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LEISURE SATISFACTION OF TEACHING AND NON-TEACHING PERSONNEL OF ISABELA STATE UNIVERSITY ECHAGUE CAMPUS

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ABSTRACT

This descriptive survey, using quantitative and qualitative method of research, determined the leisure satisfaction of teaching and non-teaching personnel of Isabela State University-Echague Campus. The respondents were the 348 permanent teaching and non-teaching personnel of ISU Echague Campus. The Leisure Satisfaction Scale (LSS) developed by Berd and Ragheb (1980) which consists of 24-item statements that measure the psychological, educational, social, relaxational, and physiological and aesthetics satisfaction was adapted and used to realize the objectives of this undertaking. Results of the study showed that respondents are generally engaged in a variety of leisure activities but on sporadic basis. They are reasonably delighted in their leisure activities especially in the educational and relaxational values. They were also motivated to participate to leisure activities due to their interest and peer influence. There is an existing pint-sized evidence that their participation in leisure activities especially to nature/outdoor, dance and music activities are more likely to gain fulfillment especially under social, relaxational, psychological, and educational dimensions. Finally, the results made it possible for the researcher to develop a recreational program for the teaching and non-teaching personnel of ISU Echague and it was recommended for the institution to create a unified university leisure program to maximize its functions for personal and for academic growth of all employees.

Keywords: leisure satisfaction; recreation participation; games/sports activities; nature and outdoor activities; dance activities; collecting activities; technology-based activities

INTRODUCTION

In each working environment, the measurements of value and execution are normally evolved by the capability of every individual or group, which are at last interpreted as their affiliation, devotion or energy for the work or the fusing work environment. However, this probably won't be the situation at all when the manner in which every individual plays out their exercises relies basically upon how the person in question makes a harmony between the family and work environment, while likewise encouraging the factor of value inside the two premises and areas. In genuine work spaces, anyway the later insight is seldom kept up, which is the explanation human resources are seldom used adequately. (Muhktar, 2012).

Faculty members in universities and colleges spend most of their time accomplishing activities of daily living --facing piles of paperwork, attending to classes, reviewing lessons, developing instructional materials, accommodating students even during unofficial hours, performing administrative functions and the like and even social duties aside from the tasks that awaits them at home. Just like any government employee, they render eight hours of service a day to the institution. With the complexity of these day to day sets of tasks, it is not that easy to allow some time for relaxation; hence, issues on fatigue and stress come in which are perceived to greatly affect work performance.

One factor that accounts to this common issue for government employees is the need for leisure time, a prerequisite to recreation. As a matter of fact, this has been a clamor not only in the private sector but also in most of the government institutions especially those working professionals who do the bulk of work. A good point in relation to this issue were mentioned by (Nawijn & Veenhoven, 2011) saying that increased satisfaction with leisure and higher frequency of participation in leisure activities positively correlate with life satisfaction.

Leisure, as it is formally defined refers to a time free from obligations, work, tasks and other duties required for living. It is considered as an activity or activities that individuals engage themselves during their spare time. A more interesting definition also states that leisure solely depends on a person's perception --perceived freedom, intrinsic motivation, perceived competence, and positive effects which are all vital in determining whether it is an experience leisure or not. In a broader sense, leisure comprises the behaviors that people do during their free time.

Beyond these denotations is also an underlying fact that making use of it serves an individual so many purposes. It becomes a leeway in reducing stress while somehow giving the benefit for good health; it provides a sense of purpose in and of itself; it provides different experiences; and it increases the sense of empowerment and self-value, among others. While a perception says that leisure is just "spare time" or "free time", time not consumed by the necessities of living, one holds that leisure is a force that allows individuals to consider and reflect on the values and realities of daily life, this being essential not only for personal development but also for civilization.

In addition to this, in order to promote healthy living through physical fitness among government employees even in their workplaces, a memorandum circular from the Civil Service Commission (CSC) was issued on July 2009 engaging civil servants in various physical fitness activities to improve their well-being. The CSC focused on that administration laborers ought to keep a sound way of life so they will be fit to deal with the expanding requests of general society. Government offices can hold such actual wellness exercises as normal instructions on wellbeing and health during banner raising functions, one-day fun games for all authorities and workers where nutritious food will be served, workout and vigorous exercise once per week each Wednesday at 4:30 pm and unique "cheering" action every day.

As a government institution, Isabela State University (ISU) Main Campus is part of this mentioned mandate by the CSC. ISU Echague, an academic institution, employs 368 permanent faculty and non- teaching personnel holding different items and positions. With the multitude of tasks that everyone needs to accomplish, ISU employees do not excuse themselves from being pressured especially with their aim for global competitiveness as it is the call of their duties as employees of the institution.

For the past years, ISU has been hurdling to meet the demands of tertiary education especially the very competitive labor sector. With its clear vision to be in the global arena and with the concurrence of the various factors that affect its actual performance in the achievement of this vision, it is timely to take a look at the needs of the forerunners of the institution especially that the capacity of the latter to produce quality and excellent outputs depend on how well its people are conditioned and prepared for actual work - physically and mentally. Taking into great consideration the biological needs of the employees will mean an effort to respond to the services needed by the public without sacrificing the manpower of ISU itself. The enormous tasks that await everyday on top of tables being a major cause of stress and fatigue and more importantly, low quality outputs, prodded the researcher to conceptualize this study. Hence, the study was conceptualized to determine the leisure satisfaction of the teaching and non-teaching staff of the Isabela State University-Echague Campus, Echague, Isabela. With this, the researcher may design a recreation program which aims to create a balance in life for better performance both in personal and work life.

Statement of the Problem

This study aimed to determine the leisure satisfaction of the teaching and non-teaching personnel of the Isabela State University-Echague Campus, Echague, Isabela.

Specifically, the study answered the following questions:

1. What are the recreational activities participated by the respondents?
2. What is the level of leisure satisfaction of the respondents in terms of the following domain:
   2.1 Psychological
   2.2 Educational
   2.3 Social
   2.4 Relaxational
   2.5 Physiological
   2.6 Aesthetics
3. Is there a significant relationship between the respondent's recreational activities and their level of leisure satisfaction?

RELATED LITERATURE

Satisfaction is as old as humanity. Humans' earliest interactions, most often nonverbal-attempts, were made to please, to reward, to get along, to complement each other (social satisfaction) and so on. Accordingly, satisfaction evolved as a major part of the way of life. Humans got better at the uses of satisfaction strategies - the means and ways - for their contributions. In contemporary times, satisfaction has taken more sophisticated perspectives.

There are growing humanistic trends to incorporate leisure and recreation benefits into the enhancement of the qualities of services such as fitness, health, stress reduction, and wellness. Moreover, scientifically explored relationships have been attempting to reveal the concealed impact of leisure satisfaction on human functioning, adjustment and the quality of life. These efforts and humanistic trends can lead to improving leisure theorizing that can have very beneficial implications and applications, contributing to user's welfare and adjustments of leisure delivery system. In addition, also emphasized that satisfaction does not exist in a vacuum. Fundamentally, satisfaction should be considered an echo or expression of manifested needs or motivations. Leisure satisfaction is subjective, colored, and shaped by needs. Hence, satisfaction as a concept is multi-faceted, in terms of its nature, meaning and measurement. However, satisfaction as leisure and recreation should be viewed having different depth levels, to which leisure professionals and scientists have been responding, attempting to understand it and cater for it (Gonzales, 2001).

Among the many findings on leisure satisfaction and life satisfaction, Gonzales (2010) demonstrated that the only significant, direct predictor of quality life in old age was satisfaction with recreation. Moreover, it showed that there was an independent contribution of leisure satisfaction to life satisfaction. Specifically, they found that social activity and travel were associated with higher levels of life satisfaction. One of the potentials of leisure was suggested empirically as a spillover of work and leisure to life satisfaction.

Leisure and recreation have the potential not only to provide multiple physiological benefits, but also psychological, social, economic, and environmental. Specifically, physical gains can be related to the cardiovascular and health. Psychological rewards can include mood improvement, positive feelings, stress control, relaxation, self-concept and adjustment. While social benefits can be in the form of getting along with others, interpersonal harmony and gaining others' esteem. Economically, leisure spending can increase the volume of leisure of trade of leisure goods allowing individuals to economic prosperity, the mass production, and affordability with their substantial contributions to leisure satisfaction. Besides the above leisure specific satisfaction: physical, psychological, social, and economical rewards, environmental benefits, improving the aesthetics and layout of surrounding communities, neighborhood, and organizations are also included. Finally, the moral and spiritual gains, which is having to hope, to achieve and master, extracting a sense of meaning from daily endeavors are benefits of leisure and recreation (Gonzales, 2001)

According to a study conducted by (Kuo, 2010) on his study on the leisure satisfaction and quality of life based on badminton participants, he found out that married participants showed higher quality of life than single ones on social factors and psychological factors. He also showed that quality of life of married librarians was higher than of single ones and senior married librarians appeared to have higher quality of life than single librarians because of the life experiences.

Moreover, (Kuo, 2010) discovered that the badminton members as government employees introduced higher relaxation fulfillment than the ones in agribusiness and industry, perhaps in light of the fact that the badminton members in farming and industry, who regularly paid a ton of work, had less possibility for recreation exercises, while the ones as government workers for the most part burn-through less strength. For the situation that the badminton members in farming and industry devour a ton of solidarity at work, social cooperation was probably going to be influenced and further affected recreation fulfillment.

Furthermore, (Kuo, 2010) stressed that with the development of high technology, the living environment tended to automation and network that about 60-85% population is suffering from sedentary lifestyle and insufficient physical activities which further increase the proportion of physical function degradation and psychological mental weakness. The quality of life and the meaning of life are therefore declined. Such circumstances have now become the worldwide concern. With the improvement of economy and the expansion of relaxation time, individuals have focused harder on personal satisfaction.

With regards to leisure activities, more established grown-ups may effectively seek after specific exercises with responsibility and reality. To propel their recreation abilities and strategies, more established grown-ups may put their time and exertion in these exercises and offer their encounters with others. A variety of senior sports club organizations and sports events exist to provide and encourage the engagement of older adults in activities. (Dionigi, 2006)

In addition, it showed that older adults who were dedicated to their engagement in competitive sporting activities obtained psychological benefits, such as joy and positive emotions, from their participation.

METHODOLOGY

The descriptive survey using quantitative method was used in this study to determine the leisure satisfaction of the 348 permanent teaching and non-teaching personnel of Isabela State University-Echague Campus. Qualitative survey method through an interview was likewise employed to selected respondents to get a deeper understanding on the extent of their leisure satisfaction through their participation in various recreation activities. Total enumeration was utilized in the selection of the respondents of this study.

The Leisure Satisfaction Scale (LSS) developed by Berd and Ragheb (1980) was used in this study. It consists of 24-item statements that measure the psychological, educational, social, relaxational, and physiological and aesthetics satisfaction.

Statistical Tools

Data were analyzed using the SPSS. Treatment includes: computation of mean, standard deviation, frequency and percent distribution and Pearson r.

FINDINGS

Recreational Activities Participated by the Respondents

Table 1 displays the recreational activities participated by the respondents. On average, they seldom find time involving themselves in leisure activities (Mean = 2.44; SD = 0.51). Technology-based activities predominantly (Mean = 3.57; SD = 1.12) fill in their form of leisure. They also occasionally use music (Mean = 2.76; SD = 0.82) as another springboard. Meanwhile, they oddly embrace games/sport activities (Mean = 1.84; SD = 0.57) and dance activities (Mean 1.79; SD = 0.79) as forms of leisure activities. "*According to the respondents, they are into passive activities due to their attitude and motivation into it. They are not into active ones because they find they have other priorities. Would there be a regular program, they might be interested in attending and eventually be a regular participant.*"

Table 1. Recreational Activities Participated by the Respondents

Leisure Activities	Mean	SD	QD
Games/Sports Activities	1.84	0.57	Seldom
Nature and Outdoor Activities	2.37	0.62	Seldom
Dance Activities	1.79	0.79	Seldom
Music Activities	2.74	0.82	Occasional
Hobbies/Collecting Activities	2.34	0.62	Seldom
Technology Based	3.57	1.12	Often
Leisure Activities-Average	**2.44**	**0.51**	**Seldom**

4.51-5.00 Always; 3.51-4.50 Often; 2.51-3.50 Occasional; 1.51-2.50 Seldom; 1.00-1.50 Never

The result implies some relevant information. Firstly, the results show varied choices of recreational activities the respondents are doing. This will make the proposed program comprehensive and encompassing to felt needs. The leisure activities are also ingrained in their daily activities more or less done in spotty manner though. Another one, adjacency appears to be one of their major considerations in their conduct of leisure activities. Resources like materials, equipment, and financial considerations within their reach and time constraints do not interfere with their major functions as individuals. Secondly, up to a certain point, the faculty and staff are considered digital nomadic as well and less in motor activities as they apparently harness technology in their leisure activities. This can be therefore utilized to create a single unified and integrated program for the University.

Level of Satisfaction to Leisure Activities in the Different Domains

Table 2 shows the respondents' level of satisfaction to leisure activities according to psychological domain. Although their participation to leisure activities is on seldom basis, the respondents hold that they are moderately satisfied (Mean = 4.05; SD = 0.79) to the activities under the domain psychological. They are energized as their leisure activities provide them with psychological benefits. They are psychologically satisfied in participating leisure activities since these were their interests that boost their self-confidence, give them the sense of accomplishments, and they were able to use their different skills. According to one respondent he stated that "I believe my recreational activities help me to keep in balance with my work and life and give me sense of freedom and control. I'd love to engage in a more holistic and variety of activities so that I could be satisfied recreationally"

Table 2. Level of Satisfaction to Leisure Activities according to Psychological Domain

Statements	Mean	SD	Level
My leisure activities are interesting to me	4.17	0.94	MS
My leisure activities give me self confidence	4.08	0.95	MS
My leisure activities give me a sense of accomplishment	4.05	0.95	MS
I use different abilities in my leisure activities	3.89	0.96	MS
Psychological	**4.05**	**0.79**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

It is disclosed in table 3 that the respondents see the educational value in their recreational activities as they were moderately satisfied (Mean = 4.17; SD = 0.76). Although the individual indices registered are very close from each other and in fact incurred the same level of satisfaction, on the top list concerns the intra aspect of human because their leisure activities are done to help them understand more of themselves.

The non-active respondents in an interview stated that they feel satisfied learning things during their free time but looks forward to learn about others in a more appropriate time and activity, perhaps a university wide program where everybody would gather and learn from each other.

Table 3. Level of Satisfaction to Leisure Activities according to Educational Domain

Statements	Mean	SD	Level
My leisure activities increase my knowledge about things around me	4.18	0.91	MS
My leisure activities provide opportunities to try new things	4.14	0.90	MS
My leisure activities help me to learn about myself	4.24	0.90	MS
My leisure activities help me to learn about other people	4.10	0.88	MS
Educational	**4.17**	**0.76**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

If in the previous table, the educational value focuses on their self-growth and self-analysis, table 4 on the other hand gives credence to social outputs of recreational activities. The respondents are moderately convinced on the community and societal effects of committing oneself to leisure activities (Mean = 3.97; SD = 0.73). The 2016 Physical Activity Council Report states that people would engage in recreational activities if they have someone to take part with and a friend to go along with.

"Through the interview, some of the respondents claimed are most likely to do recreational activities when they are with friends and family "They also claimed that perhaps when they bond with their co-workers, it would be another level of satisfaction" Most of the time we only mingle with the people in the department, but how about having interactions with the other people in the campus during recreation hour? Perhaps a once a week activity.

Table 4. Level of Satisfaction to Leisure Activities according to Social Domain

Statements	Mean	SD	Level
I have social interactions with others through leisure activities	4.01	0.94	MS
My leisure activities have helped me to develop close relationships with others	4.10	0.89	MS
The people I meet in my leisure activities are friendly	3.89	0.85	MS
I associate with people in my free time who enjoy doing leisure activities a great deal	3.86	0.93	MS
Social	**3.97**	**0.73**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

Table 5 presents the respondents' level of satisfaction to leisure activities according to relaxational domain. It is revealed that the general mean, which is 4.16 (SD = 0.79) supports the delight the recreational activities have brought to the respondents. Essentially, they claim that these activities aid them to relax by feeling free from stresses. The activities also led them towards a positive sense of well-being. This is parallel to that of Jake et al., (2011) stressing that perceived freedom in leisure reflects an individual's evaluations towards his/her skills in participating in leisure activities and therefore is influenced by the events in their lives.

Table 5. Level of Satisfaction to Leisure Activities according to Relaxational Domain

Statements	Mean	SD	Level
My leisure activities help me to relax	4.19	0.88	MS
My leisure activities help relieve stress	4.23	0.90	MS
My leisure activities contribute to my emotional well-being	4.10	0.89	MS
I engage in leisure activities simply because I like doing them.	4.13	0.93	MS
Relaxational	**4.16**	**0.79**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

This result is supported with the statement of one of the respondents "With the bulk of work and concerns in the office, the respondents ask for a relief and diversion to keep them in balance with their work and life. They opt for a distressing activity such as regular aerobics or dance activities so that they would work better in the office"

Respondents are also mindful of the physiological effect of recreational activities (Mean = 3.97; SD = 0.88). It is displayed in table 6 that the respondents were moderately fulfilled with all indicators. It was the reason that recreational activities kept them to stay in shape and become able-bodied which they gave the highest nod (Mean = 4.05; SD = 0.97).

To relate with these results, McAuley, Kramer, and Colcombe (2004) have a fine position that physical exercise is important to maintain fitness and is found to contribute to physical and mental health. "Health problems now a days are very alarming, and so the respondents claimed that they would like to engage in a regular physical activity in the university where they spend most of their time to keep them fit and healthy. That's why, they look for a regular program that would really keep them fit and healthy.

Table 6. Level of Satisfaction to Leisure Activities according to Physiological Domain

Statements	Mean	SD	Level
My leisure activities are physically challenging.	3.93	0.99	MS
I do leisure activities, which develop physical fitness	3.98	0.99	MS
I do leisure activities which restore me physically	3.93	0.99	MS
My leisure activities help me to stay healthy	4.05	0.97	MS
Physiological	**3.97**	**0.88**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

Table 7 presents the respondents' level of satisfaction to leisure activities according to aesthetics domain. Aesthetics or the appreciation of beauty and art is also a component where respondents are moderately gratified. This is shown by the computed mean value of 3.91, SD of 0.91. They primarily consider the cleanliness of the environment where the activity is carried out. The same level of concern over the stimulating and compelling atmosphere of the location. *"According to the interview, they are confined with the parameters of their offices most of the time and lack the opportunity to engage in places where there is aesthetics appreciation. They professed that they would like to satisfy this need by means of an organized outdoor recreation activity"*

Table 7. Level of Satisfaction to Leisure Activities according to Aesthetics Domain

Statements	Mean	SD	Level
The areas or places I engage in my leisure activities are fresh and clean	4.00	0.88	MS
The areas or places where I engage in my leisure activities are interesting	3.95	0.90	MS
The areas or places where I engage in my leisure activities are beautiful	3.90	0.90	MS
The areas or places where I engage in my leisure activities are well designed.	3.80	0.95	MS
Aesthetics	**3.91**	**0.81**	**MS**

4.51-5.00: Highly Satisfied (HS); 3.51-4.50: Moderately Satisfied (MS); 2.51-3.50: Satisfied (S); 1.51-2.50: Not so satisfied (NSS); 1.00-1.50: Dissatisfied (S)

Relationship of the Respondents' Recreation Activities and their Level of Satisfaction

Table 8 displays the matrix containing the r and p values relating satisfaction and participation indices. From the general point of view of the constructs, there exists consistent significant relationship between the participation indices to recreational activities and each of the domains under satisfaction indices, $p < .05$. All pairs exhibits weak relationship though, $r < .30$. Perusing each pair, the highest r value registered between the recreation participation index and social value index of recreational activities, $r = .21$, $p = .00$; followed by recreation participation index relaxational merit index, $r = .20$, $p = .00$; and recreation participation index and educational function index, $r = .16$, $p = .00$. These findings appear to imply that their participation on recreational activities is considerably related to the social, recreational and educational values they derived from committing to those activities. The results also subscribe with the attributes of their participation to recreational activities as they held that their interest and peers spur them to their chosen recreational activities.

Meanwhile, although slightly has lower r values than the aforementioned parings, the satisfaction index is significantly related to almost all of the classification of recreational activities respondents are participating into, $p < .05$. The relationship, similar to the first set of results, is weak in nature, $r < .30$. It emerges from the table that the highest r surface between the leisure satisfaction index and their participation indicator in nature and outdoor activities, $r = .19$, $p = .00$; followed by leisure satisfaction index and participation mark with dance activities, $r = .17$, $p = .00$, and leisure satisfaction index and their participation gauge to music activities, $r = .12$, $p = .02$.

Table 8. Pearson r Analysis between Participation Indices and Satisfaction Indices to Leisure Activities

		Sports Activities	Nature and Outdoor Activities	Dance Activities	Music Activities	Collecting Activities	Technology Based	Average
Psychological	*r*	.121*	.136*	.112*	.117*	.083	.081	.158*
	p	.024	.011	.037	.029	.121	.131	.003
Educational	*r*	.098	.130*	.128*	.150*	.066	.033	.146*
	p	.068	.015	.017	.005	.220	.541	.006
Social	*r*	.168*	.197*	.177*	.159*	.100	.076	.210*
	p	.002	.000	.001	.003	.064	.160	.000
Relaxational	*r*	.099	.217*	.155*	.167*	.184*	.035	.199*
	p	.065	.000	.004	.002	.001	.522	.000
Physiological	*r*	.142*	.141*	.162*	.113*	.078	-.009	.139*
	p	.008	.009	.002	.036	.145	.862	.010
Aesthetics	*r*	.078	.156*	.137*	.104	.118*	.004	.134*
	p	.148	.004	.011	.053	.029	.940	.012
Average	*r*	.139*	.191*	.171*	.156*	.121*	.042	.192*
	p	.010	.000	.001	.003	.024	.441	.000

**significant at .05 level of significance*

Notably, respondents' participation barometer with technology-based recreational activities is disassociated with leisure satisfaction indices. The researcher offer two assumptions for this: first, respondents' participation to technology-based recreation is rather motivated by its availability as time filler than its significance or presumably they hardly decipher the relevance in those type of recreational activities; and secondly, the choice of specific activities with regards to its function within those indicators is not well taken; hence, no statistical relationship was dug out. For instance, according to some respondents, Facebook nowadays is utilized as venue for academic discussions; hence, there are times that although they open their FB very often, it is intricate to see the demarcation line of its leisure functions from the sphere of work-personal world. Given the low r-values, it implies that other variables not covered in the study can unfold more interesting points on this relationship. Furthermore, the large number of sample in the study might in fact influence the result. Hence, cautions must be thoroughly exercised in dealing with this relationship.

CONCLUSION

Based on the findings, the following conclusions were drawn:

1. The teaching and non-teaching personnel-respondents occasionally find time involving themselves in leisure activities. Technology-based activities predominantly fill their preferred leisure. Also, they occasionally use music as another springboard. Meanwhile, they oddly embrace games/sport activities and dance activities as forms of leisure activities.
2. The respondents are moderately satisfied to the activities under the psychological domain. They are energized as their leisure activities provide them some psychological benefits.
3. The respondents see the educational value in their recreational activities as they were moderately satisfied. Also, they were moderately convinced on the community and societal effects of committing oneself to leisure activities.
4. The recreational activities help the respondents relax by freeing themselves from stressors and leading them towards a positive sense of well-being.
5. Respondents were also mindful of the physiological effect of recreational activities. They were moderately fulfilled with all indicators. It was the reason that recreational activities kept them to stay in shape and able-bodied.
6. Aesthetics or the appreciation of beauty and art is also a component where respondents are moderately gratified. They primarily consider the cleanliness of the environment where the activity is conducted. The same level of concern over the stimulating and compelling atmosphere of the location.
7. The respondents' participation on recreational activities is considerably related to the social, recreational and educational values they derived from committing to those activities. It also subscribes in line with the attributes of their participation to recreational activities as they held that their interests and peers spur them to their chosen recreational activities.
8. The respondents' participation with technology-based recreational activities is disassociated with leisure satisfaction indices.

RECOMMENDATIONS

In the light of the findings of the study, the following are recommended:

1. Teaching and non-teaching personnel should continuously engage themselves in various recreational activities to maintain a healthy lifestyle in all aspects such as physical, mental or intellectual, social, psychological, and even spiritual.
2. The institution may consider the recreational activities of the faculty and non-teaching staff

for continuous professional upgrade along with the provision of facilities in the university.

3. The institution should create a standard university-wide leisure program to maximize its functions for personal and for academic growth of all employees.
4. The physical education faculty should spearhead the implementation of the standard leisure program throughout the different colleges to maintain wellness and fitness among employees.

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SCIENCE AND TECHNOLOGY COMMUNICATION IN DECISION-MAKING AT SAMAR ISLAND NATURAL PARK MANAGEMENT, PHILIPPINES

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ABSTRACT

This study was carried out to bolster understanding of how scientific and technical (S&T) communication and multi-sectoral decision-making influence each other towards informed policy development in collaborative forest resource management. Specifically, this study aimed to analyze the communication process towards decision-making on S&T related matters carried out at Samar Island Natural Park (SINP) management in terms of the following variables: content, channel of information and flow/direction of S&T information. Using a case study, key informants were interviewed, actual Protected Area Management Board (PAMB) meetings were observed, and secondary sources were analyzed qualitatively. The findings revealed that decisions made by PAMB members were mostly supported by administrative – related information rather than information based on systematic research or knowledge produced by government or scientific institutions. It was more convenient and beneficial for PAMB members to access information they had direct contact with. While the communication of administrative – related information flowed in a two-way direction, which indicated an active exchange process, the communication of S&T information mostly followed in a unilinear manner, indicative of non-existent interaction among PAMB members. Notably, the scientific and technical information only play a major role in informing decision-making depending on the nature and scale of issues being addressed by PAMB members. The SINP management was also built on certain kinds of science but not into using higher forms of scientific knowledge. However, as there were many complex problems expected to arise in the future that would change the forest conditions of SINP, it was recommended that the SINP management figure out a better way to keep pace with the current updates on scientific knowledge.

Keywords: decision-making, communication, scientific communication, samar island natural park, forest park management

INTRODUCTION

Almost all nations across the world are collectively making significant efforts and investments on how to reduce the adverse effects of various natural phenomena. Foremost among these initiatives is investing in researches that generate valuable and reliable information. Information derived from these researches has significantly helped our scientists and policy-makers assess the current conditions of the world and provide alternative solutions for the growing impact of climate change. Accordingly, governments over the past 20 years have given priority to the use of resource and environmental information for policy making [Thomas,2007] particularly in addressing issues in forest management.

While science has become a widely recognized information source for sound policy about natural systems [Sarewitz and Pielki, 2007] and "despite a significant increase in the number of applied scientific publications and identification of critical questions," an implementation gap remains [Cvitanovic et al., 2015]. One of these gaps, which is perceived to have a direct influence on inefficient delivery of scientific inputs, and eventually preventing the integration of scientific and technical information into the decision-making process, is poor communication.

Although an extensive body of literature has identified ways to improve science-policy interface in forest resource management, most of these studies have quantitively assessed the communication between scientists and those in high-level authority (environmental managers). In other words, studies have focused mostly on forest policy-makers in high-level bureaucracies or (inter) governmental bodies called by Janse [2007] as sensu lato. There is, however, a lack of investigation that focuses on the communication of science between the scientists and decision – makers in collaborative forest management where policy–making structure is different and more complex because it includes people with varying backgrounds and perspectives in addressing forest issues.

It can be noted also that existing studies related to science-policy communication interface are predominantly in western contexts which apparently science-policy interface is more systematic and evident. In developing countries, such as the Philippines, much of the studies are limited to the stakeholders' participation in collaborative forest management and the role of communication in forest management. Most of these studies generally assessed the process of communication without focusing on a specific type of information that is valuable in the decision-making process. Thus, there is a limited number of studies on scientific and technical information within a decision-making body in collaborative forest resource management. To that end, a systematic investigation of the science communication process in collaborative forest resource management is deemed imperative to address the gaps.

OBJECTIVES

Generally, this study aimed to analyze and describe the communication process towards decision-making on S&T related matters that are carried out at SINP. Specifically, it sought to address the following:

1. To describe the types of S&T information as received or accessed by the stakeholders, in this case, the PAMB members;
2. To determine the channels used by the stakeholders in receiving/accessing S&T information for decision making and;
3. To delineate the direction/flow of S&T information inside the SINP management.

METHOD

3.1 Research Design

This research was a case study of the Protected Area Management Board (PAMB) in Samar Island Natural Park Management (SINP). As a case study, the researcher explored, described, and explained the events, relationships, and situations in the organization and operation of SINP. Bryman [2004] highlights the importance of a case study approach as it "allows for a range of data sources and methods to be used in collecting and analyzing information and for different facets of the study to be explored and merged, and for a triangulated approach to be used." To address the research questions, primary and secondary data collection from two main sources was undertaken: (a) key informant interviews; (b) actual observation (c) analysis of secondary data sources. Using these methods were necessary primary because the research questions were broad in scope and required appropriate method to address the specific problem/objective. Secondly, a combination of multiple tools was very much necessary to cross-check or triangulate the different results obtained from each method/tool; where each method was selected to complement or fill in the gaps or shortcomings of another. Corroborating findings across data sets can reduce the impact of potential bias by examining information collected through different methods; thereby, ensuring better confidence of the research outcomes and promoting greater understanding of the case studied.

3.2 Participants

A complete enumeration of the Executive Members of PAMB was considered as participants of this study. The Executive Committee was composed of representatives from all the stakeholders of SINP. As mandated by the NIPAS Law (RA 7586), the SINP- Protected Area Management Board was composed of the following at the time of the study: the DENR Regional Executive Director of Region VIII; the Governor of each of the three Samar Provinces; one (1) representative from each municipality/city government in territory within the protected area; one (1) representative from each barangay in territory within the protected area; seven (7) representatives from local non-government organizations (NGOs); five (5) representatives from peoples' organizations (POs); representatives from other national government agencies operating within the protected area management; the Provincial Planning and Development Officers of the provinces where the protected area is located; and the Provincial Environment and Natural Resource Officers (PENRO) of Western Samar, Northern Samar, and Eastern Samar. A total of 18 key informants were interviewed for this study instead of the 21 original numbers that comprised the Executive Committee (Execom) of PAMB. The 18 informants were chosen following the inclusion and exclusion criteria set by the researcher to obtain the necessary data. For inclusion of the informants, the following criteria were set and considered: (a) must be a bona fide and appointed PAMB member; (b) must be a duly authorized representative/proxy of the PAMB member; and (c) must have previously participated in the last four years (CY 2017-2020) or still actively participating in PAMB meetings. For exclusion of the informants, the following criteria must be met: (a) zero participation in PAMB meetings in the last four years; and (b) lack of response to the requests and calls for an interview. Based on the records obtained from SINP management, there were two PAMB members who had zero participation in all PAMB meetings within the four-year period and were excluded as participants.

3.3 Analytical Procedures

This study primarily used thematic analysis by Braun & Clarke [2008] in the analysis of the extracts derived from interviews, as well as qualitative content analysis [Bryman, 2004] in the analysis of documents. The formal analysis of the data began by open coding data where the data was coded based on "chunks of meaning" [Lincoln & Guba, 1985]. The transcripts were reread multiple times to obtain a sense of the whole and to facilitate the surfacing of the important ideas and experiences of informants. To ensure that the appropriate code or label was assigned to each statement, constant reflection and referring to the questions were done all the time. The open coding was done iteratively until themes became repetitious and coding had reached saturation. Focused coding [Lindlof & Taylor, 2001] was then conducted using the initial coding scheme to identify themes or categories that seemed to be interrelated and eventually merge them to create consistent patterns and concise themes. Finally, the coded themes were weaved holistically to create a broader theme. The same coding process was made in the analysis of secondary documents particularly the minutes of the meeting and resolutions obtained from SINP management. Themes that emerged from coding were ranked based on the number of participants who identified a theme. The ranking was used only for the purpose of presenting the results in chronological order and in some ways to derive a comparison of the results. Meanwhile, the patterns and themes that emerged from the interviews were presented to some of the key informants to ensure the consistency of the transcription and interpretation made by the researcher on the informants' statements, as well as to verify the accuracy of the results. Member-checking procedure and a critical friend technique involving experts were also employed.

FINDINGS

In this study, the S&T communication process in a forest management organization like the SINP was analyzed in terms of the content of information, channels used and direction or flow of information.

4.1 Content of Information Obtained by PAMB Members

In terms of the content or the nature of information, stakeholders of SINP management had generally received two types of natural resource management information: (a) administrative - related information which refers to any types of information obtained or received by PAMB members from different sources practically used to inform decision-making and, (b) scientific and technical information, which in this study refers to information derived from scientific literature (e.g. peer reviewed journals, proceedings), detailed/ comprehensive technical reports and information about technological innovation accessed through a formalized or informalized setting.

4.1.1 Administrative-related Information

Data gathered from the interviews and documents revealed that policy instruments have become the primary information that was received and/or sought by the PAMB members. Policy instrument refers to any legal documents provided by the state government that set the directions and guidelines on how to achieve the objectives of managing the natural park. Another type of administrative-related information that was obtained by the PAMB members was directed to improve biodiversity conservation management as well as information on how they can enhance their management skills of protecting the SINP. Specifically, most of the key informants were knowledgeable about information on government's ecological programs or projects initiated by international non -government organization/s aimed to strengthen the protection of the country's natural forests. For instance, PAMB members were informed about the government's programs such as Reforestation program, the National Greening Program, and the Community-Based Resource Management Project aimed to address sustainable ways of managing natural resources. Key informants were also exposed to different best practices in managing forest parks. Through their participation in lakbay-aral (educational tour), these PAMB members gained new ideas and practical techniques that could also be applied in SINP.

4.1.2 Scientific and Technical Information

Key informants have also benefited from receiving various types of scientific and technical information although relatively small as compared to the administrative-related information. Specifically, PAMB members were recipients of information that aimed to increase their knowledge about innovations and technologies used in forest governance. This information was packaged through a specialized format such as science magazine, conference proceedings, seminar hand-outs and leaflets/flyers. Data also revealed that PAMB members were also recipients of technical information usually derived from various technical reports e.g., impact assessment, monitoring, annual reports, which were prepared different environmental units or agencies

Unlike with administrative-related information which were regularly received by the PAMB members, there were only a dearth of this type of information entering the SINP practically because their use of specific type of information was largely dependent on the nature and scale of the issues decided upon by the PAMB members and that S&T information were not at all deliberately provided to all PAMB members.

4.2 Channel Used by PAMB members in Obtaining Information

4.2.1 Face-to-Face Channel. Almost all PAMB members answered that face-to-face communication channel was used in accessing both administrative-related and S&T type of information relevant to their decision-making. Through interactions with their colleagues, attending PAMB meetings or agency meetings and by attending conferences or seminars, they were able to acquire new knowledge on forest-related information. The reason why PAMB members preferred this channel of accessing or receiving information was because of the receptivity and accessibility of the source of information where it provides an open space through which they could freely interact with their source of information. In other words, the transmission of information from the source to the intended users was done in a less restrictive mode.

4.2.2 Print-based communication Channel. Aside from face-to-face channel, one of the most prevalent channels used to communicate natural resource information inside SINP was the printed materials. Key informants mentioned that they were able to access hand-outs of administrative-related information during PAMB meeting where typically the SINP management staff supplied with them copies of agenda and other documents used as reference during PAMB deliberations. Printed materials such as brochure, leaflets and presenter's notes/handouts were usually handed over during seminar or conferences attended by the PAMB members. For those PAMB members who deliberately sought for S&T information, conference proceedings, journals or even academic textbooks were valuable references to learn more about scientific trends in forest management.

Other PAMB members opted not to rely on printed materials as their source of information primarily because of the highly technical terms that oftentimes not too familiar to them. PAMB members from the natural resource management sector (NRM) i.e., PENROs, however, were mostly dependent to this medium. This might not come as a surprise, because once and for all, environmental agencies were the not only producers or co-producers of these types of information but also traditionally, uptake in scientific and technical information has been strong in forest government agencies as part of their legal/office mandate.

4.2.3. Interpersonal Mediated Channel. Some PAMB members admitted that they usually communicated informally with their co – PAMB member or colleague in their respective offices through the use of cellular phone. Cell phones were preferred because they were pervasive and facilitated communication, ensured speedy delivery of information and knowledge from experts. Key informants were able to utilize such tool particularly if they would like to ask queries regarding schedules of meetings or seek clarifications pertaining to vague issues and/or newly released policies, guidelines and other similar documents. However, this medium has its own drawback considering that it could not present detailed information needed to inform decision-makers due to its limited interface.

4.2.4 Web-based Channel. The use of internet as a tool of accessing information on forest management for both administrative -related and scientific information were gaining ground among PAMB members. With the ubiquitous of information posted online, it is no wonder that some of the key informants relied heavily on social media applications such as on Facebook or YouTube, search engine like Google and websites to gather information vital for their decision making. Others PAMB members deliberately search online to obtain information which require them to have solid foundation of a particular issues. For instance, one key informant utilized DENR's official website as their main source of information where all necessary information related to environmental policies, scientific and technical reports can easily be downloaded on its website. But this particular channel was beneficial only with those who have the means and skills of navigating this type of technology. Unfortunately, the majority of the PAMB members were unfamiliar on how these platforms were being used thus, limited their access to getting relevant information needed for their decision-making.

4.3 Direction/Flow of Communicating S&T Information

A different focus was taken when studying information flow in SINP management. While the previous sections included both the internal and external sources to describe the information search behavior of the key informants, this section focuses on the categories of information sources on persons/organizations only; leaving out the external sources (i.e. speakers in training, mass media, etc.), as drawn from the work of Janse [2007] in discussing organizational communication flow. That means that the information being described in the flow of communication herewith shall be derived mainly from or produced by high - level bureaucrats (central & regional natural resource management (NRM offices).

4.3.1 The Flow of Communication (Administrative-related Information)

In general, the communication flow in administrative-related information was dynamic. It flowed downward, upward, and lateral as can be gleaned from figure 1. The downward flow of communication occurred in several stages. In the first stage, the DENR Central Office through its attached bureaus or line agencies were responsible for producing messages (e.g., policy, guidelines, reports, etc.) intended to its various clienteles. The DENR central office and its line bureaus usually have an organized management information system responsible for collecting, retrieving, or sending information to its regional offices. In the second stage, once this administrative-related information was prepared by each bureau, it will be transmitted to the DENR Regional Office through several communication methods, as shown in its downward flow of communication. The third stage happened when this information obtained from the central office was disseminated by the Regional Office its environment community-level agencies such as to SINP management thru the Protected Area Management Superintendent (PASu) and the three PENROs. It was at the final stage in this downward communication flow where PAMB members finally received this information from SINP management or PENROs serving as the "knowledge broker" in disseminating relevant information to the rest of PAMB members.

It is worth mentioning here that DENR Regional Office had direct coordination with both the PENROs and SINP management - although they were separate agencies - they worked under the jurisdiction of the Regional Environmental & Natural Resource Office (RENRO). Thus, the grid -line arrow that directly passed both to the PENRO and the SINP management who simultaneously received administrative-related information. Once administrative-related information was received, either the PENROs or the SINP management staff acted as the intermediary in communicating or disseminating administrative-related information to the PAMB members.

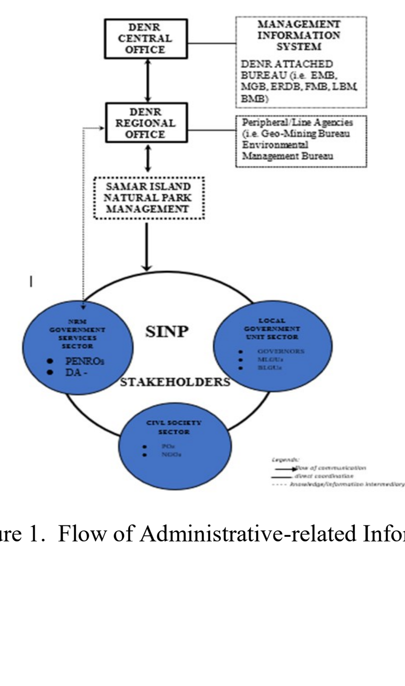

Figure 1. Flow of Administrative-related Information

The upward flow of communicating the administrative-related information (as shown in the double line arrow) was also manifested between the PAMB members and the DENR Regional Office and it happened in two ways: First, when some of the PAMB members would be requesting for information from the RENRO. This requested information by the majority of the informants were mostly limited to policies. But in some instances, PAMB members would also be asking technical reports that may be relevant for their decision-making. Second, the PAMB members can also directly communicate with the DENR Regional Office even without notifying the PASu. This was the case of the PAMB members from the NRM government sector (PENROs) who sought information directly to the DENR Regional Office.

Meanwhile, the communication of administrative-related information also flowed laterally (between and among the PAMB members). In particular, this can be observed with the interactions of the PENROs, who not only acted as an intermediary of information to other PAMB members but at the same time, recipients of information shared by its co-PAMB members. Normally, PAMB members did not keep to themselves the knowledge they possessed, and this was apparent especially during PAMB meetings where interactions and sharing of information were greatly observed, thus the circle that revolves around these all sectors.

4.3.2. The Flow of Communication (Scientific and Technical Information)

Figure 2 shows the communication pathways of scientific and technical information in SINP management. As presented in section 4.1.2, there was only a handful of S&T information which was obtained by the PAMB members from its limited sources. Since the bulk of S&T information was mostly technical data and reports commissioned by government agencies, and instrumental in guiding the decision of the PAMB, the flow of information was discussed in terms of the communication between the DENR high - level bureaucrats' level (Central/Regional Offices) and the PAMB members. Almost all scientific and technical reports or data used by the PAMB members in their decision - making was either produced by the DENR Central office or by the Regional DENR office. The DENR Central Office usually referred to the appropriate office or bureau of any request for scientific and technical information that has custody of such data or reports. Each bureau oftentimes coordinated with other bureaus and research centers to come up with comprehensive data. All finalized data reports were disseminated to DENR Regional Offices using a variety of modalities.

It can be noticed from figure 2 the downward flow of communication in which scientific and technical information was transmitted from the DENR Central office to the DENR Regional office. This was sent through courier, via email or posted on its website. Information that originally came from the Central Office was distributed by the Regional Office to its Provincial-field Offices (PENROs) and simultaneously to the SINP management. Unless these types of information concerned the attention of all PAMB members, scientific and technical information in the forms of data or reports usually ended at the disposal of the PAMB members from the NRM sector only. Unlike with the flow of disseminating the administrative-related information where there were interactions among the PAMB members, it was evident at PAMB of the non-sharing practice of scientific and technical information among the stakeholders.

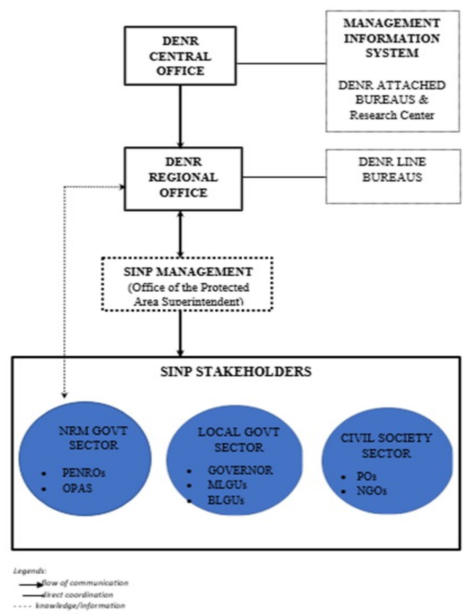

Figure 2. Flow of communicating S&T information

Meanwhile, it was also disclosed that an upward flow of communication was also manifested between the DENR's high-level bureaucrats and the PAMB members, at least those PAMB members from NRM sector. PAMB members from the NRM sector actively sought for scientific and technical information or advice primarily because it was part of their mandate and being on the frontline agency of executing policies and environmental services. Furthermore, PENROs and the SINP management were not only receivers of S&T information but also as contributors or co-producers of S&T information through their submission of raw data/reports as requested by the Regional DENR office, an indication that in this level an upward flow of communication was slightly evident.

CONCLUSIONS

Results of the key informant interviews, thematic analyses, and documents analyses gave rise to the following conclusions:

1. Generally, the key informants are more inclined to acquiring, receiving, and utilizing administrative-related information over scientific information regardless of their current work position and level of education. Their information seeking behavior depends on the nature and scale of issues to be addressed by the board. The use of scientific information often comes in when complex issues are on the table and needed to be resolved;
2. Decisions made at SINP management are at large built on certain kinds of science and thus, still guided with empirical evidences. In fact, some of this administrative-related information referred to by the PAMB members are processed-made information generated from the S&T reports and readily available for them to inform decision-making;
3. PAMB members' primary source of information comes from their colleagues or through direct interactions with conference speakers. The less restrictive face-to-face channel is preferred since it provides an open space through which they could freely interact with their source/s of information than those that would require them to exert extra effort in accessing information. However, this mode has its own limitations as it could present misinterpretation, a change of information content and in effect could lose the original meaning of S&T information;
4. Newer mode of information, technology and communication has not yet been fully integrated inside the SINP specifically because of the lack of IT provisions and PAMB member's lack of skills to navigate internet platforms. This limitation further aggravates the slow uptake and use of relevant environmental information needed to guide decision-making;
5. There is a glaring disparity of access to various modes/channels used in obtaining forest information between and among the PAMB members. The nature of work/position greatly determined the accessibility and ease of finding/obtaining forest information using a variety of modalities. PAMB members with high level of education are more privileged than the rest of the PAMB members to have a good access to digital resources (i.e., use of computer and internet). This study supports existing findings that a digital divide between the government workers and non-government workers remains.
6. The flow of communicating environmental messages passes through different path or direction; administrative-related information flows dynamically while scientific and technical information flows largely in a linear fashion. The direction of messages inside SINP management depends on the needs, the nature of information to be accessed by the PAMB members and the ease to facilitate requested information. Likewise, informants' education and nature of work or occupation play a big factor on how the communication of both administrative-related and scientific information flow inside SINP management.

RECOMMENDATIONS

Considering the vital role of communication in the uptake of science and technology information, the following recommendations may be considered for the concerned government's environmental agency to effectively assist in the transmission of valuable information and shall be used to inform decision-making inside SINP management:

1. Scientific and technical information must be better communicated if it happens in face-to-face interaction since it encourages dialogue, as well as the opportunity for the decision-makers to identify areas of common interest or concern. To do so, there is a need for SINP management to periodically send its members to conferences/trainings through which PAMB members can accumulate better knowledge and understanding on various trends and information in science;
2. As there were many complex problems expected to arise in the future that would change

the forest conditions of SINP, it is recommended that the SINP management figure out a better way to keep pace with the current updates on scientific knowledge. This can only be done if there will be a formal mechanism that would result in a more efficient process of communicating scientific and technical knowledge to its intended users;
3. As there is no single best science communication format, it would be more appropriate if S&T information could be communicated in a range of formats that would appeal to diverse stakeholders. Furthermore, there is a need for SINP management to actively ensure that the information provided to the PAMB members are conveyed accurately and in simplified and condensed form, since members' interpretations of a piece of information may vary, and their resulting responses may be entirely the opposite of what is expected;
4. SINP management could address the lack of scientific and technical information by entering into formal partnerships and agreements with research organizations, both government and non-government, which would facilitate productive science-management engagements. This calls for individuals and private institutions to submit their findings/outputs to SINP for future reference;
5. The SINP Management and PAMB members from the NRM sector must work collaboratively instead of independently or as separate entities, in order to facilitate the smooth and efficient communication flow and transmission of information products to their intended users. Each sector must agree on a workable process on how it can enhance the delivery of relevant information instead of bypassing each other's roles/functions since both technically act as couriers of information to their stakeholders.

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FINANCIAL LITERACY AMONG SECONDARY SCHOOL TEACHERS IN THE SCHOOLS DIVISION OF ISABELA

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ABSTRACT

This descriptive-quantitative study aimed to determine the financial literacy among the purposively selected 200 secondary school teachers in the schools division of Isabela. The primary instrument used was the self-made questionnaire which undergone content validation and reliability testing. The following conclusions were derived from the findings: 1) most of the public school teacher-respondents were dominated by young aged on early adulthood, female, married and finished the basic requirements in the teaching profession; 2) the financial literacy of the respondents manifested an acceptable level of agreement in terms of their financial knowledge and behaviours. However, there are varying responses from disagreement, neutrality, and agreement in terms of the respondents' financial attitudes; 3) the respondents' profile in terms of age, sex, highest educational attainment, length of service, monthly income and net income differ significantly in some of the statement-indicators in the financial literacy and the profile indicator in terms of their civil status differs insignificantly in all the statement-indicators in financial literacy; and 4) the revealed respondents' most encountered problems and challenges in their financial management were expected problems identified considering the locale culture of the way of provincial life. These problems and challenges were cultured-oriented on the living survival and way of financial life management of the respondents.

Keywords: financial literacy, financial knowledge, financial behaviour, financial attitude, financial management, problems and challenges

INTRODUCTION

According to Nelson Mandela, "Education is the most powerful and influential weapon which can be used to change the world" and as reiterated by Popik in the blog of Cahllen (2017) "teaching is the noblest profession that creates professionals in different professions".

Education in every sense is one fundamental factor of development, albeit it is earnestly needed by teachers particularly those who are in the public schools. This can link towards the concept that no country can achieve sustainable economic development without substantial investment in human capital. The human mind makes all possible development achievements, from health advances and agricultural innovations to efficient public administration. For nations to reap these benefits fully, they need to unleash the potential of the human mind and there is no better tool in realizing it than education (King, 2011).

It therefore necessitates to the fact that education is a vital investment for human and economic development; hence, teachers are instrument in effective delivery of education. Considered to be more than profession, teachers are regarded as the strongest pillars of the society because teaching being a profession is regarded as the mother source of all other occupations. A teacher is like a potter who delicately shapes impressionable minds and moulds it into vessels that define perceptions and ambitions. Teachers are considered as the most influential individuals and always been regarded and respected in all societies because apart from academics, they have the ability to positively affect many aspects of people's lives (IDream Career, 2015).

To realize the roles of teachers as the strongest pillars in producing quality graduates who will soon run and build a solid nation, it is important to note that teachers must be educated first in various aspects such as physical, mental, emotional, and financial. Through this, teachers may become literate especially in managing their finances so they may be able to save and invest for their future life after retirement.

Financial literacy is the utilization of information and abilities to regulate monetary assets effectively in person's life for his/her financial well-being. It is the process by which individuals gain an understanding of their financial situation and learn how to strengthen it over a period of time by inculcating the financial habits of savings, budgeting, planning and hence making the right financial decisions (Surendar and Sarma, 2018).

The absence of financial literacy has been discovered to be a widespread phenomenon at a global level and is also unmistakably evident in developed economies. This means that many individuals who lack financial literacy have been deterred from embracing innovative financial products, making sound financial planning decisions as well giving serious consideration and commitment to their financial plans (Boon, et al., 2011).

As reiterated, teachers are some of the most influential people in our society. Beyond academics, they have the ability to positively affect many aspects of our lives. By being financially literate and being able to manage personal finance properly, teachers can become a role model to their students and help them to develop as economically and socially responsible citizens. Many teachers, unfortunately, do not know how to manage their finances and this is due to the belief that teachers do not have sufficient financial literacy (Surendar and Sarma, 2018).

The Department of Education (DepEd), being the executive department of the Philippine government responsible for ensuring access to, promoting equity in, and improving the quality of basic education, is considering an intervention as it currently encounters a recent controversy over teachers' huge debts. DepEd is considering making it mandatory for teachers to take financial literacy workshops to address issues and problems on teachers' finances. It would have to make it mandatory perhaps because they are going to teach the children who are the primary recipients of education since the law says that students have to be taught financial literacy.

It is stipulated in Republic Act No 10922 declaring every second week of November as economic and financial literacy week for the purpose of helping the teachers to become financially literate. With this, the department of education issued the DepEd Order No. 5, s. 2018 mandating all DepEd personnel should have at least 5,000.00 as their net pay every month for them to maintain the decency of living.

Financial literacy has been recognized or renowned as the basic skill for individuals who are embedded in an increasingly complex financial scenario. Despite its significance, many studies around the world indicate that much of the world's popula-tion still including teachers suffers from financial illiteracy and that measures to remedy the problem are urgently needed (Lusardi & Mi-tchell, 2011; Atkinson & Messy, 2012; Thaler, 2013). Researches had been done in this area but few has been written on the matter particularly in the province. Therefore, an attempt is made to examine the level of financial literacy among public school teachers in the schools division of Isabela.

Statement of the Problem

Generally, this study aimed to determine the level of financial literacy among the secondary school teachers in the schools division of Isabela.

Specifically, it sought to answer the following research questions:

1. What is the demographic profile of the respondents in terms of:
   a. age;
   b. sex;
   c. civil status;
   d. highest educational attainment;
   e. length of service; and
   f. gross and net monthly income;
2. What is the level of financial literacy of respondents in terms of:
   a. financial knowledge;
   b. financial behaviour; and
   c. financial attitude?
3. What is the difference in the level of financial lite-racy when grouped according to the profile of the respondents?
4. What are the problems and challenges experienced and encountered by the respondents in their financial management?

REVIEW OF LITERATURE

Numerous definitions exist in different literary works about what financial literacy is. The terms financial literacy, financial knowledge, and financial education frequently have been used equally both as a part of the academic writing and in the popular media (Huston, 2010). A thin meaning of financial literacy focuses on essential money administration tools such as savings, budgeting, investing and insurance (Natalie, Newton and Chrisann, 2010). It is the capability to make educated judgments and to take compelling decisions in regards to the consumption and management of money. Financial literacy, according to Surendar and Sarma (2018), is the ability to use knowledge and skills to accomplish financial resources efficiently for a lifetime financial well-being, a process by which individuals increase an understanding of their financial situation and learn how to fortify it over a period of time by instilling the financial habits of savings, budgeting, planning, therefore making the right financial choices. Mbazigwe (2013) defined financial literacy as the knowledge and understanding of financial concepts and risks, motivation and confidence to apply such knowledge and understanding in order to make effective decisions on compelling choices in regards to the scope of financial contexts and furthermore to improve the financial prosperity of people and society, and to empower cooperation in the financial life

Lusardi and Mitchell (2011) however characterizes financial literacy as the capacity to use information and skills to oversee financial assets successfully for a lifetime of financial well-being. It is also characterized as individuals' capacity to handle economic information and settle on educated decisions about financial planning, means collection, debt, and pensions). Being financially literate is important for people to settle to make intelligent decisions.

In the claims of Ali (2013) being financially literate gives the important information, capacities and apparatuses for people to settle on educated financial decisions with certainty, to oversee personal possessions with proficiency and to increase financial skill to request better financial services.

Since the Teacher Advancement for Optimum Well-being or the Project TAO Survey conducted in 2000 by the Philippine Senate, which made a comprehensive study on the well-being of public school teachers in the nation, there's has been a shortage of investigates that give experimental information on the current status of the financial prosperity of the public school teachers in the country that can educate public strategy on the matter.

Ferrer (2015) conducted a study pertaining to the phenomenon that Filipino public school teachers are caught in a debt trap utilizing the adopted version of the instrument used by the Financial Industry Regulatory Authority (FINRA) Investors Education Foundation in the 2012 National Financial Capability Study (NFSC) in the United States. Results uncovered that the financial prosperity of public school teachers is serious, described by thriving obligation such as debt issue and low net income. Contributing to these problems included impaired capability of the spouses of the teachers to earn income for the family, low level of housing ownership and significant housing debt, inadequate abilities in managing money and monetary arranging, and the high occurrence of casual credit use. A few strategies and programs of the government relating to public teachers' assistance were proposed to be reviewed explicitly the effectiveness of Republic Act. 4676, otherwise known as the "Magna Carta for Public School Teachers" in addressing the financial difficulties and challenges encountered by the public school teachers.

Canoy (2015) conducted a quantitative and qualitative study regarding the quality of work life of the public secondary school teachers in the Division of Agusan del Sur, Philippines. The nature of work-life was resolved regarding financial literacy, obligation, auxiliary occupation, non-teaching obligations, wellbeing, and family duties. She found out that public secondary school teachers have low quality of work in terms of financial literacy and fair in terms of indebtedness, secondary occupation, non-teaching duties, health, and family responsibilities.

Worldwide, just one out of three grown-ups or 31% showed a comprehension of essential financial ideas like numeracy, hazard expansion, swelling and self-multiplying dividends (savings and debt). Study says that financial literacy is higher among rich, well-educated and the individuals who utilize financial services that less fortunate and less educated suffer financial illiteracy. Among the Filipino citizens only 25% are financially literate. This implies there are about 75 million Filipinos who are not economically literate. In view on a worldwide financial literacy record, the Philippines positions as sixty-eighth. The Asian Development Bank showed in a study that the nation doesn't have a national technique and strategy for financial education (Louren, 2015).

Imelda et.al (2017) surveyed the financial literacy of the one thousand nine hundred twenty four (1924) professional and pre-service teachers across different regions in the Philippines using a standardized tool to gather data from the randomly selected respondents from different public and private learning institutions in Luzon, Visayas and Mindanao. They revealed that both professional and pre-service teachers have very low basic socio economic status and sophisticated financial literacy skills. Thus, financial illiteracy is common among educators which reflect their students' financial literacy skills and the socio economic condition of the majority of the Filipino people. This study was anchored by the study of (Montalbo et.al. 2017) that curriculum inclusion of financial education to both basic and higher education is recommended to improve the financial knowledge, behaviour and attitudes among teachers and students which, in turn, spells a better socio-economic growth and development of the county.

METHODOLOGY

This descriptive-quantitative study aimed to determine the financial literacy among the purposively selected 200 public secondary school teachers in the schools division of Isabela. To have an equal representation of the respondents, the selected respondents were the teachers in the mega large schools in the six legislative districts in the province of Isabela

The Instrument of the Study

To answer the objectives of this study, the researchers developed the survey questionnaire with three parts which include the demographic data of the respondents; the assessment of the respondents' level of agreement on financial literacy relative to financial knowledge, financial behaviour and financial attitude; and the respondents' problems and challenges encountered in financial management.

To establish its content validity, it was subjected for experts' validation and the experts' suggestions were well taken and incorporated in the finalized instrument. The instrument was administered to the selected 30 teachers in Luna, Isabela who were not included in the study to gather data for the reliability test. Its reliability was assessed and analysed through computing Cronbach's alpha, which shows the reliability value of 0.96 indicating the high consistency of the responses in the items used in the questionnaire.

Statistical Tools

Frequency counts and percentages were used to describe the profile and the problems encountered by the respondents; weighted mean and Likert Scale were used to determine the level of financial literacy of the respondents in terms of financial knowledge; financial behaviour; and financial attitude; and the analysis of variance (ANOVA) was used to determine the significant differences on the financial literacy when grouped according to the respondents' profile.

FINDINGS

Profile of the Respondents

Table 1 shows the profile of the respondents in terms of age, sex, civil status, highest educational attainment, length of service, monthly salary and monthly net pay.

As gleaned from the table, majority of the respondents were from 31 to 40 years old with a total of 72 or 36.00 percent out of the 200 respondents. This is followed by 50 or 25.00 percent who were from 41 to 50 years old. There were 42 or 21.00 percent under the age range of 21 to 30 years old. Only 36 or 18.00 percent was under the age range of 51-60 years old.

Most of the respondents were females while males comprised of 49 or 24.50 percent. This only shows that teaching force of the province is dominated by female since teaching is mostly preferred by women.

Majority of the respondents were married numbering to 139 or 69.50 percent while 61 or 30.50 are single-teachers.

As to the highest educational attainment, college/tertiary level was seen to be the highest which comprised of 123 or 61.50 out of the 200 respondents while 77 or 38.50 of them finished post graduate studies.

Most of the respondents or 61.00% are actively engage in the teaching profession for not more than ten years; 20.50% are 11-20 years; and 17.50% are more than 21 years active in the teaching profession.

Most of the respondents with a combined frequency and percentage of 162 or 81.00% are receiving a monthly salary of not more than 30,000.00 while there are 38 or 19.00% respondents who are receiving a monthly salary of more than 30,001.00.

Almost two-thirds (123 or 61.50%) of the respondents are receiving a monthly net pay of 10,001-20,000 and 70 or 35.00 % are receiving a net pay of not more than 10,000.

Table 1. Profile of the Respondents

Profile of the Respondents	Frequency 200	Percentage 100.00
Age		
21-30	42	21.00
31-40	72	36.00
41-50	50	25.00
51-60	36	18.00
Sex		
Male	49	24.50
Female	151	75.50
Civil Status		
Single	61	30.50
Married	139	69.50
Educational Attainment		
Bachelor's Graduate	123	61.50
Post-Graduate (Masteral, PhD)	77	38.50
Length of Service		
1-5 years 6– 10 years 11-15 years	58 66 29	29.00 32.00 14.50
16-20 years	12	6.00
21-25 years	35	17.50
Monthly Income		
10,000-20,000	19	9.50
20,001-30,000	143	71.50
30,001-40,000	11	5.50
40,000-50,000	27	13.50
Net Income		
1,000-5,000	21	10.50
5,001-10,000	49	24.50
10,0001-15,000	64	32.00
15,001-20,000	59	29.50
40,001-50,000	7	3.50

Level of Financial Literacy of the Respondents

As illustrated in table 2, the respondents agreed on the following statement-indicators with their corresponding means: fundamental knowledge of finance helped me for effective economic decision making (4.44); inflation does shrink the value of money over time (3.88); investing money into multiple avenues keeps me safer rather investing into single avenue (3.99); I know about interest rates charged by bank, borrowing rates charged by financial institution, credit ratings done by companies and why it is done and money into multiple avenues keeps me safer rather investing into single avenue (3.99). The only attribute with computed weighted mean of 3.33 was interpreted as "neutral" in terms of their knowledge that money received today worth more the same amount of money received in the future. This shows that the respondents agreed that they are financially literate relative to financial knowledge as reflected in the grand mean.

Table 2. Financial Literacy Relative to Financial Knowledge

Indicators	Mean	Description
Fundamental knowledge of finance helped me for effective economic decision making	4.44	Agree
Money received today worth more than the same amount of money received in the future	3.33	Neutral
Inflation does shrink the value of money over time	3.88	Agree
Investing money into multiple avenues keeps me safer rather investing into single avenue	3.99	Agree
I know about interest rates charged by bank, borrowing rates charged by financial institution, credit ratings done by companies and why it is done	3.99	Agree
Grand Mean	**3.93**	**Agree**

4.50-5.00- Strongly Agree 3.50-4.49- Agree 2.50-3.49- Neutral 1.50-2.49- Disagree 1.00-1.49- Strongly Disagree

This finding made an insight alignment on the statement of agreement with the study conducted by Ramakrishnan (2012), which concluded that financial knowledge is essential not only for individuals, but also for the whole society and national economy.

Table 3 disclosed that the respondents agreed that before buying something they consider if they can afford it (4.33); they consider several products from different companies before making the decision to buy (4.29); they keep close personal watch on their financial affairs (4.25); they have their financial goals in terms and (4.02); and they have financial plans and strictly go accordingly (4.05).Behaviourally, the respondents agreed that they are financially literate as reflected in the grand mean.

This finding is a baseline and partial insight which implied points of connection to the study conducted by Sages & Grable (2010) which found that an individual's financial behaviour is determined by his/her level of financial risk tolerance and its connectivity with the study of Agarwal et al. (2010) which revealed that though the majority respondents of his study showed to be financially literate, yet most of them are unable to meet their financial goals.

Table 3. Financial Literacy Relative to Financial Behaviour

Indicators	Mean	Description
I have my financial goals in terms of short-term (less than one year)/long-term (more than a year)	4.02	Agree
I have my own financial plan and I strictly go accordingly	4.05	Agree
Before I buy something, I consider whether I can afford it	4.33	Agree
I consider several products from different companies before making the decision to buy	4.29	Agree
I keep close personal watch on my financial affairs	4.25	Agree
Grand Mean	**4.19**	**Agree**

4.50-5.00- Strongly Agree 3.50-4.49- Agree 2.50-3.49- Neutral 1.50-2.49- Disagree 1.00-1.49- Strongly Disagree

It is revealed in table 4 that the respondents agreed on the statement-indicator "I believe in developing a regular pattern of saving and stick to it" with a weighted mean of 3.53. The statement "it does not matter how much I save as long as I save" was interpreted neutral with a mean of 2.51. Meanwhile, the respondents disagreed on the following statement-indicators with their corresponding means: as long as I meet monthly payments, there is no need to worry about the length of time it will take me to pay off outstanding debts (1.58); I find more satisfying to spend than save money for the future (2.43); and money is to be spent, saving is not important (1.91).

When it comes to financial attitude, respondents are financially literate since they showed importance to the money they earned through saving in preparation for their future need.

This finding which encapsulated variability of the respondents' attitudes that focused on the area of financial attitude centered on financial savings conditions while the study conducted by Calamato (2010) revealed that it was the working arrangements and conditions may influence financial attitudes and behaviours, considering that individuals with steady income have better conditions to organize and plan their financial life.

Table 4. Financial Literacy Relative to Financial Attitudes

Indicators	Mean	Description
I find more satisfying to spend than save money for the future	2.43	Disagree
I believe in developing a regular pattern of saving and stick to it	3.53	Agree
Money is to be spent; saving is not important.	1.91	Disagree
As long as I meet monthly payments, there is no need to worry about the length of time it will take me to pay off outstanding debts	1.58	Disagree
It does not matter how much I save as long as I do save	2.51	Neutral
Grand Mean	**2.38**	**Disagree**

4.50-5.00- Strongly Agree 3.50-4.49- Agree 2.50-3.49- Neutral 1.50-2.49- Disagree 1.00-1.49- Strongly Disagree

Differences in the Financial Literacy of the Respondents when Grouped According to their Profile

Table 4 disclosed the differences in the financial literacy of the respondents when grouped according to their profile

Age. The indicator "I know about interest rates charged by bank, borrowing rates charged by financial institution credit ratings and the reason done by companies and why it is done" on financial knowledge and the indicator "I have financial goals in terms of short-term (less than one year) or long-term" on financial behaviour have significant differences when the respondents are grouped according to their age. The computed p-values for these indicators are less than the level of significance leading to the rejection of the null hypothesis. This means that the knowledge of teachers about interest rates charged by bank, borrowing rates charged by financial institution credit ratings and the reason done by companies and behaviour on having their financial goals in terms of short-term (less than one year) or long-term significantly differ according to their age. Hence, the young and old teachers do not have the same financial literacy on these specific indicators on financial knowledge and financial behaviour.

Sex. As indicated in the computed p-values of the indicators "inflation does shrink the value of money over time" on financial knowledge; "I have my own financial plan and I strictly go accordingly", "I consider several products from different companies before making the decision to buy", and "I keep close personal watch on my financial affairs" on financial behaviour; and indicator "I believe in developing a regular pattern of savings and stick to it" on financial attitude have significant differences when the trespondents are grouped according to their sex. The computed p-values of these indicators are less than the value of alpha (0.05) thus, null hypothesis is rejected. This implied that male and female teachers do not have the same financial literacy on financial knowledge on inflation and value of money; financial behaviour such as considering their financial capability before buying something, and considering other offers from several products from different companies before making decision to buy and keeping close personal watch on their financial affairs; and financial attitude in developing a regular pattern of saving.

Civil Status. The computed p-values for all indicators on financial knowledge, financial behaviour and financial attitude are all greater than the value of alpha (0.05) signifying the acceptance of the null hypothesis. This means that there is no significant difference in their financial literacy. Hence, single as well as married teacher - respondents have the same financial literacy.

Highest Educational Attainment. The indicators "I find more satisfying to spend than save money for the future", "I believe in developing a regular pattern of saving and stick to it", and "Money is to be spent, saving is not important." on financial attitude have computed p-values less than the level of significance, thus null hypothesis is rejected. This means that teachers' financial attitude in the following indicators such as spending than saving money in the future, developing a regular pattern of saving, and money is to be spent, saving is not important, differ significantly when grouped according to their highest educational attainment. On the other hand, teachers' financial knowledge and financial behaviour do not differ significantly when grouped according to their highest educational attainment since the obtained p-values of these indicators are greater than the value alpha (0.05). Hence, bachelor' degree and post graduate respondents do not have the same financial literacy on these specific indicators.

Length of Service. As indicated in the computed p-values for indicators "I know about interest rates charged by bank, borrowing rates charged by financial institution, credit ratings done by companies and why it is done on financial knowledge; "I have my financial goals in terms of short-term (less than one year)/long-term (more than a year)", and "Before I buy something I consider whether I can afford it" on financial behaviour; and "Money is to be spent, saving is not important" on financial attitude have significant differences when the respondents are grouped according to their length of service. The computed p-values of these indicators are less than the value of alpha (0.05) thus, null hypothesis is rejected. This means that neophyte and tenured teachers do not have the same financial knowledge in knowing interest rates charged by the bank, borrowing rates charged by financial institution, credit ratings done by companies; financial behaviour in having financial goals in terms of short and long terms; and financial attitude that money is to be spent, saving is not important.

Monthly Income. The computed p-values of all the indicators in financial knowledge and financial attitude are all greater than the value of alpha (0.05) leading to the acceptance of the null hypothesis. On the other hand, the indicator "considering their capability before buying something" on financial behaviour differ significantly when grouped according to teachers' monthly income. This assumes that teachers who have bigger monthly income as well as those receiving minimal income have the same financial literacy except in considering their capability before buying something.

This finding contradicts with the findings of the study conducted by Lusardi & Mitchell (2011) where financial literacy gets affected by demographic characteristics such that higher income respondents had high financial literacy than lower income people.

Net Income. The following indicators on teachers' financial knowledge, financial behaviour and financial attitude: fundamental knowledge of finance helped them for effective economic decision making; inflation does shrink the value of money overtime; they have their own financial plan and strictly go accordingly; before they buy something they consider whether they can afford it; they consider several products from different companies before making decision; they keep close personal watch on their financial affairs; and they find more satisfying to spend than to save for the future have significant differences

Table 5. Differences in the Financial Literacy of Respondents when Grouped According to their Profile	**Age**	**Sex**	**Civil Status**	**Highest Educational Attainment**	**Length of Service**	**Monthly Income**	**Net Income**
Financial Knowledge							
Fundamental knowledge of finance helped me for effective economic decision making	0.54	0.53	0.26	0.36	0.91	0.09	0.00
Money received today worth more than the same amount of money received in the future	0.20	0.77	0.77	0.59	0.95	0.22	0.17
Inflation does shrink the value of money over time	0.34	0.02	0.86	0.95	0.52	0.63	0.04
Investing money into multiple avenues keeps me safer rather investing into single avenue	0.94	0.23	0.69	0.21	0.46	0.05	0.09
I know about interest rates charged by bank, borrowing rates charged by financial institution, credit ratings done by companies and why it is done	0.03	0.49	0.52	0.86	0.00	0.19	0.96
Financial Behaviour							
I have my financial goals in terms of short-term (less than one year)/long-term (more than a year)	0.01	0.88	0.38	0.94	0.03	0.66	0.55
I have my own financial plan and I strictly go accordingly	0.27	0.43	0.63	0.12	0.51	0.66	0.01
Before I buy something, I consider whether I can afford it	0.93	0.04	0.84	0.15	0.89	0.03	0.00
I consider several products from different companies before making the decision to buy	0.66	0.02	0.49	0.05	0.96	0.29	0.02
I keep close personal watch on my financial affairs	0.20	0.00	0.96	0.09	0.93	0.52	0.00
Financial Attitude							
I find more satisfying to spend than save money for the future	0.87	0.66	0.69	0.02	0.89	0.46	0.00
I believe in developing a regular pattern of saving and stick to it	0.24	0.01	0.46	0.01	0.99	0.91	0.69
Money is to be spent; saving is not important.	0.09	0.53	0.57	0.00	0.00	0.12	0.79
As long as I meet monthly payments, there is no need to worry about the length of time it will take me to pay off outstanding debts	0.54	0.92	0.95	0.20	0.06	0.65	0.98
It does not matter how much I save as long as I do save	0.33	0.74	0.86	0.38	0.86	0.53	0.92

when the respondents are grouped according to their net income. The computed p-values of these indicators are less than the level of significance signifying the rejection of the null hypothesis. This simply means that respondents who have lower net income as well as bigger net income do not have the same financial literacy on these specific indicators.

Table 6. Problems and Challenges Encountered in Financial Management

Problems Encountered	f	%
Uncertainty about where money is spent	53	26.50
Inability to save	88	44.00
Spending without knowing my limits	47	23.50
Income is insufficient to meet basic financial requirements	130	65.00
Unexpected trials (illness, accident)	152	76.00
Debts prior to employment	12	6.00
Helping relatives and siblings	10	5.00

CONCLUSIONS

Based on the foregoing results, the following conclusions were derived:

1. Most of the public school teacher-respondents were dominated by young aged on early adulthood, female, married and finished the basic requirements in the teaching profession.
2. The financial literacy of the respondents manifested an acceptable level of agreement in terms of their financial knowledge and behaviours. However, there are varying responses from disagreement, neutrality, and agreement in terms of the respondents' financial attitudes.
3. The respondents' profile in terms of age, sex, highest educational attainment, length of service, monthly income and net income differ significantly in some of the statement-indicators in the financial literacy and the profile indicator in terms of their civil status differs insignificantly in all the statement-indicators in financial literacy.
4. The revealed respondents' most encountered problems and challenges in their financial management were expected problems identified considering the locale culture of the way of provincial life. These problems and challenges were cultured-oriented on the living survival and way of financial life management of the respondents.

RECOMMENDATIONS

Based on the conclusions drawn in this study, the following recommendations stated as follows:

1. School heads or administrators should conduct an institutional assembly or orientation to remind the teachers on their financial obligations and duties.
2. The department of education in partnership with the finance department should formulate program-initiated and activity-based strategies and mechanisms through application workshop to ensure public school teachers on their competencies relative to financial literacy.
3. The department of education should provide agency-based incentive schemes for scholarship programs on postgraduate studies and/or requiring public school teachers to have earning units in financial management and administration.
4. School heads or administrators should help and encourage teachers to engage themselves in an income generating program to make their money grow and become more productive without compromising their primary duties as teachers.
5. The local identification of problems and challenges should serve as baseline indicators in generating mitigating actions to reduce or to minimize the incidences of problems and challenges which served as awakening indicators in deriving a sustainable solution to give utmost importance on the hard earned finances of these teachers in terms of action and initiative engagement through adult-centered problem-based learning sessions.
6. A similar study may be conducted to employees in the different agencies whether in the public or private sectors focusing on the factors and determinants including impact, magnitude and influences of these identified problems and challenges.

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WORK VALUES AND TEACHING PERFORMANCE OF JUNIOR HIGH SCHOOL TEACHERS

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ABSTRACT

This descriptive-correlational study aimed to determine the work values and teaching performance of the junior high school teachers in Alicia, Isabela. The 144 teacher-respondents were taken at 95 degrees of accuracy with a margin of error of 5%. The work values instrument of the University of Denver Career Center consisted of four areas of investigation was adapted.
The following conclusions were derived from the findings: 1) Most of the respondents have attained a higher level of education; 2) Helping others, forming friendship with their fellow employees, trying out new ideas and suggestions, the need to be mentally alert, contributing new ideas, and having opportunity to learn new things were considered most important to the respondents; 3) The work values in relation to professional growth, interpersonal relationship, social environment and new challenges were considered very important to the respondents. 4) The respondents' work values in needing to have artistic ability under the professional growth, helping others under the interpersonal relationship, trying out new ideas and suggestions, solving new problems, being challenged on the assigned task, and doing many different things under the new challenges had a significant relationship with their highest educational attainment; 5) The respondents' work values have no significant relationship as to the number of years in teaching; and 6) There was a significant relationship in the work values of the respondents in relation to professional growth, interpersonal relationship, and social environment with their teaching performance.

Keywords: work values, teaching performance, professional growth, interpersonal relationship, social environment, new challenges

INTRODUCTION

Every employee possesses different values since no one is raised in the same family. Values are the beliefs and ideas which are essential to individual and are used to direct one's actions. It is a model that regulate how a person lives his life and are related to all aspects of one's personal and work life. Dean (2012) emphasized that values play an important character that would describe the lives of people to recognize, understand and articulate the individual set of values towards a sound decision making.

Work values are the mindfulness, full of feeling wants, singular necessities or needs of individuals which direct their conduct (Pandey and Sharma, 2012) towards work. It represent one's personal relation to what he wants to achieve through his work and career. It makes a bunch of objective that an individual looked for from a climate which assumes an imperative part in one's expert development and profession advancement (Liu and Lei, 2012).Like general values, work values act as the criteria that an individual uses in selecting appropriate work-related behaviour and goals. These match teachers' work values and supplies offered by the school which are important in teachers' outcomes like job satisfaction and work motivation. Work values also drive the motivation of people to pursue certain task and contribute to the achievement of vision and mission of an organization.

Teaching is said to be the noblest and most demanding profession. The teacher is the main actor in the improvement and development of human resource in the educational system. The success or failure in the school children largely depends upon the teachers' effectiveness as they play their important roles in providing better quality products. In the performance of their functions as youth builders, it is necessary to take into account whatever influences their value system. In the current educational system, comprehension of the educators' work esteems ought to be given significant consideration. This may done by establishing their framework of qualities at work, distinguishing the points as teachers and formulating better indicative system to achieve the board objectives. It is on the grounds that the teachers who are fruitful in achieving the educating and learning results are the ones who initially change the discernments concerning the self-idea of work esteems. Hence, the value system of an individual plays a major role in his behaviour particularly in the working process.

A few teachers neglect to understand the degree to which their qualities and attitude influence their class. It turns into a motivation, subsequently, to keep an arrangement of inspiration to guarantee the teachers obligation to do with energetic dedication their duty of teaching the young. The nature of work of educators in school is a result of the communication of a few factors like qualities, perspectives, convictions, and occupation fulfilment. Employees should feel fulfilled to use more their energy to instruct as their capacity. They need contribution in their own proficient turn of events and this should be enhanced by an advancement strategy and new freedoms given by schools. Teachers serve as role model of good behaviour and attitude who lead the students to successful direction in their studies. Demonstrating positive work values among teachers provide a clear image of living example of professionalism and integrity. The teachers' mastery and delivery of the lesson and classroom management are the factors that may contribute to the satisfaction of learning and development of the students. In the academe, positive work esteems create results from the understudies that support the work progress and mental advancement of the students through quality instructing in advanced education which truly matters for understudies learning results (Hénard & Roseveare, 2012).

The administration may improve the performance of its people by motivating them to perform their duties and responsibilities effectively and efficiently (Aarabi, Subramaniam & Akeel, 2013).

Teachers' performance evaluation based on the appraisal of their students is one of the measures of the school to determine the work performance of the faculty members in a certain semester. One of the standards of educator input is having a climate of expert learning and backing is advanced by the school's authority (Coe, Aloisi, Higgins, and Major, 2014)

Work values may be viewed as a factor in deciding the work execution of educators. It can essentially foresee profession inclinations in different associations and the similitude of work values with the work environment has been appeared to exist (Bakar et. al, 2011). Emotional changes are likewise occurring in the workplace because of globalization, progression of innovation and borderless world (Tomlinson, 2007; D'Silva and Hamid, 2014).

From the above observations, this study was conceptualize to determine the most and least dominant work values of teachers in Alicia, Isabela. Findings of the study will be utilized to strengthen the faculty development program through the enhancement of the work environment and social interactions among teachers leading towards the achievement of the vision and mission of the Philippine educational system.

Statement of the Problem

Generally, this study aimed to determine the work values and teaching performance of junior high school teachers in Alicia, Isabela.

Specifically, it sought to answer the following problems:

1. What is the profile of the respondents in terms of:
   a. highest educational attainment;
   b. number of years in teaching; and
   c. teaching performance?
2. What are the work values of the respondents in relation to:
   a. Professional Growth;
   b. Interpersonal Relationship;
   c. Social Environment; and
   d. New Challenges?
3. What is the significant relationship on the respondents' work values and their profile variables?

RELATED LITERATURE

In education institutions, both state-funded and private colleges and universities have differences in terms of their work characteristics. In state universities, work characteristic is associated to the work setting that focuses on research because quality research is imperative for public colleges and universities (Mohrman, et al., 2008). Academicians from the state colleges and universities are huge for compelling policy implementation and they additionally assume the biggest part in acknowledging Vision 2020 (Rusli, Azman, and Wan Khairuzzaman, 2007). On the other hand, academic staffs in private colleges and universities are important in generating the profits to contribute development for the country. Private universities are likewise making their best efforts in collecting and mobilizing resources investment as well as enhancing skills and technical and management expertise together with the public universities. These differences in work characteristics may influence differences among the employees in terms of their needs and desires towards work values.

People today face change continually - in the work they do, how they perform work, where work is performed, and with whom they work. Changes inside the association address just piece of the test (Aquino, 2013). Furthermore, it is accepted that these progressions can influence one's misfortune that could likewise influence one's exhibition in his work and qualities.

Values are principles that are generally determined, took in and disguised from society and its organizations (Rokeach, 2008). It grow with the goal that people can address their issues in socially satisfactory manners. The more people think about their own values, the better they will be at figuring out which workplace best accommodates their own and expert necessities and the abilities they need to utilize and create.

Work values had a critical relationship with business related perspectives among representatives in association (Froese and Xiao, 2012). A survey from past research expresses that both instrumental and terminal work values can influence representative's business related mentality (Bhatia, Profound, and Sachdeva, 2012), for example, work fulfillment (Riketta, 2008).

Furthermore, Cohen and Liu (2011) analyzed the connection between individual's values, hierarchical and word related responsibility, authoritative citizenship conduct (OCB) and in-job execution. It was accounted for that the individual values were identified with all responsibility frames however there was no significant difference between the three elements of responsibility (full of feeling, duration, and standardizing) and two-responsibility foci (hierarchical and word related) regarding their connections to various values.

Moreover, Godiyal (2014), in her investigation, discovered that in-administration optional teachers had uplifting mentality towards their inventiveness, the executives, accomplishment, lifestyle, security, partners, feel, esteems, autonomy and financial return work values, while the educator students showed their inspirational disposition towards verity, environmental factors, administrative connection, benevolence and scholarly incitement work values.

Also, Aguado et. al (2015) found out that maritime faculty members generally had above average faculty performance rating. They also revealed that professional growth is the work-related factor that maritime faculty members really valued most in working with higher education institution and job security as the least. The findings of Vipinosa and Acevedo (2015) in their study indicated that there was no significant difference in the teaching effectiveness of science teacher according to the level of their productivity. Furthermore, science educators were found to be efficient and effective at work regardless of their work values. Profitability, work values, and encouraging adequacy were not significantly related with each other.

METHODOLOGY

The descriptive-correlational method of research was utilized to determine the work values and teaching performance of the 144 junior high school teachers in Alicia, Isabela. The respondents were taken at 95 degrees of accuracy with a margin of error of 5%. The respondents per school were proportionally allocated.

The Instrument of the Study

The research instrument was adapted from the work values of the University of Denver Career Center which consists of four areas of investigation. It is made up of two parts. Part I covers the profile of the respondents while Part II focuses on the work values statements which include Professional Growth, Interpersonal Relationship, Social Environment, and New Challenges.

Statistical Tools

Frequency, percentage counts and means were used to describe the profile and the work values of the respondents. Kendall's Tau-b was used for the purpose of determining the significant relationships between the respondents work values and their profile including their teaching performance.

FINDINGS

Profile of Respondents

Table 1 shows the profile of the respondents in terms of their highest educational attainment, number of years in teaching and their teaching performance. As to the respondents' highest educational attainment, it can be gleaned from the figures that majority have attained higher educational qualifications. It reflected that majority of the respondents are holders of Master's degrees with Doctorate units.

Majority of the respondents have been teaching for 5 years and below comprising 72 or 50.00 percent which is one-half of the total number of respondents, followed by 6 – 10 years having 26 or 18.06 percent, 16 years of teaching and above having 25 or 16.36 percent and 11 – 15 years of teaching experience having 21 or 14.58 percent of the respondents. The figures prove that many teachers who are involved in the study are still young in the service.

There are 95 or 65.97 percent of the respondents with very satisfactory level of teaching performance. The figure is followed by 29 or 20.14 percent with an outstanding teaching performance level, 19 or 13.19 percent with satisfactory teaching performance level and only 1 or 0.69 percent with a poor level of teaching performance. Based on the table, the figures are indicative of high level of performance among the respondents.

Table 1. Profile of Respondents

Profile	Frequency n=144	Percent 100%
Highest Educational Attainment		
Bachelor's Degree	48	33.33
Bachelor's Degree with Master's Units	11	7.64
Master's Degree	4	2.78
Master's Degree with Doctorate Units	79	54.86
Doctorate Degree	2	1.39
Years of Teaching		
5 and below	72	50.00
6 – 10	26	18.06
11 – 15	21	14.58
16 and above	25	17.36
Teaching Performance		
Outstanding	29	20.14
Very Satisfactory	95	65.97
Satisfactory	19	13.19
Poor	1	0.69

Work Values of the Respondents

Tables 2 and 3 present the work values of the respondents in relation to professional growth, interpersonal relationship, social environment, and new challenges.

Professional Growth. As revealed in table 2, it is very important for the respondents to work where they feel that their work is contributing to a set of moral standards and that they feel very important with a mean rating of 4.45. This is followed by work where they can use leadership abilities with a mean of 4.42, having the power to set policy and determine a course of action with 4.31, a need to have artistic ability and knowing their job will last with 4.30, and gaining prestige in their field with a mean rating of 4.27. The work value--looking forward to changes in their job, got the least mean with 4.10. Overall, the work values that are related to professional growth were rated very important.

Interpersonal Relationship. It is also revealed in the table that it is most important for the respondents to help others with a mean rating of 4.52. The mean ratings from 3.54 to 4.46 revealed that the respondents considered the work values like having lots of daily contact with people; planning and organizing the work of others; having the feeling of helping another person; add to the well-being of other people; and having good contacts with fellow workers are very important.

Table 2. Work Values of The Respondents In Relation To Professional Growth And Interpersonal Relationship

PROFESSIONAL GROWTH Work Values	Mean	Description
Work in which you…		
a. gain prestige in your field	4.27	VI
b. look forward to changes in your job	4.10	VI
c. know your job will last	4.30	VI
d. use leadership abilities	4.42	VI
e. need to have artistic ability	4.30	VI
f. have the power to set policy and determine a course of action	4.31	VI
g. feel that your work is contributing to a set of moral standards that you feel is very important	4.45	VI
GRAND MEAN	**4.31**	**VI**
INTERPERSONAL RELATIONSHIP		
Work in which you…		
a. help others	4.52	MI
b. have authority over others	3.54	VI
c. add to the well-being of other people	4.35	VI
d. have good contacts with fellow workers	4.46	VI
e. plan and organize the work of others	3.91	VI
f. fell you have helped another person	4.21	VI
g. have lots of daily contact with people	3.89	VI
GRAND MEAN	**4.13**	**VI**

4.50-5.00-Most Important (MI) 3.50-4.49-Very Important (VI)
2.50-3.49–Somewhat Important (SI

Social Environment. As indicated in table 3, the respondents considered the work values forming friendship with their fellow employees with a mean rating of 4.51most important. On the other hand, the mean ratings from 4.31 to 4.51 to wit: work values in which knowing what others consider their work is important, helping others directly, either individually or in group, having a workplace which they can be the kind of person they would like to be, contributing betterment in the place they live in, and having a boss who is reasonable or considerate. In contrast, the respondents' work values as compared to their abilities against others were rated somewhat important with a mean rating of 3.06.

Table 3. Work Values of The Respondents in Relation to Social Environment and New Challenges

SOCIAL ENVIRONMENT Work Values	Mean	Description
Work in which you…		
a. can be the kind of person you would like to be	4.40	VI
b. have a boss who is reasonable/considerate	4.47	VI
c. form friendship with your fellow employees	4.51	MI
d. know what others consider your work important	4.31	VI
e. contribute to the betterment of the place you live in	4.45	VI
f. help others directly, either individually or in group	4.37	VI
g. compare your abilities against others	3.06	SI
GRAND MEAN	**4.22**	**VI**
NEW CHALLENGES		
Work in which you…		
a. try out new ideas and suggestions	4.54	MI
b. have to keep solving new problems	4.42	VI
c. are being challenged on my assigned task	4.47	VI
d. do not do the same thing all the time	4.23	VI
e. do many different things	4.34	VI
f. need to be mentally alert	4.58	MI
g. contribute new ideas	4.52	MI
GRAND MEAN	**4.44**	**VI**

4.50-5.00-Most Important (MI) *3.50-4.49-Very Important (VI)*
2.50-3.49–Somewhat Important (SI

New Challenges. It further revealed in the table that the respondents considered the work values on having, the need to be mentally alert, trying out new ideas and suggestions and contribute new ideas as most important. It is also indicated in the table that the respondents considered the work values in not doing the same thing all the time, doing many different things, solving new problems, and being challenged in their respective assigned task as very important.

Relationship between the Work Values of the Respondents and their Profile

Tables 4 and 5 show the relationship between the work values of the respondents and their profile.

It is disclosed in table 4 that the work values respondents' educational attainment has a significant but negative relationship under professional growth with the work values need to have artistic ability. This means that the higher the educational attainment of the teacher-respondents, the lesser they need to be artistically inclined to utilize their skills in everyday activities in their work area. Furthermore, the respondents' teaching performance has a significant relationship particularly in gaining prestige in their respective fields with a correlational value of 2.84 and a significance level of 0.04. With this result, it is assumed that teachers gain prestige from their colleagues and students if they perform better.

Under the interpersonal relationship, the correlation value of -0.23 with significance levels of 0.00 reveals that the educational attainment has an indirect but significant relationship with the work value--helping each other. This means that the higher the educational attainment of the respondents, the lesser they tend to help others.

The work values in relation to interpersonal relationship and the respondents' teaching performance revealed a significant relationship in adding to the well-being of other people; feeling that they have helped another person, planning and organizing the works of others, and having authority over others. Thus, the identified work values contrast significantly with the respondents' level of teaching performance. As support, Chou et. al (2008) claimed that smooth interaction enhances high-quality interpersonal relationships among teachers.

Table 4. Relationship Between the Work Values of The Respondents in Relation to Professional Growth and Their Educational Attainment, Number of Years in Service, And Teaching Performance

Work Values	Educational Attainment		Years in Teaching		Teaching Performance	
PROFESSIONAL GROWTH	Corr.	Sig.	Corr.	Sig.	Corr.	Sig.
Work in which you…						
a. gain prestige in your field	-0.11 ns	0.15	-0.02 ns	0.80	2.84*	0.04
b. look forward to changes in your job	-0.08 ns	0.29	0.04 ns	0.63	0.62 ns	0.61
c. know your job will last	-0.02 ns	0.75	0.09 ns	0.23	1.38 ns	0.25
d. use leadership abilities	0.02 ns	0.84	0.04 ns	0.63	1.06 ns	0.37
e. need to have artistic ability	-0.16*	0.03	-0.10 ns	0.19	0.41 ns	0.75
f. have the power to set policy and determine a course of action	-0.09 ns	0.22	-0.10 ns	0.17	1.07 ns	0.36
g. feel that your work is contributing to a set of moral standards that you feel is very important	0.01 ns	0.93	0.00 ns	0.99	0.63 ns	0.60

INTERPERSONAL RELATIONSHIP						
Work in which you…						
a. help others	-0.23*	0.00	-0.05 ^{ns}	0.50	1.62 ^{ns}	0.19
b. have authority over others	0.01 ^{ns}	0.93	-0.04 ^{ns}	0.63	3.28*	0.02
c. add to the well-being of other people	-0.04 ^{ns}	0.59	0.03 ^{ns}	0.69	4.71*	0.00
d. have good contacts with fellow workers	-0.12 ^{ns}	0.12	-0.06 ^{ns}	0.40	1.15 ^{ns}	0.33
e. plan and organize the work of others	0.02 ^{ns}	0.81	0.08 ^{ns}	0.28	3.71*	0.01
f. fell you have helped another person	-0.05 ^{ns}	0.53	-0.01 ^{ns}	0.92	3.74*	0.01
g. have lots of daily contact with people	0.08 ^{ns}	0.29	0.11 ^{ns}	0.14	2.49 ^{ns}	0.06

**Significant ns Not Significant*

As can be seen in table 5, the work values under social environment has no significant relationship with the respondent's educational attainment and years in teaching. On the other hand, it is noted in the table that the respondents' teaching performance has a direct influence on their work values under the social environment particularly in knowing what others consider your work important, contribute to the betterment of the place you live in, and have a boss who is reasonable/considerate.

It is also indicated in the table the relationship between the respondents' work values in relation to new challenges and their educational attainment. Based on the table, the work values such as trying out new ideas and suggestions with correlation value at -0.19, having to keep solving new problems (-0.16), and being challenged to the assigned task (-0.16) are significant but negatively correlated with their educational attainment. With these results, it is assumed that respondents with Master's degrees and Doctorate units do not try out new ideas and suggestions, do not have to keep solving problems, and are not challenged by assigned tasks.

Finally, the work values under the new challenges have no significant relationship with the respondents' number of years in teaching and their teaching performance since all the statement indicators established a significant values of greater than 0.05 level of significance. This implies that teacher-respondents accept new challenges in their workplace regardless of their teaching performance.

Table 5. Relationship Between the Work Values of The Respondents in Relation to Social Environment and New Challenges and Their Educational Attainment, Number of Years in Service, And Teaching Performance.

Work Values	Educational Attainment		Years in Teaching		Teaching Performance	
SOCIAL ENVIRONMENT	Corr.	Sig.	Cor.	Sig.	Corr.	Sig.
Work in which you…						
a. can be the kind of person you would like to be	-0.01 ^{ns}	0.03	0.65 ^{ns}	0.89	2.54 ^{ns}	0.06
b. have a boss who is reasonable/considerate	-0.03 ^{ns}	-0.03	0.73 ^{ns}	0.71	3.74*	0.01
c. form friendship with your fellow employees	-0.07 ^{ns}	-0.08	0.32 ^{ns}	0.37	0.50 ^{ns}	0.68
d. know what others consider your work important	-0.06 ^{ns}	-0.03	0.65 ^{ns}	0.41	4.53*	0.00
e. contribute to the betterment of the place you live in	-0.03 ^{ns}	-0.03	0.67 ^{ns}	0.74	4.38*	0.01
f. help others directly, either individually or in group	-0.08 ^{ns}	-0.04	0.56 ^{ns}	0.33	1.49 ^{ns}	0.22
g. compare your abilities against others	0.11 ^{ns}	0.13	0.07 ^{ns}	0.13	1.29 ^{ns}	0.28
NEW CHALLENGES						
Work in which you…						
a. try out new ideas and suggestions	-0.19*	0.02	-0.03 ^{ns}	0.74	0.82 ^{ns}	0.48
b. have to keep solving new problems	-0.16*	0.04	-0.08 ^{ns}	0.30	0.95 ^{ns}	0.42
c. are being challenged on my assigned task	-0.16*	0.03	-0.03 ^{ns}	0.67	1.79 ^{ns}	0.15
d. do not do the same thing all the time	-0.09 ^{ns}	0.24	-0.04 ^{ns}	0.55	0.29 ^{ns}	0.83
e. do many different things	-0.16*	0.03	-0.03 ^{ns}	0.69	0.83 ^{ns}	0.48
f. need to be mentally alert	-0.11 ^{ns}	0.15	-0.04 ^{ns}	0.56	1.43 ^{ns}	0.24
g. contribute new ideas	-0.13 ^{ns}	0.09	-0.12 ^{ns}	0.13	0.78 ^{ns}	0.51

**Significant ns Not Significant*

CONCLUSIONS

Based on the findings, the following conclusions were drawn:

1. Most of the respondents have attained a higher level of education and had been in the teaching profession for not more than 5 years and majority of them had a very satisfactory level of performance.
2. Helping others, forming friendship with their fellow employees, trying out new ideas and suggestions, the need to be mentally alert, contributing new ideas, and having opportunity to learn new things were considered most important and the work values in relation to professional growth, interpersonal relationship, social environment and new challenges were considered very important.

3. The respondents' work values in needing to have artistic ability under the professional growth, helping others under the interpersonal relationship, trying out new ideas and suggestions, solving new problems, being challenged on the assigned task, and doing many different things under the new challenges have a significant relationship with their highest educational attainment. However, their work values have no significant relationship as to the number of years in teaching while their work values in relation to professional growth, interpersonal relationship, and social environment have significant relationship with their teaching performance.

RECOMMENDATIONS

In the light of the findings of the study, the following are recommended:

1. Teachers should consider all work values as essential or important as part of their teaching profession.
2. School administrators should sustain the level of teaching performance and work values of their teachers and provide opportunities for their professional development to achieve good quality of education.
3. Teachers should continue pursuing graduate school studies and attend various trainings and seminars to improve more their work values and their teaching performance.
4. The present study could be extended to teachers at various grade levels, as the present study covers only the junior high school teachers.
5. It is also encouraged that profile other than those used in this study like socio-economic and status of appointment of the respondents may be used to relate to the work values and teaching performance of the teachers.

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THE EFFECTIVENESS OF THE ACCOUNTING DEPARTMENT OF A HIGHER INSTITUTION

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ABSTRACT

The effectiveness of the services of the Accounting Department played a huge part in providing the needs to the students. To ensure that the school provides effective services, a comparative study was conducted to further ensure that the effectiveness of the services was properly delivered in the academic year 2017-2018 and 2018-2019 of the said department. The results showed a much effective result on the perception of the students with regards to the effectiveness of the services of the Accounting Department in the academic year 2018-2019. As compared on the data collected in the academic year 2017-2018, it was found out that students in both academic years 2017-2018 and 2018-2019 were satisfied with the services of the Accounting Department. This led in accepting the null hypothesis which showed no significant difference of the respondents' perception in the academic years 2017-2018 and 2018-2019 in every course. They believed that acquiring more computers, hiring more employees and implementing online enrolment system are the best solutions to improve more on the services of the Accounting Department.

Keywords: Accounting Department, Accounting Services, Course, Effectiveness, Perception

INTRODUCTION

Accounting Department is noted to provide accounting services and financial works to the organization it belongs to. It performs the primary functions of recording the accounts receivable and payable, financial controls and reports and other financial elements. This department takes a big part when it comes to the operation of colleges. According to Guney (2014) Technological developments changed methods for carrying out tasks within the scope of accounting activities and transactions related to accounting. Whatever method the schools may use, it should satisfy the students' needs. A lot of studies stressed the importance of technology in delivering the services. Like, Gheorghe (2015), in his study entitled "Accounting of the Settlements with Students in Higher Education Institution," said that an Accounting as a tool in an organization and governance, should satisfy the growing social needs, which requires a rigorous and effective management of resources mobilized, wherever their origin. In order to satisfy the growing social needs, computers are very important which was stressed on the study of Seligman (2000). He said thatcomputers are now the key resource in accounting and financial information processing. Aquino (2005) added that computer application is increasing day by day; he emphasized that winning companies are those which are willing to integrate information technology. Computer can give competitive advantage and improve profitability because enrollees are attracted with the system, which makes transactions faster and easier. It is emphasized in the study of Cristea (2003) entitled "Valuation Bases and Accounting System" which focused on accounting system as an engine which makes the management work, so the informational system is an essential element in the companies organization and concluded that an efficient use and effective management are possible only if there is a reliable and comprehensive accounting system. The previous studies are strengthen in the study of Hunton (2002), which investigated the relationship between automated accounting information system and organizational effectiveness, showed that there was strong relationship between automated accounting information system and organizational effectiveness, which means access of the accounting information will lead to effectiveness. Likewise, Samuel (2013) said that Management in the automobile organizations in Kenya relies heavily on information generated from the AIS employed by the company. Quality reports are very important to arrive at an ideal investment. Traditional way of recording, summarizing and reporting company financial reports led to less optimal decisions. Investment in good and reliable accounting systems has become a major concern for all managers as it leads to better management and analysis of firm's performance. Furthermore, Sahady et.al (2008) found out that the company needs to acquire a computerized accounting system that suits the organizational needs and strongly recommended that financial institutions should continuously adopt a culture of utilizing computerized accounting systems that provide easy preparation of financial reports. Lastly, Deusidedit (2014), in his study entitled "Computerized Accounting Systems on Effectiveness of Financial reporting: A Case Study, the computerized accounting system is of a great importance to the running of the company but is also associated with its own weaknesses that hinder efficiency in the company's business environment.

The existing literatures offer evidences on the effectiveness of an organization through the use of Accounting Information System regardless of the weaknesses it brings. This leads the researchers to find out the effectiveness of the Accounting Department of a Higher Institution. The result will be used to compare data gathered in the academic year 2017-2018 to ensure that students will be given the best quality of the services. To obtain the results of the study, the perceptions of the respondents per program on the effectiveness of the Accounting Department were gathered through survey questionnaire. The questionnaire is divided into three parts. The first part answers the profile of the respondents, second answers the perception of the respondents with regards to the services of the Accounting Department which contains five categories 1) Assessment of Payments, 2) Releasing of Permits, 3) Preparing Students Bills, 4) Advising Scholarships and Refunds, and 5) Promos and Discounts. The third part of the questionnaire contains the suggestions of the respondents on how to improve the services. The questionnaire uses the Likert type scale of (1-4), 1 means Not Effective, 2 means Least Effective, 3 means Much Effective, and 4 means Very Effective. Questionnaires were disseminated among the 4th year and 5th year students covering 30 respondents for every course in this 2nd semester 2018-2019. The data were evaluated and compared with the results gathered in the year 2017- 2018 to find out if there were improvements of the services of the Accounting Department.

STATEMENT OF THE PROBLEM

A survey questionnaire was used to gather the data which answered the following questions:

1. How did the respondents in each course perceive the Accounting Department in terms of the following services:
   a. Assessment of Fees,
   b. Releasing of Permits and Booklets,
   c. Preparing Student Bills,
   d. Advising of Scholarships and Refunds, and
   e. Promos and Discounts?
2. Is there a significant difference on the perceptions of the respondents in the academic years 2017-2018 and 2018-2019?
3. What were the respondents' perceptions on the solutions to improve the services of the Accounting Department?

METHODOLOGY

The research used the 4th year and 5th year students during the 2nd semester school year 2018 -19 using the Quota sampling. Thirty respondents from each program was set as number to be taken as samples from the population and an incidental technique was used for sampling selection.

The gathered data were treated using frequency and percentage distribution and t-Tests of Significance.

FINDINGS AND ANALYSIS OF THE DATA

Based on the results, the following are the findings and analysis of the data.

Table 1.1 Perception of the BS Avionics Department of Effectiveness of the Services of the Accounting Department

Statements	2018-2019		2018-2019	
	Mean	Remarks	Mean	Remarks
Assessment of Fees	2.825	Much Effective	2.92	Much Effective
Releasing of Permits and Booklets	2.933	Much Effective	3.01	Much Effective
Preparing Student Bills	3.058	Much Effective	3.25	Much Effective
Advising of Scholarships and Refunds	3.058	Much Effective	3.23	Much Effective
Promos and Discounts	2.540	Much Effective	2.68	Much Effective
Total	**2.88**	**Much Effective**	**3.02**	**Much Effective**

The table presents the mean result of the perception of the students on the services of the Accounting Department .It shows that the Assessment of Fees 2.8 to 2.9, Releasing of Permits and Booklets 2.9 to 3.0, Preparing Student Bills 3.05 to 3.25, Advising Scholarships and Refunds which has 3.05 to 3.23, and Promos and Discounts has 2.54 to 2.68. The result shows a much effective results in all variables both academic years but shows very little amount of increase except Preparing Student Bills and Advising Scholarships and Refunds which show a very little decrease.

Table 1.2 Perception of the BS Aircraft Maintenance Technology Respondents on the Effectiveness of the Services of the Accounting Department

Statements	2017-2018		2018-2019	
	Mean	Remarks	Mean	Remarks
Assessment of Payments	3.13	Much Effective	3.21	Much Effective
Releasing of Permits and Booklets	3.02	Much Effective	3.08	Much Effective
Preparing Student Bills	3.38	Much Effective	3.10	Much Effective
Advising of Scholarships and Refunds	3.40	Much Effective	3.25	Much Effective
Promos and Discounts	2.87	Much Effective	3.03	Much Effective
Total	**3.16**	**Much Effective**	**3.13**	**Much Effective**

The result shows that Promos and Discounts which has 2.87 to 3.03, Assessment of Payments from 3.13 to 3.21 and Releasing of Permits and Booklets 3.02 to 3.08 show a very little increase while preparing Student Bill from 3.38 to 3.10 and Advising Scholarships and Refunds 3.40 to 3.25 show a very little decrease of the result on the perception of the respondents on the two academic years. All in all, the result shows a much effective result.

Table 1.3 Perception of the BS Aeronautical Engineering Respondents on the Effectiveness of the Services of the Accounting Department

Statements	2017-2018		2018-2019	
	Mean	**Remarks**	**Mean**	**Remarks**
Assessment of Payments	2.98	Much Effective	3.23	Much Effective
Releasing of Permits and Booklets	3.06	Much Effective	3.16	Much Effective
Preparing Student Bills	3.05	Much Effective	3.25	Much Effective
Advising of Scholarships and Refunds	3.23	Much Effective	3.31	Much Effective
Promos and Discounts	2.88	Much Effective	3.31	Much Effective
Total	**3.04**	**Much Effective**	**3.25**	**Much Effective**

The table shows that all variables under the academic year 2018-2019 have increase a little as compared on the academic year 2017-2018. From the Assessment of Payments 2.98 to 3.23, Releasing of Permits and Booklets 3.05 to 3.25, Preparing of Student Bills 3.05 to 3.25,

Advising of Scholarships 3.23 to 3.31, and Promos and Discounts 2.88 to 3.31, all results show a much effective service.

Table 1.4 Perception of the BS Industrial Engineering Respondents on the Effectiveness of the Services of the Accounting Department

Variables	2017-2018		2018-2019	
	Mean	**Remarks**	**Mean**	**Remarks**
Assessment of Payments	3.11	Much Effective	3.21	Much Effective
Releasing of Permits and Booklets	3	Much Effective	3	Much Effective
Preparing Student Bills	2.96	Much Effective	3	Much Effective
Advising of Scholarships and Refunds	3.2	Much Effective	3.25	Much Effective
Promos and Discounts	2.57	Much Effective	2.89	Much Effective
Total	**2.96**	**Much Effective**	**3.07**	**Much Effective**

The table shows that almost all the categories the academic year 2018-2019 have a very little increase except on the categories Releasing of Permits and Booklets that has the same result from 3 to 3. The rest categories show a very little increase. Assessment of Payments which is from 3.11 to 3.21, Preparing Student Bills 2.96 to 3, Advising of Scholarships and Refunds from 3.2 to 3.25, and Promos and Discounts from 2.57 to 2.89 show a very little increase which still show a very much effective result.

Table 1.5 Perception of the BS Air Transportation Respondents on the Effectiveness of the Services of the Accounting Department

Statements	2017-2018		2018-2019	
	Mean	**Remarks**	**Mean**	**Remarks**
Assessment of Payments	3.08	Much Effective	3.28	Much Effective
Releasing of Permits and Booklets	2.91	Much Effective	2.98	Much Effective
Preparing Student Bills	2.98	Much Effective	3.14	Much Effective
Advising of Scholarships and Refunds	3.20	Much Effective	3.18	Much Effective
Promos and Discounts	2.70	Much Effective	3.30	Much Effective
Total	**2.97**	**Much Effective**	**3.18**	**Much Effective**

The table shows that all categories have a very little increase except Preparing Student Bills. Assessment of Payments from 3.08 to 3.28, Releasing of Permits and Booklets 2.91 to 2.98, Preparing Student Bills 2.98 to 3.14, Advising of Scholarships and Refunds 3.20 to 3.18, Promos and Discounts 2.70 to 3.30. The results of both academic years show a much effective result.

Table 1.6. Perception of the BS Tourism Management Respondents on the Effectiveness of the Services of the Accounting Department

Statements	2017-2018		2018-2019	
	Mean	Remarks	Mean	Remarks
Assessment of Payments	3.13	Much Effective	3.41	Much Effective
Releasing of Permits and Booklets	3.02	Much Effective	3.22	Much Effective
Preparing Student Bills	3.10	Much Effective	3.18	Much Effective
Advising of Scholarships and Refunds	3.40	Much Effective	3.30	Much Effective
Promos and Discounts	2.87	Much Effective	3.41	Much Effective
Total	**3.10**	**Much Effective**	**3.30**	**Much Effective**

The table presents the perception of the respondents under the Tourism Management Course in the academic years 2017-2018 and 2018-2019. It shows that the Assessment of Payments has 3.13 to 3.41, Releasing of Permits and Booklets 3.02 to 3.22, Preparing Student Bills 3.10 to 3.18, Advising of Scholarships and Refunds 3.40 to 3.30, Promos and Discounts from 2.87 to 3.41. The result shows a very little increase on the respondents' perception in the academic year 2018-2019 as compared in the academic year 2017-2018.

Table 1.7. Perception of the BS Airline Business Administration Respondents on the Effectiveness of the Services of the Accounting Department

Statements	2017-2018		2018-2019	
	Mean	Remarks	Mean	Remarks
Assessment of Payments	3.13	Much Effective	3.26	Much Effective
Releasing of Permits and Booklets	3.02	Much Effective	3.32	Much Effective
Preparing Student Bills	2.83	Much Effective	3.18	Much Effective
Advising of Scholarships and Refunds	3.40	Much Effective	3.34	Much Effective
Promos and Discounts	2.87	Much Effective	3.27	Much Effective
Total	**3.05**	**Much Effective**	**3.19**	**Much Effective**

The table shows that the respondents' perception in all categories in the year 2018-2019 increase a little as compared to the perception on the students in the year 2017-2018. The Assessments of Payments has 3.13 to 3.26, Releasing of Permits and Booklets 3.02 to 3.32, Preparing Student Bills from 2.83 to 3.18, Advising Scholarships and Refunds 3.40 to 3.34, Promos and Discounts 2.87 to 3.27. Though all of the categories have shown a little amount of increase on the students' perception on the services of the accounting department, still the result shows a very much effective result.

Table 1.8 Summary Table of Mean on the Perception of the Eight (7) Courses on the Effectiveness of the Services of the Accounting Department Academic Year 2018-2019

Statements	Computed Mean of the Seven Courses Offered in PATTS							Average Mean 2017-2018
	BSAV	BSAMT	BSAERO	BSIE	BSAT	BSTM	BSA-BA	
Assessment of Payments	2.83	3.13	2.98	3.11	3.08	3.13	3.13	3.055
Releasing of Permits and Booklets	2.93	3.02	3.06	3.00	2.91	3.02	3.02	2.994
Preparing Student Bills	2.9	3.09	3.05	2.96	2.96	3.1	2.83	2.984
Advising of Scholarships and Refunds	3.13	3.40	3.23	3.17	3.20	3.40	3.40	3.275
Promos and Discounts	2.54	2.87	2.88	2.57	2.70	2.87	2.87	2.757
Total	14.29	15.51	15.2	14.81	14.85	15.52	15.25	15.065
Average	**2.86**	**3.10**	**3.04**	**2.96**	**2.97**	**3.10**	**3.05**	**3.013**

The table presents the summary of the respondents' perception on the services of the services of the Accounting Department in the year 2018-2019. The result shows an average mean of 3.161 which means much effective result.

Table 2. Test of Significance (t-test) of Mean on the Perception of the Seven Courses on the Effectiveness of the Accounting Department

Statement	Average Computed Mean of the Eight Courses Offered in Academic Years 2017-2018 and 2018-2019			
	Average Mean on each statement of the 7 courses (2018-2019)	Average Mean on each statement of the 7 courses (2017-2018)	Difference (D)	D^2
Assessment of Payments	3.220	3.055	0.165	0.027
Releasing of Permits and Booklet	3.061	2.994	0.067	0.004
Preparing Students Bills	3.151	2.984	0.167	0.028
Advising Scholarships and refund	3.243	3.275	-0.032	0.001
Promos and Discount	3.131	2.757	0.374	0.140
Total	**15.807**	**15.065**	**0.742**	**0.551**

Interpretation:

Since the computed t-value of 9.48 is less than the tabular value of 2.571 at 0.05 level of significance which lead to accepting the null hypothesis that there is no significant difference on the perception of the seven courses on the effectiveness of the Accounting Department in the A.Y. 2017-2018 and 2018-2019.

Table 3. Perception of the Respondents on the Solution to Improve the Services of the Accounting Department

Statements	Mean	Remarks
Acquisition of More Computers	3.7	Much Needed
Hire of Additional Personnel	3.7	Much Needed
Enhance in Costumer Service Relations	2.5	Much Needed
Install Microphones inside/outside the windows	2.0	Much Needed
Implement Online Banking Payment System	3.0	Much Needed
Adjust Office Hours by Shifting schedules of Staffs (8:00-3:00 and 3:00-9:00	2.3	Much Needed
Collaborate with other Departments	2.5	Much Needed
Implement On-line Enrolment System	3.8	Much Needed
Total		**Much Needed**

Table 3 presents the different solutions that the respondents perceive to make the services of the Accounting Department more effective. It clearly shows that Acquisition of More Computers, Hire

More Applicants and Implement an Online Enrolment System are very much effective solutions for the students while Enhance in Costumer Service Relations, Install Microphones, Adjust Office Hours and Collaborate with Other Department are needed but not very much needed.

CONCLUSION

Based on the results, the following conclusions were drawn:

1. The services of the Accounting Department shows a little increase on the perception of the students in the academic year 2018-2019 as compared to the perception of the respondents in the year 2017-2018. Though it shows a little increase on the perceptions of the respondents in the year 2018-2019, the results mean a very much effective result both academic years.
2. The result leads in accepting the null hypothesis that there is no significant difference on the respondents' perceptions on the services of the Accounting Department in the academic years 207-2018 and 2018-2019.
3. Furthermore, the respondents find Acquisition of More Computers, Hire More Applicants, and Implement an Online Enrolment System are very much effective solutions in improving more on the services of the Accounting Department.

RECOMMENDATION

Given the results of the study and to further improve the services of the Accounting Department, the College Research Center and the researchers recommended the School Administration the following:

1. acquire more computers,
2. hire additional personnel and implement online banking system, and
3. implement an Online Enrolment System.

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ANYONE OR ANY ONE: WHICH DO YOU THINK IS RIGHT?

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ABSTRACT

Grammar is the system and structure of a language. The rules of grammar help us decide the order on how we put words in and which form of a word to use. Commonly word errors are part of grammar that really makes the reader crazy on which word should be use or which is the most appropriate. This paper utilized descriptive comparative method and discourse analysis to resolve the posted queries on which word is more appropriate to be used in a sentence. Also, identify and analyze the frequency of occurrence of the word, the pre and post collocates of the anyone and any one, the common expression or other parts of speech that goes along with the word anyone and any one and lastly to identify the meaning of the words. The study also revealed that there is a particular time that the words anyone and any one were separately used in the sentence. But time comes that each word was commonly used.

Keywords: Grammar, Words, Anyone, Any one

INTRODUCTION

Grammar is the system and structure of a language. The rules of grammar help us decide the order on how we put words in and which form of a word to use. Commonly word errors are part of grammar that really makes the reader crazy on which word should be use or which is the most appropriate. This also helped readers comprehend properly the discourse given. A well-constructed sentence with the best choice of words and grammatically correct will encourage a more positive feedback and definitely gain better understanding and comprehension on the part of the listener or the reader.

Learners, readers and even writers are mixed-up about words that sound and mean the same. Nowadays people rely heavily on spell checker. But sometimes, even the computer gives vague result/answer of which between these confusing words should be used. As a writer or a reader, you must be certain with the meaning of word/s you intend to use so that it won't confuse your reader and the message will be clearly sent.

Between the words anyone and any one, have you ever wonder how do they differ? What is the nature of each word? This is a common topic already. Over the web there are reading articles and even tutorials that explains its difference. But though it’s common, there are still individuals who don’t know their variance. It is also a must that there should be a hint in using these confusing words to convey a very meaningful conversation and good rapport and communication.

Nordquist (2019) stated that the indefinite pronoun "anyone" used as a single word and refers to any person, but not to any particular individual. "Any one” which is used as two words is an adjective phrase that refers to any single member of a group of either people or things. "Any one" is commonly followed by the preposition "of”.

To use "anyone" correctly, it is important to understand that an indefinite pronoun is a pronoun that refers to an unspecified or unidentified person or thing. It's vague rather than specific, and it doesn't have an antecedent. So, "anyone" refers to any person, but no person in particular.

Anyone or any one, both are grammatically singular, regardless of meaning. But there is a difference in meaning between the one- and two-word versions: when you type anyone, you're referring to people; when you type any one you may be referring to people, but not necessarily--it depends on what follows or what is understood. For example, perhaps you mean 'any one of the customers' (in which case you are referring to people); or maybe you mean 'any one of the petunias' or (in which case you are not referring to people). In sum, any one means one of a group (of people or things), rather than one person (anyone) or a bunch of people (everyone).

STATEMENT OF THE PROBLEM

This study was designed and tried to answer, explain and analyze two English words, a pair among the commonly word errors in English especially in terms of:

1. its meaning;
2. the common usage or expression involving the two words;
3. pre and post collocates of the anyone and any one; and
4. frequency of occurrence of the word.

RESEARCH RESOURSES

The researcher used Corpus of Contemporary American English (COCA), and made use of the different tools present at the COCA to gather information and data pertaining to the study.

METHODOLOGY

The researcher employed the Descriptive Comparative Discourse Analysis in describing the words in terms of its context, usage, and frequency. The researcher also compared the terms and made a deeper interpretations and analysis of the word based from the corpus particularly Corpus of Contemporary American English (COCA).

RESULTS AND DISCUSSION

Anyone or any one:

Anyone or any one, both are grammatically singular, regardless of meaning. But there is a difference in meaning between the one - and two - word versions: when you mean anyone, you're referring to people; on the other hand the phrase any one you may be referring to people, but not necessarily--it depends on what follows or what is understood.

Another Grammar book states that when it means "anybody," "anyone" is spelled as a single word like "Anyone can enter the drawing." But when it means "any single one," "any one" is spelled as two words like "Any one of the tickets may win."

Anyone as pronoun:

Anyone is a pronoun and is used to call upon a noun. It means any person at all; anybody like "Did anyone see the accident?" Anyone as a pronoun meaning "anybody" or "any person at all" is written as one word. It is used when there are no qualifications to the grouping. Something could belong to anyone if there are no distinguishing marks or unique factor.

Any one as adjective phrase

Any one is a combination of two words which is generally not listed in dictionaries except perhaps to distinguish the differences with any one. Any one is a term that means any single object or person. "Any one of your buddies, if he's careless enough, could turn out to be your enemy." Adjective phrase that refers to any single member of a group (of either people or things). Any one is commonly followed by the preposition of like "She never admitted that any one of her pupils, even the ones who were unmistakably tone deaf, were deficient in musical talent."

Analyzing the word anyone and the phrase any one using Corpus of Contemporary American English (COCA) gives us different states and data.

In terms of frequency in usage, anyone has 207, 989 while any one has 10,683. This simply means that the single word anyone is commonly used in blog, web, tv/movie, spoken, fiction, magazine, newspaper and academic.

While doing a random browsing, the term anyone ranked 463 with a frequency of 207,907 while the term any one doesn't have any figure appeared in the corpus even its ranking is not visible. This simply means that the commonly used word is the word anyone than the word any one.

In terms of usage of the words anyone and any one, from 1810 up to 2000 showed an opposite marking. From 1810 to 1900 the word anyone was seldom used unlike the word any one which is frequently used during that time especially during 1870 – 1880. But this was of a decreasing manner. Because from 1840 up to 2000 the word any one was seldom used which was the opposite status of the word anyone which has an increasingly usage from 1910 up to 2000. And even up to now the word anyone (single word) is often used rather than any one (two word).

Commonly the word that goes with anyone are else (4366) and ever (1276) while the word any one goes with the word else (1953) and nor (433). If we have noticed both words anyone and any one frequently goes with the word else.

In terms of context, the frequency of the word anyone (as one word) which pertains to person is 207, 989 unlike the word any one (two words) was divided into several categories like person, else, particular, individual having the frequency as 207,540, 262,212, 124,658, 131,161, respectively.

Anyone was normally used in blogs, web and TV and movies and seldom used in academic. On the other hand, the term any one was normally used in web, blog and academic and seldom used in fiction. From 1990 to 2019 there is a consistent frequency of usage of the word anyone. On the contrary, from 1990 to 2019 there is a diminishing usage of the word any one. So, generally, at present the commonly used term between these two is the single word anyone rather than the two word any one.

Between the two words only anyone provided a group of cluster words (after) like anyone who, anyone else, anyone can, anyone to, anyone with, anyone in, anyone could, anyone would, anyone who has, anyone in the, anyone who is, anyone with a, anyone else in, anyone who wants, anyone who does, anyone else who, anyone who wants to, anyone else in the, anyone who doesn't, anyone who has ever, anyone who has been, anyone in the world, anyone would want. The following clusters appeared before the word anyone like to anyone, if anyone, for anyone, than anyone, that anyone, or anyone, with anyone, does anyone, n't think anyone, n't tell anyone, n't want anyone, why would anyone, better than anyone, is there anyone, don't think anyone, don't want anyone, don't know anyone, don't tell anyone, don't let anyone, as well as anyone, as much as anyone.

Some of the concordance lines that used anyone are the following: from Buffy the Vampire Slayer, a TV show in 2001 which states that more potent texts and potions are all up there. If anyone asks you about anything in that area, just come and get. Another one is from RollingStone.com, a magazine in 2018 which states that, that right has now been eviscerated when it comes to anyone being charged in the press with any sort of sexual misconduct, another is from the web, fatcyclist.com in 2012 which says …" #" I can't think of anyone better to give this ball to than these kids," The and many more to mention.

CONCLUSION

When trying to distinguish between "anyone" and "any one," simply swap them with a similar word, such as "anybody" vs. "any body" or even antonyms, such as "nobody" vs. "no body." The difference between these words is the same grammatically as the distinction between "anyone" and "any one."

Both, "anyone" and "anybody" mean the same thing—"any one" and "any body" both refer to any person in general, but not a specific person.

To use "anyone" correctly, it's important to understand that an indefinite pronoun is a pronoun that refers to an unspecified or unidentified person or thing. It's vague rather than specific, and it doesn't have an antecedent. So, "anyone" refers to any person, but no person in particular. By contrast, "any one" refers to any single, specific person, such as: "Any one" of you in my class may choose "any one" of the books to read. In this example, the first use of "any one" refers to any single person in the class. In the second use, "any one" refers to any specific book.

Grammatically speaking both terms can be use. The pronoun anyone which pertains to either person or thing and the phrase any one which can also be a person or a thing. As a user of words that we might be using in the future let us be meticulous as to what word will you be using to express a clearer idea or context that you may be dealing with.

The single word anyone, which is a noun refers to a person and the two – word any one is an adjective which may appear with an of phrase and based from the data analysis done, it is the term anyone which bears a heavy responsibility against the phrase any one. The data also states that anyone is the frequently use term rather that any one.

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FACTORS THAT ENCOURAGE TEACHERS AND BARRIERS IN ICT INTEGRATION IN MATHEMATICS TEACHING

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ABSTRACT

Information and Communication Technologies nowadays play a significant role in achieving better performance in the teaching and learning process. This study determined the factors that encourage teachers and barriers in ICT integration in mathematics teaching. The respondents of this study were Mathematics teachers and Mathematics students in the University of Eastern Philippines Laoang Campus, Laoang, Northern Samar using universal sampling. The research design that was employed in this study was descriptive method. A survey questionnaire was used and the statistical tools utilized were mean and standard deviation. Findings revealed that the factors that encourage the teachers in ICT integration the most were in-service education programs for instructional technologies and awards for technology integration of teachers in instructional activities in Mathematics teaching. The barriers that interfere the most in the ICT integration are financial resources and the availability of computer laboratory and instructional software/electronic resources. It is recommended that School administrators may invest and provide in-service training in ICT integration in Mathematics.

Keywords: Barriers in integration; factors in integration; ICT; mathematics teaching

INTRODUCTION

The Integration of Information and Communications Technology (ICT) into the teaching and learning process is a growing field that has a variety of definitions according to different points of view. ICT integration in schools is needed to accomplish many objectives and improve the quality of lessons in all subject areas as well as mathematics. ICT increasingly pervades various aspects of our daily lives. As ICT leads all processes based on information, every individual in the society should become technology competent. Marzano (2006) found out that the use of ICT does not directly increase the performance of learners, but may improve the knowledge and understanding of the learners.

Higgins (2005) stated that ICT can assist students in their learning activities, as well as help instructors to improve their curriculum design, course management, design of learning materials and lesson planning. Haslaman, Mumcu and Usluel (2008) recommended that the application of ICT processes should be presented in an integrated way and that a concrete model needs to be developed for the teachers in order for the integration process to improve students' learning. Based on the premise that "the integration process should strengthen the learning of students", there was a need to present an integrated point of view in the application of these processes and to develop some concrete examples for teachers. A model assessing the ICT integration process and helping to improve students' learning was created.

The role of Information Communication and Technology (ICT) in education is undisputed globally. Therefore, many developed and developing countries have invested heavily in the ICT sector in education. Saudi Arabia is one of these countries. However, although it has invested massively in the ICT sector in education, the progression has often been disappointing – resulting in a number of serious questions being raised for decision-makers and educators alike. One of the most important of these questions is 'what factors affect the successful implementation of ICT in schools. Hence, the importance of this paper is to find an answer to this question and related questions from the participants' perspective. Consequently, the study is primarily concerned with qualitative data, collected in semi-structured interviews with two ICT directors, four headmasters, four teachers and four students, in Saudi secondary schools. Generally, the results showed that ICT was perceived as an important tool in improving performance, collaboration, learning experience and learning outcomes. However, some challenges that affect the application of ICT in Saudi schools are, for example, the lack of space, resources, maintenance, a lack of ICT skills among schools along with a lack of ICT training and a lack of clear ICT policies. However, the overcoming of these obstacles could turn these barriers into positive factors to aid in the success of ICT implementation (Albugami and Ahmed, 2015).

Included in the contemporary mathematics curricula in Ghana is the expectation that mathematics teachers will integrate technology in their teaching. However, importance has not been placed on preparing teachers to use ICT in their instruction. This study conducted by Agyei and Voogt (2011) explored the feasibility of ICT use in mathematics teaching at senior high school levels in Ghana. Interviews and survey data were used for data collection. Preliminary results showed that mathematics teachers in Ghana do not integrate ICT in their mathematics instruction. Among the major perceived barriers identified were: Lack of knowledge about ways to integrate ICT in the lesson and Lack of training opportunities for ICT integration knowledge acquisition. To overcome some of these barriers, opportunities for a professional development arrangement for pre-service mathematics teachers were explored. Findings from the study revealed specific features of a professional development scenario that matters for ICT integration in mathematics teaching in the context of Ghana.

Based on the researchers' interviews with some students and teachers, teachers affirmed that they did not use technology in teaching. They only use books as resources for teaching in a traditional way, but sometimes they give them assignments through online sources. Some students could not utilize computers in the computer laboratory because often computers are not functioning and only a few teachers used technology in the classroom during their teaching-learning process.

In the teaching-learning process, ICT is a noteworthy tool or scientific invention used in education because it improves retention of the lessons with the use of images, it creates interactive and enjoyable classes and it makes the lesson comprehensible and interesting.

OBJECTIVES

This study determined the Information and Communication Technologies Integration in Mathematics Teaching in University of Eastern Philippines Laoang Campus, Laoang, Northern Samar.

Specifically, this study aimed to:

1. find out the factors that encourage teachers in integrating ICT in mathematics teaching as assessed by themselves and their students; and,
2. identify the barriers in ICT integration in mathematics teaching as assessed by themselves and their students.

REVIEW OF LITERATURE

Information and Communication Technology (ICT) is defined as the use of hardware and software for efficient management of information. It refers to the forms of technology that are used to transmit, store, create, share or exchange particular tasks, (Deshmukh, 2013). It is a useful term for broadly describing digital technology that allows for manipulating information and communication with others, (Longo, 2015). The ICT tools are devices or objects used in information and communication technology like computers, cell phones, video conferencing, software, television, laptop and etc.

Muyumdar (2006), states that using ICT to improve teaching and learning is the key to pedagogy-technology integration. With ICT, there are better ways and opportunities to make learning experiences realistic. ICT encourages interactions, development of collaborative culture and utilization of active learning and introduction of feedback in proper context. ICT can bring an abstract concept to life bringing into the teaching and learning real-world experiences through simulation, modeling, capturing and analyzing real event.

According to Warlick (2004), "we need technology in every classroom and every student and teacher's hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world". This brings to light why there is a need to infuse technology in today's classroom. This ICT is the much-sought breakthrough that changed many aspects of human's life most essentially in the educational realm.

As a future 21st century teacher, the use of technology in the classroom is very useful in the teaching and learning process. Thus, all schools should be fully equipped with the necessary ICT tools to provide the next generation with the needed tools and resources for access and usage, to attain the expected skills to be globally competitive 21st-century teachers and learners (Gulbahar and Guven, 2008).

The use of ICT in the classroom is very important for providing opportunities for students to learn to operate in an information age. Studying the obstacles to the use of ICT in education may assist educators to overcome these barriers and become successful technology adopters in the future. This paper provides a meta-analysis of the relevant literature that aims to present the perceived barriers to technology integration in science education. The findings indicate that teachers had a strong desire for to integrate ICT into education; but that, they encountered many barriers. The major barriers were lack of confidence, lack of competence, and lack of access to resources. Since confidence, competence and accessibility are the critical components of technology integration in schools, ICT resources including software and hardware, effective professional development, sufficient time, and technical support need to be provided to teachers. No one component in itself is sufficient to provide good teaching. However, the presence of all components increases the possibility of excellent integration of ICT in learning and teaching opportunities. Generally, this paper provides information and recommendation to those responsible for the integration of new technologies into science education (Bingimlas, 2009).

Global investment in ICT to improve teaching and learning in schools have been initiated by many governments. Despite all these investments on ICT infrastructure, equipment's and professional development to improve education in many countries, ICT adoption and integration in teaching and learning have been limited. This article reviews personal, institutional and technological factors that encourage teachers' use of computer technology in teaching and learning processes. Also, teacher-level, school-level and system-level factors that prevent teachers from ICT use are reviewed. These barriers include lack of teacher ICT skills; lack of teacher confidence; lack of pedagogical teacher training; l lack of suitable educational software; limited access to ICT; rigid structure of traditional education systems; restrictive curricula, etc. The article concluded that knowing the extent to which these barriers affect individuals and institutions may help in deciding on how to tackle them (Buabeng-Andoh, 2012).

METHODOLOGY

This study determined the factors that encourage teachers and barriers in ICT integration in mathematics teaching in the University of Eastern Philippines Laoang Campus, Laoang, Northern Samar. The respondents of this study were six Mathematics teachers and 57 Bachelor of Secondary Education major in Mathematics students by using universal sampling. The research design employed the descriptive method and the instrument was a questionnaire patterned from Gulbahar, and Guven, (2008) and Opira (2006). The validity and reliability of the instrument were tested. While the statistical tools were frequency counts, percentages, mean and standard deviation. Two sets of questionnaires used were composed of four parts. The first part consisted of 8 items about factors that encourage teachers' and students' integration of technologies. The second part of the questionnaire consisted of 19 items regarding the barriers in ICT integration in Mathematics teaching.

FINDINGS

Factors that Encourage Teachers in Integrating ICT in Mathematics Teaching

The table 1 shows the factors that encourage Mathematics teachers in Integrating ICT in Mathematics teaching. The respondents agreed that "Investment of the institution on in-service education programs for instructional technologies." (M=2.81, SD=0.39) and "Rewarding the technology integration of teachers in instructional activities" (M=2.79, SD=0.41) as both most important.

Table 1. The factors that encourage teachers in integrating ICT in Mathematics

Factors that encourage ICT integration	Mean	SD	Interpretation
Rewarding the technology integration of teachers in instructional activities.	2.79	0.41	Important
Investments of the institution in the infrastructure of instructional technologies.	2.76	0.46	Important
Investment of the institution on in-service education programs for instructional technologies.	2.81	0.39	Important

Investment of the institution on the support services of instructional technologies.	2.57	0.50	Important
Developing the policies and plans for the diffusion of the instructional technologies.	2.56	0.56	Important
Providing support for the projects towards the expansion of instructional materials.	2.64	0.48	Important
Carrying out the studies for integration of technology into the curriculum.	2.54	0.53	Important
Reducing workload to provide opportunities to teachers for developing instructional materials.	2.60	0.49	Important
Grand mean	**2.66**	**0.22**	**Important**

However, "Carrying out the studies of the integration of technology into the curriculum" (M=2.54, SD=0.53) and "Developing the policies and plans for the diffusion of the instructional technologies" (M=2.56, SD=0.56) as likely important. The findings revealed that the factors that encourage the teachers the most in ICT integration are in-service education programs for instructional technologies and awards for technology integration of teachers in instructional activities in Mathematics teaching. The grand mean was 2.66 with a standard deviation of 0.22, interpreted as important.

Barriers in ICT integration in Mathematics Teaching

The table 2 shows the Barriers in ICT Integration in Mathematics teaching as assessed by themselves and their students. The respondents agreed that "Insufficiency of financial resources for technology integration" (M=2.43, SD=0.67), "Inefficiency of institutions computer laboratory" (M=2.41, SD=0.73) and "Inefficiency of instructional software/electronic resources" (M=2.36, SD=0.72) all interpreted as moderate barriers in ICT integration in Mathematics teaching.

Table 2. Barriers in ICT integration in Mathematics teaching

Barriers to technology integration	Mean	SD	Interpretation
Inefficient time to prepare materials based on technology	2.30	0.64	Moderate
Inefficiency of teachers' technical knowledge to prepare materials based on technology	2.13	0.70	Moderate
Problems about accessibility to existing hardware (computer, overhead projector etc.)	2.20	0.67	Moderate
Inefficiency of institutions computer laboratory	2.41	0.73	Moderate
Inefficiency of institutions technical infrastructure about instructional technology	2.20	0.75	Moderate
Inefficient number of media (printer, scanner etc.) for effective use of computers	2.29	0.76	Moderate
Shortage of computers used by Teachers	2.24	0.77	Moderate
Absence of reward systems in encouraging technology usage	1.99	0.65	Moderate
Poor technical and physical infrastructure of learning environments.	2.01	0.77	Moderate
Inadequacy of computers used by learners	2.17	0.59	Moderate
Inefficiency of guidance and support by administration	2.26	0.67	Moderate
Insufficiency of financial resources for technology integration	2.43	0.67	Moderate
Inefficiency of instructional software/electronic resources	2.36	0.72	Moderate
Scarcity in resources on technology for attaining information	2.24	0.69	Moderate
Deficiency in professional development opportunities for gaining knowledge and skill	2.30	0.64	Moderate
Deficiency in support services in material development/ technology usage	2.20	0.69	Moderate
Lack of interest of teachers in technology usage	1.84	0.77	Moderate
Difficulties of improper teaching methods for technology usage	1.84	0.77	Moderate
Inadequacy of the courses of technology offered to students	2.13	0.74	Moderate
Grand mean	**2.19**	**0.41**	**Moderate**

On the other hand, the findings revealed that the barriers that interfere the most in the ICT integration are financial resources, computer laboratory and instructional software/electronic resources. The grand mean (M=2.19, SD=0.41) was interpreted as moderate.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

The factors that encourage the teachers in ICT integration the most were in-service education programs for instructional technologies and awards for technology integration of teachers in instructional activities in Mathematics teaching. The Mathematics teachers and their students have the same assessment on the factors that encourages teachers in ICT integration. The in-service education programs for instructional technologies and awards for technology integration of teachers in instructional activities greatly encourage the teachers to integrate ICT in teaching Mathematics.

The barriers that interfere the most in the ICT integration are financial resources, computer laboratory and instructional software/electronic resources. The Mathematics teachers and their students have the same assessment on the barriers in ICT integration in mathematics teaching. The financial resources, computer laboratory and instructional software/electronic resources were the barriers that mildly interfere in the ICT integration in Mathematics teaching. Therefore, it would be useful to provide ICT knowledge in software and hardware resources as modules so that teachers may integrate ICT into lessons.

RECOMMENDATIONS

Based on the findings of the study, the following were recommended:

1. It is suggested that the school should make investments by providing an in-service training program for teachers that needs follow-up support, peer coaching and peer dialogue to ensure successful use of the new technologies and provide access to resources in improving the ICT facilities and equipment.
2. Schools may collaborate with other experts to provide ICT knowledge in software and hardware resources as modules so that teachers may integrate ICT into lessons. It is also recommended that the school ask for help for the needed tools, equipment's and facilities from the higher officials from government for the ICT integration in Mathematics teaching.

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DIRECT AND INDIRECT EFFECT OF PARENTAL INVOLVEMENT ON ACADEMIC PERFORMANCE THROUGH SELF-EFFICACY AND SELF-REGULATION

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ABSTRACT

The main objective of the study was to determine the direct and indirect effect of parental involvement on academic performance through self-efficacy and self-regulation of Grade III elementary students. The study was anchored on Social Cognitive Theory (SCT) which explained the psychosocial purpose through the triadic reciprocal causation. It focused on the understanding of the causal relationship of the personal factors, environmental factors, and the behavior of an individual. The variables were measured using the Parent-Involvement Scale (PIS) by Georgiou, The Self-Efficacy Scale by Schwarzer & Jerusalem, and Self-regulation Scale by Schwarzer, Diehl & Schmitz. Various statistical analysis was used such as mean, standard deviation, correlation analysis, and structural equations modelling using the SPSS version 20 and AMOS version 23 software. Result of the study revealed that parents are much involved in home discussion, home supervision, school communication and school participation. Students' self-efficacy and self-regulation was moderately true and their academic performance was satisfactory. Increased parental involvement will also increase students' self-efficacy, self- regulation, and academic performance. Parental involvement has a direct effect to self-efficacy, self-regulation, and academic performance. Parental involvement has an indirect effect to academic performance through self-efficacy but not to self-regulation. The study model has goodness of fit.

Keywords: academic performance, parental involvement, self-efficacy, and self-regulation

INTRODUCTION

In a child's early education, it is consistently found that parental involvement is positively associated with a child's academic performance (Hill & Craft, 2003). Specifically, children whose parents are more involved in their education have higher levels of academic performance than children whose parents are involved to a lesser degree.

In like manner, several researches also have shown the positive relationship between self-efficacy and self- regulated learning and academic achievements. (Wigfield, Eccles, Schiefele, Roeser & Kean, 2006; Denissen Zarrete & Eccles, 2007). Bandura (1995, p.2) defines self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". Furthermore, self-efficacy plays an important role in academic performance (Chemers, Hu, & Garcia, 2001) including predicting academic achievement above and beyond other motivational concepts such as task value and affective components, including test anxiety.

On the other hand, self-regulation is defined as the process where learners take the initiative with or without the guidance of others in identifying their own needs, formulating goals, exploring resources, focusing on appropriate learning strategies and evaluating learning outcomes. A large body of research demonstrates that children who can effectively and flexibly manage their thoughts, feelings, and actions have an easier time navigating social and learning environments (Blair & Diamond, 2008). In contrast, students who struggle with self-regulation are more likely to have.

With the findings of the studies aforementioned above, it is unclear whether a certain parental involvement activity is more likely to be associated with self-efficacy and self-regulation and thus is more effective than others in fostering children's self-efficacy and self-regulation. Moreover, it failed to investigate the direct effect of Parental Involvement to self-efficacy, self-regulation and academic performance. This will greatly contribute to fill the gaps in the research of self-efficacy and self-regulation because no research looked into the predictors of self-efficacy and self-regulation of students.

STATEMENT OF THE PROBLEM

The main objective of the study is to determine the direct and indirect effect of parental involvement on academic performance through self-efficacy and self-regulation of Grade III elementary students. Specifically, the study answers the following questions:

1. What is the parental involvement of students in terms of the following dimensions:
   1.1. Home Discussion
   1.2. Home Supervision
   1.3. School Communication
   1.4. School Participation
2. What is the self-efficacy, self-regulation and academic performance of Grade III students?
3. What is the relationship of parental involvement to self-efficacy, self-regulation and academic performance of Grade 3 students?
4. What is the direct and indirect effect of parental involvement on academic performance, self-efficacy and self-regulation of the respondents?
5. What is the goodness of fit of the statistical model?

METHODOLOGY

Research Design

A descriptive correlational predictive research design was used by the researcher. The descriptive design involved the collection of data to answer questions concerning the involvement of parents relative to the four dimensions. The correlational design was used to show relationship of the variables of the study such as parental involvement and self-efficacy, parental involvement and self-regulation, parental involvement and academic performance, self-efficacy and academic performance, and self-regulation and academic performance. Moreover, prediction was used to determine if the variables parental involvement, self-efficacy and self-regulation predict academic performance.

Participants

The participants or respondents of the study were the Grade III students of the Region IV-A CALABARZON, specifically from Cavite, Laguna and Quezon. The different schools are Rosario Elementary School, Calauag East Central Elementary School and Los Baños Central School. Using the online calculator with confidence level of 95%, margin error of 5.52, and a population of 1000. A total of 240 students were randomly chosen as participants or respondents of the study. The number of samples for the study was derived using the online calculator with confidence level of 95%, margin error of 5.52, and population of 1000. It yielded a sample size of 240.

Instrument

The instruments used to measure the four variables of the study are the Parent-Involvement Scale (PIS) 30-items by Georgiou (1999), Self-Efficacy Scale 10-items by Schwarzer & Jerusalem (1995), Self-regulation Scale 10-items by Schwarzer, Diehl & Schmitz (1999). Both SE and SR used 1-4 scale namely 1-not at all, 2-barely true, 3-moderately true and 4-exactly true. This is based on the aforementioned researchers' tools and Academic performance was measured through student general average score.

Data Analysis

Several statistical formulas were used to answer the statement of the problem of this study. Statement problem number one and two were analyzed using the mean and standard deviation to describe parental involvement, self-efficacy, self-regulation, and academic performance of the Grade III elementary students. Relationships between the variables were analyzed using the Spearman Brown formula. The bivariate nonparametric correlation and other descriptive analysis was done in the SPSS IBM version 20 software. Moreover, structural equation modeling (SEM) was also used to analyze the direct and indirect effect of parental involvement on academic performance through self-efficacy and self-regulation. AMOS version 23 software was used for SEM and to obtain the goodness of fit of the model.

FINDINGS

Parental Involvement of Students in Terms Home Discussion, Home Supervision, School Communication, and School Participation

Table 1. Mean and Standard Deviation of Parental Involvement

Variables	Mean	Standard Deviation	Descriptive Interpretation
Parental Involvement			
Home Discussion	2.340	.450	much involved
Home Supervision	2.291	.487	much involved
School Communication	2.388	.525	much involved
School Participation	2.747	.597	much involved

**Legend: 1-1.67 not-involved 1.68- 2.33 involved 2.34-3 much-involved*

Parental involvement and its dimensions as seen in Table 1 reveal that parents are much involved in home discussion (M=2.340, SD=.507), home supervision (M=2.291, SD=.487), school communication (M=2.388, SD=.525), and school participation (M=2.747, SD=.597). Parental involvement is explained as parental participation in the educational processes of their children (Hill, N. E., & Craft, S. A. 2003).

In the Philippine setting, parent's involvement is evident in the attendance of parents during parent-teacher meeting done every grading period. Teachers inform parents of their children's performance inside the classroom and other school related activities which is part of school supervision and communication. Parents also attend various school programs that show their school participation like United Nations day, Nutrition day, Linggo ng Wika, etc.

Self-Efficacy, Self-Regulation and Academic Performance of Grade III Students

Table 2. Mean and Standard Deviation of Self-efficacy, Self-Regulation, and Academic Performance

Variables	Mean	Standard Deviation	Descriptive Interpretation
Self-Efficacy	2.766	.943	moderately true
Self-Regulation	2.987	.523	moderately true
Academic Performance	82.98	4.741	satisfactory

Range of Means

Point Values	Statistical Limit	Descriptive Interpretation
4	3.25-4.00	Exactly True
3	2.50-3.24	Moderately True
2	1.75-2.49	Barely True
1	1.00-1.74	Not all

Table 2 show that the Grade III students describe their self-efficacy as moderately true (M=2.766, SD=.943). On the other hand, students describe their self-regulation as moderately true to them (M=2.987, SD=.523). Moreover, Grade III students' academic performance is satisfactory (M=82.98, SD=4.741) base on Department of Education grade equivalent grading system. The grade descriptor means that the students demonstrate satisfactory knowledge and understanding of the subject and have a basic sense of structure that is not sustained throughout the answers.

Relationship of the Parental Involvement, Self-Efficacy, Self-Regulation and Academic Performance.

Table 3. Correlation Analysis of the Variables

Variables	1	2	3	4	5	6	7
1.Parental Involvement	-						
2.Home Discussion	.921**	-					
3.Home Supervision	.932**	.866**	-				
4.School Communication	.953**	.885**	.898**	-			
5.School Participation	.929**	.880**	.846**	.850**	-		
6.Self-Efficacy	.917**	.868**	.875**	.922**	.854**	-	
7.Self-Regulation	.874**	.839**	.844**	.888**	.802**	.887**	-
8.Academic Performance	.895**	.843**	.880**	.897**	.850**	.904**	.835**

Legend:
* - Significant at 0.05 Level
** - Significant at 0.01 Level

Table 3 reveals that parental involvement has a positive significant relationship with self-efficacy ($r=.917$, $p<.05$). This means that as the parental involvement increases, the self-efficacy of students also increases. Numerous studies had suggested that parental involvement is positively associated with multiple domains of children's self-efficacy (Yap & Baharudin, 2016; Fan & Williams, 2010). They explored the effect of multiple dimensions of parental involvement in education on adolescents' academic self-efficacy and found that parents' participation in extracurricular activities and school functions as well as the provision of advice regarding aspirations were positively associated with academic self-efficacy.

The table also reveals that parental involvement has a significant positive relationship with self-regulation ($r=.874$, $p<.01$). Increased parental involvement will increase the student's self-regulation. This study confirmed several other studies (Zufanò et al. 2013) which emphasized that parents have positive influence on the development of their children's self-regulated learning. The authors claimed that self-regulatory beliefs and processes could be learned through instruction and modelling by children's own parents.

Moreover, table 3 also show the significant positive relationship of parental involvement to academic performance ($r=.895$, $p>.01$). This result confirms the study done by Bryan (2005), he stated that children are likely to excel in academics when their parents actively participate in their education. Education is necessary and important to society. Education provides insight, increases knowledge and skill. Elementary school students are entering a stage in their lives when psychological, emotional, cognitive and social characteristics are beginning to change. During this time, parental involvement and support is crucial to their academic achievement.

Furthermore, self-regulation ($r=.835$, $p>.01$) and self-efficacy ($r=.904$, $p>.01$) had a significant positive relationship with academic performance. This result supported most of the researches done that self-efficacy and performance has strong correspondence. Learners obtained information to appraise their self-efficacy from their actual performances, their vicarious experiences, the persuasions they receive from others, and their physiological reactions.

On the other hand, findings of this study also revealed that self-regulation is related to students' academic performance. Students who can self-regulate cognitive, motivational, and behavioral aspects of their academic functioning are more effective as learners. Successful self-regulation depends on environmental influences and interactions with others as well as child factors and predispositions.

Direct and Indirect Effect of Parental Involvement on Academic Performance, Self-Efficacy and Self-Regulation

Table 4. Direct and Indirect Effect Analysis

			Beta Weight Estimate	Standard Error	Significance
Self-Efficacy	<---	Parental Involvement	1.743	.042	.000
Self-Regulation	<---	Parental Involvement	.918	.030	.000
Academic-Performance	<---	Self-Efficacy	.963	.381	.011
Academic Performance	<---	Self-Regulation	-.978	.525	.063
Academic Performance	<---	Parental Involvement	7.740	.856	.000

Table 4 indicate the path analysis of the variables. The path from parental involvement shows significant direct effect to self-efficacy ($\beta=1.743$, $p>.01$); significant direct effect to self-regulation ($\beta=.918$, $p>.01$); and significant direct effect to academic performance ($\beta=7.740$, $p>.01$). Moreover, self-efficacy has significant direct effect to academic performance ($\beta=.963$, $p>.05$). However, self-regulation has no direct effect to academic performance ($\beta=-.978$, $p<.05$). This indicates that there is partial indirect effect of parental involvement to academic performance through self-efficacy. On the other hand, parental involvement has no indirect effect to academic performance through self-regulation. This explains that students' academic performance can increase or decrease depending on the increase or decrease of parental involvement with the presence of self-efficacy. The effect of parental involvement to academic performance can happen with self-efficacy mediating the relationship between the two variables.

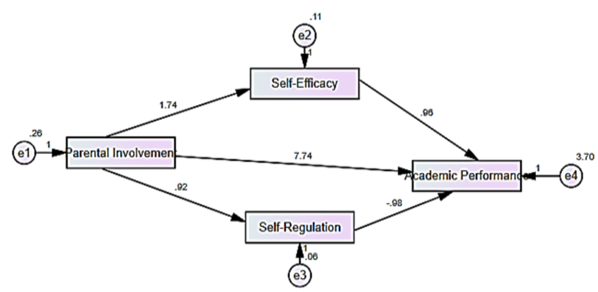

Figure 1. Model Showing the Indirect Effect of Parental Involvement on Academic Performance through Self-Efficacy and Self-Regulation

Goodness of Fit of the Statistical Model

Table 5. Model Fit

Index	Acceptable Values	Fitness Model	
		Value	Acceptability
Root Mean Square Residual (RMSR)	<0.08	.035	Good
Goodness of Fit Index (GFI)	>0.90	.963	Good
Adjusted Goodness of Fit Index (AGFI)	>0.90	.901	Good
Root Mean Square Error of Approximation (RMSEA)	<.05	.020	Good

The goodness of fit of a statistical model describes how well it fits a set of observations. Measures of goodness of fit typically summarize the discrepancy between observed values and the values expected under the model in question. Table 5 shows the expected value to consider to evaluate whether the observed data match the values expected by theory. It can be seen in table 5 that the acceptable values for Root Mean Square Residual (RMSR) is less than 0.08 and the value computed is .035; Goodness of Fit Index (GFI) acceptable value is more than 0.90 and the computed value is 0.963; Adjusted Goodness of Fit Index (AGFI) expected value is more than 0.90 and the computed value is 0.901; Root Mean Square Error of Approximation (RMSEA) expected value is less than 0.05 and the computed value is 0.020; thus, all of the computed value in the fitness model indicates that the model has a good fit or that the data matched values expected by the theory.

CONCLUSION

The study has the following conclusions based from the results of the findings:

1. Parents were much involved in home discussion, home supervision, school communication and school participation.
2. They described their self-efficacy and self-regulation as moderately true to them. Students' academic performance was satisfactory.
3. Increased parental involvement will also increase students' self-efficacy, self-regulation, and academic performance. Moreover, increased students' self-efficacy and self-regulation will also increase their academic performance.
4. Parental involvement has a direct effect to self -efficacy, self-regulation, and academic performance. Parental involvement has an indirect effect to academic performance through self-efficacy but not to self-regulation. Thus, self-efficacy mediates the relationship between parental involvement and academic performance. However, self-regulation does not mediate the effect between parental involvement and academic performance.
5. The model has goodness of fit.

RECOMMENDATION

The findings and conclusions of the study leads the researcher to the following recommendations:

1. Other measures of parental involvement can be used to explain the construct. Interviews with parents can be done to include qualitative part of the study.
2. Measures of self-efficacy, self-regulation and academic performance can also be done with other age group and compare its difference in terms of the mentioned variables.
3. Academic emotion can also be added as another variable to the test relationships with parental involvement, self-efficacy, self-regulation and academic performance.
4. Future research can be done testing the mediating effect of academic emotion to parental involvement and academic performance.
5. Other research can use the goodness of fit of a statistical model to describe how well it fits a set of observations.

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To God be the Glory!

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PRODUCTIVITY OF MARKADUKE NATIVE PIG AT THE FARMERS' CARE DURING THE PANDEMIC

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ABSTRACT

The resiliency of the current generation has been challenged by the covid-19 pandemic. Aside from the health concern; the food security issue adds to the anxiety and uncertainty. The food production from the raw materials up to the delivery of the final food products has been affected. Hence, there must have initiatives to revive and sustain the production of the raw materials. The native pig, an endemic animal genetic resource, is one of the food resources that must be propagated for an ensured food supply. Our Team, being in the lead on native pig research and development, has responded proactively to provide livelihood opportunities, and at the same time, determine the productivity of native pig under the farmer's care. We have selected 50 household-cooperators from the 11 barangays in the two municipalities, namely: Torrijos and Buenavista, both in Marinduque. Amidst the pandemic, we conducted limited face-to-face orientation on native pig production, and provided each household-cooperator with one or two native pigs of around six to eight months old. The household-cooperators took care of the native pig from receipt. In four months period; 21 of 63 (33.33%) native pigs gave birth with an average litter size born alive of 5.6±2.7 piglets or from 3 piglets to 8 piglets in the first parity. This productivity at the farmers' care, however, was 15.15% way below the performance of 6.6±1.7 in our native pig research center. The objective of the study is to assess the productivity native pig production during pandemic. Nevertheless, this initiative provides hope and assurance for the continued food production thereby ensuring availability of food supply.

Keywords: Livelihood, Marinduque, native pig, resiliency, productivity

INTRODUCTION

The covid-19 pandemic has brought changes and challenges to many aspects of life and living of the current generation. The pandemic, which is a health concern, has become the issue of peace and order, transportation, even recreational, and particularly the food production sector. Although given with some exceptions and exemptions; the food production sector suffered losses and uncertainties from the formation of raw materials, access, distribution, and marketing of food products (Laborde et al, 2020). Initiatives, therefore, to revive and sustain the production of the raw materials, which are the "life-blood" of food security are essential.

The native pig, an endemic animal genetic resource, is one of the food resources that must be propagated for an ensured food supply. Our genetically improved native pig called "Markaduke" is capable of producing an average of eight piglets born alive in the lifetime of a sow. Its prolificacy provides assurance of food availability any time after weaning at 30 to 35 days old (Monleon, 2015).

While in the adaptability trial of Markaduke; we respond proactively and immediately expand reach of mandates to provide livelihood opportunities, and assist in the build-up of raw food resources. The sentinel population at the same time is infusing the improved genetics into the local population of native pigs. We report here the productivity of "Markaduke" in terms of litter size or pigs born alive of the first parity sow under the farmer's care during the quarantine period.

OBJECTIVE OF THE STUDY

The general objective of the study is to determine the productivity of native pigs specifically in terms of;

1. Litter size born
2. Litter size born alive and
3. Livability of native pigs during pandemic.

REVIEW OF RELATED LITERATURE

Livestock, and particularly pig and poultry, production in the industrialized world, and increasingly in the developing world, is characterized by its intensive nature, initially driven by post-war government policies intended to increase production and decrease cost, but now sustained by consumer demand for cheap food (Saitone et,.al 2017).

The COVID-19 pandemic highlights that we exist in a global community. From a single city, it spread to 188 countries across the world and infected 30 million people by September 18, 2020. Decades of modeling pandemics predicted potential consequences, but COVID-19's impact on the food supply chain, and specifically livestock production was unexpected (Forbe et,.al 2020).

The lockdown imposed to cope with the health issues caused by the outbreak of the disease has dramatically challenged and negatively affected all the economic sectors of the modern global economy (Hashem et,.al.2020). The immediate impact of COVID-19 was a wave of panic buying by the public.

The Food and Agriculture Organization has recently published (June 11, 2020) the latest global Food Outlook for 2020. The forecast estimates that the global total meat production (including bovine, ovine, swine, and poultry) is expected to fall by 1.7% (338.9 million tons in 2019 vs. 333.0 million tons in 2020) due to animal diseases and market disruptions.

In the Philippines, pork is still widely available on grocery shelves in the Philippines, but the industry is fending off problems brought about by the coronavirus and African swine fever (ASF) (https://www.rappler.com/business/philippine-pork-industry-faces-coronavirus-african-swine-fever).

MATERIALS AND METHOD

Markaduke Genetic Resource

The "Markaduke" was produced from selecting and mating the best individuals (assortative mating) based on litter size and growth. The sentinel parents of "Markaduke" came from Torrijos, Marinduque on year 2012, and the additional genetic stocks were purchased from the three municipalities, namely: Boac, Mogpog, and Torrijos, all in Marinduque on 2014.

The Livelihood Setup

On quarantine period, we requested for special quarantine pass as Authorized Person Outside Residence (APOR) being in the frontline of the food production sector. The existing memorandum of understanding (MOU) with the local government units (LGU) of Buenavista and Torrijos primarily leads for the granting of APOR. We conducted a limited orientation to those who have no prior experience on native pig production. We have engaged a total of 50 cooperators from the 11 barangays in Buenavista (30) and Torrijos (20).

Thereafter the completion of all documentary requirements, each farmer-cooperator was provided with one or two native pigs aged six to eight months old. In the agreement is the full responsibility of the cooperator to take good care of the native pig by providing all its biological requirements. Our team conducts the monthly monitoring to provide some technical assistance and observe the status of the native pig, and collect data.

Community Survey

A total of 50 cooperators from the 11 barangays in Buenavista (30) and Torrijos (20) native pig raisers was used in the study. Those cooperators are beneficiaries' of the existing extension project of the college. Individual interviews was conducted to collect information's.

Data Collection and Evaluation

Data on litter size born total (LSB) and litter size born alive (LSBA) were recorded as the count of the number of piglets at farrowing. The LSB refers to the total number of piglets born alive including the mummified fetus based on the presence of skull, and stillbirth or dead fetus at birth. The LSBA are those alive at birth. The livability refers to the percentage of piglets alive at birth computed from the LSB in each litter. The data were summarized into average, standard deviation, and presented in a graphical form.

RESULTS AND DISCUSSION

Productivity Measures

The Markaduke native pig under the care of farmer-cooperators in Torrijos had produced an average litter size born total and all alive of 6.9±2.5 or from 4 to 9 piglets in the first parity. On the other side, the Markaduke in Buenavista had produced 5.0±2.7 or from 2 to 8 piglets or fairly 27.27% lower than of those in Torrijos (Figure 1). The overall productivity shows an average of 5.7±2.8 piglets born alive total or from 3 to 8 piglets in the first parity, which was relatively better than in year 2005 data (Monleon, 2006). However, the productivity at the farmer's care was found 15.15% way below than in our Markaduke R&D Center which had an average of 6.6±1.7 or 5 to 8 piglets at the first parity.

In terms of livability, the Markaduke native pig in Torrijos had 100% livability from the eight primaparous sows while in Buenavista was 96.85% livability from 13 primaparous sows at the first parity (Figure 2). These relative differences in litter size and livability were associated to the different husbandry practices which involved different feeds, and different management before and during the pregnancy, and at the parturition.

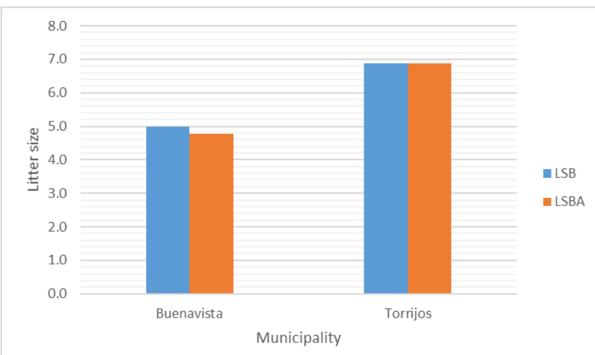

Figure 1. The comparison of litter size born total (LSB) and litter size born alive under the farmer's care in Buenavista and Torrijos, both in Marinduque.

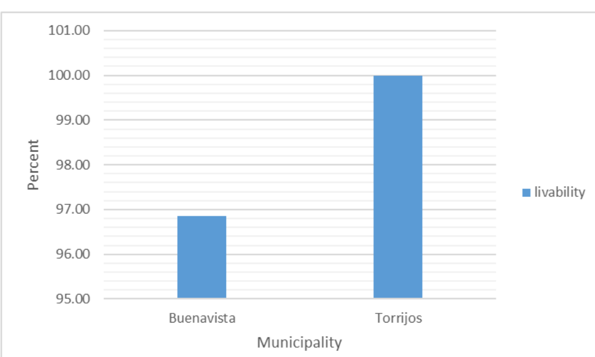

Figure 2. The comparison of livability at farrowing under the farmers' care in Buenavista and Torrijos, both in Marinduque.

Impact on Food Production

There were 117 piglets born alive from the first parity of the 21 sows under the farmer's care. Hence; a relative estimate of 758 kg meat at 2 months after birth can be realized as protein food for 48 to 50 persons based on per capita consumption of 15.6 kg. This finding provides assurance of having a continued food supply through the efforts of every citizen.

CONCLUSION AND RECOMMENDATION

The study conducted during the pandemic identified the farmer-cooperators in Torrijos which produces an average litter size born total and all alive of 6.9±2.5 or from 4 to 9 piglets in the first parity. The Markaduke in Buenavista produces 5.0±2.7 or from 2 to 8 piglets or fairly 27.27% lower than of those in Torrijos .Therefore, the overall productivity shows an average of 5.7±2.8 piglets born alive total or from 3 to 8 piglets in the first parity, which was relatively better than in year 2005 data.(Monleon, 2006). The Markaduke native pig in Torrijos had 100% livability from the eight primaparous sows while in Buenavista was 96.85% livability from 13 primaparous sows at the first parity. Further study must be conducted to assess the reproductive performance of the Markaduke breeder under farmer field care.

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BIOLOGICAL ASSESSMENT OF BANSING STREAM CONTINUUM IN NUEVA VIZCAYA, PHILIPPINES

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ABSTRACT

Biological assessment through macroinvertebrates diversity and habitat quality analyses are important in determining the quality of stream waters. Hence, this study aimed to determine the diversity of macroinvertebrates and determine the quality of the habitat in the streams located in Bansing, Nueva Vizcaya, Philippines. The diversity indices include Abundance, Shannon Index (H'), Simpson's diversity index (D), and Simpson's Reciprocal Index 1/D. Data were gathered from a 50-meter line transect established in each stream. Specimens were collected and identified only in its Order and/or family using key to the stream-dwelling macroinvertebrates. These are Ephemeroptera, Coleoptera, Trichoptera, Trombidiformis, Gerridae, Psephenidae, Gastropoda, Decapoda, Odonata, and Hirudinea. For the habitat quality rating, Beck's Index was used. Data revealed that there were 1352 macroinvertebrates collected across the five streams noted with a Beck's index of 22, which indicate excellent water quality. Computed H' (1.8132), D (0.222088) and 1/D (4.895056) showed high diversity of these macroinvertebrates thriving in the streams. The results indicated that the streams in Bansing are clean, excellent condition and safe for human utilization and for animals however potential threats to the natural integrity of stream were observed like swidden farming. In this regard, it is recommended of studying the anthropogenic activities in the area that may have relationship with the existing condition of the streams and may contribute to the degradation of the stream continuum. It is also recommended for confirmatory water quality analysis and inclusion of the socio-economic aspect in the future studies.

Keywords: Bansing Streams Continuum, biological assessment, Diversity analysis, habitat quality analysis, macroinvertebrates

INTRODUCTION

Water is essential for every form of life, for all aspects of socio-economic development, and for the maintenance of healthy ecosystems (Chandrasekhar, 2014; FAOUN, 2017). While there are sufficient freshwater resources at the global level to enable continued agricultural and industrial development, the long-term sustainable use of water resources is of growing concern. This is particularly the case when considering the intrinsic disparity in water quality and availability across regions (FAOUN, 2017; UNESCO, 2015; Chandrasekhar, 2014).

Today, the water problem is more related to management than to a real crisis of water insufficiency and stress (Tundisi, 2008). Nevertheless, it is the result of a customary environmental complications aggravated by economic and social development problems (Tundisi & Matsumara, 2008). Somlyody and Varis (2006), Nigretti (2016), and the United Nations Water (2007) stated that the deepening and complexity of water problems are due to real problems of availability and increased demand, and to a sectoral management process that responds to problems without a systematic approach that tries to foresee them. Further, Tundisi & Matsumura-Tundisi (2008) underscored the need for a systematic, integrated and predictive approach to water management at a level decentralized to the river basin. Further, the researchers highlighted the importance of having a consolidated database of stream water values, transformed into a management tool that avert the problem of water scarcity, water stress and deteriorating water quality.

The Vizcayanos in the Philippines used the abundant natural springs in their mountains to help build and sustain the agricultural production. The province of Nueva Vizcaya has around 77-23 forestland – A&D land ratio which is considered small (Vallesteros, 2017) in his concept note on Landscape research. Due to its smallness of A&D over forestland, the upland areas become the settlements and expansion of agriculture of the communities. This compromised the demand for water which eventually known to be the highest users of water. Typically, the livelihood of the upland and lowland areas of the sites are Agroforestry, animal husbandry, and vegetable farming. The sources of their waters come from the rivers, streams and waterfalls which is naturally absent in the lowland areas (BLGU-Bansing Report, 2016).

In this research study, Bansing stream continuum located in Bayombong, Nueva Vizcaya, Philippines was biologically assessed in terms of macroinvertebrates diversity and habitat quality to determine the stream water quality. In the locality, agriculture is the main source of income of the community comprising 80% of the total population, only 3% for commercial, 15% residential and 2% others. These indicate that most of the stakeholders are totally dependent on the water resource available in the area for agricultural production, animals and human consumption (BLGU -Bansing Report, 2016). The five major creeks in the area include Laya Creek and Bulbulo Creek which are drained to Cabuluan Creek, Bansing Creek, Bantian Creek (its upstreams consists of the Ammococan Creek and Koldoroy Creek) and Ammococan Creek (draining to Ammococan Falls). These are the major waypoints of water distributed within barangay Bansing as well as the adjacent barangays which include Barangay Paitan, and Magapuy, Bayombong and also in adjacent municipality covering Maddiangat, Quezon (Comprehensive Land Use Plan-Bayombong, 2018).

River systems are now being threatened by climate change and anthropogenic activities (Neri, et al., 2012). Hence, meeting water quality expectations for the Bansing stream continuum is required to protect drinking water resources, encourage recreational activities, provide a good environment for fish and wildlife and provide abundant waters for agricultural production. Anthropogenic activities are evident in the locality which includes swidden farming, continuously increasing built-up areas, construction of culverts in some portions of the stream. Thus, determining the water quality of the Bansing stream continuum through biological assessment is necessary because water pollution resulting from poor water quality is harmful to living things and humans. Further, it is crucial for water resource management.

Statement of the Objectives

The study aimed to determine the condition of the Bansing Stream Continuum in Bansing, Nueva Vizcaya, Philippines using biological indicators. Specifically, it sought to;

1. Identify the macro-invertebrates present in the streams;
2. Determine the diversity indices of macroinvertebrates in
   2.1 Bantian Creek;
   2.2 Laya Creek;
   2.3 Cabuluan Creek;
   2.4 Bansing Creek;
   2.5 Ammococan Creek; and
3. Determine the habitat quality of the streams in Bansing.

METHODOLOGY

2.1 Research Locale

This study was conducted in barangay Bansing, Bayombong, Nueva Vizcaya, Philippines which is found in 6.4411° Latitude, 121.1941° Longitude (Figure 1), a mountainous part of the Palali-Mamparang Mountain Range (BLGU-Bansing Report, 2016).

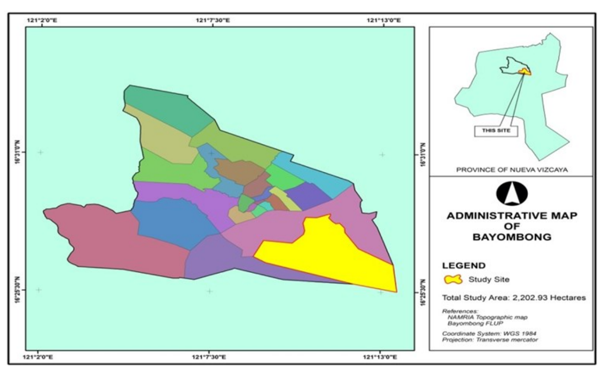

Figure 1. Administrative map of Bayombong, Nueva Vizcaya indicating the research locale

2.2 Sample Collection Areas

Figure 2 shows the drainage map of Bansing generated using the Geographic Information System (GIS) indicating the sampling areas and the sampling points for the macroinvertebrates diversity analysis which includes Bantian, Cabuluan, Laya, Bansing, and Ammococan Creek.

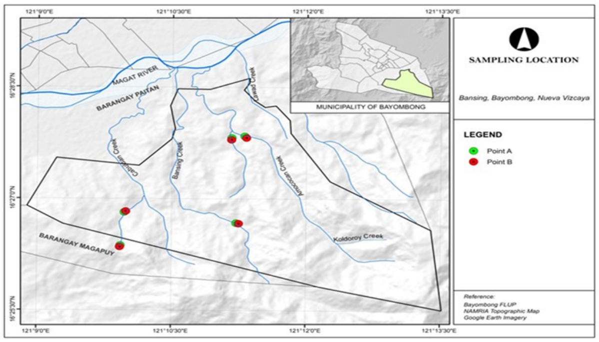

Figure 2. Drainage map of Bansing, Bayombong, Nueva Vizcaya indicating the sampling areas

2.3 Biological Survey

A. Macroinvertebrates Sampling

Sampling of macroinverebrates was conducted within the 50-meter sampling area established in each stream. Stones with a diameter range of 10 -20 cm were examined for any attached macroinvertebrates. The stones were sampled as the collector moves progressively upstream. A 200 µm mesh metal sieve was placed immediately downstream behind each stone upon lifted rapidly into it. Macroinvertebrates were dislodged by use of a fine brush, scalpel, or forceps. All collected macroinvertebrates were placed in sample containers and brought to the laboratory for identification. The samples were examined under a stereomicroscope and identified to family level using available taxonomic keys. For the preservation purposes, the specimen samples were placed in a 70%-80% ethyl alcohol.

B. Diversity Indices Analysis

The tabulated data were subjected to diversity indices analyses using the customized biodiversity calculator crafted by James Danoff-Burg (2003) of Columbia University in terms of Abundance, Shannon Index (H'), Simpson's diversity index (D), and Simpson's Reciprocal Index 1/D.

C. Habitat Quality Rating

The Beck's Index for Stream Macroinvertebrates (BI) used by USDA – NRCS of South Carolina Wildlife Habitat Incentives Program (2005) was used to analyze the quality of a stream ecosystem to host macroinvertebrate populations. The results of the data recorded were tabulated and interpreted based on the table of values below (BI values) and evaluated by comparing the results obtained from the formula with the habitat quality rating to have the final evaluation of the habitat.

Beck's Index: Use total number of different Taxa in each Group

$$BI = 2 \times (\text{Group } 1) + (\text{Group } 2) + (\text{Group } 3)$$

Table 1. Beck's Index for the final evaluation of the habitat.

Beck's Index Values		Habitat Quality Rating	
0	Stream grossly polluted	<6.0	Poor
1-5	Stream is moderately polluted	6.1 – 7.4	Fair
6-9	Stream is clean, but monotypic habitat	7.5 – 8.9	Good
10+	Stream is clean	> 9.0	Excellent

FINDINGS

3.1 Diversity Indices of the Stream

Morphotypes of macroinvertebrates were identified in the different creeks in the locality of Bansing, Bayombong, Nueva Vizcaya and are presented in Table 2. The macroinvertebrates supported by the creeks are good indicators of overall stream health because of their variable tolerance of pollution. In the study, the macroinvertebrates identified in Bantian Creek include 28 mayflies (Ephemeroptera), 35 riffle beetles (Coleoptera), 25 caddisflies (Trichoptera), 10 water mites (Trombidiformis), 5 water striders (Gerridae), 3 water pennies (Psephenidae), 100 snails (Gastropoda), 40 crabs (Decapoda), 10 damselflies (Odonata), and 10 dragonflies (Odonata). The diversity indices H'= 1.874, D= 0.2028, and 1/D =4.929 indicated high diversity and evenly distributed (E=0.8139). In terms of abundance, snails of the Gastropoda have the highest with 37.5939 while the least was the water penny of the Psephenidae with 1.12782%. This indicates that pollution is present in the stream waters in Bantian Creek.

In Cabuluan Creek, the macroinvertebrates identified were 12 mayflies (Ephemeroptera), 15 riffle beetles (Coleoptera), 11 caddisflies (Trichoptera), 5 water mites (Trombidiformis), 2 water striders (Gerridae), 1 water pennies (Psephenidae), 100 snails (Gastropoda), 20 crabs

(Decapoda), 5 damselflies (Odonata), and 5 dragonflies (Odonata). Diversity indices indicated that there is high diversity with H'= 1.578 D= 0.3389, and 1/D =2.9502 and evenly distributed (E=0.6581). The most abundant macroinvertebrates were the snails in the Gastropoda family while the least was water penny of the Psephenidae.

For the Laya Creek, identified morphotypes of macroinvertebrates include 28 mayflies (Ephemeroptera), 35 riffle beetles (Coleoptera), 25 caddisflies (Trichoptera), 10 water mites (Trombidiformis), 5 water striders (Gerridae), 3 water pennies (Psephenidae), 100 snails (Gastropoda), 8 damselflies (Odonata), 10 dragonflies (Odonata) and 5 leeches (Hirunidae). Diversity indices revealed high diversity with H'= 1.645, D= 0.24378, and 1/D =4.1021 and showed evenly distribution (E=0.7144). It can be noted that the most abundant macroinvertebrates were the snails with 43.6681% while the least were the water pennies with only 1.31004%. The presence of leeches in Laya Creek indicates the existence of pollution in the stream waters.

In Bansing Creek, there were 45 mayflies (Ephemeroptera), 35 riffle beetles (Coleoptera), 45 caddisflies (Trichoptera), 25 water mites (Trombidiformis), 5 water striders (Gerridae), 10 water pennies (Psephenidae), 100 snails (Gastropoda), 20 damselflies (Odonata), and 15 dragonflies (Odonata). These data exhibited a high diversity of the macroinvertebrates with diversity indices H'= 1.905, D= 0.18227, and 1/D =5.48624. Likewise, it revealed an evenly distribution of the macroinvertebrates (E=0.8670).

Morphotypes of macroinvertebrates documented in Ammococan Creek consisted of 45 mayflies (Ephemeroptera), 46 riffle beetles (Coleoptera), 55 caddisflies (Trichoptera), 35 water mites (Trombidiformis), 15 water striders (Gerridae), 30 water pennies (Psephenidae), 100 snails (Gastropoda), 30 damselflies (Odonata), and 25 dragonflies (Odonata). The diversity indices H'= 2.061, D= 0.1427, and 1/D =7.001 indicated high diversity and evenly distributed (E=0.9392). Likewise, the most abundant are snails with 26.24672% while the least was water strider with 3.9371%.

Table 2. Diversity Indices of the Bansing Stream Continuum.

Area	Abd	H'	E	D	1/D
Bantian Creek	266	1.874	0.8139	0.2028	4.929
Laya Creek	229	1.645	0.7144	0.24378	4.1021
Cabuluan Creek	176	1.578	0.6581	0.3389	2.9502
Bansing Creek	300	1.905	0.867	0.18227	5.48624
Ammococan Creek	381	2.064	0.9392	0.14269	7.00774
Grand Total	**1352**	1.8132	0.79852	0.222088	4.895056

Legend: Abd (Abundance);
H'(Shannon-Wiener Index);
E (Evenness);
D (Simpson's Index); and
1/D (Simpson's Reciprocal Index)

Overall, there were 1352 macroinvertebrates identified across the five streams consisted of 3 taxa of 10 orders/families. The computed diversity indices revealed high diversity (H'=1.8132, D=0.222088, and 1/D= 4.895056, and evenly distributed (E=0.79852). Typical values are generally between 1.5 and 3.5 in most ecological studies, and the index is rarely greater than 4 (Magurran, 2004). Likewise, Barcelona Field Studies Centre (2021) stated that as species richness and evenness increase, so diversity increases. The nature of macroinvertebrates are relatively immobile as compared to other aquatic organisms hence, they provide a quick snapshot of the condition of their surrounding habitat (Environmental Protection Agency, 2012). Referring from Table 2, it showed that Ammococan Creek has the highest number of individual morphotypes (381), followed by Bansing Creek with 300 while the least was in Laya Creek with only 176 morphotypes. Higher diversity and numbers of macroinvertebrates indicate good water quality conditions, whereas presence of only pollution tolerant species or absence of macroinvertebrates suggests a degraded environment (Labajo-Villantes & Nuñeza, 2015). These macroinvertebrates require a relatively pristine environment. Macroinvertebrates highly tolerant of pollution include snails (Gastropoda).The existence of these pollution tolerant macroinvertebrates are good indicators of overall stream health.

In the study, the abundance of pollution tolerant species suggests that the stream continuum is affected with the anthropogenic activities within which include agricultural (rice and corn), livestock, and orchards. The number and kinds of macroinvertebrates sampled from the Bansing Stream Continuum were calculated based on the different diversity indices and its habitat quality was determined using Beck's index with a computed value of 22 which is more than 10 indicating a clean stream and the habitat has excellent quality. Figure 3 shows some of the documented morphotypes of macroinvertebrates.

Figure 3. Photodocumented Macroinvertebrates in Bansing Stream Continuum

CONCLUSION

Assessment of the biological condition of stream continuum is important to provide viable data of its status, condition, and trends for a water body. Further, it is also important to distinguish among potential stressors affecting the streams and provide recommendation for its sustainable development and protection. In the study, the biological assessment conducted showed that;

4.1 there are various morphotypes of macroinvertebrates in the Bansing stream continuum. These are mayflies (Ephemeroptera), riffle beetles (Coleoptera), caddisflies (Trichoptera), water mites (Trombidiformis), water striders (Gerridae), water pennies (Psephenidae), snails (Gastropoda), crabs (Decapoda), damselflies (Odonata), dragonflies (Odonata) and leeches (Hirunidae). This indicates that the stream is still clean, safe for human utilization and for animals, though the presence of snails and leeches indicate pollution exists in some parts of the continuum;

4.2.1 Bantian Creek has high diversity of macroinvertebrates;

4.2.2 Laya Creek has slightly high diversity of macroinvertebrates;

4.2.3 Cabuluan Creek has also slightly high diversity of macroinvertebrates;

4.2.4 Bansing Creek has high diversity of macroinvertebrates; and

4.2.5 Ammococan Creek has very high diversity of macroinvertebrates;

4.3 its habitat revealed excellent quality that the community people enjoying in the locality however, the Bansing stream continuum is affected by the existence of threats to the natural integrity of which include anthropogenic activities like upland farming, pasture/grazing of animals and illegal logging activities.

RECOMMENDATIONS

Based from the salient findings of this study, the researchers recommend of;

1. strengthening relative actions for the protection and sustainability of the stream continuum through Information, Education and Communication campaign in the locality;
2. data will be used as baseline data for crafting stream water management;
3. intensifying stream or river protection in the locality;
4. include studying the anthropogenic activities in the area that may have relationship with the existing condition of the streams and may contribute to the degradation of the stream continuum; and
5. include confirmatory water quality analysis and inclusion of the socio-economic aspect in the future studies.

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MARKET-DRIVEN STRATEGIES AND SERVICE QUALITY OF REVIEW CENTERS IN CAMARINES SUR

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ABSTRACT

Using a mixed research design attempted to determine the market-driven strategies and service quality of the review centers in Camarines Sur. Specifically, it described the following: (1) market-driven strategies of the review centers in Camarines; (2) the level of service quality; and (3) the action plan to address the issues of the review centers. The study used an interview and survey analysis. A hundred and fifty respondents from the three (3) review centers are part of the study. Data obtained was analyzed using weighted mean, percentage, standard deviation, and Pearson's correlation coefficient. This study revealed the overall market-driven strategies of the review center in Camarines Sur were high. Revealing that promotion strategy was the least from the ranking but still interpreted as high along with price, product, and place strategy. The study further revealed that the level of service quality as perceived by the reviewees was high; which tells that review centers in Naga City are employing strategies to achieve long-term success. The study recommends that review centers in Camarines Sur must set direction, procedures, and policies that will establish a clear and reasonable manner of doing business towards reaching positive results.

Keywords: Market-Driven Strategies, Service Quality, Review Center, Camarines Sur

INTRODUCTION

The concept marketing strategies and quality service deal with market trends and its clientele. Marketing strategies and service quality have their own purposes and describe not only end-products but also ways on how to achieve business goals in general (brainmates.com). Marketing strategies are a company's policy founded by market trends and clienteles needs instead of the company's products (BusinessDictionary.com). The evaluation of how a conveyed services adapt to consumer satisfaction is called service quality (coursehero.com). Business owners and management must weigh their strategies and service offerings in order to improve their product/services, identify problems, and evaluate client satisfaction.

Section 1 of Republic Act No. 7722 states that a review center is a center that operates and is owned by a duly authorized entity pursuant to rules expecting to offer to the public whether for a fee or for free, a program that is proposed to refresh and enhance the knowledge, competencies, and skills of reviewers in the preparation for the licensure examinations given by the Professional Regulations Commission (PRC). Review centers are classified as educational institutions that provide review services for aspiring licensed professionals in the Philippines who will take their respective licensure examinations. These review centers

Amidst the success of the review centers in Camarines Sur, they likewise face challenges such as the unstable numbers of enrollees/reviewees. This uncertainty would mean an unpredictable number of enrollees/reviewers for the programs and or services being offered by these different review centers. This is also attributed to the varying preferences of the student /enrollees, stiff competition in the marketplace and the ineffective leadership of this review centers' administration, staffing issues, quality and satisfaction issues, and poor marketing strategies and service quality are also considered. In order to ensure certainty, the researcher focused and emphasized that the major factors such as marketing strategies and service quality of the review centers in Camarines Sur should be given thorough attention and enrichment. The need to enhance the two major factors was deemed a strong necessity to conduct this study. Results of this study will serve as the basis for the review centers' management in policy making and strategy setting for further innovation and improvement of their business strategies and service delivery to ensure the continuous growth of the business organization. This study may also be used to improve specific facets of the organization so that reviewers may have greater customer satisfaction.

Furthermore, this study also assessed the different strategies and the level of service quality along with review centers offering in Camarines Sur for feedbacks and insights to those who are concerned about the necessity of developing excellent service that may increase the reviewees' satisfaction and ensure growth in the business organization to make the said business enterprise more responsive and sustainable. Also, to further improved specific facets of the organization, an action plan is to be developed to highlight best practices and ensure greater customer satisfaction. Thus, it is in this context that this study is launched to investigate the marketing strategies and service quality of the review centers in Naga City.

STATEMENT OF THE PROBLEMS

The study aimed to evaluate the marketing strategies and service quality of the review centers in Camarines Sur. Specifically, it answered the following questions:

1. What are the marketing strategies of the review centers in Camarines Sur along with product, price, place, and promotion?
2. What is the level of service quality provided by the review centers in Camarines Sur along with reliability, assurance, tangibility, empathy, and responsiveness?
3. What action plan can be recommended to address the issues of the marketing strategies of the review centers?

METHODOLOGY

This study adopted quantitative and qualitative research. It used the survey method, focused group discussion, and key informant interview. The study gathered data on the marketing strategies and level of service quality of the review centers in Camarines Sur.

The study population was consisted of the reviewees enrolled in the three (3) identified review centers in Camarines Sur from April – September 2019. The respondents are determined through snowball sampling and are composed of one hundred fifty (150) reviewees enrolled from the three (3) review centers.

The researcher prepared a survey questionnaire to generate responses needed to solve the problems. It was submitted to the experts for critique, evaluation, and further development until it had reached the standard of a quality questionnaire. Pre-testing and checking the reliability were also conducted on the survey instrument.

FINDINGS

Results showed that most of the review centers utilize price strategy by providing discounts to reviewees who are registered early in groups and/or with full payment for their fees/packages during enrollment, followed by the provision of having no hidden charges being charge to on top of the announced fees and least on giving freebies interpreted as high.

It can be inferred that apart from the quality of service, review centers offer something that will help reviewees decide to enroll in the review centers. A good cash discount attracts enrollees to make a decision and enroll in the review center. Cash discounts are a good marketing strategy that gives reviewers a chance to save money and it also is the best deal for review centers to attract enrollees to enroll in the review center. Giving discounts is not only beneficial to reviewers alone but also creates brand awareness to clienteles uplifting the review center's image.

Results are congruent to the study of Xia (2017) that revealed great discounts boost consumers' intention to buy products/services, while low discounts rates of product/services reduce consumers' intentions. Moreover, Ingenbleek (2015) revealed that along with price strategy businesses must consider consumer willingness to buy particular products and or services.

Table 1. Market-Driven Strategies of the Review Centers in Camarines Sur

Parameters	Mean	S.D.	Interpretation
Product	4.53	0.45	High
Price	4.60	0.31	Very High
Price	4.24	0.54	High
Promotion	4.13	0.61	High
Average Scores	4.37	0.48	High

According to reviewers point of view,

"...Cash discount helped us decide to enroll in the review center.", and "...Cash discounts help me make a decision fast and save some money."

On the other hand, Review centers **promotional strategies** are primarily focused on publishing factual and informative materials, followed by the use of social sites for promoting the center and least on providing sample lectures and or seminars for free.

It can be inferred that reviewers recognized the worth of the review centers product/services. They know how this product/service can help them and learn the value of this to them. Reviewees understood the active language of the review centers and fully described the benefits of their product/services to their clientele. Also, reviewers feel the need for review centers to provide free sample lectures and seminars to them, because they want to experience and witness their selves the standards and quality of the review centers

Though undoubtedly, giving free sample lectures and seminars is an effective manner for promoting the business product/services, but the main concern here is the complex process of planning, promoting, and measuring the return of investment (ROI) from the activity. On the part of the review centers management, it is important to know, how much worth the marketing activities bring to the company. This promotion strategy is the least practiced in the review centers, because of the reasons stated by their respective employees of staff members.

Table 2 shows the level of service quality of the review centers from the client's perspective Service Quality of the review centers was assessed to know whether the position of these review centers needs to be enhanced or modified. It shows that service quality indicators, as reflected in the survey instrument, were high, specifically, in terms of **responsiveness**. Responsiveness refers to the extent of the willingness of the review centers' management to help reviewers passed their respective licensure examinations. Extending class days/hours, provisions of additional learning materials, and the unavailability of the suggestion boxes in the review centers' premise marked as high.

Table 2. Level of Service Quality provided by the Review Centers in Naga City.

Parameters	Mean	S.D.	Int
Reliability	4.36	0.53	H
Assurance	4.52	0.34	H
Tangibility	4.16	0.52	H
Empathy	4.40	0.49	H
Responsiveness	4.53	0.29	H
Average Scores	4.39	0.440	H

This means that to be successful in the business process, review centers should consistently apply a series of strategies for extending the time of review with the intention of attaining identified learnings and desired ratings or scores in the licensure examination. The strategy of providing extension in the class day/hours provides greater opportunities for the reviewees to learn and be prepared in the examinations. They may learn varieties of strategies and tasks which gave them multiple opportunities to learn in varying contexts and also build their confidence in terms of being accurate in their judgments on their examination days.

According to the study of Tetteh (2016) students that extend their study time has greatly improved their learning process and outputs. Therefore, it is important for reviewers/students to manage their own learning scheduled and follow a regular study time to constantly improved their learning process as proposed by Deming (1982).

Reviewees tells that having an extension on review hours and days provides;

"...additional time of learnings, strategies, tasks, and opportunities to learn and build confidence on making an accurate judgment in the examination." Also, "...we are being trained and prepared for the examination which id good and for free."

On the other hand, **Tangibility** is the element that has the least ranked, in the perceived level of service quality among review centers. This element is where review centers' management gives their least priority. Results reveal that the perceived level of service quality of the review centers in Camarines Sur needs to consider the benefits of creating a better appearance of restrooms which is part of providing services to clienteles.

It can be inferred that having better facilities is one of the essential elements that affect reviewees learning progress. Reviewees learn better when they see an environment that is positive and supportive. Reviewees feel a sense of belonging, trust, and encouragement to face challenges and take risks. Such an environment provides relevant opportunities to build social skills, and strategies to help them succeed.

Proposed Action Plan to address the marketing issues of the review centers in Camarines Sur.

This Action Plan is recommended as a response to the findings of the study. This will serve as a guide for the review centers management as they seek to improve their existing strategies and enhance their service quality. The proposed action plan will guide the review centers management to impose improvements in their marketing strategies and service quality.

1.1 Product Strategy: Provision of a greater number of review preparation					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Revisit and evaluate existing review program	To determine which particular phase/ concepts in the review preparation need enhancement.	1. Conduct a document review with the management team as the main highlight. 2. Perform needs assessment review through a devised evaluation tool 3. Coordinate with the management the results of the previously taken action and allow them to decide in terms of urgency.	Owner/Top Management	P 3,000.00 (meals, preparation of documents, and reproduction of evaluation tools)	2 weeks
1.2 Pricing Strategy: Provision of Freebies					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Promotional Items Price reduction Loyalty program	To increase enrolment traffic	1. Compute break-even point and set budget allocation. 2. Make benchmarking in identifying market trends 3. Use all platforms for promoting	Financial Officer Marketing Head	The budget is in accordance with the preferred strategy	Year-round
1.3 Place Strategy: Provision of Parking Space for reviewees					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Pay parking space	To explore possibilities on provide parking space to reviewees	1. Ask reviewers during enrollment if they would need a parking space 2. Coordinate and make a lease of a contract with the management of the building or owner of a vacant lot to set as a specific parking area.	Enrolling Officer Branch Head	The budget is in accordance with the set rental	Year-round
1.4 Promotion Strategy: Offering of free lectures and seminars					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Participate in school activities with the similar course offering Make alliances with student / professional organizations	To position your offerings to potential students	1. Conduct market research on school/organization activities with a similar board course offering 2. Check available resources and plan ahead. 2. Promote plan of activities with various channels like social media and others.	Branch Head Marketing Head	The budget is in accordance with the chosen activity	Year-round

Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
2.1 Reliability: Seats are comfortable to reviewees needs					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Re-arrange and Redecorate the venue	Make reviewees feel and experience quality review venue	1. Conduct a need assessment survey to review to identify urgency. 2. Analyze results and communicate to higher management and decide. 3. Look for providers that can meet requirements at the least possible cost.	Marketing Head Owner/Higher Management	P 100,000.00	1 month
2.2 Assurance: Staff Members are knowledgeable on services being offered.					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Employees Training Programs: a. orientation b. onboarding training c. technical skills development training d. soft skills development training e. product/service training	To complete employee tasks along with review center standards.	1. Assess the gaps between the current and required skills. 2. Train and provide adequate information to meet company and reviewees' expectations. 3. Provide feedback and guide employees to keep them on the right track.	Human Resource Head	The budget is in accordance with the chosen activity	1 week
2.3 Tangibility: Presence of Safeguarding measures.					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Install CCTV's in the area Purchase emergency tools (fire extinguisher, emergency lights, and reflectorize signages)	To acquire a visual record of activities, maintain proper security and access controls. To protect premise against fire and power outage.	1. Purchase CCTV with high resolution and have it installed on areas that need to be covered. 2. Post signages that your premise is with CCTV in compliance with the law. 3. Hire someone to have it check and reprogram once in a while. 1. Purchase quality emergency tools and have them placed in areas easily seen by many. 2. Regularly check the tools to ensure good working conditions.	Owner/Higher Management	P 30,000.00 P 20,000.00	1 week 1 week
2.4 Empathy: Provides consultation and counseling to reviewees problems.					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Consultation Hour/s Individual Monitoring Report	To prepare reviewers for the examination and keep them motivated	1. Monitor the reviewee's performance based on practice examinations and attendance. 2. Talk to the reviewees on vacant hours and explain the objectives and their demeanors.	Human Resource Head Lecturers	No specific budget	Year-round
2.5 Responsiveness: Has suggestion boxes in the area.					
Strategy	Objectives	Specific Tasks	Responsible Person	Resources Allocation	Time Duration
Making the suggestion box available in the premise.	To collect inputs from stakeholders to improve the business conduct.	1. Buy an ideal box/bowl and have it place seen by all. 2. Monitor daily and provide feedback on the concern raised.	Owner/higher Management Marketing Head	P 5,000.00	1 week

CONCLUSION

1. In terms of marketing strategies of the review centers in Camarines Sur along 4P's of the marketing mix. Review centers engaged mostly in price strategy because their reviewers look for something that will help them decide the soonest to enroll in the review centers; whereas, the least that the review centers utilized is the promotion strategy because they consider this strategy as an additional expense to their business operations which will add burden to their operational cost.
2. Along with service quality, review centers in Camarines Sur help reviewers passed their respective licensure examination by extending class days/hours and by providing additional learning materials for free; whereas, the least that they consider is the benefits of creating a better appearance of restrooms, after all, this is part of their services to clientele.
3. This Action Plan is recommended as a response to the findings of the study. This will serve as a guide for the review centers management in Camarines Sur as they seek to improve their existing strategies and enhances their service quality.

RECOMMENDATION

1. To improve review centers' promotion strategy, they must be willing to adapt change in their operations. Review centers must maximize the use of the online platform bigger audience sitter and the likes, to be able to promote their product/services to bigger audiences and develop encouraging long-term relationships based on trust. Review centers management must strengthen their advertising placements to provide value to their clients. It is through content and excellent offering that review centers can gain competitive advantages over others. Review centers' management must also intensify their competitive analysis to align their marketing platforms with their strategies to meet and exceed company goals.
2. Review centers' management must run through a high level of service quality by providing reviewees with exceptional service in their review preparations. Asking and acting on feedback, addressing issues and complaints quickly, and being consistently accessible and accountable are some of the strategies that may brace the review centers' operations. Moreover, they may maximize their productivity by developing a competitive review program, implementing marketing plans, and having excellent service packed at a competitive fee for the reviewers.
3. The plan contains activities under marketing strategies to address the problems encountered by the review centers management focusing on market-driven strategies and service quality. The Action Plan was composed of the strategy, objectives, specific tasks, responsible person, budget allocation, and time limit aimed to address the least results on marketing strategies and service quality of the review centers in the improvement of their business strategies and service quality.

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DESIGN AND DEVELOPMENT OF MATHEMATICS IN THE MODERN WORLD MOBILE LEARNING APPLICATION BASED ON ANDROID PLATFORM

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ABSTRACT

The Covid 19 Pandemic has critically affected the higher education system in the Philippines. Distance education was implemented nationwide, and mobile learning has been an effective strategy in implementing this learning approach. In this study, the researchers aimed to design and develop an offline Mobile Learning System that will continuously support students learning, particularly in the Mathematics in the Modern World course, and to provide convenience to the instructors in evaluating the student's examination performance despite distance education limitations. Agile Software Development Methodology was used as a guide in the development of the system. The development tools used were Android Studio IDE, SQLite database, and Adobe XD. The system runs in Android mobile devices with a minimum android operating system version of Lollipop (5.0). The project was evaluated by the students, ISCOF Faculties, and IT Experts using the evaluation instrument based on ISO 25010 criteria which evaluated the functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability of a computer system. Overall, the mobile learning system achieved a total mean of 4.26 or described as an "excellent" rating. The results indicated that the system has conformed to the ISO standards for creating quality software. It is recommended that the system be utilized for the Mathematics in the Modern World course at ISCOF Barotac Nuevo Campus, especially for students who have no or poor internet connectivity for distance education settings. In addition, more assessment types for the quizzes section could be added to further enhance its current features.

Keywords: Covid 19 Pandemic, distance learning, mobile learning, QR code, Android, design, development

INTRODUCTION

The COVID 19 Pandemic is one of the public health emergencies that has affected almost every country globally (Tria, 2020). COVID 19 is an acute respiratory disease caused by Coronavirus SARS-Cov-2 (WHO, 2020), which started in China in late December 2019 (Shereen et al., 2020). One of the sectors that have greatly suffered because of this pandemic is the education sector, even the higher education. Thousands of universities and colleges worldwide have been closed, and face-to-face classes were prohibited due to a wider effort to limit the transmission of the deadly disease among students and school personnel (Viner et al., 2020). More than 1.2 billion learners worldwide, with more than 28 million learners in the Philippines, have been affected due to this closure (UNESCO, 2020). Hence, instructional delivery in higher education should be improved to respond to the predicaments that arise due to the COVID-19 pandemic (Toquero, 2020). In the Philippines, the Commission on Higher Education (CHED) had given the higher education institutions (HEIs) the academic freedom to implement their policies concerning instruction where they may use distance learning, e-learning, and other alternative instructional approaches to students (CHED, 2020). Several schools in the country had implemented distance education during this pandemic (Alea et al., 2020), and mobile learning has been an essential component of its implementation. Mobile learning is a learning model that involves using a mobile device where learning can occur anytime, anywhere, and in any condition (Crompton, Burke, & Education, 2018). This learning approach represents an extension to distance education as it facilitates access to learning without a pre-established place and time (de Lima et al., 2011).

Mathematics in the Modern World (MMW) is one of the fundamental courses most first-year college students in any discipline under the Philippine HEIs curriculum should take. Thus, the researchers proposed developing a mobile learning system for the Mathematics in the Modern World course based on the android platform to support the students' learning process despite the current implementation of distance learning due to pandemic. The mobile learning system comprises two separate mobile applications, the main learning app and the QR code scanner app. The main learning app is designed to provide students with lessons, activities, and quizzes covering the entire subject matter for the whole semester. The app contains module lessons, learner's activities, quizzes, and course information that could be accessed offline. The researchers designed the QR code scanner app to scan the QR code generated by the main learning app to view the quiz result of the students after taking the quiz. The mobile learning system is targeted for distance and mobile learning that could be used without any internet connectivity and has been explicitly designed to be used by the students and instructors of Iloilo State College of Fisheries (ISCOF) Barotac Nuevo Campus.

This research aims to design and develop a mobile learning system for the Mathematics in the Modern World course that is based on the Android platform,

Specifically, this study aimed to:

1. develop an Android mobile learning application for the student users to access the entire semester's course lessons and unit activities, and take quizzes without internet connections.
2. integrate a Quick Response (QR) code technology in each quiz to encrypt the students' profile and quiz scores to manage retakes.
3. develop an Android QR code scanner application for the instructor users to scan the QR code from the student users' mobile learning app and display the students' profile and quiz scores.
4. evaluate the system using ISO 25010 software engineering quality standard in terms of functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

RELATED LITERATURE

Android-based e-tutorials can be effectively used as an alternative approach in the learning process or training. It has shown several advantages due to its flexibility, where it can be accessed anywhere and anytime, thus increasing participants' control of learning (Riau et al., 2018). Valk et al. (2010) found that mLearning provides increased interaction among learners and enables learner-centered education compared to traditional distance education models. A proposed mLearning for Discrete Mathematics based on the Android platform has shown to be beneficial to various programs and has resulted in better academic performance among college students (Kularbphettong et al., 2015).

According to de Lima et al. (2011), to effectively evaluate the implementation and the actual impact of using the mLearning in Mathematics, an exploratory study should be planned and started. Moreover, they presented some guidelines that can serve as a helpful reference in the development of mLearning software in Mathematics. The concept of using Quick Response (QR) for learning productivity was proposed by Mazlan and Faris (2013) in their work. In this system, the teacher can upload educational materials such as lecture notes, assignments, reports, and presentations to the website, and these materials will then be translated into a QR code that students can access using a QR code scanner installed on their mobile phones. As a result, the system contributes to increased work productivity for students and teachers while reducing waste such as time, money, and effort.

METHODOLOGY

The researchers used Agile Software Development as the software development methodology for this study (Cockburn and Highsmith 2001).

Cockburn defines Agile Methods as techniques that allow a team to rapidly track changes in people, technology, and business. Agile methods are recognized to be flexible to change and are based on changing requirements and preferences (Masood & Hoda, 2018). Figure 1 shows the agile software development cycle phases that include meeting, planning, designing, developing, testing, and evaluating.

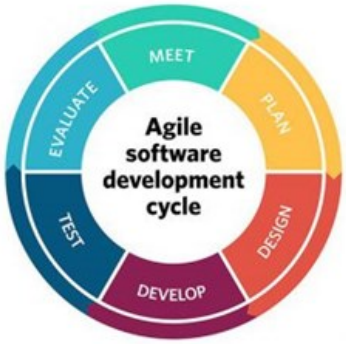


Figure 1- Agile software development cycle (image downloaded from https://project-management.com/10-key-principles-of-agile-software-development/)

In the meet phase, the researchers meet with the instructors and students who would use the mobile learning system and conduct an interview to gather the necessary data to create the system.

In the planning phase, the researchers identified the software tools that would be used, including Adobe XD design software for the prototyping of the user interface of the main learning app and the QR Code Scanner app, the Android Studio as the Integrated Development Environment (IDE) with Java as the programming language for the development of the apps, and SQLite database to store the quizzes questions and answers. Android OS 5.0 (Lollipop) was selected as the minimum android operating system version for the two android applications. Some free vector icons and images were chosen for the design of the user interface of the applications.

In the design and development phase, the researchers created a use case diagram shown in figure 2 that summarizes the interaction between two actors (student and instructor) with the system. The student user can select Unit Lessons, Learner's Activity, Quizzes, and Information sections of the main mobile learning application and view its contents. Moreover, the instructor's role is to scan the QR Code generated by the Quiz section's main learning app and view its result. This phase also includes prototyping of the user interface using Adobe XD design software, designing the database using SQLite database, and programming the mobile applications using Android Studio IDE.

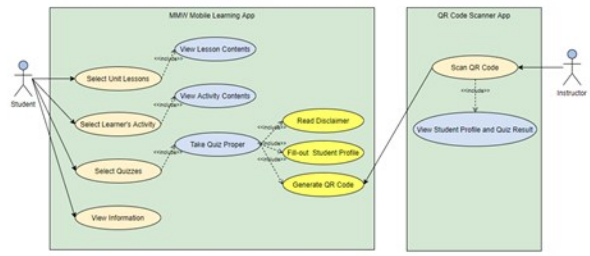


Figure 2 – UML Use Case Diagram of Mathematics in the Modern World Mobile Learning System

In the testing phase, white box and black box testing were implemented to determine the applications' errors and malfunction. The system's desired output was tested by installing the main learning application and the QR code scanner app to different types of android devices with different operating systems to ensure that the applications operate efficiently.

Project Evaluation

The evaluation was then conducted to verify the effectiveness and usefulness of the system. The evaluation was performed using the ISO 25010 software quality model (ISO/IEC 25010, 2011), which is the standard for software evaluation. This standard evaluates functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The data gathering procedure was done through Google forms sent through an online messaging app to the respective participants.

Participants

The participants for this evaluation were twenty (20) first-year students of ISCOF BN Campus, three (3) IT experts, and four (4) ISCOF faculties. The researchers used purposive sampling in determining the participants of the study. These participants were determined as they were the system's intended users and could operate and evaluate it correctly.

Evaluation Method

The mobile learning applications evaluation was conducted virtually due to the restrictions in a face-to-face meeting where the researchers sent the Android Package Kit (APK) files to the participants through an online messaging app. The participants downloaded and installed the apk files on their android device/s in order for them to test and evaluate the applications. Also, they were provided with instructions that they should follow in order to evaluate the system effectively. A Google form survey questionnaire based on the ISO 25010 evaluation tool was sent to the participants through an online messaging app to rate the system.

Statistical Treatment of Data

To determine the conformance of the system to the ISO 25010 standard for the evaluation of software, the mean was determined and used in the interpretation of data.

To interpret the scores, the following scales, from Very Poor to Excellent, were used.

Table of Scale and Interpretation

4.10 – 5.00	Excellent
3.10 – 4.00	Very Good
2.10 – 3.00	Good
1.10 – 2.00	Poor
0.10 – 1.00	Very Poor

All statistical computation was calculated with the use of Statistical Package for Social Science (SPSS) software.

RESULTS AND DISCUSSION

This section covers the result of the study after the system's implementation and evaluation.

4.1 Mathematics in the Modern World (MMW) Mobile Learning System Key Features

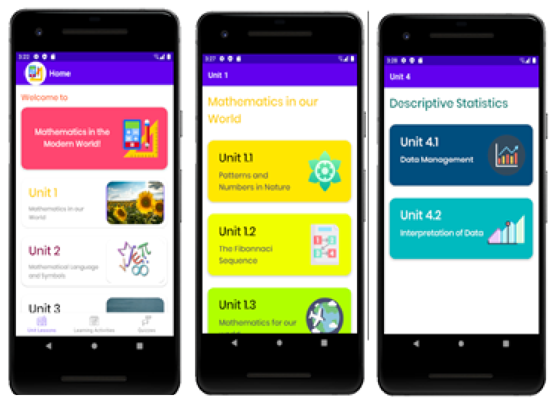
4.1.1 MMW Learning App

The main mobile learning application's actual implementation focused on four primary features: Unit Lessons, Learner's Activities, Quizzes, and Information.

Unit Lessons

The first feature that the student will see after launching the app is the Unit Lessons section. The lessons featured in this part are from Unit 1 to Unit 4 of the course syllabus of the Mathematics in the Modern World course offered in ISCOF BN Campus. The contents of this app's lessons were creatively developed based on the school's rules and standards concerning the creation of Instructional Materials and were approved by the Instructional Materials Committee for classroom use.

Figure 1 shows the design prototypes of the Unit Lesson part of the app. Once the card view buttons from Unit 1 to Unit 4 labels were clicked (Fig. 3a), another activity will initiate that unit's sub-content (Fig. 3b-c). Moreover, when the sub-content card view button is clicked, the lesson's content will be displayed in a pdf format, as shown in Figure 4a-c. The screen can be zoomed in/out and can be positioned in landscape or portrait orientation.



(a) (b) (c)

Figure 3 - Design Prototypes of Unit Lessons section

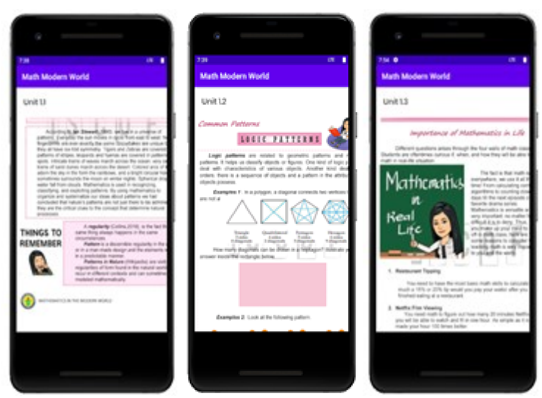


Figure 4 - Design Prototypes of Unit 1 Lesson Contents

Learner's Activities

When the student clicks the Learner's Activity bottom navigation menu, four cardview buttons will be displayed with labels from Unit 1 to Unit 4 (Fig 5a). Once a unit cardview button is clicked, the learner's activities on that unit will be displayed in pdf format (Fig. 5b).

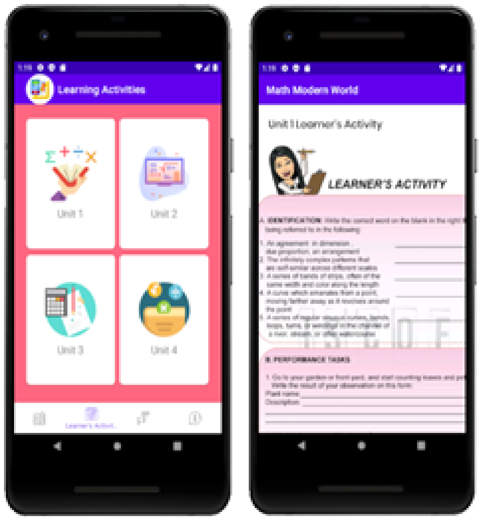
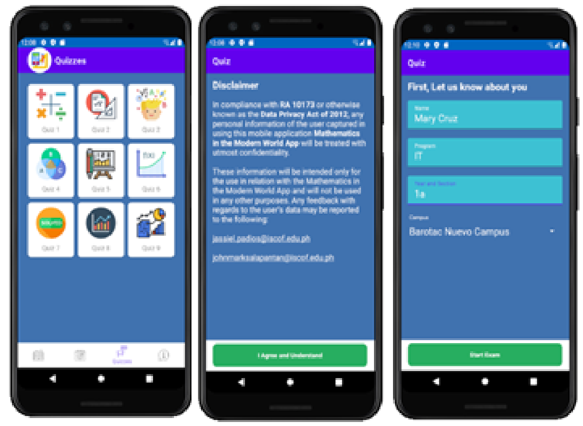


Figure 5 – Design Prototypes of Learner's Activities section

Quizzes

When the student clicks the Quizzes button in the bottom navigation menu, nine cardview buttons will be displayed with labels from Quiz 1 to Quiz 9 (Fig 6a). Once a button is clicked, an activity will be shown with disclaimer content and will require the student to click the 'I Agree and Understand' button to proceed to the student profile activity (Fig 6b). In the subsequent activity, the student will need to complete the information requirements such as name, program, year and section, and campus and click the Start Quiz button to proceed to the quiz proper finally (Fig 6c). Once the quiz has started (Fig 6d), an allotted time of one hour is set by default for the student to finish the quiz.

During the conduct of the quiz, screen capturing (screenshots) and screen recording features are disabled. When the quiz is interrupted (e.g., sudden shutdown of the mobile phone), the last state before interruption will be retrieved. After finishing the quiz, the application will generate a QR code (Fig 6e) that conceals the quiz result. The instructor will then scan the QR code using a separate QR code scanner mobile application to view the quiz result. The user will not know the quiz result until he sends the QR code to his instructor to avoid and manage retakes.



(a) (b) (c)

(d) (e)

Figure 6 – Design Prototypes of Quizzes section

Information

This part displays the vision, mission, goals, and objectives of the ISCOF System, the program's learning objectives, course outcome, and course description (Fig. 7).

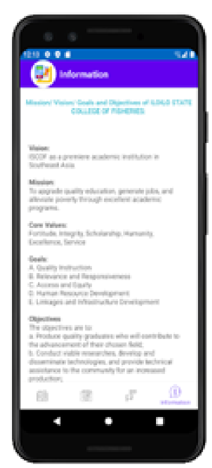
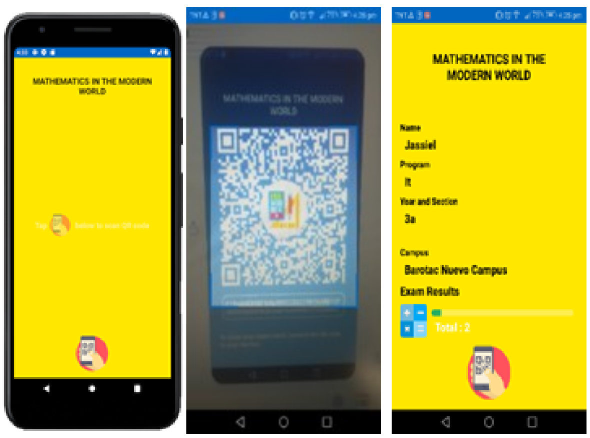


Figure 7 – Design Prototypes of Information section

4.1.2 QR Code Scanner App

This mobile application is intended for the use of the instructor only. This app's primary purpose is to scan the QR code representing the student quiz result generated by the main mobile learning app and view the quiz result after scanning. When the instructor launches the app, a screen that shows the button to start the camera will be displayed (Fig 8a). Once that button is pressed, the camera will be enabled to scan and capture the QR code image from another device (Fig 8b). Afterward, the quiz result will be displayed (Fig 8c).



(a) (b) (c)
Figure 8– Design Prototypes of Quizzes section

Evaluation Results

The results obtained during the evaluation process are presented in the graph below.

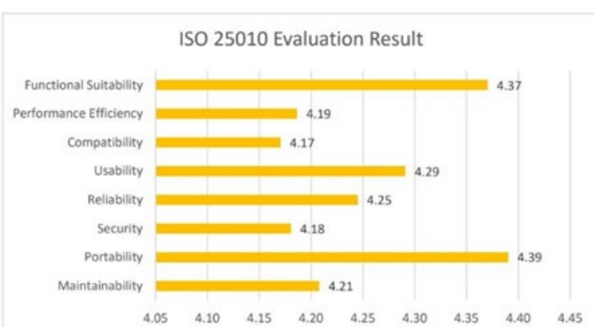


Figure 9 - Mean values for ISO 25010 Evaluation Questions

The results show that the Mathematics in the Modern World mobile learning system obtained an overall rating of 4.37 ("excellent") from the participants in terms of **functional suitability**. The result indicates that the system is highly functional and has achieved the intended features and operations.

The system was rated "excellent" by the participants in terms of **performance efficiency**, with a value of 4.19. The result indicates that the system is highly efficient in terms of performance, as it requires a minimal amount of resources to perform its functions.

In terms of overall **compatibility**, the system received a rating of 4.17 ("excellent"). The outcome indicates that the system has high compatibility features that allow it to run on various Android platform versions with no known issues.

The mobile learning system had an "excellent" **usability** feature, according to the results, with an overall rating of 4.29 as rated by participants. The result indicates that the system appears to be easy and convenient to use.

The participants rated the mobile learning system as "excellent" in terms of **reliability**, with a score of 4.25. The result indicates that the system provides a high level of reliability in terms of software functions, as it can still restore the system's desired state when an interruption occurs.

The system received an "excellent" rating in terms of **security** from the participants, with a value of 4.18. The outcome indicates that the system is secure and that unauthorized modification of the program or data is impossible.

The participants rated the mobile learning system as "excellent" in terms of **maintainability**, with a score of 4.21. The result indicates that the system can be easily maintained, updated, and modified to accommodate cutting-edge emerging technologies.

The system received an "excellent" rating from the participants in terms of **portability**, with a value of 4.39, indicating that the system can efficiently work in different android device hardwares or softwares and can be easily installed/ uninstalled in android phones.

The overall results of the ISO 25010: software quality model evaluation show that the system complied with the ISO International Quality Standards for computer systems. All of the participants in the evaluation agreed that the system had the potential to be effective and beneficial as instructional material for flexible learning instruction in Mathematics in the Modern World course.

CONCLUSION

The Philippines' higher educational institutions have widely implemented a distance learning approach to education to resolve the difficulties caused by the Covid 19 pandemic. Mobile learning was one of the significant components in the implementation of distance education. However, only limited instructional materials could be used in this learning setting that integrates the course module and quizzes/examinations that could be utilized without internet connectivity, particularly in the Mathematics in the Modern World (MMW) course. The proposed MMW mobile learning system can serve to be a convenient tool that could be used in a distance education setting. The system provides course lesson contents, activities, and quizzes/examinations that could be accessed offline, and in which the quiz results can be effortlessly viewed through simply scanning the Quick Response (QR) code. Overall, our project was able to accomplish its objectives based on the results of the evaluation.

RECOMMENDATIONS

The results and suggestions after the evaluation proposed some improvements in the system in the future.

- Application log-in and authentication should be integrated to make the system secure and prevent unauthorized submissions and utilization.
- Animations should be added to the main learning app to make the learning more interactive and enjoyable to use.
- The quizzes section should include other assessment types such as short answers and identification and should not be limited to multiple-choice only.
- The quizzes section should also include a lock feature so that students will not access other quizzes without finishing the previous quiz.

Overall, the system has obtained favorable comments from the participants.

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RELATIONSHIP OF SELECTED VARIABLES TO THE TEACHING PERFORMANCE OF ELEMENTARY TEACHERS VIA THE PAST IPCRF TOOLS

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ABSTRACT

This descriptive-correlational research determined the correlation of the Performance Appraisal System for Teachers (PAST) and the Individual Performance Commitment Review Form (IPCRF) self-assessment of the 110 randomly selected public elementary school teachers in the District of Angadana, Isabela. Two survey questionnaires consisting of two parts were utilized. Part 1 focused on the personal information of the respondents while Part 2 consisted of the Standard Individual Performance Commitment Review Form (IPCRF) and the Performance Appraisal System for Teachers (PAST) which has five Key Result Areas namely the Teaching Learning Process, Student Outcome, Community Involvement, Learning Environment, Plus Factor. This was based on Guidelines on the Establishment & Implementation of the Results - based Performance Management System (RPMS) in the Department of Education. The following conclusions were derived from the findings: 1) the public elementary school teachers in the district of Angadanan, Isabela were predominantly married, female in their full-blown ages and are in their pinnacle of productivity who are educationally qualified; with adequate income for their needs; 2) the public elementary school teachers have an outstanding performance using the PAST as instrument for the last three years which coincides with their performance using the Individual Performance Commitment Review self-assessment Form; 3) the outstanding performance of teacher-respondents' reveal that they have been doing what are expected of them; and 4) the significant correlation of the PAST and IPCRF are effective and reliable tools in evaluating the performance of the teachers. The study recommended that teachers must increase performance levels in student outcome and professional growth and school heads, principals and administrators must develop a training program to strengthen or enhance the performance ratings of teachers in all indicators especially on the professional development.

Keywords: performance appraisal system for teachers rating, individual performance commitment review form self-assessment, professional growth, instructional competence, learners' achievement

INTRODUCTION

As the state shift, towards the center of primeness, and better competent educators have to be conditioned. The Department of Education had engaged on ponderous programs in attaining the aim in improving the teacher's capability. Augmenting the interest for qualitative facets in education at the same time with the effort to proliferate access to education is now the significant educational thrust of every nation in the world.

The future of the next generation lies on the hand of teachers. Whether positive or negative the future depends on the learners and the education they receive. Educators are the primary contributors of education. Knowledge and values are being handed over in every generation through teachers. They mould children with a better understanding and prepare them to work life to become a full-blown individual and to have a better life.

Teachers are the nation's builders, the main pillars of well-founded and progressive society. They built the foundation of successful citizens occupying the limelight in the world of politics, economics, medicine, engineering and other fields of human adventure. Teachers serve as bridges that link the young minds to the corporate past as free nation. Mentors continue the fight to dispel the darkness of ignorance and the shame of mediocrity. A good teacher shows his concern and love to all learners and influences students in almost like manners, deeds and styles. This indicates how a teacher becomes a role model to learners since learners are the center of educative process. So teachers should maintain stature and behaviour that upholds dignity, good moral and professional etiquette.

According to Bautista (2012), a teacher is obliged to understand the educational policy of the government in the frame of worldwide issues. The function of the teacher as the knowledge evaluator is not satisfactorily disposed anymore. Teacher's work now a days, which was understood as limited teaching practice, is developing into many folded activity. Globalization, multicultural social environment demands from the present day teacher not only being a good class manager and leader of the student's development but also demonstrating problem solving and decision making competence outside the classroom." Teachers are the primary instrument in upholding the quality education. Thus, standards for teachers were made to guarantee quality instructions, performance, strategies, outcome achievement, accomplishment and success in education.

The Department of Education in the Philippines aims to attain quality education. From quite possibly the most exceptionally taught non-industrial nations on the planet in the1980's, the Philippine instructive results had missed the mark regarding potential. The National Program Support for Basic Education (NPSBE) plays an essential catalyst role in the implementation of the government's Basic Education Reform Agenda (BESRA) over a six-year period (2006-2012). The venture was the first Bank operation in the country that embraced a nationwide program support approach which built the basis for policy and system-wide reforms. This caused in the more effective utilization of resources that focused on implementing targeted reforms. The undertaking is likewise enabled and facilitated changes and reforms which promote decentralization and rationalization of the basic education system that in turn enhanced equity, quality, governance and financing of services. It also assisted the government for better coordination to assist and mobilize resources from the private sector. An improvement of the project was that it was implemented by the government itself through the Department of Education's regular staff and used the country's procurement and financial management systems

Teachers are the ones who set the tone for a great learning experience and the one who influence the students. Hence, the Individual Performance Commitment and Review Form (IPCRF) was formulated and designed by the Department of Education.

The Department of Education is committed to provide the members of its organization with opportunities to link their individual achievements and make a meaningful contribution to the attainment of the Vision and Mission of the institution; to promote distinct and team growth, participation and commitment; and to professionally and personally grow.

In accordance with this way of thinking, the Department of Education carries out a Results-Based Performance Management System. It is a common endeavour between the school head and the employee that allows an open discussion of job expectations, Key Results Areas, Objectives and how these be associated to the overall departmental objectives and goals. It provides an avenue for agreement on principles of performance and behaviours which lead to personal and professional growth in the organization. Therefore, this study had focused on the correlation of the Performance Appraisal System for Teachers and the Individual Performance Commitment Review Form (IPCRF), a DepEd thrust to enhance the performance of teachers. The researcher aimed to find out if IPCRF is a significant tool in developing teaching competencies of teachers.

STATEMENT OF THE PROBLEM

This study determined the correlation of the Performance Appraisal System for Teachers (PAST) and the Individual Performance Commitment Review Form (IPCRF) self-assessment of public elementary school teachers in the District of Angadana, Isabela.

Specifically this sought to answer the following questions:

1. What is the profile of public school teacher respondents in terms of the following variables:
    a. Highest Educational Attainment;
    b. Years of teaching experience;
    c. Current Position; and
    d. Trainings, seminars, and workshops attended?
2. What is the performance level of the public elementary school teachers of Angadanan in

the Performance Appraisal System for Teachers (PAST) in the school –year 2013-2014?

3. What is the performance level of the teachers in the IPCRF (school year 2016-2017) in terms of the following Key Result Area (KRA):
   a. Teaching Learning Process;
   b. Pupil Outcome;
   c. Community Involvement;
   d. Professional Growth; and
   e. Learning Environment?
4. Is there a significant correlation between the rating of the teachers in their PAST and IPCRF as a whole?

RELATED LITERATURE

Teachers, as the central factor for educational excellence and the need to attract and retain highly competent, being to teaching professions are clear. As counteraction to that needs some labor and inquisition, including programs and plans have come up in attempt to professionalized teaching and make the career rewarding.

Performance TOP Theory of Don Elger (2011), develops and relates six foundational concepts to form a framework that can be used to explain performance as well as performance improvements. Holistically, the Existing level of performance depends on 6 components: context, level of knowledge, level of skills, level of identity, personal factors and fixed factors. These involve a performer's mind-set, immersion in an enriching environment and engagement in reflective practice.

Performance information are utilized in settling on choice about representatives, including advancement to more significant level positions, size of yearly base compensation changes, execution rewards and commissions, parallel exchanges, and terminations. Criticism, advising, execution improvement and assessment of authoritative projects are different motivations behind PMS.

Performance measures serve as basis in providing employees with feedback and counseling for their improvement. It also serve as a tool in the evaluating the overall organizational programs. Performance measures can serve as criteria for gauging the effectiveness or validating employee selection measures, employee training programs, work-family programs, or any other intervention design for the improvement and productivity or organizational working of the employees.

The performance management process helps employees and their supervisors work in partnership to enhance work results and satisfaction. This process is most effective when both the employee and the supervisor take an active role and collaborate to accomplish the performance planning; day-to-day coaching and feedback; and quarterly performance check-in of employees.

Weigel (2012) on her study about Teacher performance, Compensation and Measurement said that, "One of the core questions in education is how to properly measure teacher performance and structure personnel and compensation plans accordingly. Among the debated methods are teacher evaluation systems that, to a certain extent, factor in student test scores in ratings of teacher performance anda data-driven systems have been proposed across the country, sometimes resulting in contentious battles with teachers' unions. Critics of such reforms and changes point out the inadequacies of testing and also voice concerns that lower-income and minority schools will be put at a disadvantage as talented educators and students move to richer districts and charter schools."

Figlio & Kenny (2007) in their study about the Individual Incentives and Students Performance found out that, teacher incentives has unique data on frequency and magnitude of merit raises and bonuses, teacher evaluation, and teacher termination. They found that schools that offer individual financial incentives performed better. Furthermore, the estimated relationship between the presence of merit pay in teacher compensation and student test scores is strongest in schools that may have the least parental oversight. The relationship between teacher incentives and student performance is due to better schools adopting teacher incentives or to teacher incentives eliciting more effort from teachers.

According to Nabi et. al (2017), employees are the heart and center of any organization. For any institution and organization to operate smoothly and without any disruption, collaboration among employees cannot be replaced with anything else. It is of greatest importance that the employees of an organization not only have a good relationship with the top management, but also, they maintain a healthier and more professional relationship with their colleagues. Moreover, if employees are positively motivated, effectiveness and efficiency drastically for achieving organizational goals are improved.

From the study of Aguado et.al (2015), found in their study on teaching performance and extent of work values among faculty members, it was found that Maritime faculty members generally have above average faculty performance rating. Findings were likewise revealed that professional growth and development is the work related factor that maritime faculty members really treasured most in working with higher education institution and job security as the least.

Moreover, Sembrano (2007), in her study on the role of teacher efficacy and characteristics on teaching effectiveness, performance, and the used of learner-centered practices, revealed that the teachers practicing learner- centered approaches use their self- efficacy in order to be effective in teaching, but it was also found that being effective does not result in high teaching performance rating. The used of learner- centered practices is seen as effective but does not warrant having high ratings based on student assessment.

Borinaga (2007), appraised the different personal characteristics, self-actualization, emotional maturity, development values and job satisfaction of public elementary school teachers in the division of Northern Samar and their implications for teacher development. His findings revealed that most of the time the teachers were self-actualized showed a high level emotional maturity in the following, development values, economic quality, change orientation and self-awareness, action prosperity and local commitment. In addition, teachers displayed job satisfaction in which intrinsic motivation rank first, followed by interpersonal relationship existed between the level of self-actualization, emotional maturity development values and job satisfaction which means that the upper-mentioned independent variables affected job satisfaction. The result implied that the respondent were responsible, respected understanding and were aware of the ethical standards of living. They also showed willingness to grow professionally, to be productive, God fearing and well disciplined. The study showed that the more teachers experience self- actualization the higher their level of emotional maturity and the more development value oriented they were, the higher their level of job satisfaction.

RESEARCH METHODOLOGY

The descriptive-correlational method of research was used to determine the level of performance 110 public elementary school teachers through random sampling technique in the district of Angadanan, Isabela using the Performance Appraisal System for Teachers (PAST) and the Individual Performance Commitment Review Form (IPCRF). At the same time the researcher also utilized the documentary analysis since the study had used and analyzed the Performance Appraisal System for Teachers in the school year 2013-2014 and the Individual Performance Commitment and Review Form IPCRF results during the school year 2016-2017.

Data Gathering Instrument

To gather pertinent data and needed information for the study, a survey questionnaire was used. There were two sets of questionnaires consisting of two parts. Part 1 focused on the personal information of the respondents while part 2 consisted of the Standard Individual Performance Commitment Review Form (IPCRF) and the Performance Appraisal System for Teachers (PAST) which has five Key Result Areas namely the Teaching Learning Process, Student Outcome, Community Involvement, Learning Environment, Plus Factor. This was based on Guidelines on the Establishment & Implementation of the Results - based Performance Management System (RPMS) in the Department of Education.

Statistical Tools

Frequency counts and percentages were used to describe the profile of the respondents; means were utilized to determine the performance level of the public elementary school teachers of Angadanan in using the Performance Appraisal System for Teachers (PAST) and the Individual Performance Commitment and Review Form (IPCRF); Pearson product moment correlation coefficient (Pearson r) and t-test were utilized to determine the significant correlation between the rating of the teachers in their PAST and IPCRF.

FINDINGS

Profile of the Respondents

As presented in table 1, almost all the teacher-respondents finished the basic requirements in teaching in the elementary level. There were few who finished other courses and there were also few who have moved to higher level of education. Therefore, it is a need for them to be encouraged to enrol and finish course in the graduate school for an enhanced personal and professional growth.

As to the number of years in teaching of the teacher-respondents, majority of them were already in the teaching profession ranging from 1-

19 years with a combined frequency of 66 or 60% while 44 or 40% were in the field of teaching for 20 years and above. This implies that the teacher-respondents are already seasoned and have become experienced managers of teaching-learning process although the others with few years of experience maybe classified as eager neophyte teachers who are still learning to become classroom managers as they pursue their career.

Most of the teacher respondents were proficient teachers holding the positions of teachers 1-3 with a frequency of 98 or 89.09% while there were 12 or 10.91% highly proficient teachers.

As to the teacher-respondents' trainings, seminars and workshops attended, it revealed that teachers attended division level (93 or 84.55 percent); 71 or 64.55 percent attended district level, 44 or 40 percent attended regional level and only 14 or 12.73 percent reached the national level. This implies that majority of the respondent give positive response in attending trainings, seminars or workshop in the division level. This signifies further that trainings, seminars and workshops are major sources of information.

Table 1. Profile of the Respondents

Profiles	Frequency n=110	Percentage 100%
Highest Educational Attainment		
BSE	4	3.64
BEE	95	86.36
AB	2	1.82
BSAED	3	2.73
MAED graduate	6	5.45
Number of Years in Teaching		
1-6	17	15.45
7-12	25	22.73
13-19	24	21.82
20-25	26	23.64
26-31	9	8.18
32-40	9	8.18
Position		
Teacher I-Teacher 3	98	89.09
Master Teacher I-II	12	10.91
Trainings, seminars, and workshops attended		
District	71	64.55
Division	93	84.55
Regional	44	40.00
National	14	12.73

Level of Performance of Teachers in the 2013-2014 Performance Appraisal System for Teachers (PAST)

Table 2 presents the level of performance of the teacher-respondents using the Performance Appraisal System for Teachers (PAST). It shows that the teacher-respondents were assessed and marked outstanding as to their instructional competence. This implies that that the teacher–respondents are knowledgeable enough in lesson planning and its delivery.

As to the learners' achievements, it was described as very satisfactory with a mean of 7.14. This implies that teachers are efficient and diligent in ensuring teaching learning activities that are suited to pupil/students prevalent knowledge and level of learning.

Moreover, the table shows that the indicators under the school, home and community involvement has an outstanding descriptive interpretation. This implies that teacher-respondents highly linked their classroom activity to the daily work of their pupils at home and in the community which helped them achieve the curricular and academic objectives of the school.

Table 2. Level of Performance of Teachers in the 2013-2014 Performance Appraisal System (PAST)

Indicators/ Items	Weighted Mean	Descriptive Interpretation
Instructional Competence	9.19	Outstanding
Learners Achievement	7.14	Very Satisfactory
School Home and Community Involvement	9.63	Outstanding
Professional and Personal Characteristics	8.81	Outstanding
Punctuality and Attendance	8.34	Very Satisfactory
General Weighted Average	**8.62**	**Outstanding**

8.60-10.00 – Outstanding
6.60-8.59 – Very Satisfactory
4.60–6.59 – Satisfactory
2.60–4.59 – Unsatisfactory
2.59 and below - Poor

Furthermore, an outstanding remark under the professional and personal characteristics of the respondents was revealed. This shows that teacher-respondents have outstanding performance as shown in honesty, dedication, leadership, stress tolerance, fair and good grooming, and are cautious of the effect of their behavior to the learners.

Finally, the table manifests the performance level of respondents as to punctuality and attendance. As exhibited from the table the indicators was described as "very satisfactory" which shows that teachers are very careful of their time and in their attendance on the learners. This implies that demonstrating punctuality to the pupil/students motivates and inspires them to be more active in coming to school.

Level of Performance of Teachers in the 2016-2017 Individual Performance Commitment Review Form (IPCRF)

Table 3 shows the level of performance of the teacher-respondents using the Individual Performance Commitment Review Form (IPCRF). It revealed that the teacher-respondents were assessed with an outstanding performance level regarding teaching learning. This finding implies that the teacher-respondents are diligently and constantly preparing their daily lesson logs. They served as facilitators; they are skilful in contextualizing and localizing the content of the subject matter; they demonstrate flexibility in their day-to-day lessons in order to support the need of the learners; they consider that there is a need for them to know if the lesson for the day has been achieved before moving to the next lesson; and they are ingeniously administering weekly tests, summative test with table of specification per subject in the school year to improve and sustain the competency level of their pupil within the school year.

As to the student outcomes, it revealed a very satisfactory description with a weighted mean of 4.33 which manifest that the teacher- respondents make a remedial plan, identified the learners who need remediation and have analyzed the result of the remediation. This strength should be sustained to improve the performance of the learners. This implies that the teacher-respondents should prioritize intervention program, actions and implementation plan to achieve academic performance of the learners. As perceived in this aspect, teachers need training and professional development to make this competency higher for the next school than its current level.

Furthermore, the table disclosed an "outstanding" remarks on the community involvement of the teacher-respondents. This means that the teachers regularly conduct PTA meeting, conferences with monthly accomplishment within the school year and are actively participating in community activities that promote learning and encouraging pupils/students to apply learning to the community. Analysis implies that the respondents link the school, classroom activities to daily practices of their learner at home and community. Further, the school, local leaders and other stakeholders take part in the entity and this will be strengthened with a continuous community involvement of the teacher-respondents.

Moreover, the table revealed that the respondents have a high regards to their profession as teachers. They continue to quest for knowledge as they subscribed to professional magazines and attended seminar workshops, trainings and school conferences within the school year to acquire more learning. Also, conducting action researches, attending trainings, conferences and workshops are important to continue their professional growth, always believing that the most important instructional material in the classroom is the teacher herself/himself. However, formulating and conducting one simple action research for learners received a weighted mean of 4.49 described as very satisfactory level. This implies that there is a need for teachers to exert more effort, time in attending seminars about research program. Through research, teachers can improve their methods of teaching so that their pupils/students can improve their performance as well.

Table 3. Level of Performance of Teachers in the 2016-2017 Individual Performance Commitment Review Form (IPCRF)

Indicators/ Items	Weighted Mean	Descriptive Interpretation
Teaching Learning Process	4.89	Outstanding
Student Outcome	4.33	Very Satisfactory
Community Involvement	4.91	Outstanding
Professional Growth	4.49	Very Satisfactory
Learning Environment	4.50	Outstanding
General Weighted Average	**4.62**	**Outstanding**

4.50-5.00 – Outstanding
3.50-4.99 – Very Satisfactory
2.50- 3.99 – Satisfactory
1.500 - 2.499 – Unsatisfactory
1.00-1.49 - Poor

Finally, the table emphasizes that learning environment of the teacher-respondents is on "outstanding" level. It reveals that teacher-respondents are very resourceful in providing a facilitative learning environment through implementing projects, providing reading corner inside their classroom and maintaining the good appearance of their classroom. This concluded that teacher-respondents are full of encouragement in doing their job by giving what they have for the development of the skills of the learners.

Summary of Frequency and Percentage Distribution of Respondents According to their Average Rating in PAST and IPCRF

The table shows the summary of frequency and percentage distribution of the respondents in the four areas of the Performance Appraisal System for Teachers and Individual Performance Commitment Review Form.

Based from the result, indicator number 3 or the learners' achievements/students' outcomes has an outstanding remark both in the PAST and in the IPCRF. The three areas namely Instructional Competence, Learners' Achievements, and Professional & Personal Characteristics got an outstanding description in the PAST but described "Very satisfactory" in the IPCRF. This implies that the teacher- respondents strive more in their job to achieve a better level of performance.

Table 4. Summary of Frequency and Percentage Distribution of Respondents According to their Average Rating in PAST and IPCRF

AREAS	PAST			
	f	%	Rating	Description
Instructional Competence/ Teaching Learning Process	78	70.90	9.19	Outstanding
Learners' Achievements / Student Outcome	60	54.54	7.14	Very Satisfactory
School/Community Involvement	94	85.45	9.62	Outstanding
Professional & Personal Characteristics/Professional Growth	74	67.27	8.81	Outstanding

AREAS	IPCRF			
	Rating	f	%	Description
Instructional Competence/ Teaching Learning Process	100	90.90	4.06	Very Satisfactory
Learners' Achievements / Student Outcome	104	94.54	3.7	Very Satisfactory
School/Community Involvement	103	93.64	4.87	Outstanding
Professional & Personal Characteristics/Professional Growth	66	60	4.03	Very Satisfactory

Correlation of the Performance Appraisal System and Individual Performance Commitment Review Form

The table manifests the correlation of the Performance Appraisal System for Teachers (PAST) and Individual Performance Commitment Review Form (IPCRF) rating of the respondents.

The computed r-value of the two variables of 0.20 shows a low correlation brought by difference in point system. The t computed which is 2.12 is greater than the tabular value of 1.65 which leads to the rejection of the null hypothesis. Therefore, this findings reveals that there is a significant correlation between the two variables even though their correlation is low.

Table 5. Correlation of the Performance Appraisal System and Individual Performance Commitment Review Form

Variables	r	Meaning	t-test Computed	df	Tabular Value	Decision	Interpretation
PAST IPCRF	.20	Low correlation	2.12	108	1.65	Reject hypothesis	Significant Correlation

The analysis implies that the teacher respondents who appeared to have an outstanding level of performance in the PAST are also outstanding in the IPCRF. Thus, the two instruments which are currently utilizing by the department of education are effective tools in evaluating the performances of the teachers in the different areas. Moreover, these tools may help teachers improve their strategies and approaches to effectively transfer learnings to the learners. Finally, these tools may help teachers realize their roles and responsibilities as nation builders, through this, they may help the youth to become productive and better citizens of the country.

CONCLUSIONS

Based on the research findings the following conclusions were drawn:

1. The public elementary school teachers in the district of Angadanan, Isabela were predominantly married, female, in their full-blown ages and are in their pinnacle of productivity who are educationally qualified; with adequate income for their needs.
2. The public elementary school teachers in the district of Angadanan, Isabela have an outstanding performance using the Performance Appraisal System for Teachers (PAST) as instrument for the last three years which coincides with their performance using the Individual Performance Commitment Review self -assessment Form. The outstanding performance of teacher-respondents' reveal that teachers have been doing what are expected of them. However, teachers must increase performance levels in student outcome and professional growth.
3. School heads, principals and administrators must develop a training program to strengthen or enhance the performance ratings of teachers in all indicators especially on the professional development.

4. The PAST and IPCRF tools are considered reliable and effective due to their significant correlation.

RECOMMENDATIONS

With the above mentioned conclusions, the following recommendations are formulated:

1. In achieving an outstanding level of performance of teaching competency of the teachers, the implementation of the IPCRF must be observed and assessed regularly by the school heads, principals and administrators.
2. Teachers must be inspired and encouraged to have necessary trainings particularly in developing learners' achievement which is a vital in the educative process.
3. Teacher who did not finish their master's degree level must be encouraged to aspire a higher level of education to be able to cope with the latest program of DepEd and the fast changing needs of education and to guarantee success in their profession.
4. Administrators, school heads, and principals should be able to regard the outcome of this study as cornerstone for enhanced administration of learning context. Further, the training development designed for this study must be adopted by school heads for the improvement of teachers.
5. The Department of Education must keep in designing applicable developmental programs, workshop, trainings and seminars for all mentors for the continuing improvement in the instructional performance of teachers and maintain their outstanding performances regardless of what tools will be used.
6. This study may be reconstructed using different variables, respondents, and grade levels to accumulate new knowledge in the development of better educational strategies for a higher level of performance.
7. This study may inspire the researcher to have a profound interest of her own performance in order to strive on enriching her strengths and correcting identified weaknesses which will eventually make her a more effective school teacher.
8. It is highly recommended that the proposed teachers' training and development program be adopted by the district.

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VISITORS' CHARACTERISTICS, TRAVEL BEHAVIOR AND THEIR OPINIONS ON VARIOUS ASPECTS OF TOURISM IN CARAMOAN, CAMARINES SUR, PHILIPPINES

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ABSTRACT

Caramoan in Bicol Region is one of the emerging tourist destinations in the country that offers island hopping tour. The popularity of Caramoan drives local and international tourists which open opportunities to local community. This study explores tourist behavior and their opinions on various aspects of tourism in Caramoan. The study aims to gather information from tourists to help the town improve the services and tourism management. This study used accidental sampling assisted with survey questionnaires. The study revealed that there are more female visitors than male, highly educated having completed college, earn their own money either as employee of private and government sector. Visitors mainly learned about Caramoan from the internet and social media followed by word-of-mouth. Visitors are not travel agency users and travelled in a group with their relatives, children, and friends and stay for an average of 2 days for the entire trip. Motivating factors include beaches, island and islet formation, and its natural sceneries. Specific activities of tourists include island hopping, sight-seeing, and swimming. Respondents gave highest rating to local people's behavior, personal safety, and food. Transportation and roads, sanitation and cleanliness, accessibility, telecommunication, shops and tourist information had the lowest rating. Among the attractions in Caramoan, the beaches and island and islet formation obtained the highest rating. Caramoan tourism contributes more than four hundred million pesos to the national economy of the Philippines. The contribution of this study will further enable Caramoan to develop and promote more appropriate and satisfactory tourism products and services for their visitors.

Keywords: Caramoan tourism, characteristics, tourist behavior, tourist opinions

INTRODUCTION

According to World Tourism Organization Tourism Highlights 2018 Edition, tourism industry has played an important role in cultural preservation, environmental protection, peace and security, job creation, development, and economic growth. The organization further states that international tourist arrivals (overnight visitors) worldwide increased by 6% in 2018 to 1.4 billion, based on data reported by destinations around the world. According to the organization, growth was fueled by the local economic upswing, resulting in strong outbound demand from virtually all sources of markets. This tourist arrival translates to US$ 1,340 billion total international tourism receipts and rose by 4.9% in 2017 (UNWTO). Tourism is more than you imagine (UNWTO).

The Philippines has become one of the top tourism destinations in Asia. Tourist arrivals rose by 7.7% or an equivalent of 7.1 million visitors in 2018 (Philippine Statistics Authority). In terms of income generation, tourism's overall contribution to Philippine Gross Domestic Product (GDP) hit 2.2 trillion in 2018, rising by 14.3% compared to previous years (Philippine Statistics Authority). In 2017, around 700,000.00 pesos was generated by Caramoan ecotourism tours from environmental fees (Municipal Tourism Office). This figure does not include revenues generated by resorts, restaurants, dive gear rentals, souvenir stores and van rentals, boat rentals, and tour guide earnings. Caramoan Peninsula in Bicol Region is one of the tourism destinations in the Philippines and the tourism industry has been growing rapidly. Caramoan offers island hopping tours because of its natural scenic view, spectacular islands and islet formations, and stretch of white beaches covered with very fine white sand. Top Resa in 2008 listed Caramoan as one of the best destinations in the world. Caramoan made famous and put into the world map because of the "Survivor" reality TV show. The Peninsula is also blessed with abundant marine resources such as coral reefs, seashells, different species of demersal and pelagic fishes, and "Carahan" local name of marine turtles in which Caramoan derived its name. Some areas of Caramoan is declared as protected area under R.A. 7586 of National Integrated Protected Areas System or NIPAS.

Because of its popularity, Caramoan Peninsula brought in droves of visitors – both domestic and international. Year on year, arrivals showed a dramatic upward trend from barely 12,000 visitors in 2011 to 55,000 in 2017. As a result, new income, investment and employment opportunities for the local people popped up. Side by side with their traditional livelihood, i.e. fishing and farming, ecotourism became Caramoan's second engine of economic growth. Consequently, this has posed challenges and opportunities on the environment, on communities, and on economic development. Rapid expansion of tourism might create additional pressures to the local community, and the environment. It should be remembered in any development that Caramoan Natural Park is one of the protected areas under R.A. 7586.

The visitors' characteristic and their travel behavior are the most important indicators or predictors of future tourist behavior. Considering the social role of tourists, their characteristics and travel behavior can be an indicator of the behavior of future travelers. Tourists set the social norms of behavior in the context of tourism. These norms are also followed by other consumers; those who do not yet engage in travel, as well as those who do.

Tourist characteristic and their travel behavior is the context of consumer behavior in the purchase, uptake and abandonment of tourist services. Services are intangible, which makes them more difficult to market. They also have an additional complicating factor, since they are generally located away from places where consumer behavior occurs. The manifestations of tourist behavior are diverse and, in principle, take place in several phases (Juvan, E., et.al. 2017). According to the authors, each phase contains the processes of planning, decision-making, and purchase. For example, tourists may plan their holidays directly with the provider (e.g. book a room directly with the hotel), or indirectly through a tourist services intermediary (e.g. book a room through a travel agency). There are also various methods and tools for planning, such as by phone, in person, or over the internet. In the phase of experiencing the holiday, tourists make use of tourist experiences, available either for a payment or free of charge. Simultaneously, the tourist also carries out the activities of planning, informing and deciding on their further undertakings (their future behavior) at the destination. In the post-holiday phase, tourists engage in various activities that will ultimately have an impact on their own future behavior, as well as that of others. This diversity of the manifestations of tourist characteristic and behavior, in its various stages or phases, complicates the approaches to observing it, but at the same time also demonstrates the importance for the provider or destination to monitor tourist activity (Juvan, E., et.al. 2017).

Knowing the characteristics and behaviors of tourists, and their opinions on various aspects of tours are key elements in the assessment of the work of planners and providers of tourist services so far, as well as in the planning and implementation in the future. Tourist characteristic, behavior, and opinion on different aspects of tour are also a key factor for the successful development of tourism services, therefore an understanding and knowledge of tourist characteristic, behavior, and their opinion are an indispensable element in the development of tourism. Knowing the characteristic and behavior of tourists has practical value for all tourism stakeholders (Pearce, 2005). Most commonly, the data on tourist characteristic, behavior, and opinion on various aspects of tours are relevant for the providers of tourist services, as knowledge of these aspects enable the planning of business strategies and the designing of tourist products. The public sector, especially tourism institutions and organizations, usually use the data on tourist characteristic, behavior, and opinion on various aspects of tours to plan the developmental and marketing strategies of destinations and tourist facilities. Data on these is also useful for the general travelling population (i.e. tourists), as it facilitates holiday planning, especially in areas facing specific and problematic tourist behavior and other tour attributes.

RESEARCH OBJECTIVES

This research aims to gather information from tourists to help ecotourism program implementers improve the services such as visitor handling, communication, tourism policies, and tourism system and management in Caramoan. Specifically, this study aims to: (1) describe Caramoan visitors in terms of socio-demographic characteristics, (2) identify visitors' satisfaction levels and preferences with various components of tours, (3) evaluate travel behavior (e.g., type of travel, number of days they intend to stay, specific activities they want to engage, etc.) and their opinions on various aspects of tourism in Caramoan, (4) estimate economic contribution of Caramoan tourism to Gross Domestic Products.

RESEARCH METHODS

This study employed both quantitative and qualitative type of research. Since most of the time the tourists are more volatile, accidental sampling was used. This method is a nonprobability sampling which involves the sample being drawn from that part of the population which is close to hand and that is, a population is selected because it is readily available and convenient. This study used assisted survey questionnaires, structured interview and was used a combination of close and open-ended questions. Economic contribution of Caramoan tours was estimated using visitors' expenditures gathered from this survey multiplied by latest total tourist arrivals of the season.

An internal test was done prior to the conduct of pre-test survey to ensure that understanding to the questions to be asked is of the same level. Pre-test survey was administered in the sites (i.e., resorts, hotels, etc.). On-site survey was conducted from January to May of 2019 with a total of 359 respondents. The survey was carried out at the beaches, resorts, and hotels in Caramoan and the respondents who already done their selected tourism activities were selected. The survey was conducted in a face-to-face manner by the enumerators.

The questionnaire used for this study consisted of three sections. The first part is the general information of the respondents (i.e., name of accommodation, nationality, gender, educational attainment, and occupation. The second part of questionnaire consisted of different items on tourist behavior (i.e., main reason for choosing Caramoan, information source about Caramaon, etc.). At section three, the respondents were asked to rate their opinion and impression about tourism facilities and services. Section three asked the respondents to rate their opinion and impression related to the statements given on a 5-point liker scale ranging from 'very good' to 'very bad', "expensive to very cheap" and very friendly to very unfriendly. The last part consists of open-ended questions (i.e., what aspect of your stay in Caramoan needs improvement and what do you suggest to improve in the tourism in Caramoan).

Relevant data sets were analyzed using descriptive and simple statistics such as frequency count, percentage and mean.

RESULTS AND ANALYSIS

Visitor Characteristics

From the available data on tourism arrivals, Caramoan had 55,333 visitors in 2017 or an average growth of 32% per year from 2011. In 2011, the number of visitors in Caramoan was 12,772. Although the general trend is upward, the year-on-year growth of the number of visitors in terms of percentage is fluctuating. The percentage increase of visitors' arrival was lower in the year 2014 and 2015 and begins to rebound in year 2016. There is no concrete information to explain what the reasons are for the lower turn-out of tourists' arrival in these years.

A total of three hundred fifty-nine (359) respondents participated in this study and analyzed using statistical analysis discussed above. Among the 359 respondents, 2.51% came from Europe, 1.39% from North America, 0.84% from Africa, and 95.54% from Asia. The bulk of visitors were from the Philippines comprising 94.71%, the remaining percentage was shared by Nepal and Myanmar for the whole Asia. Obviously, the high number of visitors was from the Philippines given the proximity of the tourism destination.

Based on the result, the foreign markets of Caramoan for the total foreign tourists were Europe (38.90%), North America (27.80%), Africa (16.70%), Southeast Asia (11.10%), and East Asia (5.50%) (Table 1). Four regions can be considered emerging markets for Caramoan based on the number of visitors that they sent. To compare with other tourist destination in the region, for example Donsol, this destination has gained at least all the regions (i.e., North and South America, Africa, Eastern and Western Europe, Oceania, Middle East, Southeast Asia, and South Asia).

Among Filipinos, the top three origins of visitors are within the Bicol region (31.20%), 21.17% from Southern Tagalog, and 16.71% from Metro Manila (Table 1). World Tourism Organization (2018) report showed that 4 of 5 tourists travel within their region (intraregional tourism). The high number of visitors from Europe, Metro Manila and surrounding areas indicate heavy urban or even metropolitan orientation of the visitors. The visitors in Caramoan are of the same orientation with the visitors in Donsol.

Table 1. Distribution of Foreign and Local Tourists by Region of Origin

Local Tourists		Foreign Tourists	
Region	*Percentage*	*Region*	*Percentage*
Bicol	31.20	Europe	38.90
Southern Tagalog	21.17	North America (US & Canada)	27.80
Metropolitan Manila	16.71	Africa	16.70
Central Luzon	6.69	Southeast Asia (Myanmar)	11.10
Northern Luzon	1.11	East Asia (Nepal)	5.50
Central Visayas	1.11		
Eastern Visayas	0.56		
CARAGA	0.56		
Davao	0.28		
No address provided	20.61		
TOTAL	100	TOTAL	100

About 56% of the respondents of the questionnaire in this study were female. In Donsol, the distribution of the visitors by gender (men-53%; women-47%) is almost equal. In a study of Sandra Wall (2004) on Tourists' Behavior and Attitudes in the Northern Part of the Swedish Mountain, about 60% of the respondents are male. However, study of Anson, T.H. Ma., et al., (2018) on Impacts of Tourists' Sociodemographic Characteristics on the Travel Motivation and Satisfaction: The Case of Protected Areas in South China also revealed that majority (54.5%) of their respondents are female. The nature of tour in Donsol and in the Northern Part of Swedish Mountain is almost the same which includes whale shark interaction and hiking/trekking, respectively. Caramoan and Protected Areas in South China also have the same nature of tour which is sightseeing. The information above would imply that the kind of visitors will depend on the characteristics of tours being offered by tourist destination.

Most of the respondents in this study are highly educated with 52.37% having completed college. The studies of Anson, T.H. Ma., et al., (2018), Sandra Wall (2004), C. Van Vuuren (2011), and in Donsol also showed that the majority of the respondents visiting different destinations seem to be well-educated or having completed college degree.

Around 74% earn their own money either as employees (government and private) or business owners. The private sector employees comprise 42% of the total followed by government employees with 26% and only 7% of the respondents are business owner.

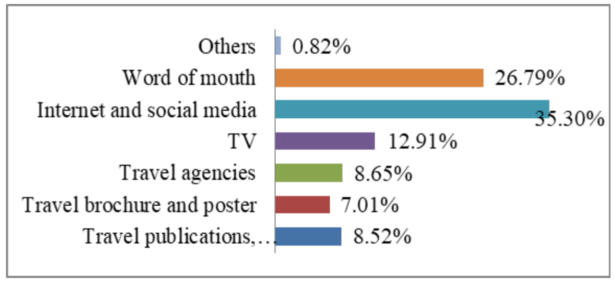


Figure 1. Visitors' information source about Caramoan

Majority of the respondents mainly learned about Caramoan from the internet and social media with 35.30% followed by word of mouth with 26.79% citing it as their information source (Figure 1). Many studies have also reported that the main source of tourists' information about tourist destination is internet and social media. With this world of digital connectivity, it is believed that the social media platforms and internet have found a significant role in the tourism industry and travel businesses. These platforms have been used through effective, extensive advertising, promoting, and marketing tourism destination. Word of mouth is also a big factor in tourism industry. Many previous studies have examined the influence of word of mouth on destination choice and have shown that service quality and trip satisfaction are sources of word of mouth recommendation (Tasci, A.D.A.; Gartner, W.C., 2007). Tham, A. et al., (2013) reported that when planning a vacation, one key aspect for tourist to make the choice is word of mouth, which mainly concerns information and referrals from friends, family, and other acquaintances.

Though the result is not significantly different, most of the respondents are not travel agency users with 50.70% arranging their own travel compared to 49.30% who are arranging their travel with travel agency. There is a low percentage of solo travelers in Caramoan, comprising only 1.31 percent. In contrast, Donsol has a high percentage of solo travelers comprising 19 percent. Those who travelled in a group mostly came with their relatives (31.59%), children (22%) and their friends (20%). When analyzing the number of days or nights of stay of visitors in Caramoan, it was indicated that 50% of respondents stay for only 2 days. The limited number of tourism activities and attractions could be the reason for not staying longer of visitors in Caramoan. Several published studies reveal that the more the attractions and activities the destination has the longer the tourist will stay.

Attractions and Activities Undertaken

The questionnaire contained one question that required the respondents to answer or indicate which 10 reasons for choosing Caramoan as their holiday destination. A descriptive analysis of the statistical data revealed that the very reason or motivation was beach, followed by island and islet formation, and finally its natural sceneries (Figure 2). Several published studies also indicate that the main activity or attraction of a particular destination was the first choice of visitors. Donsol for example, has 2 popular attractions and activities, the whale shark interaction and firefly watching of which tourists indicates these as their main reason for choosing Donsol.

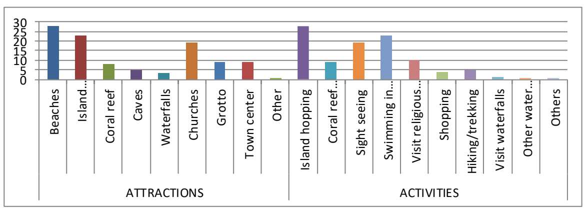


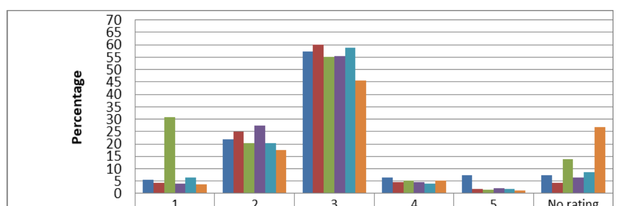
Figure 2. Main attractions and activities of tourist in Caramoan

Question about what attractions did the tourist visit and what specific activities they engaged in Caramoan. Figure 2 depicts what kind of attractions they visited and the activities they engaged during their stay in Caramoan. The top three attractions that the tourists visited were beaches, island and islet formation, and churches. The top three specific activities that the tourists engaged in include island hopping, sight-seeing, and swimming in the beaches. The data suggests that tourists are likely to do the activities within the areas or attractions they visited. This data is similar to Donsol tourism wherein tourists are engaging in the whale shark interaction as the main attraction of Donsol and as the main reason for choosing this area.

Opinions and impressions on various aspects of tourism in Caramoan

Generally, satisfaction is happiness and disappointment of a person that comes from the comparison between the impression of a product and the hopes (Kotler, 2007). Anderson in Mulyono (2008) states that customer satisfaction is the whole rating of a purchase and consumption experience of a good or service. According to Kotler (2008), a company can measure its customer satisfaction in several ways: Firstly, the complaint and suggestion system. Second, customer satisfaction survey. The third is ghost shopping and loss customer analysis. According to Menurut Fornell and Wernerfelt (1987), the dissatisfied customer in receiving a service will give complaints to the company. The service provider that always wants to create customer satisfaction should receive them well. Marketing concept emphasizes on the satisfaction of the consumers, so marketers who want to be successful need to have a good comprehension of consumer satisfaction and loyalty. Consumer satisfaction are positive, neutral, and negative feelings from the consumers towards the value received from a product (Gregoire and Spears, 2006:604).

This study gets the opinions and impressions of visitors on various aspects of tours in Caramoan, Camarines Sur. The main purpose is to gather information from tourists to help and guide Caramoan as service provider improve its tourism facilities and services. To get tourists' opinion about the cost of visiting Caramoan, the study used scale from 1-5 as 1 – expensive and 5 – very cheap. Based on the result, most of the responses fall to number 3, meaning the cost (i.e., accommodation, etc.) visiting Caramoan is reasonable (Figure 3). On the other note, buying souvenir items in this area is quite expensive.



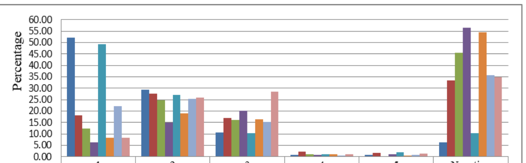
	1	2	3	4	5	No rating
Accommodation	5.57	22.01	57.38	6.41	7.52	7.52
Transportation	4.18	24.79	60.17	4.74	1.95	4.18
Souvenirs	30.90	20.23	55.15	5.29	1.39	13.93
Food % drinks	3.90	27.30	55.43	4.74	2.23	6.41
Tours	6.41	20.33	58.77	3.90	1.95	8.64
Shopping	3.62	17.55	45.68	5.29	1.11	26.74

Figure 3. Opinion about the cost of visiting Caramoan

The survey presented to the visitors 15 aspects of the services that they used while travelling and staying in Caramoan. On a scale from 1 (very good) to 5 (very bad), 22.56% of the respondents gave highest rating or very good to local people's behavior). The other aspects that obtained a very good rating are personal safety, tour guiding, accommodation and food. Transportation and roads, sanitation and cleanliness, accessibility, and telecommunication had the lowest rating.

The visitors complained of poor road condition, sanitation and cleanliness of some accommodations and surroundings, accessibility of Caramoan, and internet and mobile phone signal. Among the other aspects that obtained a low rating are the shops and tourist information.

Among the attractions in Caramoan, the beaches and island and islet formation obtained the highest rating. In a scale from 1 (very good) to 5 (very bad), 52.09% of the respondents rated the island and islet formation as very good (Figure 4). It outranked the beaches which 49.30% of the respondents also rated it as very good. The town center, waterfalls, and corals rated by the respondents as neither bad nor good. Although the municipal government never developed the town center as a tourist attraction, the result of the survey shows that the visitors consider it as such. It means that the current attractions cannot be isolated from other parts of the town because the whole town is supposed to be a tourist destination. The survey also revealed that most of the respondents did not give any ratings on some attractions (i.e., waterfalls, caves, and grotto). This information suggests that the tourist don't want the attraction or they might not aware of the existence of such tourist attractions.



	1	2	3	4	5	No rating
Island & islet formation	52.09	29.25	10.58	0.84	0.84	6.41
Corals	18.11	27.58	16.99	2.23	1.67	33.43
Grotto	12.26	24.79	16.16	1.11	0.28	45.40
Waterfalls	6.407	15.042	20.056	0.836	1.114	56.546
Beaches	49.30	27.02	10.31	1.11	1.95	10.31
Caves	8.36	18.94	16.43	1.11	0.56	54.60
Churches	22.28	25.35	15.32	0.56	0.84	35.65
Town center	8.36	25.91	28.41	1.11	1.39	34.82

Figure 4. Rating of tourists on various tourism attractions in Caramoan

Local Prosperity

The visitor spent an average of 8,717.87 Pesos in one trip to Caramoan. This amount indicates that visitors have enough disposable income and have capacity to pay. With 55,333 visitors in 2017, it can be estimated that their combined expenditure amounted to Php482,385,900.71. A high percentage (72.27%) translating to Php348,620,290.44 is spent in Caramoan. The greater part of the total expenditure goes to hotel and accommodation followed by transportation which is mainly van rental and plane ticket and the third greater part goes to food and drinks (Figure 5). The average length of stay is 2.5 days which may translate to two nights in Caramoan. The short length of stay curtailed the opportunity for the visitors to spend more and inject more money to the town's economy. Based on the amount spent in Caramoan and the length of stay, it can be reckoned that the average daily expenditure per visitor while in Caramoan is around Php3,487.15. It means that every night that a visitor extends his stay, he infuses the town's economy with Php3,487.15. The length of the stay of the tourist affects the income of the local residents. The shorter they stay in Caramoan, the lower amount spent, and services used in the area. The local residents own all of the resorts and the other types of accommodation. All food outlets, equipment rental shops, tour operation are also owned by local residents.

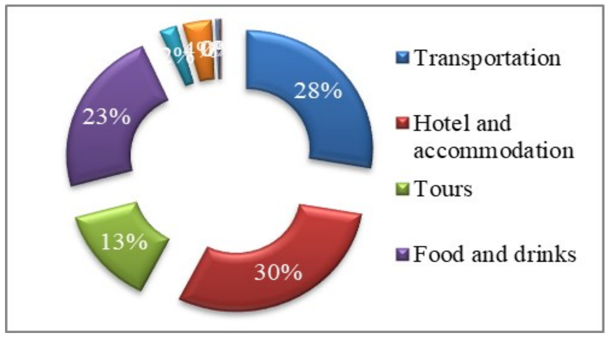


Figure 5. Main expenditures of Tourist in Caramoan

All the tour guides and resort employees are local. However, the percentage of the local component of the food bought by visitors and the local materials used in structures for tourism are not known. In this case, the extent of the prosperity resulting from tourism that redounds to the town's food producers and makers of construction materials is not fully known.

CONCLUSION

This study investigated the visitors' characteristics, travel behavior and opinions on various aspects of tourism in Caramoan, Camarines Sur, Philippines. The study revealed that this area has minimal foreign tourist arrival. It can be said that this destination might be not known to other countries or not fully marketed and promoted. More Filipinos considered Caramoan as one of their holiday destinations in the Philippines and tourists had the urban or metropolitan orientation. The study also revealed that only 2 nights is the average duration of stay of tourists in Caramoan. It can be gleaned that the limited number of tourist attractions and activities in the area can be the reason behind for tourists not staying longer. Tourists were motivated to come to Caramoan for its beautiful beaches, its natural sceneries, islet/ island formation, and were satisfied with the cost of visiting this destination. Tourists were satisfied with the local people's behavior, personal safety, tour guiding services, accommodation and food but they were dissatisfied with the transportation and roads, sanitation and cleanliness, and telecommunication. Most importantly, Caramoan tourism generates jobs, creates new income and opportunities to local people, generates revenues and taxes for local government, and contributes to National Gross Domestic Products.

RECOMMENDATION

The main purpose of this research was to gather information from tourists and help and guide Caramoan service providers improve the services such as visitor handling and tourism system and management. Since this destination has minimal foreign tourist arrival, this study recommends that the tourism implementer should have concrete plan on how to promote and market their tourism attractions and activities using different media of communication. Major dissatisfaction among domestic and international tourist is the bad road condition, telecommunication, and the cleanliness and sanitation of the area. Therefore, greater maintenance and services should be done to keep these components of the tour well maintained, besides ensuring an adequate provision of it at major destinations. Development of additional tourism attractions and activities are also being suggested to give the visitors more options to do and make their stay longer, thereby spending more and injecting more money to the town's economy. Caramoan tourism is considered as one of the major job and income generators among local people. Then, it is suggested that the social carrying capacity study to be conducted for better management of the destinations to make it sustainable.

This study has certain limitations which constitute opportunities for future research. Further study should be conducted specially with focused on examining factors affecting vacation destination choices and motivation on different ages of the visitors, study on repeat visitation of the visitors, and study on the effects of information sources on perception of tourist.

Once an area became a tourist destination, it will surely increase the number of people and the number of mouths to be fed. The negative effect of tourism in a particular area is that the price of basic commodities will become high because it will affect the supply and demand of certain products. Therefore, this study also recommends the conduct of food supply chain analysis in Caramoan. Food supply chain analysis can help its locality understand how a locally significant industry is connected to other industries located both inside and outside the locality. By understanding it, the town can begin to make a decision for example regulatory practices (i.e., food production at the local level, price regulation, etc.).

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DIGITAL RISE: THE PRO'S AND THE CON'S IN THE LIVES OF STERLING TEACHERS

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ABSTRACT

As the world is jam-packed with technology today, education system fast- track its approaches when it comes to the teaching and learning process through information and technology infusion in every program and curriculum instructions. The purpose of this research was to discern teachers' perceptions especially, those sterling ones, on the advantages and disadvantages of the digital rise in this time of new normal situation. This study also sought to know the literacy level of the sterling teachers, their teaching experiences in these virtual online classes, and also their coping mechanism to upgrade their capabilities to accommodate the so called digital natives. The study used the phenomenological qualitative research design and open- ended questions in the focus-grouped discussion and interview. Data collected from the FGD and interview were interpreted in words and discussed based on the statements of some cited authors in support to their arguments. The study limits the regular permanent teachers aging between 45- 56 years old, and most of them render 25 years in the service or more. In the result, teachers were determined minimal in terms of their literacy level. They also emphasize the importance of professional training to upgrade their abilities regardless of age. Reiterating the fact that there are positive effects of technology in all aspects of teacher's related work, however, there are some points to consider in using this technology. This study also reported that, with technology, educators would be able to better connect content to real-life experience to better serve the 21st – century learning styles.

Keywords: Digital Rise, technology-infused education, sterling teachers, digital natives

INTRODUCTION

In this 21st century, the term "technology" is an imperative matter in many fields including education. Technology integration nowadays revolutionized our societies that has totally transformed the way people live. As part of this, schools and other educational institutions which are supposed to prepare students to live in a revolutionized society need to contemplate the integration of technology in every school curriculum. As Collin & Halverson in 2009, stated that technology today is now often touted as the savior of education.

As technology has become a major component of our educational system, the Philippine Government has shown serious commitment to technology in education in announcing a series of initiatives to integrate technology in teaching and learning process especially nowadays amidst Corona Virus Disease 19 (COVID 19) pandemic. Here comes the implementation of the No Child Left behind Act in 2002, and, more recently, The Every Student Succeeds Act of 2015, schools have changed the way they teach from the more "traditional" teacher-centered approach to a technological, hands on environment. These were aligned to the Millennium Development Goals and the Education for All Movements in preparation to the so-called "Digital Rise" in education.

Teachers from all disciplines have widely integrated technology to improve their teaching styles (Liu, 2011; Liu and Velasquez Bryant, 2003; Hew and Brush, 2007; Donnelly et al., 2011). For teachers it helps a lot to make things easy and accessible. It is the way of going beyond the limit like creating, discovering, communicating and exploring, thus making teaching-learning more fun and productive to cater the 21st century learners. The effective use of technology can facilitate student- centered active learning (Ellis et al., 2008), engage students in collaborative learning as well as enhance their social interaction (Dodge et al., 2003). Use of modern technologies in learning and teaching processes is an inevitability because developing these technologies contributes to transformation of knowledge in a useful way. With technology, it engages learners to more active learning that helps in developing higher –level thinking skills.

Teachers, as an agent of transferring knowledge and information it has been a priority and the Department of Education mandated that teachers must be tech-literate to properly use these technologies as a substantial requirements today. Full length in the use of technology to facilitate learning and cope with the digital natives needs. Technology cannot be effective in the classroom without teachers who are knowledgeable about both the technology itself and its implementation to meet educational goals.

The role of technology in traditional school setting is to facilitate teaching-learning process through increased efficiency and effectiveness to cope up with the trends of education in this 21st century world. Learners mostly view technology as a blessing thus making learning easier, fun and effective. Digital natives, the net-generation, the digital-generation, and millenniums are all labels to identify today's learners. Marc Prensky (2001) created the term digital native in his work Digital Natives, Digital Immigrants to describe the generation of learners growing up interacting with digital technology. As part of this technology-rich world, learners are texting, tweeting, blogging, posting each other's wall and videoing themselves for YouTube. For this, education has to move with the time adapting to the 21st century world that our student-learners are living today.

Technology-based teaching and learning can make many changes in school that requires for proper planning and policy making. With the massive advantages brought by technology in facilitating teaching and learning, there's always the so called drawbacks on the teachers part especially those sterling ones. Teachers need sufficient ICT skills to implement the technology and to have high confident level to use it in a classroom setting. Besides, teachers require insight into the pedagogical role of ICT, in order to use it meaningfully in their instructional process (Hennessy et al., 2005). According to Winzenried, Dalgarno and Tinkler (2010) teachers who have gone through ICT course are more effective in teaching by using technology tools as opposed to those that have no experience in such training.

In this time of pandemic in which technology plays a vital role especially in teaching and learning, the study Digital Rise: The Pros and Cons in the Lives of Sterling Teachers talk on the different perspectives of teachers regarding technology-infused education. In light with these circumstances, the researcher interestedly conducted this study to question whether or not the use of technology in the classroom is beneficial with the intent of weighing the advantages and disadvantages of a technology-based teaching and learning process and to reach a conclusion supported by the collected data.

STATEMENT OF THE PROBLEMS/ OBJECTIVES

The objective of the study is to determine the advantages and disadvantages of technology-infused education especially for the sterling teachers who serve teaching for 25 years and more in the service. The researcher conducted this study in the mother school of Kalamansig II District, Sultan Kudarat province.

Specifically, the study sought to answer the following questions:

1. How well do you do in terms of digital literacy?
   a. Advanced knowledge
   b. Proficient knowledge
   c. Moderate knowledge
   d. No knowledge
2. How's teaching in this digital rise situation?
3. What are the advantages and disadvantages of the rise of technology in teaching and learning process?
4. How did you cope up with the rise of technology?

LITERATURE REVIEW

Teachers' Belief on Technology-based Teaching and Learning

With the development of learning technologies in the late 20th century, education system has changed rapidly. This is due to the capability of technology to provide a proactive, easy access and comprehensive teaching and learning environment. (Albirini, 2006).

Teachers' efficacy in urban schools changes as the years of experience of working and age of teachers (Cuban, 2001). It shows that the teachers' efficacy are decreasing as the years of experience and age increases but somehow the decrease and the efficacy belief depend on the school management. School management here means the opportunities for collegial interaction, and the use of the instructional resources. Schools that could provide opportunities for teachers to reflect on teaching and learning with their colleagues and for administrators and teachers to collaborate and communicate, as well as support the use of instructional resources. From this research, the teachers efficacy belief is depend on the school management and culture. Therefore, if the school has always implant the culture to change and teachers are always sent for training for upgrading themselves, and then the integration of ICT in classroom will be easier to be enhanced in the classroom.

Technology-infused education

According to the latest insights as to how exactly modern students of today prefer to use technology and how does their learning get an impact if they use technology, it was revealed that the use of modern equipment technology and tools, the learning and interactivity of students increases. They also find it much more interactive, as well as full of interesting areas, when aided by technology. The transfer of knowledge becomes very easy and convenient, as well as effective. What this means is, that our minds now tend to work faster when assisted with the use of modern technology, be it any part of life, here we talk about education. The reliance and dependence of such an innovation, that simply makes life an easy, smooth journey is completely unavoidable these days even in schools, universities and colleges (Raja et al., 2018).

Technology has a positive impact on student learning. Technology causes students to be more engaged; thus, students often retain more information. Because of the arrival of new technologies rapidly occurring globally, technology is relevant to the students. Technology provides meaningful learning experiences. Technology also provides hands-on learning opportunities that can be integrated into all school curricular areas, including mathematics, reading, science, and social studies as well as other academic subjects. It gives students opportunities to collaborate with their peers resulting in learning from each other (Costley, 2015).

Many studies have shown the advantages of using technology in classroom instruction. Technology can be used as a tool for establishing meaningful projects to engage students in critical thinking and problem solving. Technology can be used to restructure and redesign the classroom to produce an environment that promotes the development of higher-order thinking skills (Kurt, 2010). Technology also increases student collaboration. Collaboration is a highly effective tool for learning. Students cooperatively works together to either create projects or they can learn from each other by reading the work of their peers (Keser, Huseyin, & Ozdamli, 2011).

The Role of technology in the 21st Century's Teacher Education

Addressing the needs of the 21st century learners is one of the goals of the K to 12 curriculums .The transition of the paradigm shift from traditional teaching-learning process to the 21st century strategies is indeed a challenge to the department. It seeks to understand and provide appropriate strategies to address the needs of the 21st century learners (Baishakhi Bhattacharjee and Kamal Deb,2016).

In addition, technology has played important roles in the field of education which are as follows: CT helps teachers in both pre-service and in -Service teachers training; ICT helps teachers to interact with students; It helps them in preparation their teaching, provide feedback; It also helps in effective use of ICT software and hardware for teaching –learning process; It helps in improve Teaching skill, helps in innovative Teaching; It helps in effectiveness of classroom; It also helps in improving professional Development and Educational management as well as enhances Active Learning of teacher Trainees; It is now replacing the ancient technology. As we know now-a day's student are always have competitive mind. So teacher must have the knowledge of the subject. This can be done through ICT(Social Science, 2017).

Positive Uses of Technology in The Classroom

The use of technology by both the classroom teacher and students, will improve the students' academic performance overall. As discussed in an article by Enriquez (2010), studies have proved not only the benefits of using technology in the classroom, but have also proven the ineffectiveness of what is considered the "traditional" teacher centered classroom setting. Taking the classroom from a traditionally structured, lecture class to a flipped classroom environment, makes learning "active", and therefore more effective.

Using technological devices and online programs, according to Hawks (2010) will make it easier for teachers to make “real life” connections to the content, encouraging students to think more critically, and gain a deeper understanding of the material. According to the article, taking the classroom from a traditionally structured, lecture class to a flipped classroom environment, makes learning “active”, and therefore more effective. By requiring the students to do their own investigative research and reason abstractly in regard to the topics being discussed, the flipped classroom fosters the skills students will need to solve problems in and out of the classroom. In addition, a flipped classroom setting encourages students to work together, maintains active engagement, and dramatically increases knowledge retention.

Negative Uses of Technology in The Classroom

Pierce and Ball (2009) believed that some classroom teachers and school staff that the use of technology in classrooms is difficult and undermines to the instructors in the class. Among other conclusions surrounding enabling factors and potentially feared barriers, the study revealed that most teachers’ attitudes toward the use of technology in the classroom depended on how they felt it would influence the education of their students.

The major issues with using technological devices in classes were the effects it could have on the extra time needed by the teacher and the students to learn effective skills and the assumed cost restraints associated with supplying devices to all students. Many teachers reported that they did not feel comfortable requiring students to use devices that they may not be able to afford. Another popular fear among teachers was in relation to their own level of self-efficacy. Many teachers believed that they were not properly prepared to use the devices themselves, let alone teach their students to use them (Pierce and Ball,2009).

Teacher’s Self-Efficacy and Professional Development

According to an article by Koc (2014), one answer lies in teachers’ attitudes toward the devices available to them. To arrive at this conclusion, researchers closely examined the relationship between a group of classroom teachers and their available technological devices. The author found that the educators studied had, for the most part, a positive attitude toward the idea of technology in the classroom. However, they did not feel comfortable using it and working it into their pre-existing lessons. Additionally, although the majority of the teachers involved in the study felt positively about using the technology, some felt that relying too heavily on it would eventually undermine the role of the teacher. Taking all of the results of this study into account, Koc found that a more positive attitude toward the use of technology in the classroom leads to an increased frequency of use, and, similarly, that a negative attitude toward the use of technology leads to a decrease in its frequency of use.

The authors also pointed out that as teachers should have an awareness that the use of technology is an ongoing commitment to maximize opportunity and minimize constraints for students, as well as an ongoing commitment to learn more about the technology, the devices, the software and the tools through expert advice, and the advice of peers. Exposure to these courses, and to the general understandings necessary to optimize the use of technology, made it clear that teachers could easily and quickly improve their level(s) of self-efficacy, and found that once they had, the teachers were more likely to integrate the devices into their day-to-day lessons, as well as maintain their knowledge and use of the technology they have available to them.

METHODOLOGY

This chapter presents the research design, the research locale, the participants of the study, the data gathering tools, and the data gathering procedure.

Research Design

The study utilized the phenomenological study of qualitative research design. The method of conducting focus group discussion (FGD), interview and document analysis demonstrated the authenticity of the information gathered from the participants.

Research Locale

The researcher conducted the study in the mother school under the district of Kalamansig II, Sultan Kudarar, with the population of twenty-six regular teachers and eight hundred three learners. A full pledge school principal managed this school.

This school belong to the big school category among sixteen schools under the banner of Kalamansig II district. It has an extension classes at Sitio Nalugadas with 4 regular assigned teachers and Sitio Tesing with 2 regular assigned teachers. The school has 1 master teacher, 6 teacher III, 6 teacher II, 13 teacher I and 6 local school board items. SCCS is situated at Barangay Sta. Clara of the municipality of Kalamansig.

Participants of the Study

The participants of the study were 8 female teachers and 2 male teachers handling different advisory classes. All of them are regular permanent in teaching position belongs to the age bracket between 45 to 56 years old and serves the school for more than 20 years. They are teacher II, III, and master teacher in position. Most of them are grade chair-person, school coordinators and district coordinators of different DepEd programs.

Data Gathering Tools

Upon identifying the participants of the study, questionnaires was then formulated. The researcher formulated sets of questions to be utilized during their focus group discussions and then an interview as a follow through. The content of the data gathering tool went through validation with the help of some school principal with master's degree.

Data Gathering Procedure

The researcher asked permission from the school principal to conduct the study in her school. After the school authority granted the request, the researcher requested the participants to select their most favorable time on the time schedule given to them. Upon deciding the time, the focus group discussion was then facilitated. FGD were completed in 2 sets because the participants chose different free time schedule. Interviews was done also for follow up questions. The questions were thrown one-by-one and each participants were given a change to answer the questions either in English or in their vernacular language. The researchers also asked permission to the participants to record the foregoing interview and let them sigh a letter of consent proving that they allow the recordings of the said conversation.

Ethical Standard

Following the research protocols, the researchers conformed to the given set guidelines and standards. First, the researcher asked permission through a letter signed by the school administrator. Consent was then distributed and discussed to the participants. This consent letter ensured that the researcher informed all the participants of the nature and purpose of the study, the researcher assured the participants of the study that all of their answers to the questions would be treated with utmost confidentiality and that the participants have the right to refuse since they were not force to answer.

FINDINGS

This part presents, analyses and interprets the data gathered from the answers of the participants during the focus group discussion and interview. The analysis of the data and their interpretation follow. The discussion of the result is presented based on the specific problems of this study.

On the level of digital literacy.

This frame shows the FDG responses of the research participants in terms of the level of being digital literate.

Frame 1

Teacher 1: Of course I know how? I am on the moderate level even though I am old already. I could testify that to you.hahahahaha.. kidding aside, but true.

Teacher 2: Moderate Ma'am. Yes I know how to surf the net, I know how to use laptop computer etc. ……… that's because we use to have it in our school

Teacher 4 : " yes I am. To those applications we usually use inside our classroom. Beyond that I don't know how already. Just basic..

Teacher 6: "minimal. We lack in trainings for us to be upgraded. Reason? No budget allocation "

The FGD with the teachers revealed that most of them were moderate in terms of digital literacy. They were technologically oriented regardless of their age status. Self –learning strategies were the common reason why they were computer literate because they were used to have it in their classrooms already. However, they reiterated on the proper trainings that they should have. Trainings that would be beneficial and would also develop more their capabilities in terms of technology. With those appropriate trainings teaching and learning process will be effective.

According to Winzenried, Dalgarno and Tinkler (2010) teachers who have gone through ICT course are more effective in teaching by using technology tools as opposed to those that have no experience in such training. In the recent survey of 21st Century Classroom Report of 2011, the biggest challenge of classroom technology were teachers' competence because they lack in proper trainings.

The teacher participants responded also that if only school management has more budget allocations, proper trainings and orientation would be of great help to level up teachers' efficacy in technology. Sending teachers to training for self-development, the integration of technology will be easier to enhance in the classroom (Cuban, 2001).

The teacher participants also believed that learning technology is no limit regardless of the age. It's the eagerness to learn and the positive attitude towards the use of technology matters. And this is true to the article presented by Koc in 2014, that the teachers' attitude underlies the extent of the effectiveness of technology in the classroom. The more you engaged in the use of technology the higher the teachers level of self-efficacy in teaching learning process.

How's teaching in this digital rise situation?

This frame reflects the answers of the research participants regarding their perceptions on their teaching situation in this digital rise situation.

Frame 2

Teacher 4: " Oh, I find it very easy when it comes to teaching. So easy, children understands easily. They find it fun and interesting. According to them, TEACHER will again show something again today. "

Teacher 7: "Todays situation, I feel it easy compare to yesterday. Less effort so far when it comes to working.

Teacher 5: Fun, interactive and easy. Less effort. Goodbye traditional classroom teaching welcome to the flipped classrooms.

Teacher 1: compared to traditional way of teaching, todays classroom environment is much more effective.

During the FGD, most of the teachers gave positive feedbacks on the rise of technology in the present situation. The teachers believed that their work related obligations such as, school forms, class records, demonstration teaching, and even everyday teaching, technology makes it fast, easy, productive and effective. Fast access to all the forms, easy to submit, they can do multi –tasking and effective in teaching process. Teachers also revealed that the use of modern equipment technology and tools, the learning and interactivity of students increases. They also find it much more interactive, as well as full of interesting areas, when assisted by technology.

Using technological devices and online programs, according to Hawks (2010) will make it easier for teachers to make real life connections to the content, encouraging students to think more critically, and gain a deeper understanding of material. According to the article, taking the classroom from a traditionally structured, lecture class to a flipped classroom environment, makes learning active and therefore more effective. In addition, as discussed in an article by Enriquez (2020), taking the classroom from a traditionally structured, lecture class to a flipped classroom environment, makes learning active, and therefore more effective.

What are the advantages and disadvantages of the rise of technology in teaching and learning process?

This frame contains excerpt from the FDG responses of the research participants on the pros and cons of the rise of technology on their teaching and learning process.

Frame 3

Teacher 6 " technology has many benefit, but you can't be able to appreciate those advantages if you don't know how to use it.

Teacher 9: "No budget, No gadget" not economical

Teacher 6: Location problem. That's the disadvantage some areas cannot access internet because of their locations

Teacher 8. Less effective if no proper trainings. Useless.

Teacher 3: It makes us internet addict.

The teachers numerated various benefits, advantages and effectiveness given by technology especially in the nature of their work. However they put emphasis on the disadvantages of the use of technology.

In spite of all the advances of technology, teachers apparently view technology as less effective because of teachers were not the expert and familiar to the new technology in the market today. Most of the teachers are confined on the basic computer applications because of unavailability of gadgets being used in school. With this ever-advancing industry of technology, it has been difficult for schools to keep up with that technology advancements because of limited capacity on budget allocation and outdated computer models and soft wares (Schifter, 2008). In its perspective, it is not economical.

Money is a particularly important issue this time. School management identify limited funding to supply the needs of the teachers and even failed to send them for higher trainings. The budget constraints hinder this integration of technology. It requires money to spend to have a gadget and money to in order to surf the internet and money to keep them professional updated on different applications.

Teachers also believed that too much exposure to internet could result to internet addict and thus making as web dependent. According to Hashim (2016), allowing ourselves to frequently use technological devices may enable us to rely on the internet too heavily for answers, eliminating the need to learn on our own. In this case, self -discipline should be taken into consideration.

How did you cope up with the rise of technology?

The next frame introduces the FDG responses of the research participants on different ways in coping the rise of technology today.

Frame 4

Teacher 9. As teacher, it is my personal choice and decision to go with the technology, otherwise I would be left behind if I don't exert efforts to learn and develop my digital skills….. Self-learning and refer to the experts and seek help. *Teacher 10: Continuous learning. We seek assistance of the knowledgeable especially the millennial who are more advance in terms of technology.*

According to the teachers answers in this part of the discussion, they were all certain that regardless how advance technology and how vast change applied in education system as long as they were making themselves aware, updated and adopt the changes being offered nothing could be impossible even though they are old in age already. They put emphasis on the self-development in order to fast track their capabilities and upgrade their skills in terms of technology instructions.

Addressing the needs of the 21st century learners is one of the goal of the K to 12 curriculum. Switching the mode of teaching from traditional teaching – learning process is very challenging special on the part of sterling teachers. The fast track change should be applied to suit the needs of the digital native learners today. Training and professional development is necessary. As we know now-a-day's student are always have competitive mind. So teacher must have the knowledge of the introducing learning that fits the learners' ability.

Technology is less effective if you as a teacher don't know how to use it. The awareness of technology is constantly being updated therefore that skills that we had should be updated and change. According to Morsink, et.al, (2011), educators should also be open to ongoing professional development and reflection opportunities, a willingness to apply new methods and strategies to instruction, innovate use of devices in new and exciting ways, and an acceptance that in spite of all that technology offers, it also has constraints, which effect and could change the educational experience for teachers and students alike.

In addition, Demmon (2001) has identified that the lack of available technology, inadequate technology support and training are the barriers that hinder the use of technology. Providing teachers with more training will make them feel more comfortable using new technology in their classrooms (Croxall & Cummings, 2000)

CONCLUSION

Therefore, the use of technology in the classroom, and in academic settings, has a positive influence most especially to sterling teachers, on their school-work experience.

Teachers must be provided with substantial professional development courses, and opportunities to deepen their knowledge.

This study also reported that educators will be able to better connect content to real life experience through the use of technology.

Constant access to the newest and most advanced resources, and access to updated data content and research expertise will improve the learning experience of the teachers, which will encourage them to do the same for their students.

It is believed that if teachers have access to interesting, engaging, and up to date information, they will be better able to create models and demonstrations that will foster a connection between content and life.

Above all, regardless of age status, sterling teachers could be at par in terms of the use of technology if they were given proper trainings to improve their own performance.

RECOMMENDATIONS

Based on the results of the study, the researchers conveys the following recommendations.

The Department of Education should design, develop and help schools to implement a common policy regarding the integration of technology in education.

The School Management should identify skilled facilitators who can provide training and support to teachers at school levels. At the same time allocate enough budget to procure high definition multi-media resources.

Enough resources and a sufficient number of teachers in the field of technology should be equally distributed to schools. Additionally, all schools should have access to the Internet to allow teachers and learners to do research.

Schools must have at least one technician in full-time employment to deal with maintenance and technical problems.

The community should be well informed about the advantage of technology for teaching and learning.

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LAYING PERFORMANCE OF ITIK PINAS (*Anas platyrhynchos Linn.*) AS AFFECTED BY DRINKING WATER WITH PROBIOTICS

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ABSTRACT

A total of 48 ducks (42 females and 6 males) were used to determine the laying performance, egg quality, egg classification, and income over feed cost (IOFC) of Itik Pinas as influenced by drinking water with commercial probiotics. The ducks were allocated into two treatments - with probiotics (commercial preparation) and without probiotics (control). Each treatment had three replicates with eight ducks (7 females and 1 male) per replication. The results showed no significant (P> 0.05) effects of adding probiotics in drinking water on the feed intake, livability, egg production and IOFC of the Itik Pinas. However, egg quality was influenced by the probiotics. Extra-large eggs were greater in number (P<0.05) from ducks given probiotics in their drinking water than those without, such cannot be totally attributed though to probiotics effect as other unaccounted factors could have contributed to this observation. IOFC was lower in Itik Pinas with probiotics compared with those without. These findings generally indicated no merits of drinking water with probiotics to laying Itik Pinas.

Keywords: laying performance production and egg quality; probiotics; Itik Pinas, egg

INTRODUCTION

The duck industry ranks second to chicken for egg and meat production. It provides employment and income-generating opportunities for Filipinos, particularly those in the rural and marginal areas. Balut and salted eggs, as primary products derived from this industry, play a very vital part of the Filipino tradition. Consumption of these duck egg products has been embedded deeply in the Filipino culture, which makes theme products constantly in demand. The productivity of local ducks is inherently low. Thus, efforts were undertaken by the PCCAARRD and BAI to develop improved ducks resulting in the introduction of Itik Pinas which is reputed to perform better than their predecessor, the Philippine mallard ducks.

Increasing efficiency in duck production is a challenge to make the industry profitable and sustainable. Feed additives are generally used in the poultry industry, like probiotics. Probiotics, one of the promising preparation that can be used in optimizing the performance of Itk Pinas. A number of reports have shown the great potential of probiotics in several poultry species. Probiotics improved gut health resulting in better nutrient utilization. Thus, productivity is increased. However, there is much to be known about how Itik Pinas will respond to probiotics.

STATEMENT OF THE PROBLEMS/ OBJECTIVES

There is a dearth of information on the responses of ducks to supplement designed to enhance their production. Much more for the Itik Pinas, which was just developed recently. Interventions are wanting to optimize their genetic potential. The general objective of the study was to determine the laying performance of Itik Pinas raised in liter- floor pens provided drinking water with probiotics. Specifically, it was conducted to determine effects on egg performance and egg quality; and to determine the income over feed cost.

METHODOLOGY

Experimental Birds

A total of 48 Itik Pinas (51 weeks old) were used. They were randomly distributed into two treatments described below; each treatment consisted of three replicates with eight Itik Pinas per replicate with a ratio of 1 male: 7 female.

Treatment 1. Control without Probiotics in drinking water (control)

Treatment 2. Control with Probiotics in drinking water (1 ml/ 5 liters drinking water)

Preparation of Probiotic Solution

The probiotic solution was prepared daily by dissolving it in drinking water at an inclusion rate of 1 ml per 5 liters of water as recommended by the manufacturer. The mixture was offered to the Itik Pinas as their only drinking water starting at 7:00 a.m. and continuously given until 12:00 noon when a new mixture was provided until 4:00 p.m. After this period, the only freshwater was provided. The mixture was offered in five consecutive days during the first week and three times from the second week to the sixth week, alternately with fresh drinking water only during days without the probiotics. The mixture was placed in a basin (Appendix Figure 5). Those without probiotics were provided drinking water using a water trough connected to a water system.

General Care and Management

The ducks were raised under complete confinement in an open-sided litter floor-house with adequate feeding and water facilities. The height of the building from floor to ceiling is 2 m and the floor area per pen is 1.2 m x 2.5 m. Three cm rice hulls were used as litter materials. The feeders, waterers, and other equipment were thoroughly cleaned and disinfected before the experiment started. Cleanliness and sanitation were maintained daily. Commercial duck layer pellet was fed to the Itik Pinas. The ration of the Itik Pinas was weighed at 5:30 a.m. and 3:30 p.m., and offered at 6:00 a.m. and 4:00 p.m., using a tube feeder. Feeds were offered ad libitum.

FINDINGS

Production Performance of Laying Ducks

There were no significant differences ($P>0.05$) in any of the production parameters, indicating a lack of beneficial effect of adding the probiotics in the drinking water for the ducks. Itik Pinas is a genetically superior breeder duck that appears to perform well without or with probiotics. Apparently, they were in a state of eubiosis even when beneficial microorganism from the probiotics preparation was not introduced in their gut; moreover, there was possibly no biotic or abiotic factors that could have adversely affected their performance. Similar to the present findings, Prafulla et al. (2011) reported a lack of response to probiotics by Vanajara chicken. The tendency for ($P>0.07$) decreases in egg production and feed conversion ratio in Itik Pinas with probiotics in their drinking water may seem to be associated with the methods in the study. Apparently, the frequent entry of the researcher in the duck pens for the change of the mixture and provision of drinking water resulted from fright and stress to the ducks.

Egg Quality

There were no significant ($P>0.05$) effects observed on egg quality of the Itik Pinas that were associated with the inclusion of probiotics in their drinking water. The beneficial effects of probiotics in any of the egg quality parameters were not evident. It was apparent that the probiotics did not influence any of these factors for enhanced egg quality. Wei et al. (2017), also reported that probiotics (Bacillus subtilis) did not influence the egg weight, shell thickness, horizontal-vertical egg diameter, yolk color and haugh unit in chicken eggs.

Egg Classification

The Itik Pinas with probiotics in their drinking water had significantly higher ($P<0.05$) extra-large-sized eggs than those without. Other egg sizes were comparable in groups with or without probiotics in their drinking water. The increase in extra-large size eggs from the Itik Pinas with probiotics in their drinking water indicated that vital components from the probiotics seemed to favorably influence the synthesis of egg materials (Martins, 2008), resulting in more extra-large eggs and with no small-size eggs (57 g below). This supposition though can be complicated by the fact that there were lower eggs produced by the ducks with probiotics than those without. Under certain circumstances, larger eggs are produced from a short clutch. This is accounted for partly by the egg size secretion of more albumen resulting in bigger eggs. Optimized amount of intakes for amino acids, particularly methionine and cysteine, linoleic acid, vitamins B12 and dietary oil that increases. Whether any of these contributed to the observed increased in extra-large size eggs cannot be fully given merit in the present study.

Economic Analysis

The income over feed cost from laying ducks with or without probiotics in drinking water is presented in Table 1.

Table 1. Income over feed cost from Itik Pinas with and without probiotics in their drinking water

PARAMETERS	CONTROL	WITH PROBIOTICS	*Prob.*
Egg produced, pcs	38.00	36.00	0.06
Sale value of eggs, Php	228.00	216.00	0.06
Feed consumed, kg	7.26	7.10	0.18
Cost of feed, Php	152.47	149.12	0.18
Total probiotics consumed, ml	-	2.85	-
Total probiotics cost, Php	-	7.125	-
IOFC, PhP	66.00	60.00	0.12

[1]Price for duck egg was Php 6.00 per piece
[2]Price for probiotics was Php 1,250 per liter
[3]Price for feeds was Php 21.00 per kg

Both total eggs produced and sale value of eggs tended (P< 0.06) to be lower from Itik Pinas with probiotics than those without. In effect, the IOFC was lower (P>0.05) for the former than the latter. The findings demonstrated a lack of economic benefits in providing drinking water with probiotics to the Itik Pinas. Low egg production compelled with the added cost of the probiotics were the primary factors for the lower IOFC when drinking water with probiotics was administered to the Itik Pinas. Thus, the Itik Pinas can be raised with plain drinking water in adequate quantity and quality for optimal productivity and egg quality.

CONCLUSION

The results of the study showed drinking water with probiotics used in the study does not elicit benefits in raising the Itik Pinas layers in terms of production performance. However;

- the probiotics increased the number of eggs under the extra-large category.
- the income over feed cost did not show the economic benefit of probiotic inclusion in the drinking water of Itik Pinas.

RECOMMENDATION

To further investigate the merits of probiotics in raising Itik Pinas, it is recommended that the trial be conducted for at least 12 weeks and that a system for administering the probiotics in drinking water without causing their fright and undue stresses be considered.

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THE MANAGEMENT PRACTICES OF LGU OPERATED ABATTOIRS IN THE BICOL REGION

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ABSTRACT

This study evaluated the management practices of LGU operated abattoirs in the Bicol Region. It described the: (1) level of compliance of LGU abattoirs in Bicol region with respect to standards on human resource, marketing, finance, and operation, (2) priority management areas for intervention; and, (3) recommendations for improvement. Structured survey questionnaire, interview and observation method were utilized to 161 abattoir operators and data obtained were analyzed using descriptive statistics. It resulted to management practices that do not fully comply with standards per R.A. 9296, E.O 137, PAES 2000:411 & local ordinances. Abattoirs in Iriga, Legazpi, Masbate and Tabaco partially comply by which performance evaluation and training are not conducted. Slaughtering equipment, other functional facilities such as drainage and lagoons are not complete and only cleaned after slaughtering, resulting in dirty, wet, and smelly floor. Facilities such as stainless containers, sterilizers, railings, rollers, meat hangers are also not complete resulting in unhygienic floor dressing. Marketing services are limited to registered meat vendors with no "bantay karne" program. Local ordinances strictly guide service price, revenue and disbursement. While abattoirs in Ligao, Naga and Sorsogon complies with their good manufacturing practices, sanitation programs, complete facilities, equipment, trained personnel and performance evaluation. The highest gap as priority area is the personnel evaluation & training. To improve, the personnel evaluation and requisition procedures, as well as programs for training, "bantay karne", and sanitation should be implemented with quality management monitoring program to locally operated abattoirs.

Keywords: Abattoir, Management Practices, Slaughterhouse Compliance

INTRODUCTION

Effective managers utilize quality management principles in all business (Camillar-Serrano, 2016). The level of trust is needed by management and staff to create best practices and quality programs based on particular standards. This helps produce a working system where operators focus on methods and approaches. Smith (2017) also expressed that performing organizations define common principles. It describes the best practices where continuous improvement in operational work processes results in a balanced system with good financial results. This also applies to local public enterprises as a wholly or partially owned and managed by local governments. They have the purpose to sell a product or service purposely to meet a perceived specific public demand, like in abattoir management (Comidoy, 2014). Abattoirs can be a local enterprises established to grant slaughtering services to animals for food consumption.

The abattoir facilities allow slaughtering procedures, including dressing, cutting, inspection, and preservation. The local government units (LGUs) in conformance to Republic Act (R.A.) 7160, known as the Local Government Code and Executive Order 137, supervise the physical construction of the abattoir facility, management, its administration. It also includes slaughterhouse, meat examination and inspection, meat distribution, and post abattoir control. To ensure safe animal products, the LGUs also monitor, evaluate, and collect fees and penalty charges based on the national standard and policies (Sec.10 DA-Administrative Order No. 28, 2005). This slaughterhouse is accredited by the National Meat Inspection Service (NMIS). It follows and implements provisions under the Republic Act 9296, otherwise known as the Meat Inspection Code of the Philippines. The accredited slaughterhouses in local government units classified as "AA" are those qualified for domestic trade. They are under the Code of Sanitation of the Philippines (P.D. 856) for waste management standards (NMIS, 2014).

Efficient and effective local public units can carry public slaughtering services at the local government level, substantially affecting human development outcomes and national growth (Brillantes & Sonco, 2013). They emphasized that prevailing economic enterprises all over the Philippines function at profit loss; revenue collection efficiency is low and is frequently subsidized by the local budget. These abattoirs were considered not sanitized, hygienic, crowded, fire hazards deteriorated, and poorly maintained.

The Abattoir's management should comply with the policies set to ensure continuous production and supply of quality meat. These are procedures set by the NMIS based on RA 9296, Executive Order 137, for local government with their ordinances and Philippine Agriculture Engineering Standard. According to strict hygiene and environmental standards, slaughterhouses can remove risk if function properly and produce meat products (Fitzgerald et. al (2017). The Department of Agrarian (DA) Secretary Proceso Alcala suggested that consumers purchase meat and meat products from LGU registered slaughterhouses. That is to avoid "hot" and "double dead" meat. Meat is considered as "hot meat" if slaughtered in an unaccepted facility. The consumer can buy meat and meat products from a registered meat store. It is best to look for meat and meat product examination certificates and inspection marks for its quality (Aquino and Abeleda, 2016). With the initial conditions of an abattoir operation, there is a need to study abattoirs' management practices to ensure safe meat production.

STATEMENT OF THE PROBLEM/ OBJECTIVES

As stated by Brillantes and Sonco (2013), management of local public enterprises like abattoir gives a significant effect on human development and the growth of the national economy. When public units effectively and efficiently deliver their available services such as animal slaughtering. However, some of these enterprises in the Philippines operate at low revenue collection, have no profit, and not subsidized by the local budget. These refer to slaughterhouses that are not sanitary and hygienic, congested, poorly maintained with no specific staff and lack personnel training. Hence, these slaughterhouses do not operate within the government's standards and procedures to deliver safe and hygienic meat products to consumers. With these, the study aimed to conduct a study on the areas of concern in the abattoirs.

Specifically, the study aimed to:

1. Evaluate the management practices of LGU operated abattoirs in the Bicol Region through their level of compliance of Local Government Unit abattoir to the standards set in R.A. 9296, E.O 137, PAES 2000:411, and local ordinances in the following :
   a. Human Resource Management,
   b. Marketing Management,
   c. Financial management, and
   d. Operation Management;
2. Identify priority management areas for intervention based on the findings of the study.

RESEARCH METHODOLOGY

The methods and procedures used and applied in the study cover a descriptive research design to evaluate management practices based on the set government standards. The respondents, with a total of 161, were interviewed using a structured questionnaire. The respondents who answered includes city veterinarians involved in the slaughterhouse operations. The head of abattoir operations, other NMIS officers or meat inspectors, butchers, maintenance officers, slaughterhouse collection officer, abattoir disbursement officer, holding area security officer, and also clerks as key respondents. The study applied total enumeration in all operators of Abattoir in the Bicol region. As per record, Naga City has the largest number of personnel in operation with 34 employees, followed by Sorsogon with 27 personnel, Legazpi City with 26 personnel, Iriga, Tabaco, and Masbate 19 personnel and Ligao City with 17 personnel in Ligao City.

The data gathering procedure was made through the distribution and collection of self-administered structured questionnaires to respondents in the seven local government units. The questionnaires was formulated based from respective provisions from the set government standards: RA 9296-National Meat Inspection Code of the Philippines, Executive Order 137 authorizing local government unit to manage & operate local public enterprises such as abattoirs, PAES 200:411 or the Philippine Agriculture Engineering Standards for slaughterhouse layout & design and local ordinances to support abattoir management. The researcher conducted an informal interview using a semi-structured guide questionnaire using the set government standards as basis to confirm and verify documented information and procedures in the abattoir management practices. The observation was done by actual site observation using a checklist to confirm the management system.

The statistical treatment used in the study includes a rating scale based on perceived practices along the four management areas using the Likert-rating scale. The weighted mean was to obtain the mean value on different variables on the four management practices. The t-statistics were used to test the difference in the level of perceived compliance with the standards. A single tail was used to test the significance among the variables with .05 percent margin of error with p-values.

FINDINGS

The researcher collected primary data from the respondents on the perceived level of management practices based from the set government standards. It is according to human resources management, marketing, finance, and operations management. The study also presents the management practices with a gap from standards as priority areas for intervention.

1. Level of Compliance

The result of the level of compliance based from set government shows that the weighted mean rating of seven abattoir in the Bicol region includes the abattoir in Ligao, Naga and Sorsogon City were in full compliance. While other city abattoirs were at moderate compliance. The total mean of the region is at 3.72 which implies a satisfactory compliance with the standards. T-test of significant difference where determined at 4.95 t-value which is greater than the t-critical value of 1.943 at 1-tailed hence it is significant. It further shows that financial management have the highest mean rating at 4.24, marketing at 3.96, operations management at 3.47 followed by the human resources at 3.17 as the lowest. Along the specific management practices, the following results were noted:

1.1 Human Resource Management. Across all city abattoirs the lowest mean rating is the human resource management against the set government standards which is moderately complied as shown in table 1. This correspond specifically to partially complied personnel assessment & evaluation at 1.93, 2.67 training & workshop mean rating, 3.97 employees rewards system and 4.12 selection & hiring based from RA 9296 where provisions requires butchers & abattoir operators to have training & performance evaluation. This is supported by E.O 137 and local ordinance on abattoir management. The LGU human resource office facilitates the hiring and selection with recommendations from Punong Barangay and the city mayor. The HR determines the personnel salaries based on the position and workload aligned in the approved budget allocation for salaries and wages, cash gifts, and bonuses in reference to Rule 11.4, Section 11, Chapter 10 of R.A. 9296. The HR office classifies personnel either as permanent or casual employees. Training and workshop programs moderately complied with the training requirement and its information based on Chapter 3, Section 8, Rule 5 of R.A. 92926 and E.O 137 Section 6. The NMIS certified all butchers after its procedures. In Ligao abattoir, mostly of the human resource standards were practiced, such as licenses for meat handles and inspectors. The personnel office of the local government does the procedure for all designated positions in abattoirs. However, in this Abattoir, butchers were personally selected, hired, and paid by authorized and registered meat vendors by the city. This leads to less cost of operation but with less loyalty and commitment to abattoir policies as attested. In this abattoir the personal head identifies personnel remunerations based on the personnel's position as either permanent or casual employees appropriated budget ordinance as reference. This implies that this abattoir needs to restructure its organization by including butchers in its salary budget appropriation to increase loyalty and commitment in the proper conduct of slaughtering as required by the standards.

Table 1. The Management Practices Weighted Mean of Abattoirs in Bicol Region, (2019)

Management Practices Indicators	Total Weighted Mean	Interpretation
Human Resource Management	**3.17 (4)**	**Moderately**
1.Selection & Hiring	4.12	Satisfactory
2.Training & Workshop Program	2.67	Moderately
3. Personnel Assessment & Evaluation	1.93	Partially
4.Employees Reward Program	3.97	Satisfactory

Marketing Management	**3.96 (2)**	**Satisfactory**
1.Price determination of abattoir servic e	4.84	Full compliance
2.Product Service Procedure	3.79	Satisfactory
3.Promotion of Service	2.95	Moderately
4.Place in relation to Marketing	4.30	Full compliance
Financial Management	**4.24 (1)**	**Full compliance**
1.Revenue Collection	4.45	Full compliance
2. Purchasing & Disbursement	3.30	Moderately
3.Measure of Profit	4.93	Full compliance
4.Proceeds of abattoir revenue	4.29	Full compliance
Operations Management	**3.47 (3)**	**Satisfactory**
1.Managing Quality	3.41	Satisfactory
2.Process and Capacity Design	3.43	Satisfactory
3. Location & Layout Strategy	3.86	Satisfactory
4.Maintenance & Scheduling	3.21	Moderately
Total	**3.72**	**SATISFACTO-RY**
T-statistics= 4.95 > t-critical = 1.943; (1-tailed)		**SIGNIFICANT**

Legend: 1.00-1.79 non-compliance 2.60-3.39 moderate compliance
4.20-5.00 full compliance 1.80-2.59 partial compliance
3.40-4.19 satisfactory compliance

Employment selection and hiring guidelines should consider qualification based on job-relatedness through an objective and accountable committee. This implies the abattoir selection and hiring needs to be strictly within the standards as cited on RA 9296 under hiring & qualifications of butchers & abattoir operators. Only one butcher passed and received the training certificate in NMIS for butchering in Masbate abattoir. At the same time, the rest of the personnel were in on-the-job training program since there was no training budget appropriated despite of training budget reflected on their ordinance. In Tabacco abattoir the butchers are not all certified by NMIS. Their meat inspector only trains them for slaughtering procedures. While in Naga City abattoir, the selection and hiring procedure were properly in placed with installed facilities as of prime importance with complete personnel training. The personnel evaluation of 34 employees is implemented. The personnel office conducts yearly personnel performance. The result is endorsed to the director of the abattoir operation head for records and references. With personnel evaluation, Cook (2017) revealed that in Kenya, the evaluation showed that half of the workers wore personal protective clothing, rubber shoes, and coat to avoid the zoonotic disease. Personnel evaluation should, therefore, include assessment of personnel training and the use of proper protective gear and equipment. Personnel evaluation should be regularly conducted to identify the practices that the personnel need to improve. NMIS (2014) explained that meat inspectors' qualifications include being a graduate of veterinary medicine and having a license. Some of the capabilities set are present in this Abattoir. This shows that qualified personnel were employed and performed by standards in Sorsogon abattoir. The veterinary office gives an annual re-training program for the butcher and new employees with job order classification in coordination with NMIS Regional office and city personnel office. He is having correct people with correct skills improved through training and monitoring programs.

1.2 Marketing Management. Level of compliance on marketing management against the set government standards resulted that under pricing of services it has 4.84 mean value, which means full compliance. The slaughtering service charges is based on Section 7, Executive Order 137, R.A. 9296, Chapters 5 and 11, local ordinance on ante-mortem, post-mortem, where specified. The slaughtering procedure has a mean value of 3.79, showing that most of the procedures comply with Chapter 4 of R.A. 9296 on the scope of meat inspection. The service from the weighing of animals for slaughtering to dispatching after the post-mortem examination follows though there were no stainless containers and sterilizers in the abattoir of Iriga, Masbate, Legazpi & Tabacco. The promotion of service is at 2.95 mean rating. Customers in different abattoir in the region were limited to registered meat vendors in the city market with limited implementation of "bantay karne" program. Ligao city police firmly implement the "Bantay Karne" program not to tolerate 'hot meat' and 'double dead' meat in the distribution market; however, the implementation is not very effective due to the absence of a patrol facility and other campaign materials. Costales (2013) mentioned that strong market links between the meat industry and its beneficiaries within the economy were necessary by identifying opportunities such as programs and facilities to increase income. Concerning service charges, Valenzuela (2012) pointed out that in the LGU in Bukidnon, the slaughtering services charge separately per head hog and cattle with ante-mortem and post-mortem fees. This is also true to all abattoir were prices on its services were separated from hog & cattle as specified on the approved ordinance. The slaughtering process is affected by the absence of complete functional slaughtering facilities for hog and cattle line due to none purchase of requested items despite of its enumeration on the requested plan items for purchase for the year. The lack of available drainage, lagoons, cattle, and hog line, inventory room makes butchering hard and less efficient as observed in Iriga abattoir. This shows that the slaughtering procedure requires useful facilities, machines, and equipment available for all abattoirs.

In Naga, Ligao and Sorsogon city abattoir, they practiced 'all-in and all-out' policy with separated complete mechanized facilities for hog and cattle. The promotion of service is full compliance with the information campaign. The transportation and post-abattoir control as abattoir clients were not limited to registered meat vendors from the city market but it covers other meat vendors from satellite market within the city. The "bantay karne" program effectively prevents the hot meat and double dead meat products from being distributed and sold in the market sites which fully complies the RA 9296, E.O 137 & local ordinance under the provision for marketing. These abattoirs registration of animals for slaughtering at a schedule time of from 12:00 midnight to 6:00 in the morning. There are separate holding pen for hog and cattle with sufficient cold-water supply. Stamping of inspected hog and cattle is also practiced to assure the quality of meat. Speakership invitation is accepted, but it only happens occasionally.

1.3 Financial Management. On financial management practices versus the set government standards the overall mean rating under revenue collection has a mean value of 4.45, which implies that almost all abattoir complies with fees, charges, and other penalties based on the local slaughtering ordinance. It also implies that ante-mortem, post-mortem fees, and other slaughtering charges is followed. This confirms that local public enterprises like abattoirs as also mandated on E.O. 137 and R.A. 9296 that it can generate more revenue while providing basic slaughtering services. The collection officer remits to the city treasurer and submits records and receipts filed monthly at the city veterinary office under the GMP officer's supervision. The daily "all in - all out" policy and its operational days of seven days a week are programs that increased the facility's profits. The local legislators monitor these activities through their accomplishment reports and other internal documents and records. Ayers (2014) added that revenue collection and disbursement in abattoirs under the local government promote transparency on records and promote abattoir services as the collected revenues are posted. Purchasing and disbursement is at mean rating of 3.30 which is moderately complied. This implies that abattoirs observe the local ordinances but has moderate compliance on requisition procedure and purchasing. Like in Tabacco and Iriga abattoir purchase requisitions were not granted due to lack of budget appropriation, realignment of budget with non-prioritization of items for purchase in slaughterhouse or non-reflection in the budget ordinance. Measures of profit is at 4.93 which fully complied as policy guidelines on developing livestock to promote animals' health are practiced in all abattoir. Their programs include daily opening with monitoring and animal services of the veterinary office, such as distributing vitamins, injection, and all-in and all-out policy which are all strategies for making more animals for slaughtering aside from promotion under marketing practices. These activities certainly help for the abattoir operators to have healthy carcass.

1.4 Operations Management. For operations management against the government standards, managing quality has a mean value of 3.41 which implies satisfactory in compliance. Specifically, this implies that in other abattoir in the region such as Iriga, Tabacco, Legazpi and Mabate have partial compliance with the policy, principles and objectives, standards and guidelines, the role of NMIC and regulations of LGU's in Sections 2 and 3 of Chapter 3; Section 3 of Chapter 3, Chapter 9; R.A. 9296, and Section 1c of E.O 137. The process and capacity design have an overall mean value of 4.43 which satisfactory complies with the standards on Chapter 8, Section 8, Rule 55 of R.A. 9296 and PAES 2000:411, Section 4, Rule 2 and Section 8. The lack of facilities affects the process of delivering services. Like in Iriga abattoir is with no available sterilization, carcass hanger, stainless containers, and personnel gear for maintenance officer which certainly affects the process & capacity design. The overall location and layout at 3.86 mean value which is satisfactory in compliance with with PAES 2000:411, Section 4.2 on "AA" classification of abattoir layout and design and E.O 137, Section 2 on standards. Almost all abattoir in the region have available lot space is for expansion with enough parking spaces except for Masbate abattoir.

Specifically in Tabacco abattoir, managing quality partially complies on policy and guidelines of the Philippines' meat inspection code. There are no posted quality policies, visions, and missions. There are also no information bulletin and inspection records that could update the personnel and relay the facility's current status. The building and the holding pen are only temporarily roofed with "mantaluna" which affects their capacity to deliver slaughtering service. As Cook (2017) explained, inadequate facilities and poor infrastructure result from a lack of investment in the industry. With the increasing demand for meat in Tabaco's city market, the Abattoir could add railing and rollers preventing floor dressing and meat contamination. The location and layout strategy has a mean value of 3.05, which moderately complies with the standards on PAES 2000:411, Section 4.2 on "AA" classification layout. The place has two lagoons at the back of the abattoir building that is clogged. The maintenance and schedule have a mean value of 2.40, which partially complies with the sanitation and waste standards. There are no GMP and sanitation manual in Tabaco abattoir which certainly implies poor quality of meat products.

The operation management of abattoirs in Naga, Sorsogon and Ligao City shows full compliance with the standards. The posted vision, mission, and quality objectives in the veterinary office, waiting area, and personnel office were aligned with the standards. The bulletin board contains the schedules of personnel on duty and the number of slaughtered animals, both hog and cattle, including ante-mortem and post-mortem results posted every month. The abattoir performance is seen in the filed accomplishment reports showing an increase in revenues in the abattoir director's office. The information includes consistent practices on ante-mortem and post-mortem examination and inspection, the inventory, and all facilities and equipment's status. The organization chart and other announcements such as suspension of employees due to absences, newly purchased items, and miscellaneous expenses for the current month is posted. Implementing their good manufacturing practices (GMP) manual resulted in full compliance with the standards on employee requirements, hygiene, facilities, and sanitation programs. It coincides with the GMP in Bangkok (Limlamthong et al., 2017). It presents practical guidelines for Abattoir to provide safe and quality meat products fit for consumption. The process and capacity design fully comply with Section 2 of the Philippine Agriculture Engineering Services 411:2000. The number of required major and auxiliary facilities and equipment as efficiently installed. The slaughtering process of butchers is efficient as confirmed by NMIS on their certification. In Legazpi, the location and layout mostly in compliance with PAES 2000:411 on layout and design for "AA" classification and E.O. 137, Section 2. The Abattoir is well-fenced but has limited parking areas and areas for expansion. It is distant from the residential area but is near Legazpi seashore with about 30 meters distance. This still complies with the distance and sanitation requirement from any river streams or any water body that can be contaminated. As pointed out by Taiichi Ohno of Toyota Motors on Njisane and Muchenje (2016), improving the production and service system can be achieved through location and layout support in the production flow.

2. Priority Areas of Management Practices Based on Standard.

The priority areas are those management practices that do not fully comply with the set standards. These areas need to be studied during the abattoir operations' planning phase to identify procedures, programs, policies, and activities for implementation in the next cycle.

1.1 Personnel Evaluation and Training. In human resource management with t-values that are greater than the t-critical values of 1.943 at one-tail with .05 margin of error, implying that all management practices under human resources significantly differ with the level of compliance particularly on the requirement of RA 9296 on personnel evaluation & training. With its p-value and mean differences, the personnel evaluation was significantly lower than the standard with (p-value = 0.09; MD = 3.05). It has the highest mean difference from the standard at the nearest level of significance at .01. This implies that personnel evaluation has the highest priority area needing intervention among human resource management since practices are non-compliant with the standards. This is due to the absence of evaluation forms and lack of enforcement from personnel officers to conduct annual personnel performance evaluations to abattoir operators in Iriga, Tabacco, Legazpi and Masbate. This is not reflected in the annual activity plan. And should be included in the planning, drafting, and implementation of evaluation procedures which the RA 9296 specifies that all abattoirs operators personnel performance should be measures as basis for promotion & identification of training needs. As FAO (2017) revealed, personnel evaluation could identify personnel performance, which needs to be in a continuous basis. On training and workshop with (p-value = 0.002; MD = 2.32) is high significantly lower than the standard requirement cited on RA 9296 that butchers need just to be licensed but undergoes training set by NMIS through LGU.

1.2 Service Promotion. The marketing practices with t-test values greater than the t-critical value of 1.943 imply that all practices, except for pricing of abattoir services, have significant difference to the level of compliance on abattoir management. The slaughtering service's promotion with its (p-value = 0.000; MD = 2.24) is strongly high significantly lower than the standard. This has the highest gap of the mean difference from the standard provided on the RA 9296 where NMIS implements the need to adapt "bantay karne" to all LGU abattoir to assure non existence of hot & double meat in the LGU market. This moderate gap shows that not all LGU abattoir has a strict implementation of "bantay karne" program. Some also do not have promotional campaigns. To comply with standards, abattoirs all promotional campaigns must be reflected in the yearly activities and funded, as reflected on the abattoir operation budget and as cited on the local ordinance for abattoir operation.

1.3 Purchasing & Disbursement. For financial practices, all indicators have t-values greater than the t-critical values of 1.943. This implies the mean values have a significant difference with the level of compliance on abattoir management. It shows that purchasing and disbursement has (p-value = 0.007; MD = 1.63). This implies high significantly lower than the standard and has the highest mean difference identified, showing a moderate gap and need for intervention. This is due to the absence of a requisition form and ineffective requisition procedure. The requisition procedure needs to be studied and reviewed to identify effective requisition processes and review quantity of purchases.

1.4 Maintenance & Scheduling. All t-values under the operation management practices have greater values than the t-critical value, which implies that all operational procedures significantly differ with management practices in LGU operated Abattoir. It shows that maintenance and scheduling on cleaning the abattoir facility have the highest mean difference from the standard with (p -value = 0.008; MD = 1.780), showing a moderate gap as its values are highly significantly lower than the standard; hence, intervention is needed. Some only adopt the 'after slaughtering cleaning policy' with incomplete cleaning materials. At the same time, some do not implement good manufacturing practices in relation to sanitation programs. Maintenance in abattoir is a priority area for intervention as mentioned also on studies made by NMIS (2016). There should be complete functional facilities evaluated in the planning phase and this should be included in the budget allocation.

CONCLUSIONS

The study concludes that:

1. That the Bicol Region abattoir practices with human resource management as in partial compliance with the set standard due to none practice of personnel assessment & evaluation in Iriga, Masbate, Tabacco and Legazpi abattoir while the rest implements personnel assessment evaluation however its results were does not considered in personnel promotion thus needs improvement. Training is moderately complied as per requirement based from RA 9296, that all butchers must be certified by NMIS but due to distance from NMIC region office as training provider training were not fully conducted in all abattoirs in the region. This is followed by operations management at with satisfactory compliance versus the set government standards as slaughterhouse layout & design are followed. The slaughtering process, managing quality were satisfactorily complied except maintenance & schedule of cleaning the abattoir facility since not all Bicol abattoir adheres to cleaning before and after slaughtering based RA 9296. Under marketing management, only Naga, Sosrsogon and Ligao, implements "bantay karne" program as per RA 9296, EO 137 and local ordinance on abattoir operation. Financial Management has the highest level of compliance as local ordinance on abattoir operation is highly observed especially on remittance of collection from service charges to local treasurer except on purchasing & disbursement where some abattoir does not prioritize the necessary items for purchase needed for operation. Thus presence of required facilities & its maintenance in slaughtering process is being compromise leading to poor quality of meat products.
2. The priority areas with a high to moderate compliance gap with the standards includes the personnel evaluation and training under human resource management due to absence of evaluation form & training program to Iriga, Masbate, Legazpi and Tabacco Abattoir. Promotion of services in marketing also moderate gap as only Naga, Sorsogon & Legao

abattoir implements “bantay Karne” as per RA 9296. Purchasing and disbursement under financial management identifies with moderate gap as items for purchase where not purchased due to realignment of funds hence, needed equipment such as hanger, cleaning materials & proper containers were not present. On operations management, the variable maintenance and its scheduling has moderate gap as not abattoir adhered to clean before & after slaughter, with incomplete cleaning facility & non implementation sanitation procedures. Thus, Bicol LGU operated abattoir with overall satisfactory level compliance and identified priority areas for improvement needs to have a monitoring program to assure & for continues improvement.

RECOMMENDATIONS

The study recommends the a quality management monitoring program for LGU abattoir management based from set government standards for implementation of abattoir operators, legislators, and executives. It is designed to identify the areas for continues improvement in all abattoir management. The monitoring program has its work instruction, objectives, standards, target output, time frame for implementation & persons in-charge. Specifically, this study recommends:

1. On the level of compliance the study needs to consider the following recommendation 1.1 Human resource management, the need of uniform personnel performance evaluation form with its strict implementation on abattoir management in the last quarter of the year. This should be under the local personnel office and be discussed in the planning phase to identify the skills required for improvement with the propose programs and activities. The training program needs to be implemented within the fiscal year. 1.2 Marketing management, the promotional program for LGU operated abattoirs should be uniform & fully focus on implementing & monitoring the "bantay karne" program of NMIS. 1.3 Financial management, device a uniform requisition form & its procedure which need to bring the requested items in the abattoir facility on time. 1.4 Operation management, all abattoirs need to implement their respective good manufacturing practices and sanitation program adhering to the maintenance standards.
2. With the adaption & implementation of management monitoring program the priority areas identified will be in complainant with government set standards & all management areas under continuous improvement. And this way the meat consumers in the region will enjoy quality meat products that is safe and not harmful to human health. Adhering to this quality management system on local abattoirs as public enterprise would help backyard swine raisers & sellers to be more aware on incidence of avoiding African Swine Fever (ASF) meat products that may penetrate the market without quality management implementation.

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EFFECTIVENESS OF 4PS SCHOLARSHIP TO THE SOCIO-ECONOMIC STATUS OF STUDENT BENEFICIARIES

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ABSTRACT

This study focused on the Effects of 4P's Scholarship to the socio-economic status of student beneficiaries of Pangasinan State University,Alaminos City Campus. The study made use of descriptive design with a total 69 students as respondents and from various courses who were purposively selected. Data were analyzed using descriptive statistics such as frequency counts, percentage and average weighted mean. Results of the study showed that most of the parents of the beneficiaries are engaged in farming, carpentry, fishing as well as housekeeping. Majority of them are a part of the low income earners group with a frequency of 57 or 82.60% and with three to five siblings or 53 or 79.71%. Moreover, due to the 4Ps Scholarship student beneficiaries are "motivated to study" , "drives them to go to school regularly", and "buy school supplies needed for projects." When students respondents were asked about their perception towards effectiveness of the scholarship, the indicator stating that "it eliminates child labor and dropouts" got the highest mean. Thus, this is considered as positive effect of the scholarship to the part of the beneficiaries. It is therefore recommended that the government should evaluate well the members of the program in order to give chance to poor but deserving students.

Keywords: 4P's Scholars,scholar ,deserving students, pantawid pamilya Pilipino, income

INTRODUCTION

The Pantawid Pamilyang Pilipino Program (4P's) of the National Government is a program which provides cash assistance to the poor. Its main objective is to improved their health ,nutrition and also education of children who are under the age of 0-18 years old. The program is known for it is patterned after the conditional cash transfer (CCT) schemes in Latin American and African countries, which have lifted millions of people around the world from poverty. [1]

Based on the Official Gazette of the Philippines , the program has been known for its dual objectives. The previous Aquino administration flagship is poverty alleviation hence, social assistance through distribution of monetary support to the extremely poor families and to respond to their immediate needs was highly implemented. Moreover , health check-ups for pregnant women and children aged 0 to 5; deworming of school children aged 6 to 14; enrollment of children in daycare, elementary, and secondary schools; and family development sessions were included in the program.[2]

In the country, the Department of Social Welfare and Development (DSWD) serves as the lead agency in identifying the 4P's beneficiaries . Together with the Department of Health (DOH), the Department of Education (DepEd), and the National Economic and Development Authority (NEDA) as partners. Households receive cash grants if children stay in school and get regular health check-ups, have their growth monitored, and receive vaccines (World Bank, 2017).[3]

The operation of the 4Ps are widely distributed nationwide in the Philippines. The beneficiaries are selected through the National Household Targeting System for Poverty Reduction (NHTS-PR), which identifies who and where the poor are in the country. The 4P's in the Philippines government help fulfill its commitment to the Millennium Development Goals (MDGs) specifically eradicating extreme poverty and hunger in achieving universal primary education. [4]

Albert (2015), stated that the poorest 20 percent of Filipinos own just less than 5 percent of the country's total income while the poorest 20 percent should own 20 percent of total national income in a perfectly equitable society.[5] Thus, the 4Ps has two types of cash grants that are given out to households-beneficiaries : health grant P500 per household every month or total of P6,000.00; P300 per child every month or a total of P3,000.00 every year (a household may register a maximum of three children for the program). For households with three children may receive P1,400 every month or a total of P15,000 every year for five years from the two types of cash grants given to them. These cash grants are distributed to the household beneficiaries through the Land Bank of the Philippines ATM -automatic teller machine . Meanwhile, 4Ps beneficiaries without cash card are scheduled for an offsite and over-the counter payment at a later date .[6]

In 2010, an Executive Order No. 867 Series of 2010, mandates to adopt a targeting system as the standard mechanism for identifying poor households who shall be potential recipients of social protection programs nationwide or listahan5 . Its main objective is to formulate a unified criteria for the identification of the poor through scientific means. The Department of Social Welfare and Development together with Department of the Interior and Local Government (DILG) and Local Government Unit (LGU) are the agencies that maintains the system and update its data every four years[7] .

The findings of this study would provide insights on the effectiveness of 4P's Scholarship to the socio-economic status of the student beneficiaries.

OBJECTIVES OF THE STUDY

This study sought to evaluate the effectiveness of the 4P's Scholarship to the life of the student beneficiaries of Pangasinan State University , Alaminos City . Specifically , this study sought to answer the following:

1. What is the socio-economic status of 4P's Scholars?
2. What are the effects of 4Ps Scholarship to the students schooling ?
3. What is the effect of 4Ps scholarship program to the beneficiaries ?

METHODOLOGY

This research utilized descriptive-comparative research design . According to Pagoso et.al [8] is one in which people or items is studied by collecting and analyzing data from only a part considered to be representative of the entire group.

A questionnaire using a Google form were purposively sent to the 69 (54 males and 15 females) student respondents of the study.

The instrument of this study contained sections of A and B. Section A contained the personal data of respondents, the occupation of their parents, their parents education, monthly income and number siblings of the respondents. While section B contained items on Effects of 4Ps Scholarship to the students schooling and part C are Effect of 4P's Scholarship to the lives of student beneficiaries. To ensure validity of the instrument, the questionnaire was validated by the experts during the proposal.

FINDINGS

Socio-economic Status of 4P's Scholars

Results showed that there were 69 (54 males ,15 females) students beneficiaries who answered the survey and most of them were males. Beneficiaries were mostly from Bachelor of Science in Business Administration (BSBA) with a frequency 27 or 39.1% , followed by the Bachelor of Elementary Education (BEED) with 26 or 37.7%. As to the occupation of their parents majority of them are sons and daughters of farmers with a frequency of 22 or 31.9%. Meanwhile, housekeeping, vending and manicuring were the common occupation of the mother of respondents. As to the number of student beneficiaries siblings majority of them are within three (3) to five (5) siblings or with a frequency of 55 or 79.71 %, and , it shows that majority are low income earners with a frequency of 57 or 82.60%.
.

Effects of 4Ps Scholarship to the students schooling

The effect of 4P's Scholarship to the student beneficiaries schooling , indicates that the parameter which states that "*I am motivated to study harder*" has the highest weighted mean which is 4.83 and descriptive equivalent of strongly agree. This is followed by the indicator " *It drives me to go school regularly*" with a mean of 4.54 . This result has been observed by the study of Flores (2019) to the Student beneficiaires of Calata National High School in Nueva Ecija.[7] Another indicator stating that "I was able to buy school supplies needed for my projects" has the highest weighted mean of 4.52 This only shows that there's a positive effect of 4P's scholarship to the students beneficiaries as manifested from their responses during the survey. In addition ,the indicator stating that "*I was able to buy wifi which saves me from going to computer shop*" got a weighted mean of 4.26 and that it really helps the beneficiaries from their studies.

Effect of 4Ps Scholarship Program to the beneficiaries

Student beneficiaries were also asked as to the effectiveness of 4P's Scholarship to them. Indicator stating that "*Eliminating child labor*" got the highest weighted mean of 4.93 with descriptive equivalent of "*agree*", followed by indicator "*Eliminating school dropouts*" with an average of 4.93. Respondents also agreed that through this program, elimination of dropouts were possible and that "*it improves learning of student beneficiaries*" with weighted mean of 4.84.

Accordingly, all indicators with regard to the Effects of the 4P's scholarship has an average weighted mean of 4.80 and descriptive evaluation of " Agree" this is congruent to the findings in the study of Tabilog et. al (2017) with regards to 4Ps is effectiveness to an extent level in education.[10]

CONCLUSION

The 4Ps Program Scholarship Program has helped the 4P's Beneficiaries. 1.) Most of their parents are engaged in farming, carpentry, fishing as well as housekeeping in which they are considered as a part of the low income earners. 2.) Most of the beneficiaries have more interest in school and more likely to attend their classes and they were able to buy some gadgets that they need in school , buy nutritious food, school supplies need in school and study harder for they are now capable of buying their needs. Respondents also believed that 3.) Elimination of child labor and dropout got the highest mean for the effects of 4P's Scholarship to the lives of student beneficiaries. This is also supported with the indicators that drives the students to study and strive harder.

RECOMMENDATION/S

Based on the findings and conclusions, the study recommends the following; 1.) Increase the number of student beneficiaries in the institutions 2.) Create a group exclusively for them in order to create a project which could be beneficial for all of them.3.) A designate office for the student beneficiaries for them to have a common gadgets like printer and office supplies.

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