could be used for cultivation.

The further researches on the heavy metals like cadmium (Cd), mercury (Hg) and arsenic (As) could be done where there are heavy metal contaminated sites, as well as in situ phytoremediation with different concentration of Pb using these plant species up to their maturity and reproductive stage and the further study on grazing animals and fowls in military firing ranges were prospected.

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Leader-Member Exchange and Its Relationship to Workplace Conflict as Mediated by Organizational Citizenship Behavior

Arlette Ufitinema and Lualhati Parulan Sausa*

Abstract

This study aimed to explore the relationship between leader-member exchange and workplace conflicts as mediated by organizational citizenship behaviors among private hospital workers in the Philippines. Data from 309 regular workers were collected through random sampling from conveniently selected private hospitals in the Philippines. Descriptive-correlational design was used in this study. Correlation, descriptive statistics and regression analysis were used to analyze the data. The respondents were satisfied by leader-member exchange on the leaders’ side, highly demonstrated their citizenship behaviors and perceived a low intensity of workplace conflicts. Leader-Member exchange and organizational citizenship behaviors had a significant positive relationship. However, there was no significant relationship between organizational citizenship behaviors and workplace conflicts. There was a significant negative relationship between leader-member exchange and workplace conflicts. There were significant mediating effects of organizational citizenship behaviors on the relationship between leader-member exchange and workplace interpersonal and intrapersonal conflicts. There was no significant difference in workplace conflicts when age, gender, and length of work experience of respondents were considered.

Keywords: leader-member exchange, workplace conflict, organizational citizenship behavior
I. INTRODUCTION

Workplace-based conflict can result in damaged relationships, loss of productivity, diminished job satisfaction, and increasing workers’ compensation claims for psychological injury (Mackenzie, 2015). Conflict is a social problem in which two or more persons, families, parties, or communities are in disagreement with each other (Salami, 2009). Interpersonal conflict is a disagreement between two or more people. Workplace conflict is a disagreement between or within groups in organization. The groups may be workers, workers’ unions, or management. Organizational conflict is common in the workplace because people always have divergent views on various issues, interests, ideologies, goals, and aspirations. One study surveyed workers and found that almost 85% reported conflicts at work (Ramsbotham & Woodhouse, 2011).

Hospital environments are exposed to many types of conflict compounded by increasing demands on an over-limited staffing supply, a decrease in available resources, and a period of profound changes. These complexities and tensions in hospital settings will undoubtedly continue, and even escalate, providing a fertile ground for conflict among healthcare professionals (Sportsman & Hamilton, 2007).

Conflict within the nursing profession as part of healthcare institution, however, has traditionally generated negative feelings. It has been seen to drain energy, reduce focus, and cause discomfort and hostility. The healthcare industry is subject to increasing strains due to demands for broader access to care, greater accountability to consumers, and improved quality of care, while facing more work for less pay, staffing shortages, stiffer regulatory enforcement, and decreased reimbursement which lead to stress and often to conflict (Northam, 2009).

When nurses, who often are persons who know the patient’s situation most intimately, withdraw, patient illness and death rise. Some negative consequences of conflict can undermine an organization’s efforts. However, if handled correctly, conflict can benefit individuals and organizations by producing stronger and more resilient working relationship, improving creative output, and generating innovative solutions (Deutsch, Coleman, & Marcus, 2011). Serious workplace conflicts result in an alarmingly higher number of medical errors (Baldwin & Daugherty, 2008).

Various factors contribute to the experience of conflict in organizations. Rahim (2002) posited that differences in attitudes, values, level of skills, and behaviors lead to conflict in the workplace. Generally, disagreement exist when parties think that a divergence of values, needs, interests, opinions, goals, or objectives exist (Barki & Hartwick, 2004).

Workplace conflict is considered a natural and inevitable, organizational phenomenon, that accompanies human interaction within any organization. It can be within individual himself, or between individuals, or between the individual and groups, or among groups (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). By considering workplace conflict as one of the main interaction forms and its existence at a ce-
rtain level is deemed a motivation, and one of the driving sources to raise individuals’ and groups’ performance. However, the increasing intensity of conflict, or its high level will result in a negative effect on the level of performance and then it undermines organization effectiveness (Sanders & Schyns, 2006).

Research conducted in the US shows that 60-80% of all difficulties in organizations stem from strained relationships between employees, and not from deficits in individual employee’s skill or motivation (Tjosvold, 2008). In another study, typical manager spends 25-40% of his or her time dealing with workplace conflicts which is one to two days of every week that translates to $385 million spent every year as a result of conflict in the workplace (Wayne, 2005). Furthermore, another research done in US showed that 49% of employees have been affected by workplace conflicts (Barling, Dupré, & Kelloway, 2009). Another study done by the American Management Association on the cost of conflict showed that a manager will spend between 20% to as much as 50% of his/her time dealing with conflict in the workplace.

Studies recorded in Global Human Capital Report (2008) showed that in Germany and Ireland, the average time spent managing conflict rises to 3.3 hours per week, an even higher proportion of available working time. Also in Denmark, statistics showed that 63% of Danish employees experienced workplace conflicts and 32% witnessed that conflicts make them feel demotivated. Moreover, surveys done in Europe revealed that German employees report the most workplace conflicts and these led to bullying, projects failure, sickness, and elevated level of absenteeism. Furthermore, 26% of Irish witnessed that conflicts at work make them feel angry and frustrated (Global Human Capital Report, 2008).

In the Philippines, a research showed that for three years, 2007-2009, manufacturing companies experienced the biggest slump in productivity reduction due to labor dispute problems, their productivity dropped from 30% to 60% (Philippine Labor and Employment Plan, 2011-2016). Workplace conflicts occur for many reasons. In the current study, the researcher aimed to seek the relationship between leader-member exchange and organizational conflict as mediated by organizational citizenship behaviors among private hospital workers.

II. METHODS

The descriptive-correlational research design was utilized in the study. The population of this study were 309 regular employees in three selected hospitals in the Philippines. Most of them came from the age group of 30 and above (67%), and majority are female (65%). Many of them had been serving the institutions for fifteen years and below (70%). Self-constructed questionnaire was designed for the data gathering. To ensure consistency, validity, and reliability of instruments, the research instrument was subjected to experts’ validation composed of nine experts from Adventist University of the Philippines. A pilot study was conducted at one private hospital in the Philippines. The purpose of the study was clearly explained to the participants. They were informed that participation was voluntary and that they could choose not to
participate at will. The researcher also ensured confidentiality and anonymity of each of
the respondents by letting them answer the questionnaires without writing their names
and only the researcher and human resource directors who assisted in the data gathering
had access to the questionnaires. Mean, standard deviation, Structural equation modeling
(SEM) using AMOS/SPSS, non-parametric tests, i.e., Kruskal Wallis and Mann-Whitney
tests, were used to answer the objectives of this study.

III. RESULTS

The study aimed to determine the relationship between leader-member exchange
and workplace conflicts as mediated by organizational citizenship behaviors of private hos-
pital workers in the Philippines.

Table 1
Summary of the Descriptive Results of Leader-Member Exchange

<table>
<thead>
<tr>
<th>Leader-Member Exchange</th>
<th>M</th>
<th>SD</th>
<th>SR</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect</td>
<td>3.23</td>
<td>0.49</td>
<td>Agree</td>
<td>S</td>
</tr>
<tr>
<td>Loyalty</td>
<td>3.13</td>
<td>0.48</td>
<td>Agree</td>
<td>S</td>
</tr>
<tr>
<td>Contribution</td>
<td>3.08</td>
<td>0.55</td>
<td>Agree</td>
<td>S</td>
</tr>
<tr>
<td>OVERALL</td>
<td>3.15</td>
<td>0.48</td>
<td>Agree</td>
<td>S</td>
</tr>
<tr>
<td>S-Satisfactory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The overall results revealed that respondents were satisfied by their relationships
with leaders as in-group members that is the leader-member exchange was generally satis-
sfactory with a grand mean of 3.15 (SD = .48). The study of the dimensions of leader-mem-
ber exchange revealed that leaders’ affect towards respondents was satisfactory, leaders’ loy-
alty to members was also satisfactory and leaders’ contribution to members’ job tasks was
satisfactory, too.

Table 2
Summary of the Descriptive Results of Organizational Citizenship Behavior

<table>
<thead>
<tr>
<th>OCBs</th>
<th>M</th>
<th>SD</th>
<th>SR</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altruism</td>
<td>3.50</td>
<td>0.72</td>
<td>Frequently</td>
<td>HD</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>4.11</td>
<td>0.59</td>
<td>Frequently</td>
<td>HD</td>
</tr>
<tr>
<td>Civic Virtue</td>
<td>3.76</td>
<td>0.70</td>
<td>Frequently</td>
<td>HD</td>
</tr>
<tr>
<td>Courtesy</td>
<td>3.90</td>
<td>0.70</td>
<td>Frequently</td>
<td>HD</td>
</tr>
<tr>
<td>Sportsmanship</td>
<td>3.25</td>
<td>0.83</td>
<td>Sometimes</td>
<td>FD</td>
</tr>
<tr>
<td>OVERALL</td>
<td>3.70</td>
<td>0.57</td>
<td>Frequently</td>
<td>HD</td>
</tr>
</tbody>
</table>

HD-Highly demonstrated, FD-Fairly demonstrated
The results revealed that the demonstration of organizational citizenship behaviors by the respondents was highly demonstrated with a grand mean of 3.70 (SD = .57). The study of the dimensions under organizational citizenship behaviors revealed that respondents’ altruism was highly demonstrated, their conscientiousness was highly demonstrated, their civic virtue was high, respondents were highly courteous and respondents’ sportsmanship was fairly demonstrated.

Table 3
Summary of the Descriptive Results of Workplace Conflicts

<table>
<thead>
<tr>
<th>Workplace Conflict</th>
<th>M</th>
<th>SD</th>
<th>SR</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Conflict</td>
<td>2.33</td>
<td>0.56</td>
<td>Disagree</td>
<td>LI</td>
</tr>
<tr>
<td>Intrapersonal Conflict</td>
<td>2.30</td>
<td>0.53</td>
<td>Disagree</td>
<td>LI</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td><strong>2.32</strong></td>
<td><strong>0.51</strong></td>
<td><strong>Disagree</strong></td>
<td><strong>LI</strong></td>
</tr>
</tbody>
</table>

LI - Low intensity

The results also revealed that the intensity of workplace conflicts was low among private hospital workers. The study of dimensions under workplace conflicts revealed that there was a low intensity of both interpersonal and intrapersonal conflicts among private hospital workers.

Table 4
Correlational Results of Leader-Member Exchange and Organizational Citizenship Behaviors

<table>
<thead>
<tr>
<th>LMX</th>
<th>ALT</th>
<th>CS</th>
<th>CV</th>
<th>CT</th>
<th>SP</th>
<th>OCBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect</td>
<td>.237**</td>
<td>.168**</td>
<td>.339**</td>
<td>.176**</td>
<td>.180**</td>
<td>.273**</td>
</tr>
</tbody>
</table>

| Loyalty |  .225** | .134* | .306** | .182** | .176** | .255* |

| Contribution |  .253** | .119* | .288** | .147** | .199** | .253** |

S - Significant

The overall correlations revealed that there was a significant positive relationship between leader-member exchange and respondents’ organizational citizenship behaviors with $r = .273$, $p = .000$ at 0.01 level (2-tailed). This shows that the higher is in-group leader-member exchange, the more members demonstrate organizational citizenship behaviors.

Table 5
Correlation Results of Organizational Behaviors and Workplace Conflicts

<table>
<thead>
<tr>
<th>OCBs</th>
<th>WCE</th>
<th>WCA</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altruism</td>
<td>.074</td>
<td>.031</td>
<td>.057</td>
</tr>
</tbody>
</table>

Sig (2tailed) .196  .583   .321
There was no significant relationship between organizational citizenship behaviors and workplace conflicts. This means that OCBs did not have a significant influence on the workplace conflicts.

There was also a significant negative relationship between leader-member exchange and workplace conflicts with Pearson correlation of -.198, \( p = .000 \) at 0.01 level (2-tailed). This implies that the higher was leader-member exchange, the lower was the intensity of workplace conflicts among private hospital workers. It means that in-group leader-member exchange helps decrease the intensity of conflicts in the workplace.

There was no mediation of organizational citizenship behaviors on the relationship between leader-member exchange and workplace conflict. This means that leader-member exchange directly correlated with workplace conflicts regardless of the mediation of organizational citizenship behaviors.

Respondents perceived the same level of workplace conflicts regardless of their moderator variable.
profiles. This means that there was no difference in workplace conflicts when respondents’ profiles were considered.

IV. DISCUSSION

The regular employees of the three selected hospitals in the Philippines were satisfied with the leader-member exchange in their respective hospitals, highly demonstrated organizational citizenship behaviors and perceived a low intensity of workplace conflicts. Respondents’ organizational behaviors were influenced by their relationships with leaders. The respondents perceived that workplace conflicts were not influenced by their citizenship behaviors. Results also showed a significant influence of leader-member exchange on workplace conflicts. Workers’ citizenship behaviors had mediating effects on the relationship between leader-member exchange and workplace conflicts among workers.

Management and administrators should consider in their plans, a clear path for leaders to create in-group relationships with their subordinates as a way of diminishing the intensity of workplace conflicts.

Workers should be encouraged to represent their organizations as they are the precious asset of their institution through a strong system of friendship which is not only based on the prescribed contract but also on the discrentional behaviors that would promote the performance and productivity of hospitals. Leaders should find ways to reduce the intensity of workplace conflicts by providing support to employees so as to help them to be satisfied with whatsoever is communicated to them in their daily work. Workers have to work for their relationship with leaders to be as good as possible through a high demonstration of selflessness as a result of satisfactory support from their leaders. They should also work hand in hand as a team so as to mitigate the intensity of workplace conflicts which is considered inevitable.

Other researchers should conduct more studies on what other factors influence workplace conflicts such as workplace incivility, employee downsizing, organizational change, organizational justice, among others. Researchers may also do a qualitative study on workplace conflicts; to have an in-depth reason of what influences workplace conflicts. They may also replicate the same study in different public healthcare institutions and hospitals.

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EMOTIONAL INTELLIGENCE AND LEADERSHIP EFFECTIVENESS OF SECONDARY SCHOOL PRINCIPALS

Molina Salvador

Research on emotional intelligence and its effect on successful leadership has been slower in the field of education, a very important area to build the foundation of nations, than in other fields. Thus, this study determined the relationship between the perceived emotional intelligence and leadership effectiveness of the secondary school principals in the national high schools of the Division of Camarines Sur, Philippines. Descriptive-evaluative method was employed in this study using content validated survey questionnaires. The respondents consisted of 30 principals and 529 faculty members from the selected 30 national high schools. Simple random sampling for teacher respondents was employed after the identification of the sample schools. Findings revealed that the emotional intelligence of secondary high school principals was rated high both by teachers and principals in terms of intrapersonal, interpersonal, coping mechanism, adaptability, and general mood. The level of principals’ leadership effectiveness was also high in the following aspects: empowerment function, leader with power of influence, decision making function, visioning, leader as positive force, and promotion of favorable organizational climate. Further results revealed that emotional intelligence and leadership effectiveness were significantly and positively related indicating that the higher the emotional intelligence of secondary high school principals the more effective they were in their leadership. Educational attainment was significantly related to leadership effectiveness but age and years of experience were not related to leadership effectiveness.

Keywords: emotional intelligence, leadership effectiveness
I. INTRODUCTION

The rapid development of technology and globalization has caused educational institutions to face more complex educational environment, and educational leaders need to respond to varied challenges. The role therefore of principals as educational leaders could not be under estimated for success cannot be achieved without effective school leadership.

A growing body of evidence confirms that teachers and leaders are the two most significant school-based factors in achieving schools’ success. Effective leadership undoubtedly is a catalyst to school success. The landmark research commissioned by the Wallace Foundation in 2004 suggests that there are virtually no documented instances of schools being turned around without strong and effective leaders. One reason is that a good principal is one of the most important determinants of whether a school will fail or succeed (Shelton, 2010). Empirical research shows that, leaders do make a significant difference and that the importance of a good leader is indispensable. (Amram 2009) noted that with the wrong leader schools fail.

Appropriate leadership practices for educational institutions are needed in the 21st century if they are to raise standards, status, and improve overall campus environment. The effectiveness and efficiency of the educational institutions is an emerging crisis, a crisis directed to the leadership. There is a great challenge in today’s educational leadership and this challenge, as pointed out by Raebuck (1992), is for the leaders to initiate and follow new leadership practices which offer fresh breath for both the leaders and followers. Leadership therefore in today’s environment requires fresh approaches. This challenge for the leaders of the 21st century is inevitable and has to be dealt with openly for the leader is dealing with human beings, the most valuable asset in any organization.

How leaders use their cognitive abilities, technical skills and their emotional intelligence which serve as their most valuable tools in dispatching their responsibilities is a critical factor in their leadership. In today’s environment, there are new rules in the workplace for the 21st century leadership redefining what it means to be intelligent and successful in the work place. According to Curry, (2004) the new rule requires that individuals especially leaders have personal qualities or competencies in understanding those with whom they work or lead. As the pace of change increases and the world of work makes ever greater demands on a person’s cognitive, emotional, and physical resources, this particular set of abilities will become increasingly important and will help improve both productivity and psychological as well as emotional well-being in the workplace.

With the emerging research on the impact of emotional intelligence to leadership, this study is of great significance. Traditional leadership which is dependent on the use of power and authority is now losing its savor. With the rapid change that are taking place in the environment and the workplace, principals as the key factor of schools success must adopt the recent trends in leadership. Paradigm shift is necessary if an educational leader is to be relevant in today’s environment.

While there is a great deal of re-
search about the significance of emotional intelligence and its effect on successful leadership, Shelton (2010), made valid observations that education has been slower than many other fields in developing and widely adopting well-crafted, reliable ways to ensure leadership success.

Aware of the complex challenges that principals face in their respective schools and the workplace, the researcher ventured on a fresh topic on the relationship of emotional intelligence to effective leadership. There is no doubt that emotional intelligence is the foundation of a successful leadership and organization as revealed by various researches. Emotional intelligence is the most fundamental dimension of leadership today and in the foreseeable future (Sterrett, 2007).

Statement of the Problem

This study sought to answer the following questions:

1. What is the level of the principals’ emotional intelligence in terms of:
   a. General mood
   b. Interpersonal relationship
   c. Intrapersonal relationship, and
   d. Coping mechanism?
2. What is the level of the principals’ leadership effectiveness in terms of following aspects?
   a. Organizational Climate
   b. Leader as visionary
   c. Leader as positive force
   d. Leader with power of influence
   e. Leader who empower followers
   f. Leader as decision maker
3. Is there a significant relationship between emotional intelligence and leadership effectiveness of Principals in secondary schools?
4. Is there a significant relationship between personal factors (age and years of experience) and principals’ emotional intelligence and leadership effectiveness?

II. METHODS

Research Design

This study made use of the descriptive- evaluative and correlational methods of research. It described and evaluated the level of emotional intelligence of the principals using a five point scale categorized as very low, low, fair, high, and very high. It also described and evaluated the level or extent of principals practice of their leadership functions using a five point scale categorized as very low, low, fair, high, and very high.

Correlation and regression analysis were used to determine the degree of relationship between the aspects of emotional intelligence and the categories of leadership effectiveness of principals and other factors associated with the emotional intelligence.
and leadership effectiveness. Analysis of variance was also used to test the difference in emotional intelligence and leadership effectiveness of principals among aspects and functions.

The perceptions of the principals on how well they do with their emotional intelligence and leadership effectiveness were obtained using the standardized instruments. Other factors associated with the emotional intelligence and leadership effectiveness were also evaluated.

Population and Sampling Techniques

Thirty selected national high schools in the Division of Camarines Sur represented the research setting of this study. The respondents consisted of 30 principals and 529 faculty members coming from the selected 30 national high schools.

Simple random sampling for teacher-respondents was employed after the identification of the sample schools. Slovin formula was used in determining sample size per school.

Instrumentation

Two sets of questionnaires were used in gathering the data to help answer the problems in this study. The first set of questionnaire was composed of two parts and intended to measure and determine the level of the emotional intelligence of the principals. The first part of the first set included the demographic profile of the respondents. Part two covered the main items to measure the aspects of principals’ emotional intelligence: intrapersonal, interpersonal, coping mechanism, adaptability, and general mood. The instrument used to measure emotional intelligence of principals was a modified version of the work of Ruben Bar-on (2000). A dry run of the questionnaires was conducted in selected national high schools in the City Division of Naga and their suggestions were incorporated in the final draft.

The second set of questionnaire covered the principals’ various leadership functions: leader who empowers followers, leader with power of influence, leader as decision maker, visionary leader, leader as positive force and promoter of favorable organizational climate developed by Chapman and O’Neil (2000).

Statistical Treatment

Mean, percentage, and rank were used to determine the level of emotional intelligence and the level of leadership effectiveness of principals. Pearson’s coefficient of correlation ($r$) analysis to determine the significant relationship between aspects of emotional intelligence and effectiveness of leadership functions and factors associated with these two groups of variables was also used. Analysis of Variance (ANOVA) was used to determine the significant difference in the emotional intelligence and leadership effectiveness consid-
Emotional Intelligence and Leadership Effectiveness of Secondary School Principals

III. RESULTS

Table 1 presents the summary result of the level of the principals’ emotional intelligence along aspects. Five aspects were rated by the respondents and the computed mean ranged from 3.85 to 4.16, an indication of high level ratings with the overall mean of 4.06. Among the five aspects, general mood ranked first, with a mean rating of 4.16, followed by interpersonal with a mean of 4.15. Adaptability ranked third with a mean rating of 4.11. Given somewhat lower ratings were intrapersonal 4.08 and coping mechanism 3.85 but they were still in the high level category, two aspects were identified to have obtained the lowest ratings, intrapersonal with 4.08 mean rating and coping mechanism 3.85.

Table 1

Summary of the Level of the Principals’

Emotional Intelligence Across Aspects

<table>
<thead>
<tr>
<th>Emotional Aspects</th>
<th>Mean</th>
<th>Rank</th>
<th>Descriptive Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Mood</td>
<td>4.16</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>4.15</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td>Adaptability</td>
<td>4.11</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>4.08</td>
<td>4</td>
<td>High</td>
</tr>
<tr>
<td>Coping Mechanism</td>
<td>3.85</td>
<td>5</td>
<td>High</td>
</tr>
<tr>
<td>Mean</td>
<td>4.06</td>
<td></td>
<td>High</td>
</tr>
</tbody>
</table>

The perceptions of respondents revealed that the respondents felt that the principals in the secondary schools of Camarines Sur exhibited positive general mood. Principals showed positive attitude by looking at the brighter side of life. Maxwell (2001) observed that there is very little difference in people, but that little difference makes a big difference. That difference is attitude. Chuck Swindoll (as cited by Maxwell, 2006) explained that people’s approach and attitude towards life is more important than education, money, circumstances, failures, success, and what other people think or say or do.

Interpersonal relationship is the second highest aspect. This means that principals give more importance to interpersonal relationship especially in dealing with their teachers. De Ville (1995) observed that no matter how well intentioned a manager may be in his or her efforts to guide, teach, counsel and demonstrate principles to the subordinates, the efforts reap a limited harvest if the manager fails to realize that the key to successful leadership lies with interpersonal relationships. Without a knowledge of how humans are motivated and interact with one another, and the flexibility to apply “people skills” appropriately, no manager can be truly effective.
Adaptability was third in rank. It means that principals were able to deal with the changing environment as they dispatch their responsibilities as leaders. Goleman (2000) pointed out that adaptability is one of the emotional intelligences needed in today’s environment. As pointed by Mullins (2010), it is not the strongest of the species that survives, nor is the most intelligent that survives. It is the one that is the most adaptable to change.

The respondents agreed that intrapersonal and coping mechanism were the two aspects which need improvement. It suggest that principals were somewhat lagging in terms of understanding their own emotions. This was supported by the study of Stone et al., (2007) that although total emotional intelligence was a significant predictor of successful school administration, some dimensions of emotional intelligence were better predictors than others. The authors of the Ontario principals study (Stone et al.,) pointed out that principal need to improve more on emotional self-awareness and the ability to recognize and understand one’s feelings and emotions.

Respondents also perceived that principals were somewhat weak in coping mechanism. Principals needed to improve in terms of coping up with stress and the situations. Leung and Yim (2009) who examined the occupational stress and mental health of secondary school teachers in Hong Kong pointed out that teachers experienced stress on varying degree but coping resources was very limited with most deficits on rational and cognitive coping. Teachers have high occupational stress but insufficient stress coping resources and training. This is one of the problems that confront not only the teachers but specially the principals.

Summary of Leadership Effectiveness

Across Aspects

Table 2 presents the summary of the respondents’ perception on the level of the principals’ leadership effectiveness.

Mean rating obtained was 4.14, categorically a high rating. All six dimensions of principals’ leadership functions were given high ratings ranging from 4.07 to 4.20. Principals were rated highest 4.20 in the promotion of favorable organizational climate and their visioning leadership 4.19. Lower ratings, although still high were power of influence, 4.13, empowerment 4.10 and decision making 4.07.
Table 2

**Summary of Leadership Effectiveness**

**Across Aspects**

<table>
<thead>
<tr>
<th>Leadership Aspects</th>
<th>Mean</th>
<th>Rank</th>
<th>Descriptive Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Climate</td>
<td>4.20</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td>Leader as visionary</td>
<td>4.19</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td>Leader as positive force</td>
<td>4.16</td>
<td>3</td>
<td>High</td>
</tr>
<tr>
<td>Leader with power of influence</td>
<td>4.13</td>
<td>4</td>
<td>High</td>
</tr>
<tr>
<td>Leader who empower followers</td>
<td>4.10</td>
<td>5</td>
<td>High</td>
</tr>
<tr>
<td>Leader as decision maker</td>
<td>4.07</td>
<td>6</td>
<td>High</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>4.14</td>
<td></td>
<td><strong>High</strong></td>
</tr>
</tbody>
</table>

Legend: 4.21 – 5.00 – Very High  3.41 – 4.20 – High  2.61 – 3.40 – Fair  1.81 – 2.60 – Low  1.00 – 1.80 – Very Low

The respondents felt that organizational climate is one of the determinants of principals’ leadership effectiveness. It means that no matter how good the idea of emotional intelligence and leadership effectiveness is, it will not work unless a set of organizational values is adopted, shared, embraced, and owned by the principals and teachers themselves. In other words, the respondents gauge effectiveness not only in terms of skills and performance but also in terms of fairness and good interpersonal relationships.

In relation to their work as visionary leader, the respondents felt that principals are also doing well in terms of preparing future leaders, maintaining positive attitude, developing employees for productivity, articulating inspiring vision, and setting goals toward its mission. On the other hand, respondents felt that principals’ empowerment and decision making functions need more concrete evidences. The ability to empower subordinates and make firm decisions could have bearing on the existing culture of the place.

**Relationship of Emotional Intelligence with Leadership Effectiveness**

Table 3 shows the results of the test of relationship between the aspects of emotional intelligence and the leadership effectiveness of principals.

**Intrapersonal and leadership dimensions.** The significant relationships of intrapersonal aspect of emotional intelligence to the different dimensions of the principals’ leadership functions were indicated by the following r values: leader with power of influence (0.9835); leader as decision maker (0.9816); leader as visionary (0.9758); leader who empowers followers (0.9607); positive force (0.9457) and organizational climate (0.9157).
Data revealed that intrapersonal aspect had significant relationships with all the leadership dimensions of the principals. Very significant relationship existed between the intrapersonal aspect and the principal’s power of influence indicating that self-awareness of the principals of their emotions and how they express them cause to have better influence to their subordinates. The coefficient of determination ($r^2$) 0.9672, means that the intrapersonal aspect’s contribution to the total variance of leadership effectiveness was 96.72%.

Table 3

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra</td>
<td>0.9607</td>
<td>0.9835</td>
<td>0.9816</td>
<td>0.9758</td>
<td>0.9457</td>
<td>0.9157</td>
</tr>
<tr>
<td>Inter</td>
<td>0.9699</td>
<td>0.9752</td>
<td>0.9865</td>
<td>0.9686</td>
<td>0.9695</td>
<td>0.9818</td>
</tr>
<tr>
<td>Coping Mec.</td>
<td>0.9119</td>
<td>0.9227</td>
<td>0.9365</td>
<td>0.9297</td>
<td>0.8959</td>
<td>0.8605</td>
</tr>
<tr>
<td>Adapt</td>
<td>0.9749</td>
<td>0.9870</td>
<td>0.9905</td>
<td>0.9865</td>
<td>0.9129</td>
<td>0.9438</td>
</tr>
<tr>
<td>General M.</td>
<td>0.9788</td>
<td>0.9923</td>
<td>0.9905</td>
<td>0.9903</td>
<td>0.9694</td>
<td>0.9442</td>
</tr>
</tbody>
</table>

Legend:*=Significant (.01)

This result confirms the findings of Goleman, (2000) which noted that in a fundamental sense, the effectiveness of our influence to others hinges on our ability to attune ourselves to or influence the emotions of another person.

A significant positive association between intrapersonal and leader as decision maker was revealed. It implied that when a leader is conscious and aware of his own emotions, he is in a better position and tends to make better decisions for he is not emotionally affected. This finding confirms the study of Martin (2008) on the relationship of emotional intelligence and leadership effectiveness which pointed out that emotions affect thinking and decision making.

Along visioning, strong positive relationship was also revealed. The principals’ ability to know and manage their emotions at a given situation affect positively their visions for themselves, subordinates and their own schools. They keep their focus on what they want to accomplish for themselves, for their employees and for the organizations as a
whole instead on focusing on the problems and criticisms.

A positive relationship existed between intrapersonal and leadership effectiveness along empowerment. It implied that leaders who can accurately perceive and understand their emotion tend to be more open in sharing their powers and authorities. This confirms the observation of Sterrett (2007) who pointed out that the more one is aware of oneself, the easier he or she can adjust and respond to others, and the more mutually satisfying his or her interactions and transactions are.

Intrapersonal and leader as positive force revealed positive correlation $r=0.9457$. As leaders who know their inner strength they affect their subordinates positively by inspiring others to be all they can be. Sterrett (2007) pointed out that awareness opens up new possibilities for behavior.

Along promotion of favorable organizational climate, a positive correlation was revealed by the $r$ value of 0.9157. This indicates that conscious efforts to effectively handle one’s emotion contribute to creating a positive organizational climate where there is an atmosphere of fairness and acceptance.

**Interpersonal and leadership dimensions.**

Interpersonal aspect is one of the emotional intelligence aspects which was significantly related to all the leadership functions of the principals. The significant relationships of interpersonal aspect with the leadership functions was indicated by the following $r$ values: decision making 0.9865; promotion of favorable organizational climate 0.9818; power of influence 0.9752; empowerment 0.9699; as positive force 0.9695, and visioning 0.9686.

Principals’ social awareness and interpersonal relationship with their subordinates help them in their decision making. This implied that those who are conscious and understand how others feel can make effective decisions because they know their people better; hence, they can deal with them, either singly or in a group.

Along promotion of favorable organizational climate, a significant relationship was also revealed. This means that a better interpersonal relationships between principals and teachers and among teachers, result to a more favorable organizational climate. Goleman (2000) pointed out that emotionally intelligent leadership is a key to creating a working climate that nurtures employees and encourages them to give their best.

The significant relationship between interpersonal and leader with power of influence was also revealed. Influence is largely based on relationships and when principals maintain mutually and satisfying relationships they build legitimate influence over their subordinates. Goleman (2000) noted that leaders leading with EQ handle and manage emotions effectively in other people and are persuasive.

The interpersonal aspect of the prin-
Principal’s emotional intelligence significantly correlates with their effectiveness as a leader in empowering followers. Empowerment is basically based on the trust and confidence of a leader to their subordinates and these are established if one knows who the person he is dealing with. Sharing of power and authority is possible only when good relationships exist between the leader and subordinates. This finding is being confirmed by the study of Gomez (2009) which examined the relationship between managerial trust and employee empowerment. The leader-member exchange (LMX) theory suggests that the quality of leader-member relations mediates the linkage between managerial trust and employee empowerment.

Positive relationship was also revealed between interpersonal and leadership effectiveness as positive force. Becoming a positive force behind a person is possible only when sound interpersonal relationship exists between the leader and follower. A leader becomes a positive force, only when he is well accepted by his colleagues because of good relationships.

Positive association between interpersonal and visioning leadership was also revealed. The good working relationships between principals and teachers enabled the principals to think beyond and create a future for the school and their teachers. Leaders who are socially aware of their responsibility towards their subordinates and maintain good relationships with them, become more creative and innovative in thinking beyond for the betterment of the school and constituents.

Coping mechanism and leadership dimensions. Coping mechanism of principals had shown positive correlation with their leadership functions. Although $r$ values were not as high as the other leadership dimensions, significant relationships were evident as revealed by the following $r$ values: decision making 0.9365, visioning 0.9297, power of influence 0.9119, positive force 0.8695, and promotion of favorable organizational climate 0.8605.

The significant relationship of coping mechanism with leader’s decision making ability indicates that how the principals manage and regulate their emotions affect their decision making. This implied that leaders who know themselves and accept who they are can handle well their emotions so that appropriate decisions can be made. Emotions affect thinking and thinking affects a person’s decisions. Thus, negative emotions result to negative decision.

Along visioning, significant relationships was also revealed. This implied that those leaders who can manage their emotions are more focused and can appropriately cope well with the given conditions of the environment. They keep moving towards their goals to achieve their visions for themselves, subordinates, and the organization.

Significant relationship was also revealed between coping mechanism and power of influence of a leader. Coping mechanism could be a significant determinant in testing power of influence of a
Emotional Intelligence and Leadership Effectiveness of Secondary School Principals

Leader. A higher emotional intelligence of principals would mean that more followers can be encouraged to join them in the attainment of the goals of education. They are respected by their subordinates and they can effectively use their authority when needed because the teachers recognize their status as their leaders.

Leader who empowers followers, was also found to have significant relationship with coping mechanism. It means that the higher the emotional intelligence of the principals is, the more confident and secured they are that they can delegate some functions to their followers without any reservation.

A significant relationship was also indicated between coping mechanism and leader as positive force. It means that those who are good in managing and coping stress maintain their influence as a positive force to their subordinates. Effective leaders are usually tested during difficult times when their patience and calmness are needed. Teachers look up to their principals as their source of strength during turbulent times.

Coping mechanism was also significantly related to promotion of favorable organizational climate. Principals serve as the main agent in promoting a positive organizational culture. Those who can cope well with stress tend to understand, recognize, and appreciate teachers’ roles and their performance encourage teamwork, cooperation and open communication which is a positive indication of a good organizational climate.

Adaptability and leadership dimensions. Data revealed that adaptability had significant relationship with all the dimensions of leadership based on the following $r$ values: leader as decision maker 0.9905, leader with power of influence 0.9870, leader as visionary 0.9865, leader who empower followers 0.9749, organizational climate 0.9438, and leader as positive force 0.9129.

The significant relationship between adaptability and leader as decision maker indicates that how the principals adapt and manage change in every situation affects them as decision makers. It implied that those persons who have better skills and understanding how to adapt and manage change can make appropriate decisions confronting them. They can easily adjust and able to manage change which help them to become better decision makers.

Adaptability in relation to leader with power of influence had also shown strong and positive relationship. It means that leaders who have the ability to objectively validate their feeling and thinking with the external reality, effectively solve their problems of a personal and interpersonal nature and tend to maintain their positive influence to their subordinates. The principals’ influence as a leader is being respected and well accepted by their subordinates.

Along visioning significant relationship was also revealed with adaptability. This indicates that the ability of the principals to handle and manage change in their life and environment affect the development
of the future scenario for the organization and their people. They operationalize their visions by preparing future leaders, maintaining positive attitude, and developing employees for productivity.

In relation to leader who empowers followers, adaptability had shown positive relationship with it. It means that principals have the capacity to make some innovations and interventions necessary for the school with the help of teachers whom they have empowered for efficiency and effectiveness.

Along promotion of favorable organizational climate, adaptability also revealed a positive relationship. This means that a person’s adjustment to the situations in his environment affects positively the general atmosphere of the organization especially the relationship between leader and subordinates. The ability to objectively validate one’s feelings and thinking with external reality, to adapt and adjust one’s feelings and thinking to new situations, and to effectively solve problems of a personal and interpersonal nature helps the individual to manage the change that are taking place in the environment. The leader maintains teamwork, open communication, transparency and good relationships which are essentials in a positive organizational climate.

Significant relationship also exists between adaptability and leader as positive force. It means that the ability of the leaders to manage change affects positively their role as a positive force. This implied that for leaders to maintain their influence as a positive force to their subordinates, valid and reliable solutions should be seen in them.

**General mood and leadership dimensions.**

Data revealed that general mood or the self-motivation of the leader has significant relationships with the leadership functions of the principals as revealed by the following $r$ values: influence 0.9923; decision making 0.9905; visioning 0.9903; empowerment 0.9788; positive force 0.9694; and organizational climate 0.9442.

The highest significant relationship was revealed between general mood and leader with power of influence. This means that as leaders, the principals’ positive outlook in life and their feeling of contentment in life significantly correlated with their degree of influence to their subordinates. This can be due to the principals’ positive outlook in life and satisfaction which are seen by the teachers.

General mood and decision making were also found significantly associated. This means that the self-motivation of the principals affect positively their function as decision maker. This implied that when a person has the inner strength attributed to motivation, it can be expected that rational and more objective and appropriate decisions are arrived at.

General mood was also significantly correlated with visioning leadership. One cannot create a future scenario if general mood is not favorable for a decision on a
particular situation. People who are satisfied with their status in life and continue to enjoy life as it is, tend to be more focused on their dreams for the organization and their people.

Significant relationship was also noted between general mood and empowerment. It implied that when leaders are contented with what they have and what they are, they will be in a better position to be more open in sharing their authority with their subordinates. They feel secure thus they unselfishly empower their people with some functions to prepare them as future leaders.

Leader as positive force is also significant related with the general mood of the principals. It indicates that those who have positive outlook in life are satisfied and therefore can encourage their subordinates to work with them for they know they will be partners in the development of themselves and their school.

In relation to favorable organizational climate, data also revealed significant relationship with the general mood of the principals. It means that the principals’ mood affect the climate of the organization especially in terms of the principal – teacher relationships. How a person deals with his/her environment affects his/her mood, and his/her mood affects his/her relationship with his/her subordinates and the general atmosphere of the organization.

Table 4

<table>
<thead>
<tr>
<th>Personal Factors</th>
<th>EQ r-value</th>
<th>Statistical significant</th>
<th>LE r-value</th>
<th>Statistical significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.0050</td>
<td>not sig.</td>
<td>0.1305</td>
<td>not sig.</td>
</tr>
<tr>
<td>Years of Experience</td>
<td>0.1067</td>
<td>not sig.</td>
<td>0.2376</td>
<td>not sig.</td>
</tr>
<tr>
<td>Educational Attainment</td>
<td>0.7057</td>
<td>significant</td>
<td>0.2204</td>
<td>not sig.</td>
</tr>
</tbody>
</table>

Table 4 presents the result on the personal factors which were hypothesized to be associated with emotional intelligence and leadership effectiveness of principals. These included, age, years of experience, and educational attainment.

**Age.** Data revealed that age in relation to emotional intelligence obtained $r$-value of 0.0050. This value is lower compared to the tabular value of 0.367. This indicates that age is not significantly associated with emotional intelligence. It means that
age may not be considered a determinant of the emotional intelligence of the person. It further implies that how the aspects of emotional intelligence work in a person’s life is not affected by his/her age.

In relation to leadership effectiveness, age obtained an \( r \)-value of 0.1305 which is lower than the tabular \( r \)-value of 0.367. The analysis revealed that age does not have any bearing on the leadership effectiveness of principals. It further means that effectiveness of principals as leaders is not influenced by age.

**Years of experience.** In relation to the association of emotional intelligence with years of experience, the obtained \( r \)-value was 0.1067 and this was lower with the tabular \( r \)-value of 0.367. This indicates that years of experience of principals is not significantly associated with their level of emotional intelligence.

In relation to leadership effectiveness, years of experience revealed \( r \)-value of 0.2376 lower than the tabular \( r \)-value of 0.367. This means that the number of years that a person works as a principal does not have any direct bearing with his/her effectiveness as head of his/her respective school. This finding is supported by the study of Ramos (1999), where he found out that age and years of service do not significantly relate to emotional intelligence and job performance.

**Educational attainment.** The test of relationship between emotional intelligence and educational attainment obtained \( r \)-value of 0.7057 that is higher than the tabular \( r \)-value of 0.367. It means that the educational attainment of principals is significantly associated with their emotional intelligence. This further means that higher educational attainment could lead to a better understanding of how one’s emotional intelligence works. This study is supported by the study of Lin (2005) which revealed that educational attainment is associated with emotional intelligence of Taiwan’s university administrators.

Educational attainment in relation to leadership effectiveness obtained \( r \)-value of 0.2204 that was lower than the tabular \( r \)-value of 0.367. It means that educational attainment has no bearing with the leadership effectiveness of the principals.

**IV..DISCUSSIONS**

Reconciling the findings of the study, it can be said that emotional intelligence of principals is a possible determinant of their leadership effectiveness as leaders in secondary schools. The principals have different levels of emotional intelligence and their readiness to the position enabled them to manage themselves and their inner self.

The different levels of the principals’ emotional intelligence was confirmed in the study of Stone, Parker, and Wood (2008) on leadership and emotional intelligence among Ontario principals’ council in Canada who said that although total emotional intelligence was significant predictors of successful school administration, some dimensions of emotional intelligence were better predictors than others.

In relation to leadership effectiveness of principals, organizational climate as one of the determinants of the principals’ leadership effectiveness was evident in their respective schools. Positive atmosphere in their respective schools in terms of relation-
ship between teachers and principals and among the teachers themselves were evident. Principals are also doing well especially in preparing future leaders, maintaining positive attitude, developing employees for productivity, articulating inspiring vision and setting goals toward its mission. The principals’ inspiration to everyone, their optimism, action, energy and enthusiasm were felt and teachers were satisfied with the effectiveness of their principals in terms of their giving inspiration. On the other hand, there is a need to improve in terms of empowerment and decision making functions of the principals. More concrete evidences are needed. The ability to empower subordinates and make firm decisions could have bearing on the existing culture of the place.

The relationship between emotional intelligence and leadership effectiveness are evident. This direct relationship means that higher rating of the principals on their emotional self-expression corresponds to more effectiveness in their leadership. The association of interpersonal aspect of the principals’ emotional intelligence with their leadership effectiveness indicates that better interpersonal relationship of the leaders with their followers’ results to more effective leadership. The coping mechanism aspect of the principals is also significantly correlated with their leadership effectiveness which means that the more the principals manifest abilities to deal appropriately with situations, the more effective is their leadership capability.

The correlation between the adaptability of the principals with their leadership effectiveness indicates that as principals become more adaptive to the situations confronting them, the better is their leadership. General mood of the principals was found to be significantly correlated with their leadership effectiveness which means that it is one of the determinants of their leadership effectiveness.

This finding is supported by Kerr et al. (2005) who noted that an individual’s emotional intelligence may indeed be a key determinant of effective leadership. A study by Lazarte (2003) among 45 principals of public elementary schools in Quezon City revealed that emotional intelligence of the principals was a good predictor of their leadership performance. Further, the study of Asidao (2001) on the job performance of one hundred twenty five school managers in the division of city schools in Manila also revealed that a direct correlation of the emotional intelligence with job performance of school managers does exist.

Age, years of service, and educational attainment were personal factors considered in relation with the emotional intelligence and leadership effectiveness of the principals. It was found out that age is not directly associated with their emotional intelligence and leadership effectiveness. Years of experience is not directly correlated with the principals’ emotional intelligence and leadership effectiveness. On the other hand, educational attainment is significantly associated with the emotional intelligence of the principals but not with their leadership effectiveness.
REFERENCES


