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GROWTH AND SURVIVAL OF WHITE-LEG SHRIMP (*PENAEUS VANNAMEI*) IN FIBERGLASS TANKS AT DIFFERENT FEEDING SCHEMES

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ABSTRACT

This study was conducted to determine the growth and survival rate of white-leg shrimp Penaeus *vannamei* in fiberglass tanks using three feeding schemes: (1) standard feed rate (SFR); (2) minus 25% of SFR (SFR-25); and (3) plus 25% of SFR (SFR+25). Post Larvae PL13 of *P.vannamei* were stocked at a density of 206 shrimp m-^{3}, reared for two months and fed with 40% CP *vannamei* feed at a decreasing rate of 10-4% according to shrimps' body weight. Result showed that growth of shrimps under SFR-25 was slightly lower 1.6 g/week compared to 1.9 g/week in shrimps under SFR and SFR+25. Survival in SFR-25 was higher 92.5% compared to 85 and 53% in SFR and SFR+25. Final average body weight of shrimps after two months of culture were 10.9 g for SFR-25 and 12.4 g for SFR and SFR+25. The present study concluded that there was no significant difference on the growth of *P. vannamei* under the three feeding schemes, however significant difference was found in terms of survival. Moreover, *P. vannamei* attained marketable sizes of 10.9 g to 12.4 g in fiberglass tanks after two months of culture. Based on the present findings, this study recommends feeding schemes of SFR and SFR-25 for better growth, survival, and less production costs for the culture of *P.vannamei* in fiberglass tanks.

Keywords: white-leg shrimp, fiberglass tank, feeding scheme, growth and survival, production cost

INTRODUCTION

The shrimp aquaculture sector represents one of the most lucrative global seafood industry (Tacon et al. 2013). White-leg shrimp *Penaeus vannamei* native of Central American Waters, is the most important aquaculture shrimp species in the world (Carvalho and Nunes, 2006). The industry boomed rapidly in Southeast Asian countries like the Philippines, Vietnam, Thailand, Indonesia, and Myanmar (Muegue et al.,2015).

In the Philippines, shrimp aquaculture is one of the promising industry. The country's production reached its peak of 91 metric tons in 1994 but abruptly dropped to less than 50 metric tons in 1997 due to environmental degradation and problems with diseases (Muegue et al., 2015), and because of the decline, shrimp production has not fully recovered and remained low. Culture of *P. vannamei* was perceived as the way to revive the local shrimp industry (Muegue et al., 2015).

Production of *P.vannamei* has been undertaken in brackish water and fresh water ponds, tanks or in raceways. Shrimp farmers employed different culture systems with varying results (Carvajal-Valdes et al., 2012). Most grow-out of *P. vannamei* has been carried out in ponds, while information on its grow-out in tanks is limited (Peixoto et al.,2012; Ortega-Salas and Rendon, 2013; Simao et al., 2013; Cadiz et al., 2016; Sakas, 2016).

Under culture condition, growth and survival of *P. vannamei* is affected by feeding, stocking density, culture system, biosecurity, and water quality (Darwin et al., 2017). In semi-intensive and intensive shrimp farming feeding is the most important because it determines the success of production (Poh, 2014). Since feeds represent 40-60% of the total production costs (Tacon et al., 2013; Poh, 2014; Ha van 2016); and excessive feeding can reduce yields due to deterioration of water quality and pond bottom (Balakrishnan et al., 2011; Poh, 2014; Ha van, 2016), a feeding scheme or feed management is equally important to the culture of shrimp (Cuéllar-Anjel et al.,2010; Tacon et al., 2013; Poh, 2014).

It is on the foregoing literatures that motivated the researcher to conduct the present study to find out the growth and survival rate of white-leg shrimp *P. vannamei* cultured in fiberglass tanks with the application of different feeding schemes. Furthermore, this study sought to find out if *P.vannamei* can attain marketable size after two months of culture in fiberglass tanks.

STATEMENT OF THE PROBLEM/ OBJECTIVES

White-leg shrimp *P. vannamei* were cultured in fiberglass tanks for two months and subjected under the different feeding schemes such as standard feed rate (SFR), minus 25% of standard feed rate (SFR-25), and plus 25% of standard feed rate (SFR+25) to determine the production performance of the shrimps. The Specific objectives of the study were the following:

1. measure the level of salinity, temperature, transparency, and water depth in fiberglass tanks where culture of *P.vannamei* was undertaken;
2. determine the growth rate, average body weight, and survival rate of *P.vannamei* in fiberglass tanks under the feeding schemes of SFR, SFR-25, and SFR+25;
3. determine the economics of *P. vannamei* in the feeding schemes of SFR, SFR-25, and SFR+25

METHODOLOGY

This study was conducted in a Community-Based Multi-Species Hatchery (9°50’07.53’’ N 124°31’52.74’’ E) of Bohol Island State University (BISU) at Cogtong, Candijay, Bohol, Philippines (Fig.1).

Nine 525-L circular fiberglass tanks (0.96 m diameter by 0.76 m height) were used for the grow-out of *P. vannamei*. Each tank was cleaned, chlorinated, and dried for one week. Water was pumped by 1.5 hp centrifugal pump from a river during high tides and filtered by 5 micron filter bag prior to its storage to the reservoir tank. Experimental tanks were then initially filled with brackish water up to 50 cm depth and fertilized with urea (46-0-0) and ammonium phosphate (16-20-0) at 20 and 10 ppm to grow planktons (Gapasin and Marte, 1990). Water in tanks were increased up to 60 cm depth when water color became greenish.

P. vannamei fry were purchased from Marcela’s Frontier Resources Incorporated (MFRI) at Lomanoy, Lila, Bohol, Philippines seven days from fertilizer application. Fry were counted and acclimatized for 20 minutes before stocking at a density of 108 pcs/tank equivalent to 206 pcs. m^{-3}. Moderate aeration was maintained in each tank when the fry were still small; aeration was then increased as the shrimp grew bigger.

P. vannamei feed (Vanalis, Cebu) containing 40% Crude Protein, 5% crude fat, 13% crude ash, 3% crude fiber, and 11% moisture was fed to the newly stocked fry 5 hours after stocking. The feeds were pulverized so that the fry could easily ingest the feeds. Blind feeding or ad libitum (Poh, 2014) was applied for the first two weeks of culture. Feed was given four times a day at 7 am, 11 am, 3 pm, and 7 pm where the amount of feed was 3-5 g per feeding per tank.

The feeding schemes (SFR, SFR-25, SFR+25) were randomly assigned into experimental tanks after sampling when the shrimp’s initial average body weight (ABW) was determined. Sampling was done after two weeks of culture and weekly thereafter by scooping out 20 shrimps per tank using a scoop net, deposited in a plastic bowl with water, and weighed in a digital weighing scale. Shrimps were returned immediately in designated tank after weighing. The standard feed rate of 10-4% given in the feed guide of Vanalis Feed was applied in each feeding scheme. Amount of feeding was computed and adjusted weekly based on stocking density, survival rate, ABW, and feed rate. Since determination of survival rate is difficult during the culture period, an assumption of 10% mortality for the first two weeks plus 2.5% mortality in succeeding weeks was used. Survival of 75% was expected after two months of culture.

Grow-out management of *P. vannamei* includes daily monitoring of water parameters (e.g. salinity, temperature, depth, and transparency), tank siphoning, and water change. Salinity, temperature, and transparency were monitored using Atago refractometer, mercury thermometer, meter stick, and secchi disc. Tank siphoning was done after 10 days from stocking of shrimp and 3 days interval thereafter using a siphon material made from ¾ inch. diameter PVC pipe of 1 meter long; driven into the tank bottom to siphon out uneaten feeds and shrimp’ feces. Water change was done every three days by draining 30-40% of water in each tank and then refilled immediately.

After two months of culture, the shrimps were harvested by draining the tanks. The shrimp were scooped out and placed in a basin followed by counting and weighing to get the shrimp' growth, survival, and biomass.

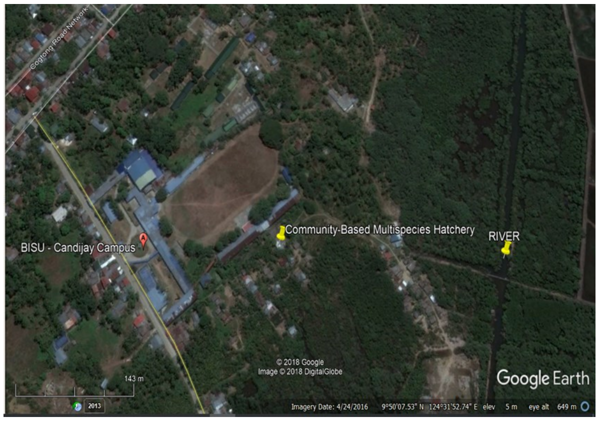

Fig. 1. Location map of Bohol Island State University-Candijay Campus showing the study site (Community-Based Multi-Species Hatchery)

Statistical Tools and Analysis

Data on growth and survival of *P. vannamei* were analyzed by one way ANOVA. Significant differences on growth and survival among treatments were further analyzed by pairwise comparison using Post hoc analysis and Tukey's test.

FINDINGS

Water Quality

Water quality parameters were presented in table 1. Mean temperature and salinity were 31.5 °C and 25.5 ppt respectively. Water depth ranged from 60-69 cm with tanks in treatment 2 had the lowest depth (60 cm) and tanks in treatment 1 the deepest (66 cm). Mean transparency across treatments was 30 cm but SFR+25 got the lowest transparency of 17 cm. No data on dissolved oxygen and pH because DO meter and pH meter were out of service during the experiment.

Table. 1. Water quality parameters in fiberglass tanks during the culture of *P. vannamei*

Variables	Treatment 1 (SFR)			Treatment 2 (SFR-25)			Treatment 3 (SFR+25)		
	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.
Temperature (°C)	31.2	29.3	33.7	31.6	29.9	33.4	31.7	29.6	33.8
Salinity (ppt)	25	21	30	25.5	21	31	26	21	30
Transparency (cm)	32.1	20	50	28.5	20	45	29.4	17	50
Water depth (cm)	66	63	69	61.3	60	62	64.3	60	67

Growth and Survival

Mean growth per week of *P. vannamei* during two months of culture ranged from 1.6 to 1.9 g. Weekly average body weight (ABW) were presented in Fig.2. After two months of culture, final ABW of *P. vannamei* ranged from 10.9 to 12.4 g. Treatment 2 obtained the highest survival of 92.5% followed by treatment 1 (85%) and treatment 3 (53%) (Fig.3).

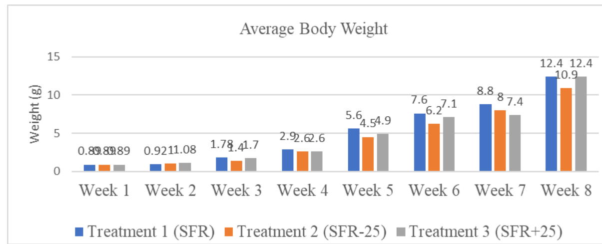

Fig. 2. Weekly average body weight of *P. vannamei* in fiberglass tanks during the culture period

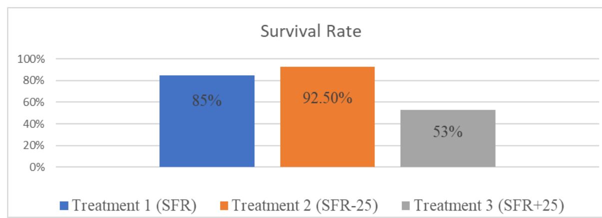

Fig. 3. Survival of *P. vannamei* after two months of culture in fiberglass tanks

Table 2a. Production costs of *P. vannamei* cultured in fiberglass tanks at different feeding schemes

Variable Costs	Treatment 1 (SFR)	Treatment 2 (SFR-25)	Treatment 3 (SFR+25)
Shrimp PL (P)	90.72	90.72	90.72
Feeds (P)	171.9	116.9	192.5
Electricity (P)	300.00	300.00	300.00
Total Variable Cost (P)	562.62	507.62	583.22

Table 2b. Return and Profitability of P. vannamei cultured in fiberglass tanks at different feeding schemes

Variable Costs	Treatment 1 (SFR)	Treatment 2 (SFR-25)	Treatment 3 (SFR+25)
Price of Shrimp (P)	220.00	220.00	220.00
Shrimp Biomass (kg)	3.5	4.1	2.1
Gross Sale (P)	770.00	902.00	462.00
Net Income (P)	207.38	394.4	-121.2
FCR	0.7	1.4	13
Payback Period (Yr)	2.7	1.3	-
ROI (%)	36.8	77.7	-20.8

DISCUSSION

Good water quality is characterized by adequate dissolved oxygen (DO), temperature, hydrogen ion (pH) and salinity (Balakrishnan et al.

2011). DO and pH are the most influential parameters on growth and survival of shrimp (Sakas, 2016). Growth was negatively associated with salinity and pH, and positively associated with alkalinity and DO. Survival was positively associated with alkalinity and pH, and negatively with ammonia. Growth was the sole dependent variable associated with salinity (Sakas, 2016).

Temperature is an important factor that influence growth rates of shrimp (Silva et al., 2015, Valenzuela-Madrigal et al. 2017). Suriya et al., (2016) found an optimum temperature of 25-27ºC and salinity of 15-25 ppt for the culture of *P. vannamei*, slightly lower than the result of the present study. According to Darwin et al., (2017) shrimp grows best at temperatures of 24-32 ºC and salinity of 10-35 ppt, the present study was within this range. Based on the Indian Council for Agricultural Research (ICAR), the optimum transparency for shrimp culture is from 25-35 cm. The present study fell within the optimum range.

Shrimps' growths were monitored weekly from 3rd to 8th weeks of culture and found that growths were higher across treatments from 5th to 6th weeks (2 g), slowed down at 7th week (1 g), and escalated at 8th week (3 g) (Fig.2). Shrimp's decreased growth in 7th week was associated to oxygen depletion when aeration was stopped due to blower failure. Oxygen depletion caused stress and shrimps died mostly in tanks under treatment 1 and treatment 3. It was noted that excess feed in such tanks contributed to oxygen depletion and shrimps died when aeration stopped even at short time.

Growth of *P. vannamei* ranged from 1.6 to 1.9 g/week, the highest growth were obtained in SFR and SFR+25 respectively. Carvajal-valdez et al., (2012) on the optimization of feed for pacific white shrimp obtained a growth of 0.60 to 0.81 g/week lower than the result of the present study. Higher growth rate of 2.65 to 3.05 g obtained by Aalimahmoudi et al., (2016) on the effects of feeding frequency on growth, feed conversion ratio, survival rate, and water quality of white leg shrimp L. vannamei was not confirmed in the present study. Similar results of the present study were found in the following studies: Roy et al., (2012) use 50%, 100% and 110% feed rate and found no significant difference in final weight and weight gain of *P. vannamei*. Ha Van, (2016) using 10% reduction of the standard feed rate, standard feed rate, and 10% increase in the standard feed rate, also found no significant difference in growth, survival, FCR, and partial returns among the feeding schemes. Braga et al., (2016) on the effects of commercial feed formulated for semi-intensive system on *L. vannamei* production and its profitability on hyper-intensive biofloc dominated system found a weekly growth of 1.76 to 2.03 g.

Shrimps were slightly bigger in SFR and SFR+25. ABW of 10.9 g in SFR-25 and 12.4 g in SFR and SFR+25 (Fig.2) indicated that *P. vannamei* attained marketable sizes in fiberglass tanks after two months culture period. However, excess feeds found in tanks under SFR and SFR+25 speed up deterioration of water as confirmed during bottom siphoning. This finding could be interpreted that standard feed rate (SFR) by feed manufacturer is overfeeding (Poh, 2014). Thus, to avoid overfeeding and to save feed cost, the present study has recommended the use of SFR-25 in *P. vannamei* cultured in fiberglass tanks.

Shrimps exposed to feeding schemes of SFR and SFR-25 were more economically profitable with net income of 207.38 and 394.40 respectively. These feeding schemes also attained a good return of investment (ROI) and payback period (PP) of 36.8% and 2.7 for SFR, and 77.7% and 1.3 for SFR-25. In this study however, treatment with SFR+25 was losing as reflected in Table 2b with negative net income and ROI. This negative result in the economic aspect using SFR+25 as feeding scheme of cultured *P.vannamei* in fiberglass tanks was due to mortality being encountered by the shrimps when there were occasional power failures during the course of the experiment. A follow up study must be undertaken to confirm that using a feeding scheme of SFR+25 in the culture of *P.vannamei* in fiberglass tanks is not economically feasible.

CONCLUSION

This study concluded that there was no significant difference on the growth and survival of *P. vannamei* cultured in fiberglass tanks at different feeding schemes. However, in terms of survival there was significant difference as shrimp under SFR+25 got the lowest one. Moreover, white-leg shrimp (*Penaeus vannamei*) can grow to marketable size (10.9 to 12.4 g) in a 0.525 cu.m fiberglass tanks after two months of culture using a stocking density of 205.7 shrimp/m^3. Moreover, better growth and higher survival of *P. vannamei* was attained in feeding schemes using both the standard feed rate (SFR) and minus 25% of standard feed rate (SFR-25%).

RECOMMENDATION

Based on the findings of the study, the researcher has come up with the following recommendations:

1. A follow up study must be conducted by extending the length of culture period to four months.

2. Dissolved oxygen (DO) and pH must be monitored to determine their effect to the condition of *P. vannamei*.

3. Adaption of feeding schemes either SFR or SFR-25% in *P. vannamei* farming to save cost in feeding and minimize feed wastage.

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REFERENCES

Aalimahmoudi, M.; Reyshahri, A.; Salehipour Bavarsad, S.; Maniat, M. 2016. Effects of feeding frequency on growth, feed conversion ratio, survival rate and water quality of white-leg shrimp (*Pinaeus vannamei*, Boone, 1931). Int. J. of Fish and Aquatic Studies, 4(3): 293-297.

Balakrishnan, G.; Pevail, S.; Ramachandran, K.; Theivasigamani, A.; Savji, K. A.; Chokkaiah, M.; Nataraj, P. 2011. Growth of cultured white-leg shrimp *P. vannamei* in different stocking density. Advances in Applied Science Research, 2(3):107-113.

Braga, A.; Magalhaes, V.; Hanson, T.; Morris, T.C.; Samocha, T.M. 2016. The effects of feeding commercial feed formulated for semi-intensive systems on L. vannamei production and its profitability in a hyper-intensive biofloc-dominated system. Aquaculture Reports, 3:172-177.

Cadiz, R.E.; M.T. Rex Ferdinand; C.S. Roman; S.A. Karen Grace; Corre, V.L. 2016. Comparative efficacies of tilapia green water and biofloc technology (BFT) in suppressing population growth of green vibrios and *Vibrio parahaemolyticus* in the intensive tank culture of *Penaeus vannamei*. 9:195-203.

Carvajal-Valdez, R.; Arjona, E.; Bueno, G. 2012. Feeding rate and stocking density in semi-intensive *Litopenaeus vannamei* culture with moderate periodic fertilization. ARPN Journal of Agricultural and Biological Science, Vol.7. pp. 899-904.

Carvalho, EA, Nunes A.J.P. Effects of feeding frequency on feed leaching loss and grow out patterns of the white shrimp (*Litopenaeus vannamei*) fed under a diurnal feeding regime in pond enclosures. Aquaculture. 2006 252:494-502.

Cuellar-Anjel, J.; C. Lara; V. Morales; A. De Gracia and Soares, O.G. 2010. Manual of best management practices for white shrimp *Penaeus vannamei* farming.

Darwin, C.H.; Suneetha, K.; Kavitha, K.; Govinda Rao, V. 2017. Water quality assessment of Pacific white shrimp *Litopenaeus vannamei* in semi-intensive culture systems at villages of Prakasam District, Andra Pradesh, India. Int. J. of Advanced Science and Research, 2 (4):123-129.

Gapasin, R.S.J. and Marte, C.L. 1990. Milkfish hatchery operation. Aquaculture Extension Manual No. 17 May 1990.

Ha Van, T.P.T. 2016. Optimization of feed management for Pacific white shrimp (*Litopenaeus vannamei*). Master's Thesis, Auburn University.

Muegue, M.F.S.; Caipang, C.M.A.; Geduspan, J.S. 2015. Current status of shrimp aquaculture in the Philippines. Research Signpost, pp. 1-17.

Ortega-Salas, A.A. and Rendon, L.A. 2013. Hyper-intensive farming of white shrimp *Litopenaeus vannamei* in a freshwater tank under semi-controlled conditions. Research Journal of the Costa Rican Distance Education University, 5(1): 63-68.

Peixoto, S. ; E. Silva; C.B. Costa; R.C. Nery; F. Rodriguez; J.F. Silva; R. Bezerra and Soares, R. 2017. Effect of feeding frequency on growth and enzymatic activity of *Litopenaeus vannamei* during nursery phase in biofloc system. 24:579-585.

Poh, Y.T. 2014. Feed management improves profit in shrimp farming. Global Aquaculture Alliance. Pp. 26-28.

Roy, L.A.; Davis, D.A.; Whitis, G.N. 2012. Effect of feeding rate and pond primary productivity on growth of *Litopenaeus vannamei* reared in inland saline waters of West Alabama. North American Journal of Aquaculture, 74: (1)20-26.

Sakas, A. 2016. Evaluation of White-leg Shrimp (*Litopenaeus vannamei*) Growth and Survival in Three Salinities under RAS Conditions. Master's Thesis, University of Michigan.

Silva, E.; Silva, J.; Ferreira, F.; Soares, M.; Soares, R.; Peixito, S. 2015. Influence of stocking density on the zootechnical performance of *Litopenaeus vannamei* during nursery phase in a biofloc system. Bol. Inst. Pesca. 41: 777-783.

Simao, B.R.; Brito, L.O.; Maia, A.S.C.; Miranda, L.C.; Cecelina Maria da Silvera Borges Azavedo. 2013. Stocking densities and feeding strategies in shrimp and tilapia polyculture in tanks. Pesq. Agropec. bras., Brasillia, 48: 1088-1095.

Suriya, M.; Shanmugasundaram, S.; Mayayu, P. 2016. Stocking density, survival rate and growth performance of ***Litopenaeus vannamei*** in different cultured shrimp farm. Int. J. Curr. Res. Biol. Med., (5): 26-32.

Tacon, A.G.J.; Jory, D.; Nunes, A. 2013. Shrimp feed management: Issues and perspectives. In Hasan, M.R. and M.B. New Eds. On-farm feeding and feed management in aquaculture. FAO Fisheries and Aquaculture Technical Paper No. 583. Rome, FAO. Pp. 481-488.

Valenzuela-Madrigal, I.E.; Valenzuela-Quinones, W.; Esparza-Leal, H.M.; Rodriguez-Quiroz, G.; Aragon-Noriega, A. 2017. Effects of ionic composition on growth and survival of white shrimp *Litopenaeus vannamei* culture at low-salinity well water.

LEADERSHIP SKILLS AND PERFORMANCE OF SECONDARY SCHOOL MANAGERS IN ISABELA

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ABSTRACT

This descriptive-correlational study primarily aimed to determine the leadership skills of the 33 purposively selected secondary school managers in Isabela. The leadership skills instrument was adopted from leadership, theory and practice by Northouse (2015). Frequency counts, percentage, mean and Pearson-r correlation were used in treating the gathered data. The following conclusions were derived: 1) most of the school managers are serving pioneered and senior managers and attained the highest possible educational qualification; 2) the secondary school managers rated all six statements under administrative and conceptual skills to be very true; 3) the level of leadership performance of the secondary school managers based on the result of their School-Based Management (SBM) is under maturing; 4) the school managers' age profile has no significant relationship in their administrative and interpersonal skills; the highest educational attainment of the school managers has no significant relationship with their leadership skills; and the number of years as school managers has a direct relationship with their administrative, interpersonal, and conceptual skills; and 5) the leadership performance of the secondary school teachers has no significant relationship in any of the statements related to their administrative and interpersonal skills while the statement "effective in problem solving" under the conceptual skills of the secondary school managers has a significant and positive relationship with their leadership performance. The study recommends that school managers should maintain their best administrative and conceptual skills, find other ways to improve their interpersonal skills towards the attainment of their organization's objectives, and continue working on the areas which need more output for continuous improvement of the schools' performance through the School-Based Management (SBM).

Keywords: leadership skills; administrative, conceptual, and interpersonal skills; leadership performance; school-based management; school managers

INTRODUCTION

The advanced world is continually changing and presents new difficulties and challenges to people entering proficient and grown-up life. As the world continues to change and becomes increasingly complex, the need for leaders will increase. Numerous researchers perceive that leadership skills are an essential device for tackling issues in every aspect of society. Leadership is presently not accepted to be an inherent quality, but instead something that can be instructed and learned. Ideas about what leadership is and what it means to be a leader have changed over the course of human history. In ancient times, when early humans relied on hunting and gathering for survival, dominant, aggressive male leaders were desired for their strength and ability to protect (Jensen, 2017).

Leadership is an idea tended to with regards to measure, impact, crowd and reason. As such, a designated obligation requires influencing and being influenced corresponding to the way that the individuals from the gathering arrive at this objective (Northouse, 2010). In accordance with the shared goals, leadership is defined as motivating a group and creating an effect on others (Yukl, 2010). Leadership qualifications in institutions should have addressed at the level of personal and interpersonal relationships. It is stated that it is necessary to focus on increasing personal and interpersonal competencies for effective leadership. It is feasible to say that these capabilities are comparable for the advanced education youth. School leaders should possess leadership knowledge, group skills, problem-solving and decision-making skills, motivation, self-confidence, personal and social responsibility, interpersonal relationships, teamwork, directing others and communication skills (Cansoy, 2017).

Leadership skills have played an important role throughout history. In fact, the quest today is for leaders who can effectively coordinate efforts to meet the challenges of a fast-changing world. Effective teachers assist associations with fostering a dream and prepare the association change towards the vision. Leadership skills are uncommon capacities moved by a leader to lead and direct his/her workers toward the accomplishment of association's objectives (MTD Preparing, 2010).Skills are considered as special capabilities to perform the job. They are considered instruments utilized by the leader in implementing and executing their obligations and responsibilities to lead and empower employees. Without these skills, a leader might fail (Abun et al., 2018).

Leadership skills of school managers have great impacts to the performance of their respective institutions. According to Magulod (2017), school leaders and managers play a vital role in the development of schools by having the idea that good schools are associated with strong instructional management, clear learning expectations, and effective leadership. Through this, the mission of the school is achieved.

From the aforementioned ideas and information, this study was conceptualized to find out the leadership skills and performance of secondary school managers in Isabela. Findings of the study will be utilized to strengthen school heads' development program through enhancing the work environment and organizational performance of the teachers to attain high level of performance through the utilization of its resources and by managing the school organization, operation and resources in a way that promotes a safe, efficient and effective learning environment.

STATEMENT OF THE PROBLEM

Generally, the study aimed to find out the leadership skills and performance of secondary school managers in Isabela.

Specifically, it sought to find answers to the following questions:

1. What is the profile of the secondary school managers in Isabela based on the following:
   a. age;
   b. highest educational attainment; and
   c. number of years as school head?
2. What is the level of leadership skills of the secondary school managers in Isabela based on the following dimensions:
   a. administrative;
   b. interpersonal; and
   c. conceptual?
3. What is the leadership performance of the secondary school managers based on their school-based management rating (SBM)?
4. What is the relationship between the profile of the secondary school managers in Isabela and their leadership skills?
5. What is the relationship between the secondary school managers' leadership skills and their performance based from the result of the school-based management (SBM)?

RELATED LITERATURE

The modern, rapidly changing world demands quality leadership and school leaders should develop leadership skills. The customary belief that leadership is a natural trademark characteristic that solitary a few group have has changed and been supplanted with a conviction that anybody can learn and work on their ability to lead (Jensen, 2017). Higher education establishments all throughout the planet, perceiving the significance of authority abilities, have made it some portion of their instructive mission to furnish understudies with administration encounters. Also, in basic learning institution, a good leadership must be observed and incorporated in the school system. Hence, an effective school head ensures that their schools allow learners to put learning at the center of their daily activities and accomplishments.

Chowdhury (2014), defined leadership as the process whereby one individual influences others to willingly and enthusiastically direct their efforts and abilities towards attaining defined group or organizational goals. Leadership as a unique interaction whereby one man impacts other to contribute deliberately to the acknowledgment and fulfillment of the objectives, destinations, yearning of upsides of the gathering that is addressing the embodiment of initiative is to help a gathering or an association to achieve economical turn of events and development.

Leadership can have many interpretations; most important is the ability and skill to inspire confidence, support and motivate the people who are needed to achieve the organizational goals. A leader assumes various roles like a mentor, coach, nonentity, representative, moderator, group developer, cooperative person, specialized issue solver, business visionary and vital organizer (Dubrin, 2010). Another significant factor is enthusiastic insight; pioneers that come up short on this basic trademark can neglect to accomplish their maximum capacity notwithstanding their high intellectual knowledge (Dubrin, 2010).

Leaders and leadership abilities assume a significant part in the development of any association. Leaders can impact the conduct of individuals in a way that they endeavor eagerly and energetically towards the accomplishment of gathering goals. A leader ought to can keep up with great relational relations with the adherents or subordinates and rouse them to help in accomplishing the organizational goals.

Balkar and Sahin (2015), examined the extent to which leadership skills of high school principals predicted their knowledge management process competencies. They also examine the associations between school heads' leadership skills and their knowledge management competencies. The outcomes proposed that there is a measurably huge connection between school heads' knowledge management capabilities and their leadership abilities and that the school heads leadership abilities are an indicator of their knowledge management process competencies. The outcomes underscored the appropriateness of information the board at schools according to a social viewpoint and point out that leaders of the school head is a facilitator factor to do information the leaders' measures at schools.

Moreover, Sebastian (2019), studied on school leadership highlighting the importance of principals' organizational management skills and their importance in relation to instructional leadership skills. Findings showed that there is a limited empirical study that directly compares the leadership skills and the importance of the school's outcomes. In his study, he used the school heads'' self-ratings to construct typologies of effectiveness in both domains and compare their associations to students' achievement and performance. Results showed that school heads view themselves as either strong or weak on instructional leadership and organizational management skills. Also, it was found that learning gains vary significantly across the school heads' profiles.

Values play an important role in individual's life as well as among employees in the organization. Values are related to the human needs and desire towards any situation that happen in their life. The concepts and beliefs of values affect emotions and attitudes, any situation and guiding the selection and assessment of human behavior (Ali & Panatik, 2013).

Work values are the mindfulness, full of feeling wants, singular necessities or needs of individuals which guide their attitudes (Pandey and Sharma, 2012) towards work. It makes a bunch of objectives that an individual looked for from a climate which assumes an essential part in one's expert development and profession improvement (Liu and Lei, 2012). It is the palatable results that people hope to accomplish or ought to be achieved through their commitment, inclusion and dynamic support in work exercises. It also drives the motivation of people to pursue certain task and contribute to the achievement of vision and mission of an organization (Aguado et al., 2017).

According to the study of Ali and Panatik (2013), in organizational context, work values play an important role to enhance work attitudes and performance. There were two types of work values in an association and organization, which are intrinsic and extrinsic values. Both of these work values influenced work attitude, such as job satisfaction and job involvement. It revealed in their study that, there is a positive correlation between work values and the work-related attitude among employees in organization. Organization and personnel should be aware of the significance of work values and promote the social support from school heads and colleagues in order to increase work values and work behavior among personnel's at workplace.

Also Liao et al. (2012), studied the relations among work values, work attitude including job involvement and organizational commitment and job performance, and explore how the director's leadership may be a moderator between the work values and work attitude. They found out that there is a positive correlation between work values and job attitude (including job involvement and organizational commitment). An intervened impact was displayed in work mentality and occupation contribution toward work worth and occupation execution. Directors with a steady and mandate administration style moderately affected the relations between work esteems and work disposition (counting position association and authoritative responsibility).

METHODOLOGY

The descriptive-correlational method of research was utilized to determine the leadership skills and work values of the 33 secondary school managers in Isabela. The respondents were chosen using purposive sampling. This is a representation taken at 95% confidence level at 5% percent margin of error. The number of the respondents were computed using Research Advisor, a computer program designed to compute number sample respondents based on the total population of respondents.

The Instrument of the Study

Survey questionnaire on leadership skills was adopted from leadership, theory and practice by Northouse (2015). It is made up of two parts. Part I covers the profile of the respondents and Part II focuses on the leadership skills under the following variables, namely: Administrative Skills, Interpersonal Skills, and Conceptual Skills.

Statistical Tools

Frequency counts and percentage were used to describe the profile of respondents; Mean, was used to assess the perceived leadership skills of the secondary school managers in Isabela; and Pearson-r correlation was utilized to relationship between the secondary school managers' leadership skills and their profile and leadership performance.

FINDINGS

Profile of the Respondents

Table 1 presents the profile of the Secondary School Managers in the province of Isabela. It can be gleaned from the table that most of the respondents are senior school managers with 22 or 66.67% of the respondents are aged between 51 and 55. Also, the study was participated by seven (7) school managers whose age was from 41 – 50. Further, there were three (3) or 9.09% among the respondents from 36 – 40 while there is a respondent whose age is between 30 and 35.

As to the highest educational attainment, the table provides that most of the secondary school managers are either graduates of their doctorate degrees or enrolled towards a doctorate. It can be gleaned from the table that 21 or 63.64% of the respondent are the holder of their respective doctorate degrees. Also, eight (8) or 24.24% of the respondents are enrolled in their doctorate degrees. Also, there were two (2) or 6.06% among the respondents who are either bachelor degree and master's degree holder, respectively.

The table also shows that the study was participated by 16 or 48.48% of school managers whose experience as school heads is ranging from 16 – 20 years already. The study was also participated by eight (8) or 24.24% of the respondents whose experience as school heads is ranging from 11 – 15 years while there were seven (7) or 21.21% respondents who have been a school head for 6 – 10 years and the other two (2) or 6.06% of the respondents are having 1 – 5 years of experience as school heads.

Table 1. Profile of School Manager-Respondents

PROFILE	Frequency (n = 33)	Percent 100.00
Age		
30 – 35	1	3.03
36- 40	3	9.09
41 – 50	7	21.21
51 – 55	22	66.67
Highest Educational Attainment		
Bachelor's Degree w/ units in Masters	2	6.06
Master's Degree	2	6.06
Masters with units in Doctoral	8	24.24
Doctoral Degree	21	63.64
Number of Years as School Heads		
1 - 5	2	6.06
6 – 10	7	21.21
11 -15	8	24.24
16 – 20	16	48.48

Leadership Skills of the Secondary School Managers in Isabela

Table 2 presents the level of leadership skills of the Secondary Schools Managers of Isabela which comprise three (3) aspects such as administrative skills, interpersonal skills, and conceptual skills.

The secondary school managers rated all six (6) statements under administrative skills to be very true. School managers are indeed effective with the detailed aspects of their works, they feel that it's easy to fill-out forms and work with details, managing people and resources is one of their strengths, they are enjoying responding to peoples' requests and concerns, obtaining and allocating resources is indeed a challenging aspect of their job, and they are effective in obtaining resources to support their programs.

As to the interpersonal skills of the secondary school managers in Isabela, it is very true that they work hard to find consensus in conflict situations. On the other hand, the remaining five (5) statements were rated to be somewhat true. The school managers perceived that somewhat, it is true, that respecting the opponent is the key for successful conflict resolutions and it is important for them to understand the social fabric of the program. They also perceived that it is somewhat true that the school managers are able to sense the emotional undercurrents in their group and use their emotional energy to motivate others and perceived ahead of time the possible responses of other people into their idea or proposal.

As to conceptual skills of the secondary school managers in Isabela, all six (6) statements were rated by the school managers to be very true. School heads perceived that it is very true that secondary managers are effective in problem-solving and that they immediately address the arising problems, they are looking at the bigger picture, they are flexible about making changes in the organization, they love discussing the values and philosophies, and that they are doing strategic plans to make their programs more appealing.

Table 2. Leadership Skills of the Secondary School Managers

LEADERSHIP SKILLS	School Heads	
	Mean	Desc.
Administrative Skills		
1. Effective with the detailed aspects of my work.	4.79	VT
2. Filling out forms and work with details comes easily for me.	4.61	VT
3. Managing people and resources is one of my strengths.	4.73	VT
4. Enjoy responding to people’s requests and concerns in his/her work.	4.79	VT
5. Obtaining and allocating resources is a challenging aspect of my job.	4.76	VT
6. Effective in obtaining resources to support our program.	4.64	VT
Interpersonal Skills		
1. Usually know ahead of time how people will respond to a new idea or proposal.	4.30	ST
2. Understanding the social fabric of the program is important to me.	4.42	ST
3. Able to sense the emotional undercurrents in my group.	4.39	ST
4. Use of his/her emotional energy to motivate others.	4.36	ST
5. The key to successful conflict resolution is respecting my opponent.	4.45	ST
6. Work hard to find consensus in conflict situations.	4.67	VT
Conceptual Skills		
1. Effective in problem solving.	4.52	VT
2. When problems arise, he/she immediately address them.	4.70	VT
3. Seeing the big picture comes easily for him/her.	4.58	VT
4. Making strategic plans for the program appeals to him/her.	4.70	VT
5. Enjoy discussing our program’s values and philosophy	4.61	VT
6. Flexible about making changes in the organization.	4.76	VT

VT-very true ST-somewhat true

Leadership Performance of the Secondary School Managers in Isabela

Table 3 shows the level of leadership performance of the secondary school managers based on the result of their School-Based Management (SBM). It can be gleaned from the table that most of the secondary school managers are in the maturing level of SBM practice with a frequency of 17 or 51.52%. In addition to this, eight (8) or 24.24% of the school managers are in either developing or advanced level of SBM practice.

Table 3. Level of Leadership Performance of the Secondary School Managers in Isabela based on their School-Based Management Ratings.

Performance Level	Frequency	Percent
2.50 - 3.00 (Advanced)	8	24.24
1.50 -2.49 (Maturing)	17	51.52
0.05 - 1.49 (Developing)	8	24.24
Total	33	100.00

Mean = 1.95 (Maturing)

The School-Based Management level of practice has three (3) levels based on DepEd Order 83, s. 2012 – Implementing Guidelines on the Revised SBM Framework Assessment Process and Tool. The description of each level is as follows: Level I: Developing – developing structures and mechanisms with acceptable level and extent of community participation and impact on the learning outcomes. Level II: Maturing – introducing and sustaining a continuous improvement process that integrates wider community participation and improves significantly performance and learning outcomes. And Level III: Advanced – ensuring the production of intended outputs/outcomes and meeting all standards of the system fully integrated with the local community and is self-renewing and self-sustaining.

Relationship between the Profile of the Secondary School Managers in Isabela and their Leadership Skills

It is disclosed in table 4 that the secondary school managers’ age profile has no significant relationship in their administrative and interpersonal skills. This means that school managers of the same age have the same administrative and interpersonal leadership skills. However, their age has a direct relationship with their conceptual skills which implies that as school managers get older, there is a tendency that big picture comes easily for them.

In addition, the highest educational attainment of the school managers has no significant relationship with their leadership skills since the recorded z values are greater than 0.05 level of significance leading to the acceptance of the null hypothesis. This signifies that regardless of their educational attainment, the secondary school managers have the same administrative, interpersonal, and conceptual skills.

Finally, the number of years as school managers has a direct relationship with their administrative, interpersonal, and conceptual skills. This possibly means that tenured school managers have better administrative skills particularly in the detailed aspects of work, filling out of forms, managing people, responding to peoples concern, and obtaining resources to support programs; also they tend to have a better interpersonal skill particularly in knowing ahead of time how people will respond to a new idea or proposal; likewise, they have a better conceptual skills especially in immediately addressing problems, discussing values and philosophy, and making changes in the organization.

Table 4. Relationship between the Profile of the Secondary School Managers in Isabela and their Leadership Skills

	Age		**Highest Educational Attainment**		**Number of Years as School Managers**	
Administrative Skills	x^2	Sig.	Z	Sig.	x^2	Sig.
Effective with the detailed aspects of my work.	5.86^{ns}	0.12	1.03^{ns}	0.31	12.52*	0.01
Filling out forms and work with details comes easily for me.	3.92^{ns}	0.27	0.39^{ns}	0.69	9.35*	0.02
Managing people and resources is one of my strengths.	3.27^{ns}	0.35	1.23^{ns}	0.22	8.81*	0.03
Enjoy responding to people's requests and concerns in his/her work.	5.91^{ns}	0.12	1.94^{ns}	0.05	11.81*	0.01
Obtaining and allocating resources is a challenging aspect of my job.	0.73^{ns}	0.87	0.70^{ns}	0.48	5.48^{ns}	0.14
Effective in obtaining resources to support our program.	4.12^{ns}	0.25	0.57^{ns}	0.57	9.57*	0.02
Interpersonal Skills						
Usually know ahead of time how people will respond to a new idea or proposal.	5.05^{ns}	0.17	0.42^{ns}	0.67	8.80*	0.03
Understanding the social fabric of the program is important to me.	3.49^{ns}	0.32	1.10^{ns}	0.27	5.68^{ns}	0.13
Able to sense the emotional undercurrents in my group.	4.57^{ns}	0.21	1.13^{ns}	0.26	5.25^{ns}	0.15
Use of his/her emotional energy to motivate others.	5.06^{ns}	0.17	0.88^{ns}	0.38	3.76^{ns}	0.29
The key to successful conflict resolution is respecting my opponent.	3.91^{ns}	0.27	0.23^{ns}	0.81	4.41^{ns}	0.22
Work hard to find consensus in conflict situations.	2.90^{ns}	0.41	0.67^{ns}	0.50	7.30^{ns}	0.06
Conceptual Skills						
Effective in problem solving.	1.59^{ns}	0.66	1.62^{ns}	0.11	5.36^{ns}	0.15
When problems arise, he/she immediately address them.	3.83^{ns}	0.28	1.72^{ns}	0.08	8.82*	0.03
Seeing the big picture comes easily for him/her.	8.13*	0.04	1.39^{ns}	0.17	6.97^{ns}	0.07
Making strategic plans for the program appeals to him/her.	3.83^{ns}	0.28	0.94^{ns}	0.35	7.40^{ns}	0.06
Enjoy discussing our program's values and philosophy.	1.75^{ns}	0.63	0.55^{ns}	0.59	7.62*	0.05
Flexible about making changes in the organization.	4.32^{ns}	0.23	0.70^{ns}	0.48	9.91*	0.02

**significant* ^{ns} *not significant*

Relationship between the Leadership Performance of the Secondary School Managers and their Leadership Skills.

Table 5 presents the relationship between the leadership skills and performance of secondary school managers. It can be gleaned from the table that the leadership performance of the secondary school teachers has no significant relationship in any of the statements related to their administrative and interpersonal skills. Hence, the null hypothesis of the study is accepted at 0.05 level of significance.

The table also revealed that one statement under the conceptual skills of the secondary school managers has a significant and positive relationship with their leadership performance. It only means that as the secondary school managers are being able to get a higher grade in their School -Based Management assessment, there is a higher tendency they become more effective in problem-solving. This finding is sustained by the study of Magulod (2017), that school leaders and managers are prompted to initiate a plan that will spawn the development of schools by having the idea that good schools are associated with strong instructional management, clear learning expectations, and effective leadership to ensure that the mission of the school is achieved.

Table 5. Relationship between the Leadership Performance of the Secondary School Managers and their Perceived Leadership Skills.

LEADERSHIP SKILLS	LEADERSHIP PERFORMANCE	
	Corr.	Sig.
A. Administrative Skills		
Effective with the detailed aspects of my work.	0.10 ns	0.54
Filling out forms and work with details comes easily for me.	0.00 ns	1.00
Managing people and resources is one of my strengths.	0.09 ns	0.58
Enjoy responding to people's requests and concerns in his/her work.	-0.10 ns	0.54
Obtaining and allocating resources is a challenging aspect of my job.	0.10 ns	0.56
Effective in obtaining resources to support our program.	0.08 ns	0.63
B. Interpersonal Skills		
Usually know ahead of time how people will respond to a new idea or proposal.	-0.20 ns	0.21
Understanding the social fabric of the program is important to me.	-0.07 ns	0.66
Able to sense the emotional undercurrents in my group.	-0.08 ns	0.64
Use of his/her emotional energy to motivate others.	-0.16 ns	0.34
The key to successful conflict resolution is respecting my opponent.	-0.16 ns	0.34
Work hard to find consensus in conflict situations.	0.08 ns	0.61
C. Conceptual Skills		
Effective in problem solving.	0.39*	0.02
When problems arise, he/she immediately address them.	0.09 ns	0.60
Seeing the big picture comes easily for him/her.	0.16 ns	0.34
Making strategic plans for the program appeals to him/her.	0.09 ns	0.60
Enjoy discussing our program's values and philosophy.	0.00 ns	1.00
Flexible about making changes in the organization.	0.00 ns	1.00

CONCLUSIONS

Based on the result of the study, the following conclusions were created:

1. Most of the school managers are serving pioneered and senior managers and attained the highest possible educational qualification of a school manager.
2. The secondary school managers rated all six statements under administrative and conceptual skills to be very true. On the other hand, working hard to find consensus in conflict situations is the only statement under conceptual skills which was rated as very true.
3. The level of leadership performance of the secondary school managers based on the result of their School-Based Management (SBM) is under maturing.
4. The school managers' age profile has no significant relationship in their administrative and interpersonal skills; the highest educational attainment of the school managers has no significant relationship with their leadership skills; and the number of years as school managers has a direct relationship with their administrative, interpersonal, and conceptual skills particularly in the detailed aspects of work, filling out of forms, managing people, responding to peoples concern, obtaining resources to support programs, knowing ahead of time how people will respond to a new idea or proposal, immediately addressing problems, discussing values and philosophy, and making changes in the organization.
5. The leadership performance of the secondary school teachers has no significant relationship in any of the statements related to their administrative and interpersonal skills while the statement "effective in problem solving" under the conceptual skills of the secondary school managers has a significant and positive relationship with their leadership performance.

RECOMMENDATIONS

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

1. School managers are advised to enroll and pursue advanced education as it provides better leadership skills and more positive work beliefs in their workplace and the organization where they belong.
2. School managers should maintain their best administrative and conceptual skills and find other ways to improve their interpersonal skills towards the attainment of their organization's objectives.
3. School managers should continue working on the areas which need more output for continuous improvement of the schools' performance through the School-Based Management (SBM).
4. School managers may continue to develop and improve their leadership skills for a better performance in their annual assessment that may help the organization grow as well as their subordinates.
5. Future researchers may replicate this study, the profile other than those used in this study

like recognitions and number of seminars attended of the respondents may be used to better understand how leadership skills of school managers may affect the organization's performance.

REFERENCES

Abun, D., Tabur, M., & Aggot, F. (2018). Leadership skills of administrators of Divine Word Colleges in Region I, Philippines as perceived by the employees and employees' work engagement. Journal of Applied Management Science. ISSN: 2455-9229.

Aguado, C. L, Garcia, O. B., Laguador, J. M., Deligero, J. C. (2015). Teaching performance and extent of work values among faculty members in one Asian Maritime Academy. International Journal of Management Sciences, 5(12).

Ali, N. A. M. & Panatik, S. A. (2013). The relationships between work values and work-related attitude: The role of social support as moderator. Journal of Social and Development Sciences, 4(8).

Balkar, B. & Sahin, S. (2015). The role of leadership skills of high school principals in their knowledge management process competencies. Journal of Studies in Education, 5(3).

Cansoy, R. (2017). The effectiveness of leadership skills development program for university students. Journal of History Culture and Art Research, 6(3).

Chowdhury, R. G. (2014). A study on the impact of leadership styles on employee motivation and commitment: An emperical study of selected organization incorporate sector. Padmashree Dr. D.Y. Patil University, Department of Business Management. doi: 10.1186/1472-6963-11-98

Dubrin, A. J., (2010). Principles of leadership. 6th ed., Australia: South Western/Cengage.

Jensen, J. (2017). Development of student leadership skills and identity: A case study at a Finnish University. Master's Thesis in Education Fall Term 2017 Institute of Educational Leadership University of Jyväskylä.

Liao, S. W., Lu, C. Y., Huang, C. K. & Chiang, T. L. (2012). Work values, work attitude and job performance of green energy industry employees in Taiwan. African Journal of Business Management, 6(15).

Liu, Y. & Lei,Y. (2012). The connotation of work values: A preliminary review. Canadian Center of Science and Education. Asian Social Science, 8(1).

MTD Training. (2010). Leadership skills. Book Boon. Retrieved fromwww.bookboon.com

Northouse, P. G. (2010). Leadership: Theory and practice (5th ed.). CA: SAGE Publications, Inc.

Northouse, P. G. (2015). Leadership, theory and practice. Management Self and Cultural Understanding, Lesson 2. VirtualLabSchool.Org.

Recobo, F.A. (2017). Work values and teaching performance of Junior High School Teachers of Alicia, Isabela. Unpublished Master Thesis. Isabela State University, Echague, Isabela.

Sebastian, J. (2019). Principal leadership and school performance: An examination of instructional leadership and organizational management. Journal Leadership and Policy in School,18.

Yukl, G. A. (2010). Leadership in organizations (7th ed.). New Jersey: Prentice Hail Inc.

THE AFFECTIVE COMMITMENT OF TCC INSTRUCTORS: AN INTERWEAVING OF NESTED EMOTIONS

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INTRODUCTION

In this dynamic and globalized climate, an employee has a lot of opportunities to mobilize from one company to another and the environments where the employees work play an initial role in the employees' decision to commit themselves for the institution they are working for. The commitment of a person to one's organization is of great importance. The workplace is the witness of the bond between organizations and its employees. If an employee is committed to its organization or if a teacher is committed to its school, that employee or teacher will feel a connection with the organization, feel that they fit in, and feel they understand the goals of the organization. Moreover, these employees will most likely tend to be determined to be dedicated and determined in their work, show a relatively high productivity, and are proactive in giving utmost support to the organization. Van Der Werf (2020), discussed the types of organizational commitment presented by John Mayer and Natalie Allen. These are affective commitment, continuance commitment, and normative commitment. Giving emphasis on affective commitment, it relates to how much employees want to stay at their organization. These employees typically identify with the organizational goals. These employees feel that they fit in and belong to the organization and they work effectively with high levels of satisfaction. They become great assets and effective representatives of the organization. The absence of affective commitment of employees results in interruptions of normal operations, increased replacement and recruitment cost, increased client dissatisfaction, and scheduling difficulties. As far as the researchers' knowledge is concerned, few or no research was done yet on similar topic. The researchers observed that in Talisay City College teachers are committed to their schools by devoting time to be active members of their community and schools' organization. These committed teachers volunteer their free time to be on committees and teach after-school programs. These teachers are the coaches and you see them on school grounds and sometimes act as chaperones at school dances and events. These teachers always walk the extra mile and are dedicated in promoting success. Moreover, the researchers observe that in Talisay City College instructors are committed to their jobs and to the institution itself by devoting time to be active members of their community and the institution's different organizations. These committed instructors volunteer their free time to be on committees and teach after-school programs. These instructors are the coaches and you see them on school grounds and sometimes act as chaperones at school dances and events. These instructors always walk the extra mile and are dedicated in promoting success. Committed instructors always put their students' wants, needs, and interests first. These instructors meet the needs of each individual learner by providing a variety of unique teaching methods and techniques. They strive to motivate and engage students and they understand that not every child will learn the same way.

STATEMENT OF THE PROBLEM

This study determined the instructors' affective commitment in Talisay City College.

The study specifically answered the following questions:

1. What is the profile of the instructors in terms of:

1.1 Personal
   1.1.1 age;
   1.1.2 gender; and
   1.1.3 civil status?
1.2 Professional
   1.2.1 highest educational qualification;
   1.2.2 relevant trainings/seminars attended for the last 3 years; and
   1.2.3 length of service?

2. Why are you committed to Talisay City College and do you plan to stay longer?
3. What expectations do you have as an instructor in the new normal?
4. What is the level of affective commitment of the instructors?
5. Is there a significant relationship between the profile and the level of affective commitment of the instructors?
6. Based on the findings, what faculty development program can be proposed?

METHODOLOGY

This section presents the methodology that guides the study. Specifically, it gives information about research design, location of the study, study population, sampling procedures, research instruments, data collection procedures and data analysis techniques, and reliability and validity of questions.

Design

This study utilized the triangulation mixed method design where qualitative questions were also asked. This method was used because the researchers wanted to validate and expand on the quantitative findings from the survey by including open-ended qualitative questions. During the conduct of research, the researchers collected both types of date within one survey instrument. The qualitative items were used as add-ons to the quantitative survey. In this manner, the items generally did not result in rigorous qualitative data set but provided the researchers with more interesting quotes that were used to validate and embellish the quantitative survey findings.

Environment

The study was conducted in the Talisay City College (TCC). A 3rd class city in the province of Cebu, Philippines, Talisay City is densely populated with more than two hundred thousand residents. Some of the instructors as well as students are located in far flung areas and the distance can only be travelled by an improvised motorcycle locally known as "habal-habal".

Participants

The respondents of the study were the instructors of Talisay City College. The researcher utilized the eighty-six (86) instructors who were present when the survey questionnaires were distributed. They were chosen purposively because these instructors are with Talisay City College for several years since its inception in 2004. Basically, instructors who were employed by the time this research was conducted automatically becomes part of the study.

Instruments

The Organizational Commitment Questionnaire (OCQ) is a 15-item questionnaire that measures the degree of involvement respondents have in their organization. This questionnaire measured the affective commitment of teachers towards the organization and their work. This study used the 9-item version that Mowday (1979) and colleagues used with four occupational groups. This was to simplify the study by taking down the negatively phrased and reverse scored items. The items that were taken down were the following:

- *I feel very little loyalty to this organization.*
- *I could just as well be working for a different organization as long as the type of work was similar.*
- *It would take very little change in my present circumstances to cause me to leave this organization.*
- *There's not too much to be gained by sticking with this organization indefinitely.*
- *Often. I find it difficult to agree with this organization's policies on important matters relating to its employees.*
- *Deciding to work for this organization was a definite mistake on my part.*

The teachers responded to the items along a 4-point Likert-type scale including **SA (4)** Strongly agree, **MA (3)** Moderately agree, **SA (2)** Slightly agree, and **D (1)** Disagree.

Data Gathering Procedures

Preliminaries. The researchers asked the approval from the President's Office to conduct the research in the campus among the instructors. Upon approval, the researcher conducted an orientation of the benefits and possible program with the

College President and college instructors. Eighty-six instructors were part of the orientation.

During the Data Collection. Through the use of Organizational Commitment Questionnaire (OCQ) questionnaires, the researchers conducted surveys to measure the degree of affective commitment of the instructors. Once gathered, the data were collected and collated for analysis. The data were collected by the researchers at a regularly scheduled faculty meeting. The questionnaires were placed in two separate packets. The packets were distributed where instructors sitting together responded to the questionnaires.

Post Data Collection. After administering the survey questionnaires, analyzing the gathered data, and interpreting the results, the researchers planned an intervention program to propose in order to address the pressing issues arising from the results. The program was actually proposed to the College President. Instructors and parents were informed as well to know how this program can help the students, the main reason why this study is conducted.

Data Analysis

For a valid and reliable interpretation of data, the following statistical technique and methods were used to quantitatively analyze and classify the data:

Percentage. The percentage was used to showing relationship between magnitudes particularly in indicating how many items were rated. It yielded the needed answer of the first subsidiary problem on the profile of the elementary school teachers in terms of age, gender, civil status, highest educational qualification, relevant trainings or seminars attended, and length of service.

Weighted Mean. Since the responses to the questionnaires were qualitative, the weighted mean was used in order to establish quantitative analysis. Moreover, the weighted mean determined the responses that were typical to the respondents. It yielded the needed answer of second and third subsidiary questions. Particularly, it measured the level of affective commitment of the instructors.

FINDINGS

This section presented the results and discussion of the study. The profile of the instructors was determined as to age, gender, and civil status and highest educational qualifications, relevant trainings/seminars attended for the last 3 years, and length of service.

The level of affective commitment was also decided upon by using the organizational Commitment Questionnaire by Mowday (1979) with a series of statements that represent possible feelings that individual teachers might have about the College for which they work.

On the Profile of the Participants. From the survey, it was revealed that most of instructors were aged 31-35 with twenty-one (21) respondents or twenty-four percent (24%) and forty-six (46) or fifty-three percent (53%) were still single. Moreover, there were forty-five (45) or fifty-two percent (52%) female instructors compared to forty-one (41) or forty-eight percent (48%) male instructors. From the survey, it was revealed that forty (40) or forty-seven percent (47%) were Bachelor's Degree holders, thirty-two (32) or thirty-seven percent (37%) were able to attend more than two (2) seminars for the past 3 years but not more than four (4) seminars, and forty-one (41) or forty-eight percent (48%) have served Talisay City College for more than thirteen (13) years.

Table 1. Personal Profile: Age, Gender, Civil Status

Age	Frequency	Percentage
21-25	14	16
26-30	10	12
31-35	21	24
36-40	10	12
41-45	18	21
46-50	13	15
Total	**86**	**100**
Gender	**Frequency**	**Percentage**
Male	41	48
Female	45	52
Total	**86**	**100%**
Civil Status	**Frequency**	**Percentage**
Single	46	53
Married	40	47
Total	**86**	**100**

In the age, it shows that 16% or 14 are 21-25 years old, 12% or 10 are 26-30 years old, 24% or 21 are 31-35 years old, 12% or 10 are 36-40 years old, 21% or 18 are 41-45 years old and 15% or 13 are 46-50 years old. Age plays a role in organizational climate. According Kooij et al. (2010) on their research on the relationship between high commitment Human Resource (HR) practices and work-related outcomes at the individual level, the availability of high commitment HR practices and affective commitment and job satisfaction change with age.

In the gender, 48% or 41 are male and 45 or 52% are female. Thus, 24% of the respondents are 31-35, 53% of the respondents are single and 52% of the respondents are female. Of the eighty-six (86) teachers, forty-five (45) or fifty-two percent (52%) were female and forty-six (46) or fifty-three (53%) remained single.

In 2017, Dirk Van Damme, the Head of the Innovation and Measuring Progress Division, Directorate for Education and Skills of Organization for Economic Co-operation and Development (OECD), revealed that a share of women in the teaching force is growing in number.

When it comes to the civil status of respondents, it shows that 53% or 46 are single, 47% or 40 are married and the respondents are neither separated nor widow. Most of the instructors remained single as shown in Table 1.1 with forty-six (46) or fifty-three percent (53%).

According to John Eades (2018) in his article titled Is Getting Married or Staying Single More Advantageous to Career Success?, unmarried professionals or singles specifically those without children have more time to dedicate themselves physically and mentally to grow professionally. With all energies in one component of life, being single, these teachers will be led to a bigger success. Moreover, these teachers are still very young and capable of doing great things for themselves, their schools, and their lives.

Table 2. Professional Profile: Educational Background, Trainings, Length of Service

Educational Background	**Frequency**	**Percentage**
Bachelor's Degree	40	47
Master's degree	19	22
With Master Units	15	17
Doctorate Degree	5	6
With Doctoral Units	7	8
Total	**86**	**100**
Trainings	**Frequency**	**Percentage**
1-2 seminars	27	32
3-4 seminars	32	37
5-6 seminars	20	23
7 Up seminars	7	8
Total	**86**	**100**
Length of Service	**Frequency**	**Percentage**
1-3 years	2	2
4-6 years	8	9
7-9 years	17	20
10-12 years	18	21
13-15 years	21	24
16-18 years	12	14
19 Up years	8	9
Total	**86**	**100**

The table above shows the professional profile of the instructors in Talisay City College. Of the eighty-six (86) respondents, forty (40) or forty-seven percent (47%) were Bachelor's Degree holders and rest have reached higher educational qualification in the manner that nineteen (19) or twenty-two percent (22%) have finished their Master's Degree, fifteen (15) or seventeen percent (17%) have earned Masteral units, five (5) or six percent (6%) have finished their Doctoral Degree, and seven (7) or eight percent (8%) have earned Doctoral units.

It implies that most of them believed that having achieved higher education will open doors to different opportunities and many rewarding careers. Having a higher education becomes the quickest path for many to get a rewarding career with a good pay, and will give a sense of security and satisfaction. Vista College (2019) stressed the importance of higher education which can lead to many benefits including a prosperous career and financial security. With the rising competition when it comes to career option, failure to further education will not give you a broad range of skills that will allow you to qualify for a wider range of career choices that may not be your field but offers more room for advancement.

For the past three (3) years, instructors were able to attend several relevant trainings. Twenty-seven (27) or thirty-two percent (32%) have attended 1 to 2 seminars, thirty-two or thirty-seven percent (37%) have attended 3 to 4 seminars, twenty (20) or twenty-three percent (23%) have attended 5-6 seminars, and seven (7) or eight percent (8%) have attended at least 7 seminars or even more. A group meeting led by an expert, will somehow open doors to instructors to develop their communication skills, gain friends, establish linkages, and a lot more.

The result of the survey implies that these instructors are more than willing to gain knowledge through seminars and trainings relevant to their field. According to Conference Monkey team (2018), seminars and trainings are important part of academic life and can change your personal life. For instance, you will get to know other people in your field which will open doors to networking and establishing linkages that may benefit you and the school you work with. Even if the country and the rest of the world is experiencing the COVID-19 pandemic, teachers still attend seminars and trainings through the use of available virtual platforms. Instructors need to be effective and efficient at all times, the reason why seminars and trainings are important in a teacher's development both personally and professionally. In a world where competition is high and great demand is at stake, Ruvirosa B. Felipe (2013) stressed on the importance of attendance to any seminar or training in order to create a learning environment that is effective, improve teaching-learning situations where teachers and students alike can function wholly, keep updated modern instructional device in the delivery of lessons, and inspire teachers to become better in their field.

As to length of service, two (2) or two percent (2%) have served the school for 1 to 3 years, eight (8) or nine percent (9%) have served the school for 4 to 6 years, seventeen (17) or twenty percent (20%) have served the school for 7 to 9 years, eighteen (18) or twenty-one percent (21%) have served the school for 10 to 12 years, twenty-one (21) or twenty-five percent (25%) have served the school for 13 to 15 years, twelve (12) or fourteen percent (14%) have served the school for 16 to 18 years, and eight (8) or nine percent (9%) have served the school 21 years and even more.

Instructors in Talisay City College are a mixture of experienced and novice. Nevertheless, these teachers are dedicated and loyal to their schools since most of them have stayed and continues to stay for more than ten (10) years. Klnl and Podolsky (2016) emphasized the importance of experience in increasing the effectiveness of teachers. As teachers gain experience, their students are likely to become better not just in test scores but also school attendance. The impact goes beyond academic since it teaches students some life skills. The professional growth of an experienced workforce must be given priority and support because teaching experience is and always will be associated with the student achievement gains throughout the teacher's career. The study of Unal and Unal (2012) on the impact of years of teaching experience on the classroom management approached of elementary school teachers revealed that there is a significant difference in terms of attitude towards the Behavior and Instructional Management subscales of classroom management as teachers gain experience. Teacher of experience have significant effect on teachers' beliefs and attitudes. Scholars Strategy Network (2013) discussed the importance of experienced teachers and how they matter in raising student achievement.

Due to the exploratory nature of questions 2 and 3, qualitative knowledge was sought. These questions were made part of the questionnaire and the respondents were encouraged to freely write their answers. The researchers found out that most of the instructors were highly committed to Talisay City College and planned to stay and remain part of the institution for as long as their services are needed. Common responses on their commitment and plan to stay were as follows:

> *"I will continue to serve the College for as long as my services are needed. I don't see myself working in another school."*
>
> *"If I have my way, I will remain here in TCC because this is where I am able to provide for my family when it comes to daily needs."*
>
> *"My commitment to TCC is beyond measure because I love the people here and also the administration takes care of us."*
>
> *"I love Talisay City College and I will stay here forever. We are like one big happy family."*
>
> *"Nothing beats TCC. The administration is always on top of everything."*
>
> *"I think this is my home and I will stay here for as long as I am needed. I believe I can work comfortably here. The support of the administration is great."*
>
> *"The administration makes us feel we are a family. So, I will stay."*
>
> *"No question with my commitment. I just hope Talisay City College will continue to renew our contracts."*
>
> *"One thing I love about TCC is its people. I will stay here for good."*
>
> *"I admire the President and I will support all his programs. Of course, I will stay longer."*

The instructors were also asked on their expectations in the new normal. The researchers found out that most of the instructors were very positive about embracing the new normal and they were highly expectant that good things will fall into place even if the challenges are too many. Common responses on their expectations were the following:

> *"Teaching is tough considering that the campus internet is very unstable. But I know that the administration is doing something."*
>
> *"With the help of Smart Communications, Inc., I believe the new normal will be more exciting not only to us but to students as well."*
>
> *"I hope that things will go back to normal even if face-to-face will be limited."*

"I think students will begin to love distance learning especially that TCC partners with PLDT. MS Teams is a nice tool in the new normal."

"The new normal is very challenging but with the help and support of the administration I believe that things will be easy for both teachers and students."

"The Barangay Drop Off (BDO) will be successful but it could be a burden to teachers."

"This pandemic will come to pass. Let's all be positive."

"Learning in the new normal is greatly challenged. But I am also confident that we can do something about it."

Relationship Between Profile and Affective Commitment. The connectedness between the profile and affective commitment of teachers were established in this research. It important to establish the relationship between these variables so that the right conclusions can be drawn from a statistical analysis. Age, gender, civil status, educational background, training, and years of service were considered as factors affecting affective commitment of teachers.

Variables	Significant Value	P-value	Decision	Interpretation
Age-Affective Commitment	0.05	0.001	Reject Ho	Significant
Gender-Affective Commitment	0.05	0.025	Reject Ho	Significant
Civil Status-Affective Commitment	0.05	0.085	Accept Ho	Not Significant
Educational Background- Affective Commitment	0.05	0.012	Reject Ho	Significant
Training-Affective Commitment	0.05	0.320	Accept Ho	Not Significant
Years in Service-Affective Commitment	0.05	0.000	Reject Ho	Significant

The results revealed that age, gender, educational background, and years in service were statistically significant in determining the affective commitment of the teachers while civil status and training were not. According to Brimeyer et al. (2010) the relationship between organizational commitment and predictors is affected by worker career stage, thus, the commitment for those who are older and experienced is higher with high level of autonomy. The opposite if found to be true to younger and less experienced workers. In other words, when workers gain greater control at the point of production they have the tendency to express greater organizational commitment.

Strength in work and motivation for work is not static. In fact, it is considered as a dynamic entity as it varies with age and maturity. The study of Kusurkar et al. (2009) on the effects of, gender, and educational background on strength of motivation for medical school revealed that the strength of motivation increases with age between the age of 18-24 and it becomes constant after wards. Another similar study revealed the same result. Wilkinson et al. (2004) discussed that age is the most important predictor of outcomes when they studied and compared medical students with and without a graduate degree. Moreover, age and maturity help in making a clear career choice.

Affective Commitment. A strong belief in and acceptance of the organization's goals and values, a willingness to exert considerable effort on behalf of the organization and a strong desire to maintain membership in the organization are few of the many affective commitments possessed by the instructors in Talisay City College.

The table above depicts the level of affective commitment of the instructors. It shows that statement 1-9 got a mean of 3.90, 3.90, 3.81, 3.79, 3.95, 3.87, 3.81, 3.86, 3.94 respectively which are all interpreted as strongly agree. Thus, the level of affective commitment of the instructors is holistically rated with the mean of 3.87 and interpreted as strongly agree.

Table 3. Level of Affective Commitment

Statement	Weighted Mean ($\bar{x}$)	Interpretation
I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.	3.90	Strongly Agree
I talk up this organization to my friends as a great organization to work for.	3.90	Strongly Agree
I would accept almost any type of job assignment in order to keep working for this organization.	3.81	Strongly Agree
I find that my values and the organizations values are similar.	3.79	Strongly Agree
I am proud to tell others that I am part of this organization.	3.95	Strongly Agree
This organization really inspires the very best in me in the way of job performance.	3.87	Strongly Agree
I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.	3.81	Strongly Agree
I really care about the fate of this organization.	3.86	Strongly Agree
For me this is the best of all possible organizations for which to work.	3.94	Strongly Agree
Affective Commitment	**3.87**	**Strongly Agree**

Notably, statement number 5 got the highest mean of 3.95 followed by statement number 9 with a mean of 3.94. The result implies that teachers are really proud of their schools and considered the institution as the best school. Instructors feel valued and respected as an employee. They enjoy what they do and surrounded by a fantastic team of understanding and amazing co-teachers, school staff, and administrators. The result supports the study on Glisson and Durick (1988) on characteristics of the job, the organization, and the worker affecting job satisfaction and organizational commitment where leadership and organizational age were found to be predictors of organizational commitment. Moreover, the result supports the findings of Hoy, Tarter, and Bliss (1990) confirming that schools that are healthy and have a good climate will have committed teachers.

Saltzman (2009) in his blog said that employees are proud of their organization or company because of effective leadership. If schools would let their teachers know who they are and what their roles are, teachers will feel valued and regarded. If schools will give teachers the basic support they need to get their jobs done, the schools are actually giving a good sense of future and in return teachers will stick around with the organization because they feel that something good is will happen for them.

CONCLUSIONS

The study was conducted in order to propose a faculty development program for instructors in Talisay City College. The personal and professional profile of the teachers as to their age, gender, civil status, highest educational qualifications, relevant trainings/seminars attended for the last 3 years, and length of service were also identified. This study utilized the descriptive method. The research-made questionnaire was used to gauge the affective commitment of its teachers. Moreover, their profile was made known through the questionnaire. The data were consolidated and analyzed statistically. The researchers concluded the following:

1. Age, gender, civil status, highest educational qualification, relevant trainings/seminars attended for the last 3 years, and length of service were considered as influencing factors of affective commitment. The statistical result showed that age, gender, educational background, and years in service were statistically significant in determining the affective commitment of the teachers while civil status and training were not.
2. The affective commitment of instructors toward the College or organization is strengthened on how the College President treat all faculty members as his equal. As manifested in the instructors' commitment to Talisay City College and plan to stay in the institution, their common answers revolved on the fact that the administration has been good to them by treating them as family. Moreover, the support of the administration is great and instructors felt that they are well taken care of. A college president or administrator needs to be friendly and approachable and should let the instructors know what is expected from them. Administrators must be clear from the very beginning and puts suggestions made by the instructors into operation. A perception of unfairness can reverse a positive impact into a negative one. If colleges or any other academic institutions are able to create a positive institutional climate, instructors will have the sense of pride and tell others about the institution. Moreover, they will find the institution as the best place to work and grow personally and professionally.
3. Instructors in Talisay City College were found to have strong affective commitment toward their school and work as a result of their work environment. Instructors' behavior in the academe and how they do their tasks are results mainly of the environment which they work in.

RECOMMENDATIONS

To further improve the institutional climate of Talisay City College and create a positive atmosphere and to further strengthen the affective commitment of the teachers, the following recommendations are made known:

1. The College President and administrators must know very well how to manage the College in order to create as atmosphere of trust and confidence among its faculty members. Innovations and change in terms of organizational structure, personal dealings of employees specifically faculty members, and programs geared towards improvement and enhancement of faculty members and the College as a whole must be carried out.

2. Students must be exposed to quality education which is the result of excellent organizational climate. Faculty members' affective commitment in any academic institution will affect their quality of work.
3. Faculty members must have a better view of their role as educators in being committed to their job and to the College in general. They need to exactly know their involvement with their students and the College and gauge their capacity to handle them. Faculty members must improve whatever lack they have.
4. Researchers and future researchers need to further strengthen the study by widening its scope so that it covers a wider view of organizational climate and affective commitment.
5. The researchers highly recommend **Commitment and Responsibility towards Employment and Service or (CaRES)**. This program is designed for employees to strengthen their affective commitment on the basis of everyday activities, considering life meaningful, positive self-images, happy and optimistic outlook, and felling success in achieving goals by providing trainings, seminars, and orientations on commitment and responsibility. This program is expected to add more value and worth to the employment and service of the teachers.

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REFERENCES

Brimeyer, T., Perrucci, R., Wadsworth, S.M. (2010, June 2). Age Tenure, Resources for Control, and Organizational Commitment. *Social Sciences Quarterly. 91* (2), 511-530. https://www.jstor.org/stable/42956414

Conference Monkey Team (2018). 8 Benefits of Attending Conferences. Conference Monkey. https://conferencemonkey.org/advice/8-benefits-of-attending-conferences-1038397

Eades, J. (2018, June 11). *Is Getting Married or Staying Single More Advantageous to Career Success?* Inc. https://www.inc.com/john-eades/is-getting-married-or-staying-single-more-advantageous-to-career-success.html

Felipe, R. (2013, March 29). *The Importance of Seminars and Trainings in Improving Teachers Performance.* Teachersessay. http://www.teachersessay.com/the-importance-of-seminars-and-trainings-in-improving-teachers-performance/#:~:text=The%20Importance%20of%20Seminars%20and%20Trainings%20in%20Improving%20Teachers%20Performance,-Mar%2029%2C%202013&text=Their%20attendance%20to%20these%20seminars,teachers%20in%20the%20modern%20world.

Glisson, C., & Durick, M. (1988). Predictors of job satisfaction and organizational commitment in human service organizations. *Administrative Science Quarterly, 33*(1), 61-81.

Hoy, W. K., Tarter, C. J., & Bliss, J. R. (1990). Organizational climate, school health, and effectiveness: A comparative analysis. *Educational Administration Quarterly, 26*(3), 260-279.

Kooij, Dorien & Jansen, Paul & Dikkers, Josje & De Lange, Annet. (2010). The influence of age on the associations between HR practices and both affective commitment and job satisfaction: A meta-analysis. *Journal of Organizational Behavior, 31*, 1111 - 1136. 10.1002/job.666.

Klnl, T. & Podolsky, A. (2016, June 3). *Does Teaching Experience Increase Tescher Effcetiveness? A Review of the Research.* Learningpolicyinstitute. https://learningpolicyinstitute.org/product/brief-does-teaching-experience-increase-teacher-effectiveness-review-research

Kusurkar, R., Kruitwagen, C., Cate, O.T., Croiset, G. (2009). Effects of Age, Gender, and Educational Background on Strength of Motivation for Medical School. *Advances in Health Science Education. 15*(3): 303–313, 10.1007/s10459-009-9198-7

Mowday, R. T., Steers, R. M., & Porter, L.W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior, 14*, 224-247.

Saltzman, J.M. (2009, November 6). What Makes an Employee Proud? Wordpress. https://jeffreysaltzman.wordpress.com/2009/11/06/what-makes-an-employee-proud/

Scholars Strategy Network (2013, November 14). *Why Experienced Teachers are Important and What can be Done to Develop Them.* Scholars. https://scholars.org/contribution/why-experienced-teachers-are-important-and-what-can-be-done-develop-them

Unal, Z. & Unal, A. (2012). *The Impact of Years of Teaching Experience on the Classroom Management Approached of Elementary School Teachers*. https://files.eric.ed.gov/fulltext/ED533783.pdf

Van Damme, D. (2017, March 1). *Why Do So Many Women Want To Become Teachers?* OECD Education and Skills Today. https://oecdedutoday.com/why-do-so-many-women-want-to-become-teachers/

Van Der Werf, R. (3 January 2020). 3 Key Types of Organizational Commitment. Effectory. https://www.effectory.com/knowledge/3-key-types-of-organisational-committment/

Vistacollege.edu (2019, November 26. The Importance of Higher education in the 21st Century. https://www.vistacollege.edu/blog/resources/higher-education-in-the-21st-century/#:~:text=Gain%20Job%20Satisfaction%20With%20Higher,that%20interests%20and%20inspires%20you.&text=Higher%20job%20satisfaction%20also%20comes,benefits%2C%20and%20more%20advancement%20opportunities.

Wilkinson T.J., Wells J.E., Bushnell J.A. (2004). Are Differences Between Graduates and Undergraduates in a Medical Course Due to Age or Prior Degree? *Medical Education.* 38, 1141–1146. doi: 10.1111/j.1365-2929.2004.01981.x

PERCEPTION OF INTERMEDIATE TEACHERS ON THE BEHAVIORAL PROBLEMS OF PUPILS AND ITS IMPLICATION TO CLASSROOM MANAGEMENT

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ABSTRACT

This descriptive-normative study assessed the perception of all the thirty intermediate teachers of Cabatuan West District, Cabatuan, Isabela with regard to the behavioral problems of pupils and its implication to classroom management. A self-developed questionnaire was used as the primary instrument of this study. The following conclusions were derived: 1) Most of the respondents were females, belong to the age range of 30-45, married, and all are educationally qualified to teach in the DepEd elementary schools with their corresponding years of working experience in the field; 2) The behavioral problems of pupils in relation to classroom such as talking with classmate while the teacher is explaining; cheating during examinations; and not reciting were perceived by the teachers as "moderately often"; as to the pupils' classmates, quarrelling with their classmates, going to other places, getting their classmates' materials, and roaming around the streets were perceived as "sometimes."; as to school grounds and premises, making noise, throwing pieces of papers anywhere, and making vandals were perceived as "moderately often;"; and as to the teachers and school administrators, answering back when scolded, not greeting their teachers and other school personnel, not following orders, and not listening to their teachers were perceived as "sometimes"; 3) Showing love, care and understanding to pupils, instilling moral values to the pupils, making the homeroom PTA functional, establishing good rapport with the pupils, and teaching the pupils to recite correctly and answer questions politely are some of the preventive measures in addressing the behavioral problems of the pupils; and 4) Classroom management has an attribute to good behavior and when properly implemented, it serves as an instrument to improve the delivery of instruction.

Keywords: assessment, perception, behavioral problem practices, implication to classroom management, preventive measures

INTRODUCTION

Today's delivery of classroom instruction is perceived in several dimensions by varied sectors. Generally, the conduct of classroom teaching by the teachers aimed to fully develop the child's skills and potentials. However, it is somewhat lamenting to observe that even up to the present, there are many children who have not changed their bad habits and attitudes and some of these are observed school and homebased set-up which supposed to be a nursery of good behavior. Indeed, well known scientists and psychologists agree that behavior problems are part of the parcel of the growing of children which exist in various degrees because of their uniqueness, training in the home, and responses to the environment.

In the school, pupils are the primary concern of teachers while in the home, children are the primary concern of parents. However, this primordial objective cannot be fully attained by the teachers without the cooperation and support of the school administrators, the pupils, school guidance counselors, and other personnel and parents. Problems regarding the youth plagued the country with fear as revealed in the daily newspapers, weekly magazines, aired over radio and television programs. Nearly every child in the school has behavioral problems. Such unacceptable behavior maybe temporary or lasting. Others may be short lived.

According to Mores and Wingco (2001), misbehavior of children are caused by classroom activities, sometimes the teachers, sometimes the group compositions. Hymes (1999), says that children need discipline in order to perceive an orderly, organized world. When discipline is weak, the children, the teachers, and the society at large are in danger. Narrowing down the child discipline, the environment for explanation is consequently brought down to the level of classroom.

Berman (2004), claimed that youngsters who show anti-social character disorder exhibit hostile, aggressive, uncontrollable acts towards the property of person. Likewise, Sorcenson (2005) revealed that overcrowded tasks given to certain individuals from the home and the school are usually causes of pupils' behavior problems. The child automatically discharges untoward behavior when he is tired and restless.

According to some information, DepEd schools could not be exempted and refuted that teachers are handling in a class pupils with behavioral problems due to their different character traits. Their character traits these days are very much different from pupils of yesterdays. Likewise, the pupils' behavioral problems is aggravating the teachers because the control over these pupils is limited to verbal communications. Thus, corporal punishment is prohibited as enshrined in the civil service rules and regulations and uphold the provision of PD 603 or otherwise known as "The Child and Youth Welfare Code." As observed, pupils have always misbehaved in the standards of many adults. These adults believe that they always tried to deal with misbehavior as best they could. Adults are oftentimes heard to say, "Bend the tree while young." Hence, a child is likened to a tree, pliant and soft when young. When he is grown up whatever becomes of him, change is rendered difficult.

In the school setting particularly in the classroom, the teacher is faced with two pressing problems: that of identifying the behavioral problem of the pupil and how to help the child overcome his behavioral problem. On this situation, the classroom teacher becomes the guidance counsellor and attends to the behavior of the children entrusted to her. The teacher's role is very important here in the total development and growth of the child's personality. The parents, too, have an equal role to carry as they are the immediate mentors of their children.

With emphasis on the behavioral problems of children in school, some psychologists advance the information that the uniqueness of pupils gives the school difficulty in designing programs that can really cater to the individual needs of pupils. Hence, good discipline is quite difficult to maintain.

Other observers further affirmed that behavior of a person is affected by his environment. In this one, they shared the idea that it is the environment that makes him good or bad. To the child, his home and his school serve as his immediate environment which can make or unmake him.

Looking at the past and onward, the pupils in the public elementary schools are growing children who are in their formative years and that behavior development is very important. They are moving toward their adolescent stage where individual identify becomes a crisis. In this stage, intellectual and emotional stimulation is vital so that good behavior can be developed

Based from the aforementioned statements, issues and concerns provided the researcher benchmark of information that leads the conceptualization of this study which aims to assess the perception of intermediate teachers in Cabatuan West District on the behavioral problems of pupils and its implication to classroom management.

OBJECTIVES OF THE STUDY

Generally, this study sought to assess the perception of intermediate teachers in Cabatuan West District on the behavioral problems of pupils and its implication to classroom management.

Specifically, it aimed to answer the following problems:

1. What is the profile of the intermediate teachers with respect to:
   a. Gender;
   b. Age;
   c. Civil status;
   d. Educational attainment; and
   e. Length of service in teaching?
2. What is the perception of teachers on the behavioral problems of pupils in relation to the following indices:
   a. Classroom;
   b. Classmates;
   c. School grounds and premises; and
   d. Teachers and administrators?
3. Based from the problem practices of pupils, what are the probable preventive measures to minimize the behavioral problems of pupils in the school?
4. What are the implications of the study to classroom management?

RELATED LITERATURE

Teachers usually encounter pupils with behavioral issues. These pupils manifest sensory process disorder, aggressiveness, inattentiveness or inappropriate language (Weeks, 2000). The most question of however he or she will be able to facilitate these pupils. It's planned that academics will apply four (4) effective ways that of coping with drawback pupils. These are the use of positive discipline, investigate and understand, accept and help and give special attention. Though' these aren't unfailing, these will facilitate academics to supply skilled facilitate to those pupils. As Philippine Education question Filipino academics that "no kid are left behind" (Philippine Senate, 2010), these affirmative actions will facilitate them to appreciate this positive philosophy.

Amend but in a Positive Way. Positive discipline may be a program that's designed to show pupils to become accountable with their actions, respectful with their words and capable a part of their communities (UNESCO, 2012). Likewise, it's understood as a model employed by school authorities that is centered on the positive points of the behavior of pupils. It primarily works on the principle that pupils are not any unhealthy youngsters, there's an opening to act and to manifest unhealthy behaviors. Therefore, it despises labeling, stereotyping and even sorting of social control to pupils United Nations agency behave negatively. Rather than that specialize in the negative actions, it starts with what's smart and what's favorable. Through this counter-reaction, pupils is conditioned that it's not unruly to act negatively within the category. They'll understand that they'll act absolutely within the category and that they area unit "by nature good" pupils.

Explore and Understand. This technique is associate degree intervention that teachers will give to the pupils. Psychologically, all actions area unit manifestations of experiences. Therefore, negative action is simply associate degree expression of negative experiences. However, however will an educator perceive the action of his or her pupils' actions? It's through exploring their lives. This term in an exceedingly easy sense may be a systematic examination of the supply of negative action. Experiences of pupils throughout previous grade levels will function an honest supply of data. This could give accounts of the pupils' behavioral manifestations and attainable explanations on their character. Personal home visitation is additionally a good manner of outsourcing data regarding the pupils' lives. The private encounter with their oldsters, relatives, and friends will direct and provide important indications regarding their behavior. Likewise, meticulous observation of pupils' behavior reception and atmosphere, provides a tangible supply of information. Thus, when knowing the background of the pupils, understanding follows. Reflection of the teacher regarding the experiences of the pupils will lead him or her to totally perceive them. Likewise, there's an enormous risk of amending pupils' negative actions. Teachers not solely type minds however additionally the perspective of the person (Gourneau, 2005).

Accept and Be Reminded. Pupils never would like themselves to be problematic pupils. Their untoward actions and behavioral issues area unit indications of an even bigger drawback. It's like watching associate degree iceberg. The action of the pupil is simply the tip of the larger ice underneath. Teachers' area unit entrusted to assist. Thus, they have to simply accept the pupil notwithstanding however grievous and heavy his or her misdeed at school. Moreover, because the second parent of the pupils, nature follows that they have to simply accept every pupil no matter something. But how they can accept them? First, they need to condition their mind about their profession. They need to have open arms to give them change and mindset that they will soon change. Second, think about what they have promised. They have sworn to educate the young generation. The behavioral problem as a hindrance to personal progress has to be amended and to be corrected (Bear, 2004). Teachers are mandated to do the task in school.

Help and Give Special Attention. Normally at home, parents discipline their children to call up their attention to their incorrect actions and to correct what they are doing. It is unfair for the pupils to experience the same treatment in school. It is appropriately allows the pupils to experience haven in school. Teachers need to consider all aspects when he or she performs correcting misbehavior in the classroom. It is not proper to reprimand the offender in the public but rather compels a diplomatic manner. It is through making the pupil do additional tasks, or discuss in front or beside him or her. The existence of a pupil's misbehavior in the classroom is not flawed in classroom management. It develops poor classroom management if misbehavior continuously and repeatedly and frequently happening in the classroom. Teachers have to give special attention to pupils with a behavioral issues and problem. It is one way of escorting them through their journey of fixing their behavior. The constant and frequent conversation is great to help monitor changes (Snow, 2007). Change starts in the mind then will manifest through action. The only way to determine a change of mind is communication. Special attention does not mean exclusivity but paying attention to the present needs of the pupils. It is also a way of planting good things in the mind of the pupils. The more they hear positive and encouraging things the more they will be conditioned to do good actions. It is incorrect for teachers to compromise or dismay behavioral problems in the classroom actions. It is as a result of education may be a holistic formation. It's not solely forming minds however molding the attitudes of the pupils. Thus, they teach not solely the topic he or she is allotted however to be concerned in no matter issues his or her pupils. They have to coach them on all aspects of life that pupils ought to imbibe and be utilized in the longer term particularly a couple of positive perspective. It is his or her responsibility to interfere, to react and to help pupils who manifest behavioral problems and difficulties in the class. However, above all, it is part of his or her dedication and commitment to help these pupils entrusted to his or her care. This is the reason why teaching is the noblest profession (Sekar, 2017).

METHODOLOGY

The descriptive-normative method of research was utilized to assess the perception of the thirty (30) intermediate teachers in Cabatuan West District on the behavioral problems of pupils and its implication to classroom management. All intermediate teachers in Cabatuan West District, Schools Division Office of Isabela were chosen through total enumeration. The study was conducted during the school year 2017-2018.

The Instrument of the Study

A self-developed questionnaire was used as the primary instrument of this study. It was based from several sources such as master's theses, professional books and periodicals which are related to the present study. The questionnaire consisted of the following parts: profile of the teachers; behavioral problems of pupils; and the preventive measures to measures to minimize the behavioral problems of pupils in the school.

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 Cabatuan East District, School Office Division of Isabela who were not included in the study to gather data for the reliability test. Its reliability was assessed and analyzed through computing Cronbach's alpha, which shows the reliability value of 0.91 indicating the high consistency of the responses in the items used in the questionnaire.

Statistical Tools

Frequency and percentage counts and were used to describe the profile of the respondents. Means and Likert Scale were used to assess the behavioral problems of the teachers; the probable preventive measures to minimize the behavioral problems of pupils in the school; and in-depth analysis was employed to relate the results of the current study to its implications to classroom management.

FINDINGS

Profile of the Respondents

Table 1 showed that there were 27 or 90 percent female teacher-respondents while 3 or 10 percent comprised of male teachers. An analysis of the data disclosed that there were more female teachers than males. The dominance of women is not only true in DepEd as an institution but almost all agencies of the national, local and corporate offices.

As to age, 9 or 30 percent of the respondents belong to the age bracket of 36-40; 6 or 20 percent of them are 41-45 years old; a combined frequency of 8 or 26.67 percent are 46 years old and above, and a combined frequency of 7 or 23.33 percent belong to the age range of 26-35 years old. Scrutiny of the data revealed that there were more teachers whose age were between 36-45 years old. Furthermore, the average age of the teachers is 41 years old. Hence, it can be deduced that they can manage to handle their teaching loads and additional activities because they are considered young and dynamic. Besides, their being as young teachers has a bearing to oversee the behavioural problems of the pupils under their care.

As to civil status, majority of the respondents are married; 4 or 13.33 percent are single, while 2 or 6.67 percent are widows or widowers. The data disclosed that most of the teachers are married. Hence, they performed a dual role, aside from being teachers. They can easily identify the behavioural problems of their pupils and arrest these problems since they are not new to these scenarios which they encounter the same at home as mothers.

As to educational attainment, all teacher-respondents finished a four year bachelor's degree particularly the Bachelor of Elementary Education, 2 or 6.67 percent of them at least finished Master of Arts in Education. An analysis of the data showed that the respondents met the necessary requirement in entering DepEd schools, but, only few pursued post graduate school as part of their professional growth and development. Hence, there is a need to strengthen the staff development program of the school in particular and the DepEd in general.

Finally, as to teaching experience, 15 or 50 percent of the teachers are active in the profession for 6-10 years, 6 or 20 percent of them are in the teaching profession for less than 5 years, 5 or 16.66 percent of them are already in the service for 11-15 years, and 4 or 13.34 percent of them are in the profession of more than 16 years. At a glance, the teachers appeared to be veteran bearers of knowledge.

Table 1. Profile of the Respondents

Profile	Frequency (n=30)	Percentage (100.00)
Gender		
Male	3	10.00
Female	27	90.00
Age		
26-30 years old	3	10.00
31-35 years old	4	13.33
36-40 years old	9	30.00
41-45 years old	6	20.00
46-50 years old	5	16.67
51 years old and above	3	10.00
Civil Status		
Married	24	80.00
Single	4	13.33
Widow/er	2	6.67
Educational Attainment		
Bachelor of Elementary Education	28	93.33
Master of Arts in Education	2	6.67
Teaching Experience		
5 years and below	6	20.00
6-10 years	15	50.00
11-15 years	5	16.66
16-20 years	2	6.67
21 years and above	2	6.67

Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Classroom

Table 2 disclosed that the behavioral problems of pupils of the 11 indicators and the statements: "talk with classmate while the teacher is explaining"; "cheating during examinations"; and "do not like to recite" were perceived by the teachers as "moderately often" while the remaining statements were rated as sometimes.

An analysis of the data showed that the pupils' behavioral problems in relation to classroom were done sometimes by them. Such behavioral problems speak of the frequency of doing or committing. Furthermore, the teachers' perception as to the said problems had little bearing on the performance of pupils in the school and to their teachers too.

Table 2. Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Classroom

Statements	Weighted Mean	Description
Talk with classmates while the teacher is explaining	2.53	Moderately Often
Cut classes	2.33	Sometimes
Tease classmates	2.43	Sometimes
Always moving in the class	2.30	Sometimes
Cheating during examinations	2.63	Moderately Often
Laugh when others commit mistakes	2.33	Sometimes
Do not like to recite	2.53	Moderately Often
Write answers on the chairs	2.07	Sometimes
Get notebooks or books of others	2.10	Sometimes
Do mischievous acts	1.97	Sometimes
Come to school late	2.30	Sometimes
Grand Mean	**2.32**	**Sometimes**

1.00-1.50- Never *3.51-4.50- Often*
1.51-2.50- Sometimes *4.51-5.00-Very Often*
2.51-3.50- Moderately Often

Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Classmates

As shown in the table, the behavioral problems of pupils toward their classmates such as quarrelling with their classmates, going to other places, getting their classmates' materials, and roaming around the streets were perceived by the teachers as "sometimes." In other words, teachers can still manage the behavioral problems exhibited by the pupils.

Table 3. Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Classmates

Statements	Weighted Mean	Description
Quarrel with classmates	2.20	Sometimes
Go to other places	2.10	Sometimes
Roam around in the streets	1.90	Sometimes
Get classmates materials	2.00	Sometimes
Grand Mean	**2.05**	**Sometimes**

1.00-1.50- Never *3.51-4.50- Often*
1.51-2.50- Sometimes *4.51-5.00-Very Often*
2.51-3.50- Moderately Often

Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to School Grounds and Premises

As revealed in the table, the intermediate pupils disclosed seven behavioral problems relative along in the school ground. Out of the seven statement-indicators, there were three problems which described as "moderately often" which include the statements "pupils make noise", pupils throw pieces of papers anywhere', and "vandalism." The remaining four behavioral problems were considered "sometimes".

As a whole, the behavioral problems displayed by the pupils in relation to school grounds and premises were marked as "sometimes" as evidenced by the grand mean of 2.42.

Table 4. Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to School Grounds and Premises

Statements	Weighted Mean	Description
Pupils destroy plants	2.43	Sometimes
Pupils make noise	2.83	Moderately Often
Pupils throw pieces of papers anywhere	2.77	Moderately Often
Pupils tease each other	2.40	Sometimes
Pupils smoke in the school premises	1.63	Sometimes
Improper sitting/non chairs/ benches	2.37	Sometimes
Vandalism	2.53	Moderately Often
Grand Mean	**2.42**	**Sometimes**

1.00-1.50- Never *3.51-4.50- Often*
1.51-2.50- Sometimes *4.51-5.00-Very Often*
2.51-3.50- Moderately Often

Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Teachers and Administrators

As revealed in table 5, there were four behavioral problems displayed by the pupils toward teachers and administrators. All these behavioral problems were rated sometimes. The grand mean of 1.91 also confirmed the findings of the study which was also described as "sometimes."

Table 5. Perceptions of Teachers on the Behavioral Problems of Pupils in Relation to Teachers and Administrators

Statements	Weighted Mean	Description
Pupils answer back when scolded	2.07	Sometimes
They don't greet teachers and other school administrators	1.73	Sometimes
They don't follow orders of teachers and administrators	1.80	Sometimes
They don't listen to what teachers are telling them	2.03	Sometimes
Grand Mean	**1.91**	**Sometimes**

1.00-1.50- Never *3.51-4.50- Often*
1.51-2.50- Sometimes *4.51-5.00-Very Often*
2.51-3.50- Moderately Often

Preventive Measures Used by the Teachers to Minimize the Behavioral Problems of Pupils

It is revealed in the table that there were some preventive measures employed or used by the intermediate teachers in arresting or addressing the behavioral problems of the pupils. Among the possible measures include showing love, care and understanding to pupils, instilling moral values to the pupils, making the homeroom PTA functional, establishing good rapport with the pupils, teaching the pupils to recite correctly and answer questions politely, giving assignments that arouse the pupils interests, meeting parents periodically and discussing behavioral problems of pupils, and observing pupils closely during recess and break time.

Table 6. Preventive Measures Used by the Teachers to Minimize the Behavioral Problems of Pupils

Statements	Frequency	Percentage
Show love, care, and understanding to pupils	27	90.00
Moral values must be always taken up with the pupils	26	86.67
Make the homeroom PTA functional	24	80.00
Establish good rapports with the pupils	24	80.00
Teach the pupils to recite correctly and answer questions politely	23	76.67
Give assignments that are interesting	22	73.33
Meets parents periodically and discuss behavioral problems of pupils	16	53.33
Observe pupils closely during recess and break time	12	40.00

Implications of the Results of the Study to Classroom Management

After thorough analysis of the findings of the study, the researcher mentioned the implications of the study to classroom management:

Teachers who are considered frontliners of education in general in the school believed that the behavioral problems of intermediate pupils inside the school, it described to a greater extent that classroom management was greatly affected. These were in the form of their participation to some behavioral activities which affected the classroom atmosphere of teaching;

Effective classroom management was attributed to good behavior. On the contrary, the behavioral problems of pupils served as tools to determine a wholesome teaching-learning process. Hence, setting a parallel classroom management policy which is focused on teaching and learning

Classroom management when properly implemented by teachers can serve as an instrument to improve the delivery of instruction in the classroom. This undertaking had strong bearings by making education in the intermediate grades highly innovated and outcomes-based.

Teachers must understand very well that every teacher in both the elementary and secondary levels are as good when teaching objectives and contents are taught properly.

CONCLUSIONS

Based on the findings of the study, the following conclusion were derived:

1. Ninety percent of the intermediate teachers were females, belong to the age range of 30-45, married, and all are educationally qualified to teach in the DepEd elementary schools with their corresponding years of working experience in the field.
2. The behavioral problems of pupils in relation to classroom such as talking with classmate while the teacher is explaining; cheating during examinations; and not reciting were perceived by the teachers as "moderately often"; as to the behavioral problems of pupils toward their classmates such as quarrelling with their classmates, going to other places, getting their classmates' materials, and roaming around the streets were perceived by the teachers as "sometimes."; as to the behavioral problems of pupils in relation to school grounds and premises such as making noise, throwing pieces of papers anywhere, and making vandals were perceived by the teachers as "moderately often;"; and as to the behavioral problems of pupils toward their teachers and school administrators such as answering back when scolded, not greeting their teachers and other school personnel, not following orders, and not listening to their teachers were perceived by the teachers as "sometimes"
3. Some preventive measures employed or used by the intermediate teachers in arresting or addressing the behavioral problems of the pupils were through showing love, care and understanding to pupils, instilling moral values to the pupils, making the homeroom PTA functional, establishing good rapport with the pupils, teaching the pupils to recite correctly and answer questions politely, giving assignments that arouse the pupils interests, meeting parents periodically and discussing behavioral problems of pupils, and observing pupils closely during recess and break time.
4. The results of the study revealed that classroom management has an attribute to good behavior and classroom management when properly implemented by teachers can serve as an instrument to improve the delivery of instruction in the classroom.

RECOMMENDATIONS

From the light of the findings and conclusions of the study, the following are hereby recommended:

1. Teachers should upgrade themselves personally and professionally by enrolling and finishing their post graduate studies and by attending various in-service-trainings particularly in handling behavioral problems of pupils.
2. All public elementary schools must have a registered guidance counselor equipped with the necessary knowledge in handling behavioral problems among pupils and learners.
3. All behavioral problems should be properly recorded in the guidance office to have at least a basis to pupils or learners who will be given special attention to improve these behavioral problems.
4. Parents should be involved in the prevention of the behavioral problems of their children.
5. School administrators must provide the necessary administrative assistance in the prevention of the behavioral problems of pupils and learners.
6. The various preventive measures in addressing the behavioral problems of the pupils must be utilized and strengthened.
7. The findings of the study should be issued through a school memorandum or be posted in a bulletin and be discussed during school meetings or conferences with the teachers, parents, and learners.

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REFERENCES

Bear, G. (2004). Developing self-discipline and preventing and correcting misbehavior. Boston: Allyn & Bacon.

Berman, S. (2004). Reading in Juvenile Delinquency. Lippin Cott. Co. Philadelphia. P. 710.

Gourneau, B. (2005). Five attitudes of effective teachers: Implications for teacher training. Essays in Education, 13.

Hymes, J. (1999). Development Psychology. McGraw Hill Book Co. New York. p.434.

Philippine Senate. (2010). A Filipino child will be left behind act of 2010. , 53 Republic of the Philippines.

Sekar, R. (2017). Teaching is a noble profession. International Journal of Advanced Scientific Research & Development (IJASRD), 4(11), 54. https://doi.org/10.26836/ijasrd/2017/v4/i11/4117

Snow, E. (2007). Intimacy and face-to-face versus computer interaction. Bridge Water State University, 3, 37–50. Retrieved from http://vc.bridgew.edu/cgi/viewcontent.cgi?article=1053&context=undergrad_rev

Sorcensen, J.H. (2005). Psychology in Education. McGraw Hill Book Co. New York. P. 154.

UNESCO. (2012). Positive discipline in the inclusive learning-friendly classroom: Specialized booklet 1. In UNESCO Asia and Pacific Regional Bureau for Education (Vol. 66).

Weeks, F. H. (2000). Behaviour problems in the classroom: A model for teachers to assist learners with unmet emotional needs. Dissertation Abstracts International, 63(1-A), 89. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=ps yc4&AN=2002-95013- 060%5Cnhttp://oxfordsfx.hosted.exlibrisgroup.com/oxford?sid=OVID:psycdb&id=pm id:&id=doi:&issn=0419-4209&isbn=&volume=63&issue=1-A&spage=89&pages=89&date=2002&title=Di

Wingco, G. and Mores, W.C. (2001). Psychology and Teaching. Chicago. p. 349.

INFLUENCE OF ACCESSIBILITY AND AVAILABILITY OF LIBRARY RESOURCES ON UTILIZATION AS MEDIATED BY AWARENESS AMONG COLLEGE STUDENTS

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ABSTRACT

This study determined the influence of accessibility and availability of library resources on utilization, as mediated by awareness. A total of 256 randomly selected university students participated in the study, utilizing a self-constructed and validated questionnaire as the main data gathering tool. This correlational study used SPSS and Smart PLS to analyze the quantitative data. The results revealed that the library resources, particularly the printed and non-print resources were sometimes accessible and available. Furthermore, the university students were aware of the printed resources of their library and fully aware of the non-print library resources in their university. They further perceived that the library resources, both print, and non-print were sometimes utilized. The correlation analysis results revealed a significant relationship of accessibility, availability, and awareness on utilization of library resources. Availability and awareness of what library resources university students have in the university are significantly related, but accessibility and awareness are not significantly related. These results imply that if the library resources are accessible, available, and students are aware of it, the more likely the university students will utilize the library resources. Moreover, the utilization of the library resources does not differ by discipline and year level. The mediation analysis revealed that accessibility has a direct effect on the utilization of the library resources, however, the awareness of the library resources fully mediates the effects of availability on utilization which implies that students must be aware that the library resources are available so that the library resource can be utilized. The implication of the research is very significant to the advancement of the university library management in the resources utilization, services enhancement, library program planning, and development of the university community information literacy.

Keywords: Accessibility, availability, awareness, utilization, library resources

INTRODUCTION

Promoting knowledge is one of the significant roles that a library plays since the library is defined as "the heart of the institution" and an integral part in enhancing the teaching and learning process. Services offered by the library are evaluated based on the standards and the user feedback (Kiriri, 2018). Ntui and Udah (2015) explained that the library is a repository of knowledge that provides access to resources and supports the professionals to facilitate information for the resources effectively. Dukper, Sakibu, and Arthur (2018) point out that low awareness of library resources could mean a low utilization rate. When students fail to find the information they needed in the library, it may well be that there is not enough information regarding what resources are available.

Akanmidu, Odu, and Egbe (2016) stated that it is essential for the library to announce its available resources. Eyiolorunshe and Eluwole (2017) pointed out that having full awareness of the available resources by the users would help in their utilization. The students use library resources to find information and materials needed to study. It is only proper that adequate funding scarcity in the library resources be addressed and purchase the needed resources (Ternenge & Agipu 2019).

Users must change needs and attitudes towards information that enable librarians to update their resources (Dukper, Sakibu, and Arthur, 2018). In addition to classrooms that contribute to learning and teaching, learners also use other sources of information, such as libraries, especially when there is more accessible access (Eiriemiokhale and Ibeun, 2017). According to Eyiolorunshe and Eluwole (2017), academic librarians need to promote awareness of the available resources in the library and evaluate the usage of the resources regularly. Having orientation on using the different sources of information present in the library would be much better than giving away leaflets, flyers, and library guides.

The library can also create user awareness by assisting users in accessing the available materials (Khan, 2016). Students who did not know the resources in the library, such as electronic resources, may never know that the library has them and may never have a chance to make use of them. Electronic resources tend to have a lower percentage of usage than the other resources in the library (Osinulu, 2020). Often this situation is remedied by a proper announcement directed to the users (Dukper, Sakibu, and Arthur, 2018). Users being aware of the available resources in the library affects the degree of utilization of these resources (Owojuyigbe et al., 2018). Due to issues of awareness, availability, accessibility, and utilization of library resources, Thus, this study sought to determine the influence of accessibility and availability of library resources on utilization as mediated by awareness among college students.

THEORETICAL FRAMEWORK

This study is anchored on Technology Acceptance Model which was developed by Davis in the year 1993. This model is the most influential, empirically tested, widely used model of technology acceptance. The concept of this model was derived from the Theory of Reasoned Behavior (TRA) proposed by (Priyanka & Kumar, 2013 as cited in Ternenge and Kashimana, (2019).

Stated in this model is that the behaviors of individuals are determined by their intentions to execute those behaviors. These intentions then can be influenced by two factors namely, their attitudes and beliefs about the consequences of the behavior.

The Theory of Human Behavior which was developed by Alreck and Settle in 1985 (as cited in Anhwere et al, 2018) was also applied in this study. This theory was appropriate for this study since the utilization of library resources can be affected the perception of the users. The attitudes are psychological "predispositions" because they influence people's actions. The knowledge components of this theory indicate that the actions of library users on how they utilized the library resources may be based on the accessibility availability of the resources.

METHODOLOGY

This descriptive-correlational study was conducted at the Adventist University of the Philippines with a population of 256 college students randomly selected from the College of Business, College of Health, College of Dentistry, College of Nursing, and College of Science and Technology. These students were library users of the university library. The study used a non-probability sample in selecting a population based on the characteristics and research objective of the study with a population of 256 respondents who willingly answered the given questionnaire. A non-probability sample is a technique in which the researcher selects samples based on the subjective judgment of the researcher rather than random selection (Albert, Tullis & Tedesco, 2010).

The survey questionnaire was used in this study which includes the demographic profile of the respondents, level of awareness, availability, utilization, accessibility of the library resources. Before the data gathering, proper protocols were followed such as approvals from college deans and the Chief Librarian; requests for voluntary assistance from the Director of Libraries to coordinate the date and location of the distribution of questionnaires.

Using Statistical Package for Social Sciences (SPSS), data analyzed using descriptive and inferential statistics such as percentage, mean and standard deviation, correlation, and regression. Structural Equation Modeling was performed to determine the mediating effect of awareness on the influence of accessibility and availability of library resources on utilization.

FINDINGS

This study determined the accessibility, availability, and utilization of library resources as mediated by awareness. This study further determined the descriptive analysis of the main variables used in this study.

Accessibility of the Library Resources

This study included the following printed resources: textbooks, journals, magazines, encyclopedias, dictionaries, atlas, manuals, handbooks, almanacs, gazettes, maps, thesis/dissertation, newspaper, biographies, bibliographies, and travel guides. the non-printed resources included CDs/DVDs, online databases, and computers. Table 1 presents the extent of accessibility of library resources by the respondents. The results obtained a mean of 1.99 (SD=.48) for the printed resources and a mean of 2.04 (SD=.57) for the non-print resources. The results revealed that the college students perceived the print and non-print resources of the University Library were sometimes accessible in the university library.

Table 1. Extent of Accessibility of Library Resources (Print and Non-Print)

Accessibility	Mean	Std Deviation	Verbal Interpretation
Printed Resources	1.99	0.48	Sometimes
Non- Print Resources	2.04	0.57	Sometimes
Availability			
Printed Resources	2.11	0.56	Sometimes
Non- Print Resources	2.04	0.78	Sometimes

** 1 – 1.59 Never, 1.60 – 2.59 Sometimes, 2.60 – 3.5 Always*

The mean for these library resources was ranked from highest to lowest. From there, the results of this study revealed that the printed materials most accessed by the respondents were Textbooks (mean =2.45, SD = .54), while the least accessed was Gazettes, with the lowest mean of 1.68 (SD=.69). The most accessed non-print resources by the respondents were Computers (mean= 2.52, SD=.680) while the non-print resources least accessed are the CDs/DVDs (mean=1.55, SD = .66). The results confirm that the university library collections should be enhanced to cater to the needs of their users, either in physical or digital format. According to Eiriemiokhale & Ibuen 2017,) library users often use only those resources they have easy and quick access to. So, the library staff is more than custodians of the library resources, they must also find ways to obtain information on what resources are available (Odunlade, 2017).

Availability of the Library Resources

The respondents of the study perceived the library resources both print and non-print library resources were sometimes available (mean= 2.11, SD=.56 and mean= 2.04, SD =.078, respectively). According to the respondents, the most available printed materials are textbooks (mean = 2.45), while the non-print materials that the respondents found to be the least available in the Travel Guides (mean=1.83.). Computers are the non-print resources that the respondents found to be the most available resources (mean= 2.43), while the least available non-print resources for them would be the CDs/DVDs (mean=1.64). The study of Onwukanjo and Men (2017) states that a library's primary duty is to make the services accessible to users, which is a measure of the effectiveness of the library. Akpe and Ajav's (2018) study emphasizes that libraries provide information sources for the staff and students studying in the university.

Awareness of the Library Resources

Table 2. Awareness of the Users on Library Resources (Print and Non-Print)

Printed Resources	% Awareness	Non-Print Resources	% Awareness
Textbooks	98%	CDs/DVDs	67%
Journals	92%	Online Databases	85%
Magazines	80%	Computers	88%
Encyclopedias	80%		
Dictionary	85%		
Atlas	55%		
Manuals	85%		
Handbooks	83%		
Almanacs	64%		
Maps	98%		
Thesis	92%		
Dissertation	80%		
Newspaper	80%		
Biographies	85%		
Bibliographies	55%		
Travel Guides	85%		

Table 2 presents the respondents' awareness of the library resources. According to the results, 98% of the respondents are fully aware that Textbooks are available for the printed resources with 98% while 49% are the least aware of the Gazettes, as for the non-print resources, 88% of the respondents are fully aware of the computers while CDs/DVDs is the non-print resources that 67% are at least aware.

The respondents' awareness of the printed library resources are as follows: Textbooks with the highest percentage of awareness (98%); Journals with 92%; Magazines with 80%; Encyclopedias or 80%; Dictionary with 85%; Atlas with 55%; Manuals with 85%; Handbook with 83%; Almanacs with 64%; Gazettes with 49%, which is the lowest; Maps with 70%; Thesis with 82%;

Dissertation with 73%; Newspaper with 80%; Biographies with 80%; Bibliographies with 80% and Travel Guides with 57%.

The respondents' awareness of the non-print library resources is measured in CDs/DVDs with 67% of the respondents claimed they were aware. The lowest, Online Databases with 85%, and Computers with 88% who claimed they were aware, which is the highest. Dukper et al. (2018) confirmed these results in their study that participants have no previous knowledge of the available library resources in the library and that students are not entirely aware of the library resources available in the school. The lack of knowledge of the library resources in the library and previous knowledge of how to use the resources could pose a problem with the availability and usability of library resources. Suleiman and Joshua (2019) further suggest that the library should increase the awareness and use of the internet resources to be made known to the users and know how to use it.

Table 3. Extent of Utilization of Library Resources (Print and Non-Print)

	Mean	Std Deviation	Verbal Interpretation
Printed Resources	1.87	0.48	Sometimes
Non- Print Resources	2.05	0.54	Sometimes

** 1 – 1.59 Never, 1.60 – 2.59 Sometimes, 2.60 – 3.5 Always*

Table 3 presents the extent of utilization of the library resources by the respondents. This study revealed that the printed and non-print resources are sometimes utilized (mean=1.87, SD= 0.48 and mean = 2.05, SD=.54, respectively). The most utilized printed resources are the Textbooks (mean = 2.44), and the least utilized printed resources are the Gazettes and Travel Guides that both received a mean of 1.57. All printed library resources included in this study were sometimes used as claimed by the respondents. These results may be attributed to their perceived accessibility and availability.

In the study conducted by Dukper et al. (2018) the use of library resources depends on whether the library resources are available and accessible. In their study, the students interviewed indicated they were unaware of the existence of electronic library resources in the school because they did not have prior knowledge of their existence. However, that 16% of students who were aware of the existence of the electronic library resources in the school hardly utilize them for their academic purposes, 37% of respondents reported they used the electronic library resource once a week and 31% of the respondents used it twice weekly. These results just confirmed the current study that they sometimes used library resources.

Table 4

Relationship Accessibility and Availability on Awareness			
Variables	**r**	**p**	**Verbal Interpretation**
Accessibility	0.12	0.056	Not Significant
Availability	0.175	0.005	Significant
Relationship Accessibility and Availability on Utilization			
Variables	r	p	Verbal Interpretation
Accessibility	0.573	0.000	Significant
Availability	0.395	0.000	Significant
Relationship Accessibility and Availability on Utilization			
Variables	r	p	Verbal Interpretation
Awareness	0.204	0.001	Significant

Table 4 presents the correlation between accessibility and awareness as positive but not significant (r =0.120, p= 0.056). However, the correlation between availability and awareness is low but significant (r= 0.175, p=0.005). This implies that the more accessible and available the printed or non-printed materials, the higher the college students' level of awareness.

Library users should be aware of the library's resources so that they can access them. They should be informed that library resources are available. Ason et al. (2018) recommended that the library can furnish online resources such as the OPAC and create more awareness programs for the resources available. Boakye (2015) further suggests that creating education campaigns, educating staff on how to use online resources such as journals will improve library users' knowledge and accessibility rates such as the academic faculty.

The correlation between accessibility and utilization is 0.573 (p=0.000). The results imply that the more accessible the printed or non-printed materials, the higher is the library resources utilization. This result was confirmed by Abbas and Song (2020) in their results that the high degree of accessibility of electronic information resources and the high utilization rate would significantly improve research activities. Thus, making the ICT infrastructure facilities more convenient and accessible to users.

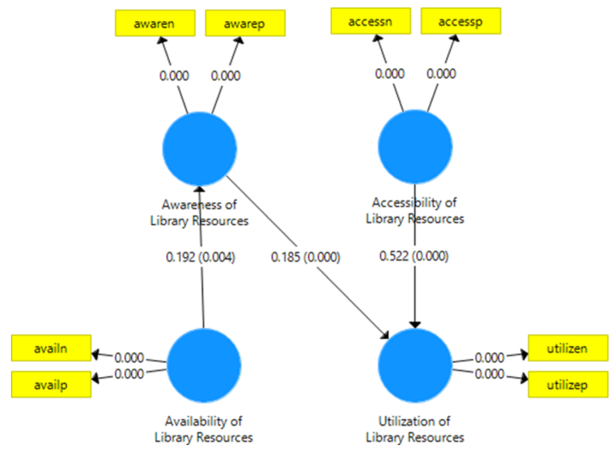
Furthermore, the correlation between availability and utilization is significant (r=0.395, p=.000). This result implies that the more available the printed or non-printed materials, the higher is the library utilization. The result is supported by Ezekwe's (2019) study that shows there is a positive relationship that exists between the availability of library services for the use of non-print tools, with the ICT resources that the library has. Ekeruche and Ogbimi (2018) agree that the availability of library services correlate with their use. Akpe and Ajav's (2018) findings show that the high unavailability of library services at universities has a detrimental impact on the use of library facilities, and essential library resources should be made accessible to students for learning.

Table 4 further presents the significant correlation between awareness and utilization is (r= 0.204 p=0.001). The result implies that the more college students know the printed or non-printed materials, the better the utilization. The result of the present study supports Abdullah et al. (2019) study that awareness of the library resources would lead to a high utilization rate. Soni et al. (2018) additionally argue that lack of assistance, less orientation, and awareness of the library resources that the library has and subscribes to would be the reason for low usage. Ogugua, et al. (2019) also explain that being aware of the library resources significantly impacts utilization since it will help the library users gain knowledge on the library resources made available for them to use.

Comparison of Library Utilization by Discipline and Year Level

The comparison of library utilization according to the discipline (Business and Health & Sciences) computed using a t-test. The result of the comparison was not statistically significant (t=1.135, p=0.257). Analysis of Variance was used to compare the difference in the utilization of library resources according to the year level of the respondents. The results showed a non-significant result in the utilization according to their year level both for printed (F(3, 243)=.209, p=.890,) and non-print resources (F(3,243)=.867, p=.460). The result showed no significant difference in utilization of the printed and non-print library resources by year level. Veena's (2016) study shows that the awareness and use of library services by Mangalore University graduate students and teachers have various forms of online media learning that they might have prior experience.

Figure 1. Mediation Effect of Awareness on the Influence of Availability and Accessibility on Utilization



Results of mediation analysis to determine if awareness of library resources mediates the influence of the accessibility and availability on the utilization.

Table 5 Significant Effect of Availability and Accessibility of Utilization as Mediated by Awareness

Total Effects	Beta Coeff	t-values	P values
Availability of Library Resources -> Awareness of Library Resources	0.912	2.92	0.004
Awareness of Library Resources -> Utilization of Library Resources	0.185	3.601	0
Accessibility of Library Resources -> Utilization of Library Resources	0.522	9.864	0
Availability of Library Resources -> Utilization of Library Resources	0.03552	2.18	0.029

Furthermore, Table 5 shows the total effects of the following: (1) availability of library resources on awareness of library resources, (2) awareness of library resources on the utilization of library resources, and (3) accessibility of library resources on the utilization of library resources.

The availability of library resources on awareness of library resources has a beta coefficient of 0.192, t-values of 9.864, and a p-value of 0.000. This value is significant at α = 0.01. Similarly, the awareness of the library resources on its utilization has a beta coefficient of 0.185, an at-value of 3.601, and a p-value of 0.000, which is also significant at α = 0.01. Hence there is an indirect effect of the availability of library resources on its utilization, with a beta coefficient of (.192) (.185) = 0.03552, with a t-value of 2.18 and a p-value of 0.004. The value is significant at α= 0.01. Therefore, awareness of library resources mediates the effects of the availability of library resources on the utilization of library resources. Furthermore, since from the above model, there is no direct arrow connecting the availability of library resources to library resources, it means that the effect is not significant. Therefore, awareness of library resources fully mediates the effects of the Availability of Library Resources on the Utilization of Library Resources. Also, from the table, the effects of accessibility of library resources on its utilization were established with a beta coefficient of 0.522, an at-value of 9.864, a p-value of 0.000; hence the effect is significant. The result implies that the more library resources are accessible to students, the better is its utilization. The study shows that awareness fully mediates the availability of library resource utilization. The result enabled Joy and Lucky (2016) to develop a strategy that would result in effective utilization of library resources by creating curriculum-based library resources, implementing library orientation and workshops for the students and the library must have a re-echo of the seminar that talks about the library resources utilization to the library staff.

CONCLUSION

The accessibility and availability of the Library Resources results confirmed that print and non-print resources of the University Library were sometimes accessible for use. For the university library resources that will always be access by the users, orientation on how to access these resources be conducted so that either physical or digital format can be accessed and not only those resources that are quickly accessed by the users.

The extent of utilization of Library Resources on both print and non-print has the interpretation of sometimes. For the extensive utilization of library resources, library users should be made aware or be informed of what are library resources or collections in hand are available for use and access.

The awareness of library resources fully mediates the effects of the availability of library resources on the utilization of library resources. Also, the effects of accessibility of library resources on its utilization effect are significant. The result implies that the more library resources are accessible to students, the better is its utilization.

The mediation results revealed that awareness of library resources fully affects the availability the utilization of library resources. Accessibility has a direct relationship with the utilization of library resources. The role of awareness to availability and utilization is important in that if library users were aware of the availability of resources, it is more likely they will use them.

RECOMMENDATIONS

Based on the results of this study, together with the conclusions, the following recommendations are suggested:

1. To give users sufficient information through regular orientation and instruction on how to access and utilize the library resources. This can be done through library webpage, any other social media, or create programs for the users' awareness of what are the resources available in the library's collection.
2. To conduct Library seminars and training workshops for the university community on how to use, access, avail, utilize and retrieve all the library resources on both print, non-print, and electronic resources.
3. To develop a strategy that would result in effective utilization of library resources by creating curriculum-based library resources.

REFERENCES

Adeleke, O. A. and Makinde, O. (2020). Accessibility and utilization of electronic information resources by undergraduate students of Lagos State University, Lagos. *Journal of Library, Science Education and Learning Technology* (JOLSELT), 2(1), 14-29. Retrieved from: www.alhikmah.edu.ng.

Akanmidu, O. J., Odu, A. O., and Egbe, N. G. (2016). Availability and use of library resources by staff of the Federal University of Lafia. *FULafia Journal of Humanities and Social Sciences*, 1, 1-11. Available at: www.researchgate.net.

Akpe, P. D.and Ajav, G. I. (2018). The availability and utilization of information resources by students of Akawe Torkuha College of Advanced and Professional Studies (ATCAPS). IOSR *Journal of Research and Method in Education* (IOSR-JRME), 8(6), 06-12. Retrieved from: www.iosrjournals.org.

Anhwere, B., Arthur, K. A., Agyapong, P., Manu, E. (2018). Utilization of library resources by lecturers in university of cape coast. International Journal of Library and Information Science, Vol.10(1), pp. 10-16. Retrieved from https://academicjournals.org/journal/IJLIS/article-full-text/566BED855649

Asom, F., Suleiman, M., and Kudus, D. (2018). Impact of awareness and accessibility of electronic information resources in university libraries on research by postgraduate students of Federal University of Agriculture Makurdi and Federal University of Technology Minna – Nigeria. *British Journal of Education, Learning and Development Psychology*, 1(1), 1-10. Available at: www.abjournals.org.

Dukper-Bawa, K., Bawa, S. and Arthur, B. (2018). Awareness and utilization of electronic library resources by students of Tamale Technical University, Ghana. *Library Philosophy and Practice (E-Journal)*. 2078. Retrieved from: http://digitalcommons.unl.edu/libphilprac/2078.

Eiriemiokhale, Kennedy Arebamen and Ibeun, Moses Oladele. (2017). Awareness, availability and accessibility of library resources by students of Kwara State University, Malete, Nigeria. *Library Philosophy and Practice (E-Journal)*. 1629. Retrieved from: https://digitalcommons.unl.edu/libphilprac/1629.

Enweani, Uche and Bibana, Moukebe O. (2019). Accessibility and utilization of information resources on students' learning outcomes in selected government secondary schools in Onitsha North Local Government Area of Anambra State. *International Journal of Research and Innovation in Social Science* (IJRISS), 3(8), 308-313. Retrieved from: www.rsisinternational.org.

Ekeruche, A. C. and Ogbimi, E. O. (2018). Availability and awareness as correlates of the use of electronic information resources by undergraduates in university libraries in Delta State. *Journal of Inter-Disciplinary Studies on Contemporary Issues,* 4(1&2), 156-163. Retrieved from: www.coewarri.edu.ng.

Eyiolorunshe, T. A. and Eluwole, O. A. (2017). Awareness, accessibility and use of library resources by faculty members of Landmark University, Nigeria. *Information Impact: Journal of Information and Knowledge Management*, 8(2), 118-128. Retrieved from: https://dx.doi.org/10.4314/iijikm.v8i2.10.

Ezekwe, Ferdinard A. (2019). Availability and utilization of information and communication technology resources by undergraduate library users in Anambra State University of Libraries, Nigeria. *Library Philosophy and Practice*, 1-43. Retrieved at: search.proquest.com.

Kiriri, Peter N. (2018). Service Delivery: The perceptions of users of library services in a private University in Africa. *European Journal of Multidisciplinary Studies*, 3(4), 221-231. Retrieved from: www.semanticscholar.org.

Ntui, A.I. and Udah, A. E. (2015). Accessibility and utilizations of library resources by teachers in secondary schools in Calabar education zone of cross River State, Nigeria. *Global Journal of Human-Social Science: A Arts and Humanities – Psychology*, 15(8). Retrieved from: http://creativecommons.org/licenses/by-nc/3.0/.

Ndidiamaka, N., Okonkwo, I., and Alor, A. (2019). Assessing the availability of Secondary School libray materials and services in Onitsha North Local Government Area. ATBU Journal of Science, Technology and Education, 7(2), 219-230. Retrieved from: http://www.atbuftejoste.com/index.php/joste/article/vieew/754.

Odunlade, Racheal O. (2017). Availability and accessibility of information resources as predictor of lecturers' teaching effectiveness. Library Philosophy and Practice (e- journal). 1509. Retrieved from: http://digitalcommons.enl.edu/libphilprac/1509.

Ogugua, Jonathan Chima, Unegbu, Magnus Chukwuduziem, Edem, Anne Anthony and Haco-Obasi, Chioma. (2019). Current awareness services and utilization of information resources in Abia and Imo States, Nigeria. *World Journal of Library and Information Science*, 1(2), 009-017. Retrieved from: www.premierpublishers.org.

Osinulu, Lolade Funmi. (2020). Awareness and use of electronic resources by students of College of Health Sciences in Olabisi Onabanjo University, Nigeria. Information Impact: *Journal of Information and Knowledge Management,* 113(3), 1-11, DOI: https://dx.doi.org/10.4314/iijikm.v1li3.1.

Owojuyigbe, O., Fadimu, A., Onyenania, G., and Owojuyigbe, A. (2018). Availability, awareness and use of e-library services for entrepreneurship skills development among selected rural young adults in Lagos State, Nigeria. Standing Conference of Eastern, Central and Southern African Library and Information Associations. Retrieved from: www.scecsal.org/publications/papers2018/027_owojuyigbe_2018.pdf.

Soni, N., Gupta, K., and Shrivastava, J. (2018). Awareness and usages of electronic resources among LIS Scholars of Jiwaji University, Gwalior: a survey. DESIDOC *Journal of Li-*

brary & Information Technology, 38(1), 56-62. https://doi:.org/10.14429/djlit.38.1.11524.

Ternenge, T.S. and Agipu, O. L. (2019). Availability and utilization of school library resources in selected secondary schools in Makurdi Metropolis. *Library Philosophy and Practice (E-Journal).* 2542. Retrieved from: https://digitalcommons.unl.edu/libphilprac/2542.

Ternenge, T.S and Kashimana, F. (2019). Availability, accessibility and use of electronic information resources for research by students in Francis Sulemanu Idachaba Library University of Agriculture, Makurdi. *Library Philosophy and Practice (e- journal)*, 2352, 1-40. Available at: https://digitalcommons.unl.edu/libphilprac/2352.

Unwana, E. E. and Men, J. M.. (2017). Staff attitude and staff academic profile as factors influencing the use of two special libraries in Abuja Nigeria. Library Philosophy and Practice (Ejournal). 1563.Retrieved from: http://digitalcommons.unl.edu/libphilprac/1563.

GROWTH AND SENSORY CHARACTERISTICS OF BROILERS FED WITH SQUASH (*Cucurbita maxima*) SEED MEAL

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ABSTRACT

A feeding trial using one hundred twenty (120) day-old Minerva broiler chicks randomly distributed to four (4) treatments with (0%, 2.5%,5%,7.5%) squash seed meal in three (3) replication was conducted to evaluate the growth and sensory characteristics of broilers with the following specific objectives; (1) determine the performance of broilers as influenced by the varying levels of squash seed meal; (2) evaluate the best concentrations of squash seed meal that give the best sensory characteristics of broilers; and (3) assess the of economy of using squash seed meal in the diet of broilers in terms of return above feed costs. The different levels of squash seed meal in broiler ration significantly influenced body weight, gain in weight, rate of growth, feed conversion ratio and feed conversion efficiency only during the first week up to the third week of the study. Dressing percentage with and without giblets did not differ significantly among broilers fed with experimental treatments. Similarly, the pancreas and liver weights of the experimental broilers did not differ among the different treatment groups. There is no effect on the sensory quality of oven-cooked broiler meat samples. However, taste panelists adjudged the sensory characteristics of meat samples from the control diet an acceptability rating of "like very much". Broilers fed with 7.5% squash seed meal obtained the highest return above feed cost hence, recommended for broiler feed formulation. The use of starter and finisher rations for broilers is recommended since the utilization of squash seed meal contributes to the lesser cost of feed expenses to find out whether or not squash seed meal lessen feed costs.

Keywords: Growth, sensory characteristics, seed meal, broilers, cucurbita maxima

INTRODUCTION

Despite all scientific technologies that have been developed and implemented over the past few decades, the world is still searching for better ways to feed livestock and poultry in terms of finding new potential feed, as well as accurate methods of improvement and evaluation of their nutritive value (Wadha et.al, 2013).

The increasing future demand for poultry products, driven by increases in income, population and urbanization will impose a huge demand on feed resources. Sustainability of feed production systems is being challenged due to biophysical factors such as land, soil and water scarcity, food-fuel-feed competition, ongoing global warming and frequent and drastic climatic vagaries, along with increased competition for arable land and non-renewable resources such as fossil carbon -sources, water and phosphorus. A key to sustainable poultry development especially broiler production is the efficient use of available feed resources, particularly those not competing with human food.

Squash pulp is consumed by human however, seeds are not used as human food or animal feed, and consequently, thousands of tons of seeds, containing 940 g/kg dry matter and significant amounts of proteins, amino acids, unsaturated lipids, phytosterols, squalene, dietary fiber, and minerals, are wasted. Squash seeds produce 225 to 248 kg crude protein/hectare and 240 to 255 kg ether extract/hectare, which could potentially be used for poultry feeding (Martínez et al., 2008; Martínez, 2009).

Squash seed meal is rich in proteins, but its inclusion in diets for monogastric animals have shown poor results (Bressani & Arroyave, 1963;

Rossainz et al., 1976; Manjarrez et al., 1976; Bernal et al., 1977). However, literature search has not retrieved sufficient information on the use of full-fat squash seeds in poultry diets, particularly in broiler diets. Hence, this study was conducted.

OBJECTIVES

Generally, the study was conducted to evaluate the growth performance and sensory characteristics of broilers fed with squash seed meal.

Specifically, it aims to:

1. Determine the performance of broilers as influenced by the varying levels of squash seed meal.
2. Evaluate the best concentrations of squash seed meal that give the best sensory characteristics of broilers.
3. Assess the economy of using squash seed meal in the diet of broilers in terms of return above feed costs.

REVIEW OF LITERATURE

This chapter provides citations and excerpts of research studies conducted by different researchers which serve as basis for this study's concepts.

Nutrient Composition of Squash Seeds (Cucurbita maxima)

Squash seeds produce 225 to 248 kg crude protein/hectare and 240 to 255 kg ether extract/ hectare, which could potentially be used for poultry feeding (Martínez et al., 2008; Martínez, 2009).

DLG (1961), stated that squash seed contains 35.7% crude protein, 2.3% crude fiber, 49.9% ether extract, 4.2 % ash and with a gross energy of 29.8 MJ/kg.

According to Lyman et al.(1956), squash seeds are rich in amino acids. It contain 11% arginine, 2.1% histidine, 3.6% isoleucine, 5.4% leucine, 5.1% lysine, 2.1% methionine, 4.3% phenylalanine, 2.3% threonine, 1.5% tryptophan and 4.2% valine.

Effect of Squash Seed Meal (SSM) in Broilers

Aguilar et al. (2011), observed that the inclusion of 0, 33, 66 and 100 g/kg of SSM in broiler diets, partially replacing soybean meal and vegetable oil, improved live performance and edible portions yield. The best results were obtained with 33 and 66 g/kg as compared to the control diet and the 100 g SSM /kg. Abdominal fat decreased with the inclusion of 66 and 100 g SSM / kg, but the sensory quality of breast and thighs was not affected by the inclusion of SSM. The serum levels of total cholesterol, very low density (VLDL) and low density (LDL) lipoproteins, triglycerides, glucose and atherogenic index decreased with the inclusion of 100 g/kg of SSM, except for high density lipoproteins (HDL), which increased.

Bressani and Arroyave (1963) included 200 g/ kg squash seed meal in broiler diets and observed 90 % morbidity due to thiamine deficiency. This may be related to the excessive temperature (200 ºC) used for the mechanic extraction of fat from squash seeds, considering that thiamine is the water-soluble vitamin that is most destroyed by processing (up to 50 %) (McCourt et al., 2006).

Teves et al. (2014), found out that Squash Seed Meal diets were comparable to the positive control diet (fishmeal) as these were efficiently utilized by the fish, thereby making it a potential candidate ingredient/replacement for fishmeal.

Utilization of Squash Seed Meal in Monogastric Animals

Squash seed meal is rich in proteins, but its inclusion in diets for monogastric animals have shown poor results (Bressani & Arroyave, 1963). However, literature search has not retrieved sufficient information on the use of full-fat squash seeds in poultry diets, particularly in broiler diets.

According to Aguilar et al. (2011), in his study on the effect of squash seed meal (Cucurbita moschata) on broiler performance, sensory meat quality, and blood lipid profile, the better performance obtained with the inclusion of 33 and 66 g SSM /kg feed as compared to control diet which may be due to the flavor enhancement promoted by unsaturated fats. Crespo and Esteve-García (2001) showed that, when unsaturated fat levels were increased in broiler diets, feed intake and final body weight was higher than that obtained with the control treatment. Mateos and Sell (1980) and Latshaw (2008) demonstrated a linear increase in broiler daily gain with increasing dietary fat inclusion levels. Mateos et al. (1995) mentioned that fats improve diet palatability as they reduce dust formation and hide undesirable flavors.

The rise of aquaculture production is thus highly important to fill in the gap between supply and demand, so as to keep the price of food fish at a reasonable range for the rural and urban poor which is critical for food security (Hasan et al., 2009). In this context, the formulation of fish feed using a cheap, locally available and highly nutritious terrestrial resource such as Cucurbita maxima seeds is needed. Crude protein levels of C. maxima seeds and kernels are comparable to high protein-containing seeds and legumes such as soybeans and cowpea; while lipid content of C. maxima kernels is comparable to sunflower, soybeans and cotton seeds (Haciseferogullari and Acaroglu 2012). Seed oils are mainly composed of polyunsaturated fatty acids, namely oleic and linoleic acids (Radovich et al., 2010; Kirbaslaret al., 2012) with the latter accounting for more than half of the seed's fatty acid content (Kim et al 2012). Its seeds also contain vitamins A, C and E (Raganathan et al., 2013), calcium, iron, phosphorous and zinc, and cucurbitacins (Khare 2007; Glew et al., 2006). Amino acids detected in significant amounts were glutamic acid, aspartic acid, leucine, glycine, valine, among others (Kim et al., 2012).

There is no reported study on the inclusion of squash seeds in fish feed. However, formulation of C. moschata seed meal, which belongs to the same plant family, has been made for broilers and has shown to reduce serum triglyceride and cholesterol levels due to its high oleic acid content compared to conventional seeds (Aguilar et al., 2011).

METHODOLOGY

Experimental Poultry House

Three (3) experimental rearing pens were constructed for the research study. Each portable and elevated experimental pen had a dimension of 4 x 10 feet and with a floor space of forty (40 ft2) square feet per cage, respectively. Each experimental unit was provided with 50 watts incandescent bulb as a source of heat during brooding period and to facilitate feeding at night. Feeders and drinking troughs were also provided in each cage.

Collection and Preparation of Squash Seed Meal

Squash seeds were collected from the wastes of the Food Processing Laboratory of Quirino State University, Maddela Campus after processing of squash chips and squash veggie noodles. The seeds were sun dried and ground using manually operated mill to produce seed meal.

The squash seed meal was mixed with other ingredients to compose the home mixed feeds for the broilers (Table 1).

Brooding Management

Before the arrival of the chicks, the broiler house was thoroughly prepared with mattings, feeders, and waterers in place for the accommodation of 120 heads of broiler chicks. The 120 heads of broiler chicks were brood for 2 weeks with a temperature requirement of 35° C. The birds were fed with chick booster commercial feeds. The brooder house was provided with old newspaper that serves as feeding receptacles for the chicks. This was changed daily to avoid the mixture of feces with the feeds. The brooder house was provided with 50-watt bulb per cage during brooding period and during night-time. The brooder house was curtained as growing house in order not to bring stress to chicks when transferring.

Table 1. Composition and Calculated Nutrient Contents of the Various Experimental Broiler Diets

INGREDIENTS	T_1 (Control)	T_2 (2.5%SSM)	T_3 (5%SSM)	T_4 (7.5% SSM)
Squash Seed Meal (SSM)	0	2.5	5.0	7.5
Soybean Meal	25.23	23.27	21.27	19.30
Ground Yellow Corn	51.77	51.23	50.73	50.20
Rice Bran D_1	10	10	10	10
Copra Meal	5	5	5	5
Fish Meal (50%)	5	5	5	5
Limestone	0.67	0.68	0.70	0.69
Dicalcium Phosphate	0.75	0.75	0.76	0.76
Methionine	0.30	0.25	0.20	0.15
Minerals/ Vitamins	0.53	0.57	0.59	0.65
Salt	0.50	0.50	0.50	0.50
Antioxidant	0.25	0.25	0.25	0.25
Total Weight (kg)	**100.00**	**100.00**	**100.00**	**100.00**
Calculated nutrient content				
Crude Protein (%)	20.00	20.00	20.00	20.00
Calcium (%)	0.79	0.79	0.79	0.79
Phosphorus (%)	0.45	0.45	0.45	0.45
ME (kcal/kg)	2972.85	2974.65	2976.65	2978.5
Crude Fiber (%)	4.35	4.28	4.19	4.12
Lysine (%)	1.05	1.12	1.20	0.93
Methionine (%)	0.43	0.43	0.43	0.43

Experimental Design and Treatments

The birds were randomly distributed into four (4) treatments. Each treatment was replicated three times consisting ten heads per experimental unit. The experiment was laid out following the Completely Randomized Design (CRD).

The different treatments used were the following:

T1 – Control (0% Squash Seed Meal)
T2 – 2.5% Squash Seed Meal
T3 – 5% Squash Seed Meal
T4 – 7.5% Squash Seed Meal

Health and Sanitation

All litters were collected daily and disposed properly to avoid possible occurrence of pest and diseases. Feeders and waterers were cleaned daily.

Feeding Management

Adlibitum feeding and light were provided to facilitate good sight when feeding at night. Feeders were checked daily for the presence of lumps in the feeds.

The experimental birds were fed following the formulated home mixed feeds imposed in the different treatments. The feeding of the formulated feeds was started when the broilers were transferred in the corresponding cells. Feeding of the formulated feeds was ended up at 42 days of rearing.

Providing Drinking Water

Fresh water was made available to the birds at all times, multivitamins were added to the drinking water to safeguard the birds from the attack of diseases.

Data Gathering Procedure

A. Growth Parameters

1. **Initial and Weekly Body Weights**. The initial and weekly body weights of the birds were taken and recorded until the end of the experimental period.
2. **Gain in Weight**. The gain in weight of the experimental birds was taken by subtracting the initial weight from the final weight at the end of the study. Likewise the percentage rate of growth of birds was computed using the Asmundson and Leiner's formula as follows:

$$Growth\ Rate = \frac{W_2 - W_1}{\frac{1}{2}(W_2 + W_1)}\ x\ 100$$

Where:
W_1 = previous weight of the birds at a given period of time
W_2 = the current weight of the birds at a given period of time

3. **Feed Consumption**. The weekly feed consumption of the birds was taken and recorded by taking the amount of feed offered and the left over's to determine the actual feed consumption.
4. **Feed Conversion Ratio and Efficiency**. The Feed conversion ratio and efficiency was determined by using the Biddle and Juergensons formula as follows:

$$FCR = \frac{\text{Feed Consumed}}{Gain\ Weight}$$

$$FCE = \frac{Gain\ in\ Weight}{Feed\ Consumed}\ x\ 100$$

5. **Dressed Weight**. One male and one female broilers per replication were dressed at the end of the study. The data on dressed weight with and without giblets will be gathered. The dressing percentage was based on the live weight of chicken samples and the dressed weight with and without giblets. The formula in computing the dressing percentage were as follows:

$$\text{Dressing Percentage with Giblets} = \frac{\text{Dressed Weight with Giblets}}{\text{Live Weight}}\ x\ 100$$

$$\text{Dressing Percentage without Giblets} = \frac{\text{Dressed Weight without Giblets}}{\text{Live Weight}}\ x\ 100$$

6. **Liver and Pancreas Weights**. Liver and pancreas weights were taken to determine any toxic substance present in it. If the liver and the pancreas were inflamed or enlarged, then possible toxicity existed in the dietary treatments used.

B. Economic Analysis

Return above Feed Costs. The return above feed costs was computed by subtracting the costs of feeds consumed from the value of the birds that was produced.

C. Sensory Evaluation

A total of 50 individuals were selected as panelists for sensory taste. The criteria for selection were with no false teeth, non-smoking and apparently healthy individual. They were differentiated the taste of the meat in a taste test chamber without knowing which were the control and the experimental samples. Score cards was provided to them to record their evaluation based on the following parameters: color, tenderness, juiciness, flavor and general acceptability. A nine-point Hedonic scale was used with nine as the most desirable and one being the least desirable.

Taste Test Preparation

Three (3) broiler chicken breasts from each treatment were selected at random. The chicken breasts were properly prepared then baked for 30 minutes in an oven at 160° C. There was no seasoning or any flavoring added to the chicken breasts.

The sensory panel was composed of 50 taste panelists came from professional groups of Quirino State University. In sensory evaluation of meat, it was based on the different properties like the general appearance, taste/flavor, aroma, tenderness, juiciness and general acceptability.

Statistical Analysis of Data

All the data on the growth parameters were tabulated and analyzed using the Analysis of Variance (ANOVA) following the Completely Randomized Design (CRD). The treatments with significant result were compared using the Least Significant Difference (LSD).

The data on the sensory evaluation were analyzed using the Analysis of Variance (ANOVA) for the Randomized Complete Block Design.

FINDINGS

Growth Performance

Initial Weight. Weight of the experimental broilers at the start of the study did not differ among treatment means as presented in Table 2. This is justified since the broilers have not yet been fed with the experimental diets at this period. Weight of the experimental broilers must be as uniform as possible in all treatments to avoid differences in growth performance that could be due to other factors (such as body weight) other than the effects of the experimental diets. Furthermore, the difference on the body weight of the broilers was the basis on the body weight gain at the end of the feeding trial.

Weekly and Final Body Weight. Weekly body weights of the broilers showed a consistently increasing trend from the first to the sixth week of feeding trial (Table 2). Significant differences ($P < 0.05$) in body weight were noted among the experimental broilers in the different treatments during the first, second and third week of the experiment. The broilers fed with 7.5% squash seed meal (T4) produced the heaviest broilers with a mean value of 105.83 grams at the first week of the study. Comparable mean values of 103.70, 101.56 and 98.83 grams were recorded from the broilers fed with 5% squash seed meal (T3), 2.5% squash seed meal (T2) and 0% squash seed meal (T1), respectively.

On the second week of feeding trial, significant differences ($P<0.05$) among treatments were noted. The broilers fed with 7.5% squash seed meal (T4) weight of 315.84 grams, followed by birds fed with 5% squash seed meal (T3) with a mean body weight of 284.5 grams. These were significantly higher over consistently produced the heaviest broilers with a mean body the broilers fed with 2.5% squash seed meal (T2) and 0% squash seed meal (T1) with mean values of 271.58 and 260.85 grams.

The same trend of results existed on the body weight ($P<0.05$) of the experimental broilers on the third week of feeding as shown in Table 3, column 5. The broilers fed with 7.5% squash seed meal (T4) obtained the heaviest weight with 624.04 grams. This was consistently followed by 5% squash seed meal (T3)`with a mean body weights of 564.60 grams. The least body weights were those broilers fed with 2.5% squash seed meal (T2) and 0% squash seed meal (T1) with respective mean values of 531.59 and 506.5 grams.

No variation was noted during the period of the fourth to sixth week from the experimental broilers as shown in Table 2, Columns 6, 7 and 8. The consistently hot air temperature, the low rainfall and the low relative humidity recorded caused unfavorable on the growth and development of the broilers (Figure 1). Likewise, insignificant results were noted on the final body weight which ranged from 1452.59 to 1685.22 grams.

Table 2. Initial and Weekly Body Weights of the Broilers Fed with Squash Seed Meal (g).

TREAT-MENTS	Body Weights of the Birds						
	Initial	1st	2nd	3rd	4th	5th	6th
T_1 – 0% squash seed meal	52.03	98.83^b	260.85^b	506.15^b	764.18	1104.58	1452.59
T_2 – 2.5% squash seed meal	53.06	101.56^b	271.58^b	531.59^b	811.64	1151.65	1501.69
T_3 – 5% squash seed meal	53.37	103.70^b	284.50^b	564.60^b	859.70	1209.72	1567.77
T_4 – 7.5% squash seed meal	52.00	105.83^a	315.84^a	624.04^a	935.06	1305.19	1685.22
F-Test	ns	*	*	*	ns	ns	ns
C.V. (%)	6.25	2.27	5.46	6.53	12.95	8.16	5.95

In a column, means with similar superscript are not significantly different at 1% level of significance by LSD.

Weekly and Final Gain in Body Weight. The weekly and final gain in weight of the experimental broilers was presented in Table 4. The experimental broilers showed significant variation from first, second and third week of the feeding trial as shown in Table 4, Columns 2, 3 and 4. The broilers fed with 7.5% squash seed meal (T4) gained more weight (P<0.05) with mean value of 53.80 grams at the end of first week. It was followed by the broilers fed with 5% squash seed meal (T3), 2.5 % squash seed meal (T2) and 0% squash seed meal (T1), with a comparable mean values of 50.33, 48.50 and 46.80 grams, respectively.

A consistent trend and the same result was observed on the second week of the study where the broilers fed with 7.5% squash seed meal (T4) had better performance with mean value of 210.01 grams, followed by 5% squash seed meal (T3), 2.5 % squash seed meal (T2) and 0% squash seed meal (T1), with corresponding mean values of, 180.01, 170.02 and 162.02 grams.

On the third week, T4 sustained more gain in weight (P<0.05) with mean value of 308.20 grams whi7.5% squash seed meal (T4) have faster growth rate (P<0.05) with a mean value of 66.73% followed by the broilers fed with 5% squash seed meal (T3), the 2.5% squash seed meal (T2) as well as the 0% squash seed meal (T1) with a mean values of 64.21, 62.77 and 62.06 percent, respectively.

Such differences in the gain in weight for the first, second and third week of feeding could be due to the essential nutrients in the feed supplements that are responsible for the increase in body weight gains.

Furthermore, there was no significant differences on gain in body weight that were noted during the fourth to sixth week of the experiment as shown in Table 3, Columns 5, 6 and 7.

Table 3. Gain in Weight of the Broilers Fed with Squash Seed Meal (g).

	Gain in Weights of the Birds						
TREAT-MENTS	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**TOTAL**
T_1 – 0% squash seed meal	46.80^b	162.02^b	245.30^b	258.03	340.4	348.01	1400.56
T_2 – 2.5% squash seed meal	48.50^b	170.02^b	260.01^b	280.05	340.01	350.04	1448.63
T_3 – 5% squash seed meal	50.33^b	180.80^b	280.10^b	295.1	350.02	358.05	1514.4
T_4 – 7.5% squash seed meal	53.80^a	210.01^a	308.20^a	311.02	370.13	380.03	1633.19
F-Test	*	*	*	ns	ns	ns	
C.V. (%)	4.55	9.6	6.29	11.21	8.86	10.92	
LSD	4.28	32.68	32.36				

In a column, means with similar superscript are not significantly different at 1% level of significance by LSD.

Percentage Rate of Growth

The weekly percentage rate of growth of broilers fed with home mixed ration supplemented with squash seed meal was shown in Table 4. Result revealed variation among treatment means from first week to third week of feeding. During the first week, broilers fed with 7.5% squash seed meal (T4) have faster growth rate (P<0.05) with a mean value of 66.73% followed by the broilers fed with 5% squash seed meal (T3), the 2.5% squash seed meal (T2) as well as the 0% squash seed meal (T1) with a mean values of 64.21, 62.77 and 62.06 percent, respectively. Generally, the trend on weekly rate of growth of the broilers was in descending order. Usual peak growth rate did not happen to the experimental broilers on the first week because the broiler chicks were exposed abruptly to the extreme condition of the environment (Figure 1).

However, on the second week of feeding trial, the broilers fed with 7.5% squash seed meal (T4) obtained the highest growth rate (P<0.05) with a mean value of 99.40%. This was followed by the broilers fed with 5% squash seed meal (T3) with mean value of 93.14%. However, T3 was comparable with the rate of growth acquired by the broilers fed with 2.5% squash seed meal (T2) and the 0% squash seed meal (T1) with a mean values of 91.01 and 89.93 percent respectively.

In like manner, the results on the third week, the rate of growth of the experimental broilers showed significant differences. The broilers fed with 7.5% squash seed meal (T4) obtained the highest percentage growth rate (P<0.05) of 66.57%. This was followed by the 5% squash seed meal (T3), 2.5% squash seed meal (T2) and the 0% squash seed meal (T1) with a mean values of 65.98, 64.81 and 64.06 percent, respectively.

Insignificant differences in growth rate were noted from fourth to sixth week of the study as shown in Table 3, Columns 5,6 and 7. Broilers fed with and without squash seed meal in the ration obtained comparable mean differences ranging from 39.83 to 42.55 percent during the fourth week, 32.15 to 36.5 percent for the fifth week and 25.36 to 27.33 percent during the sixth week of the study.

Table 4. Weekly Percentage Rate of Growth of the Broilers Fed with Squash Seed Meal (%)

	Percentage Rate of Growth of the Birds					
TREATMENTS	1st	2nd	3rd	4th	5th	6th
T1 – 0% squash seed meal	46.80b	162.02b	245.30b	258.03	340.4	348.01
T2 – 2.5% squash seed meal	48.50b	170.02b	260.01b	280.05	340.01	350.04
T3 – 5% squash seed meal	50.33b	180.80b	280.10b	295.1	350.02	358.05
T4 – 7.5% squash seed meal	53.80a	210.01a	308.20a	311.02	370.13	380.03
F-Test	*	*	*	ns	ns	ns
C.V. (%)	2.53	3.25	1.30	19.20	16.91	24.34
LSD	3.04	5.2	1.61			

In a column, means with similar superscript are not significantly different at 1% level of significance by LSD.

Feed Consumption. The weekly and cumulative feed consumption of the experimental broilers are presented in Table 4. On the first week of feeding trial, no variation was noted on the weekly feed consumption because of environmental temperature. However, feed consumption of the broilers during the second week of feeding trial revealed variation among treatment means ($P<0.05$) as shown in Table 4, Column 3. The broilers fed with 7.5% squash seed meal (T4) consumed greater amount of feeds with 330 grams. The rest of the broilers fed with 5% squash seed meal (T3), 2.5% squash seed meal (T2) and 0% squash seed meal (T1) with 320, 314.93 and 315.50 grams respectively.

On the third week of feeding, the same trend of significant result ($P<0.05$) was obtained by the broilers fed with 7.5% squash seed meal (T4) 510.38 grams of feeds which significantly higher than those broilers fed with 5% squash seed meal (T3) with 498.10 grams, 2.5% squash seed meal (T2) with 495.80 grams and 0% squash seed meal (T1) with 480.73 grams.

Results on the fourth week to sixth week, showed comparable feed consumption in all the treatments as shown in Table 5, Column 5, 6 and 7. During the fourth week, mean values ranged from 528.88 to 600.80 grams, fifth week with 793.50 to 840.25 grams and on the sixth week with 897.30 to 940.20 grams.

It was further noted that cumulative feed consumption of the broilers in all treatments with mean values mean values ranging from 3106.49 to 3302.44 grams was greater than the standard figure of 3.0 kg feed consumption of broilers within a six-week feeding period. However, this was very minimal to have a significant difference between actual feed intake and standard feed consumption.

Table 5. Weekly and Cumulative Feed Consumption of the Broilers Fed with Squash Seed Meal (g).

	Cumulative Feed Consumption (g)						
TREAT-MENTS	1st	2nd	3rd	4th	5th	6th	TOTAL
T_1 – 0% squash seed meal	90.58	315.50^b	480.73^b	528.88	793.50	897.30	3106.49
T_2 – 2.5% squash seed meal	87.40	314.93^b	495.80^b	570.78	800.11	912.40	3181.42
T_3 – 5% squash seed meal	85.70	320.00^b	498.10^b	580.40	820.50	925.80	3232.30
T_4 – 7.5% squash seed meal	80.81	330.00^a	510.38^a	600.80	840.25	940.20	3302.44
F-Test	Ns	*	*	Ns	ns	ns	
C.V. (%)	6.26	1.79	1.67	5.39	2.28	5.70	
LSD		10.81	15.60				

Feed Conversion Ratio (FCR). Weekly feed conversion ratio or the ability of broilers to convert feed into meat or flesh was presented in Table 6. Variation existed ($P<0.05$) during the first, second and third week of the experiment. The broilers fed with 7.5% squash seed meal (T4) consumed the least feed during first week (1.50kg/kg meat) for every unit of weight gain. On the other hand, 5% squash seed meal (T3), 2.5% squash seed meal (T2) and 0% squash seed meal (T1) with mean values of 1.71, 1.82 and 1.93 kg respectively. Apparently, the lesser feed consumed by broilers that were fed with 7.5% squash seed meal is an indication of efficiency of feed utilization. In contrast, the highest FCR values observed among birds with the other rations indicates poor feed utilization. This poor FCR of treatments 1,2 and 3 however, is reasonable since the birds are heavily affected with environmental temperature, rainfall drops, relative humidity, condition of the stocks and feed adaptation. Although broilers fed with 7.5% squash seed meal were also in a period of adaptation, better FCR of birds in this dietary group reflects a positive growth effect of squash seed meal in their ration during the first week, which have been given them a good start.

On the second week, the results on feed conversion ratio showed significant differences ($P<0.05$) as shown in Table 6, column 3. The broilers fed with 7.5% squash seed meal (T4) consistently consumed lesser amount of feeds to convert a kilo of meat with mean value of 1.57 kg which is significantly better than 5% squash seed meal (T3) 1.76 kg, 2.5% squash seed meal (T2) of 1.85 kg and 0% squash seed meal (T1) with 1.94 kg.

The same trend of results on feed conversion ratio on the third week were noted in Table 6, column 4. The broilers fed with 7.5% squash seed meal (T4) obtained the lowest FCR value of 1.65

kg which is statistically better than 5% squash seed meal (T3), 2.5% squash seed meal (T2) and 0% squash seed meal (T1) with mean values of 1.77, 1.88 and 1.95 kg respectively. Differences in the nutritive quality of diets (Puga et al., 2001) and in the age of animals (Adeneye, 1992) are some of the major factors that influence the ability to convert feed into meat.

The weekly FCR from fourth week of the broilers did not show any significant differences between treatment as shown in Table 6, columns 5, 6 and 7. The different treatments did not show differences on the feed conversion ratio of values ranging from 1.93 to 2.05 kg on the fourth week, 2.27 to 2.35 kg on the fifth week and 2.47 to 2.60 kg on the sixth week of the study. FCR values of broilers used in the present study indicate a less efficient feed utilization compared to present day of 1.80 – 1.97 kg/kg of meat FCR value recorded for broiler reared under commercial scale which is far better than the FCR values of the experimental diets in the present study.

Table 6. Average Weekly Feed Conversion ratio of the Broilers Fed with Squash Seed Meal

TREATMENTS	Feed Conversion Ratio of the Birds					
	1st	2nd	3rd	4th	5th	6th
T_1 – 0% squash seed meal	1.93^b	1.94^b	1.95^b	2.05	2.33	2.57
T_2 – 2.5% squash seed meal	1.82^b	1.85^b	1.88^b	2.03	2.35	2.60
T_3 – 5% squash seed meal	1.71^b	1.76^b	1.77^b	1.96	2.34	2.58
T_4 – 7.5% squash seed meal	1.50^a	1.57^a	1.65^a	1.93	2.27	2.47
F-Test	*	*	*	ns	ns	ns
C.V. (%)	6.94	6.28	5.52	3.55	6.25	6.32
LSD	.23	.21	.19			

In a column, means with similar superscript are not significantly different at 1% level of significance by LSD.

Feed Conversion Efficiency (FCE). The weekly feed conversion efficiency was presented in Table 7. The feed conversion efficiency of the experimental broilers showed significant difference (P<0.05) during the first, second and third week of the experiment. The broilers fed with 7.5% squash seed meal (T4) were more efficient feed converters with mean values of 66.58% which is significantly better than birds fed with other squash seed meal levels together with birds fed without squash seed meal in the ration at the end of the first week. Broilers fed with 5% squash seed meal (T3), 2.5% squash seed meal (T2) and 0% squash seed meal (T1) have lower FCE values of 58.73, 55.49 and 51.66 percent, respectively.

On the second week of the study, a similar trend of results was noted. Consistently, the broilers fed with 7.5% squash seed meal (T4) obtained higher FCE value of 60.39% which revealed statistically better than 5% squash seed meal (T3) with FCE mean value of 56.50 percent, 2.5% squash seed meal (T2) with 53.99 percent, and 0% squash seed meal (T1) with 51.35 percent.

Likewise, variation (P<0.05) existed on FCE value of the broilers on the third week of feeding, Table 7, column 4. The broilers fed with 7.5% squash seed meal (T4) had FCE mean value of 63.64% which is better than 5% squash seed meal (T3), 2.5% squash seed meal (T2), and 0% squash seed meal (T1) with corresponding FCE values of 56.23, 52.98 and 51.03 percent, respectively.

No significant differences were noted on the weekly FCE of the broilers during the 4th week to the last week of the study, as shown in Table 7, columns 5, 6 and 7. Feed conversion efficiency of the experimental broilers shows that all the broilers fed with and without squash seed meal in the ration had comparable feed conversion efficiency mean values that ranged from 48.79 to 57.84 percent on the fourth week, 42.50 to 44.05 percent on the fifth week and 38.36 to 40.42 percent on the sixth week of the study.

Table 7. Feed Conversion Efficiency of the Broilers Fed with Squash Seed Meal (%).

TREATMENTS	Feed Conversion Ratio of the Birds					
	1st	2nd	3rd	4th	5th	6th
T_1 – 0% squash seed meal	51.66^b	51.35^b	51.03^b	48.79	42.90	38.78
T_2 – 2.5% squash seed meal	55.49^b	53.99^b	52.98^b	49.06	42.50	38.36
T_3 – 5% squash seed meal	58.73^b	56.50^b	56.23^b	50.84	42.66	38.67
T_4 – 7.5% squash seed meal	66.58^a	63.64^a	60.39^a	57.84	44.05	40.42
F-Test	*	*	*	ns	ns	ns
C.V. (%)	8.87	6.63	5.27	7.80	4.22	4.06
LSD	9.71	7.04	5.47			

In a column, means with similar superscript are not significantly different at 1% level of significance by LSD.

Dressing Percentage with and without Giblets. Dressing percentage with and without giblets of broilers fed with different levels of squash seed meal are presented in Table 8 and Plates 13,14,15 and 16.

Dressing percentage with giblets of the experimental broilers fed with and without squash seed meal in the ration did not differ significantly among treatments with means ranging from 75.01 to 83.13 percent. Dressing percentage without giblets showed a similar result where no significant differences were noted between and among treatment groups of the birds subject to feeding trials with different levels of squash seed meal with mean values that ranged from 70.13 to 77.82 percent.

Furthermore, it was observed that dressing percentage with or without giblets of broilers in all treatment groups did not decrease from the standard range (70% - 7%) of dressed yield values for broiler chicken (Flash Card Machine, 2013).

Table 8. Average Dressing Percentage with and without Giblets of the Broilers Fed with Squash Seed Meal (g)

	Dressing Percentage	
TREATMENTS	**With giblets**	**Without giblets**
T1 – 0% squash seed meal	76.53	71.62
T2 – 2.5% squash seed meal	75.01	70.13
T3 – 5% squash seed meal	76.70	71.80
T4 – 7.5% squash seed meal	83.13	77.82
F-Test	ns	ns
C.V. (%)	4.31	4.63

Pancreas Weight. Pancreas weight of the experimental broilers did not differ significantly among the different treatment groups (Table 8). No enlarged pancreas was noted among the different treatment groups. This indicates that the inclusion of squash seed meal did not cause any deleterious effect on the pancreas weight of broilers with means ranging from 3.0 to 4.0 grams.

Liver Weight. As a rule, appearance, color, size and weight of the liver serve as indicators of the presence of toxic substances in the broilers' ration. Any discoloration, unnecessary appearance and deviation from size or weight like greatly enlarged liver in particular indicates that the birds have intakes of high levels of toxic substances. Based on the result of the present study, no significant difference in liver weight was observed among treatment groups including the control ration with means ranging from 38.50 to 42 grams, as presented in Table 9. This indicates that said ration did not contain toxic substances that could have caused adverse and deleterious effect on the broilers' growth performance.

Table 9. Average Pancreas and Liver Weights of the Broilers Fed with Squash Seed Meal (g)

	Average Weight	
TREATMENTS	**Pancreas**	**Liver**
T1 – 0% squash seed meal	3.00	38.50
T2 – 2.5% squash seed meal	3.16	39.50
T3 – 5% squash seed meal	3.66	40.00
T4 – 7.5% squash seed meal	4.0	42.00
F-Test	ns	ns
C.V. (%)	21.30	10.10

Return Above Feed Costs (RAFC). The economy of feeding squash seed meal on the broilers ration was expressed in the return above feed cost as shown in Table 10. Highest average returns of PhP 121.68 after deducting feed costs were derived from sales of finished broilers fed with 7.5% squash seed meal (T4) ration, while lowest return of PhP 93.56 were derived from broilers fed without squash seed meal or the control ration. Broilers that were fed with 2.5% and 5% squash seed meal ration ranks third and second with RAFC values of PhP 99.90 and PhP 106.97, respectively. Homemixed ration containing squash seed meals were cheaper and more economic in nature than that of the control rations as shown in Table 10.

Table 10. Comparison on Return above Feed Cost from Broilers Fed with Squash Seed Meal

	TREATMENT			
PARTICULAR	**T_1 0% SSM**	**T_2 2.5% SSM**	**T_3 5% SSM**	**T_4 7.5% SSM**
Average final weight, kg	1.45	1.50	1.56	1.68
Price/kg – live weight	120	120	120	120
Average sales, PhP	174.00	180.00	187.20	201.60
Ave. cumulative feed consumption, kg	3.10	3.18	3.23	3.30
Price/kg of feed, PhP	25.95	25.19	24.84	24.22
Average feed cost, PhP	80.44	80.10	80.23	79.92
Average return above feed cost, PhP	93.56	99.90	106.97	121.68

1/Computed based on current price of broilers at P100.00/kg live weight
2/ Computed based on current cost of ingredients used in the study

Sensory Evaluation

The summary on sensory evaluation of the different properties like general appearance, taste/ flavor, tenderness, aroma and juiciness of the oven-cooked meat samples of the different treatment groups are as follows:

General Appearance. General appearance of cooked broilers meat did not differ among all the treatment groups as shown in Table 12. Meat from broilers fed rations with different levels of squash seed meal has comparable appearance with that of birds fed with the control rations with average sensory scores that ranged from 5.57 to 5.67. Using a 7-point hedonic scale, all taste panelists rated the general appearance of meat from broilers fed with the control and experimental rations an average weighted mean of 5.62 equivalent to acceptability rating of "like very much" as shown in Table 12. This observation indicates that the effects of the rations on general appearance of broilers meat are similar in all treatment groups.

Taste. The taste panelists rated the taste of oven-cooked broilers meat from all treatment groups using the seven point Hedonic Scale with an average weighted mean range of 5.52 as presented in Table 12. The sensory evaluation using a seven-point Hedonic Scale is equivalent to an acceptability rating of ‘like very much”. Statistically, the taste of broilers meat reveals no variation between those broilers from the control and from the experimental rations with respective average sensory scores of 5.42(T1), 5.45(T2), 5.55(T3) and 5.66 (T4). Eventually, taste of cooked meat from broilers fed with or without squash seed meal was comparable with each other.

Tenderness. Average weighted mean score of 5.75 was given for tenderness of oven-cooked broilers meat from all the treatment groups as shown in Table 12. No significant difference was noted among treatment groups with an average sensory scores ranging from 5.40 to 5.65. Qualitatively, this weighted mean score equivalent to an acceptability rating of “like very much” as presented in Table 12. All taste panelists unanimously agreed that the tenderness of cooked broilers meat used in the experiment were statistically similar for both treated and non-treated broilers with squash seed meal.

Aroma. Sensory panelists gave both the control and experimental ration (2.5%, 5% and 7.5%) squash seed meal a qualitative acceptability rating of “like very much” with an average weighted mean score of 5.51, as shown in Table 12. The taste panelist’ judgment showed insignificant differences indicating that all samples did not show any variation in terms of aroma with an average sensory scores of 5.52 (T1), 5.75 (T2), 5.82 (T3), and 5.90 (T4), respectively. The findings reveal a similar effect of the different rations on aroma of broilers meat used in the experiment.

Juiciness. Cooked broiler meat in both experimental and control rations were rated an average weighted mean of 5.94 which was equivalent to an acceptability rating of “like very much”, based on sensory scores ranging from 5.87 to 6.02. The results based on statistical analysis showed that cooked broiler meat in all treatment groups were comparable with each other. Therefore, the rations have not significantly affected the juiciness of meat.

Table 11. Average Sensory Characteristics Scores of Oven-Cooked Meat from Broilers Fed with Squash Seed Meal.

Treatments	General Appearance	Taste	Tenderness	Aroma	Juiciness
T1 – 0% squash seed meal	5.65	5.42	5.55	5.52	5.95
T2 – 2.5% squash seed meal	5.60	5.45	5.40	5.75	5.87
T3 – 5% squash seed meal	5.57	5.55	5.45	5.82	5.92
T4 – 7.5% squash seed meal	5.67	5.66	5.65	5.90	6.02
Average mean	5.62	5.62	5.51	5.75	5.94
C.V. (%)	4.87	14.38	17.02	13.36	12.48
F-test result	ns	ns	ns	ns	ns

Table 12. Average Sensory Characteristics and General Acceptability Rating of Broiler Meat Samples Fed with Squash Seed Meal.

Sensory Characteristics	Weighted Mean Score	General Acceptability Rating
General appearance	5.62	Like very much
Taste	5.52	Like very much
Tenderness	5.75	Like very much
Aroma	5.51	Like very much
Juiciness	5.94	Like very much

CONCLUSION

Based on the foregoing findings, all levels of squash seed meal in the ration produced similar results in terms of different parameters such as body weight, gain in weight, growth rate, feed consumption, feed conversion ratio, feed conversion efficiency, dressing percentage with and without giblets, pancreas weight and liver weight on the fourth week up to the last week of the experiment.

The sensory characteristics of the broilers meat as adjudged by the taste panelists were comparable among the treatment groups having a sensory description of “like very much”.

The inclusion of 7.5% squash seed meal (T4) on the diet of broilers was found economical in producing the highest return and will benefit the local broiler growers by reducing the feed cost.

RECOMMENDATIONS

Broilers fed with 7.5% squash seed meal obtained the highest return above feed cost hence, recommended for broiler feed formulation. The use of starter and finisher rations for broilers is recommended since the utilization of squash seed meal contributes to the lesser cost of feed expenses. This is to find out whether or not squash seed meal lessen feed costs.

It is also recommended that a similar study along this line be conducted during cool months of rearing.

Likewise, the use of broiler colored strain as experimental stock is recommended in order to verify the results and findings of the present study.

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REFERENCES

Aguilar, Y. M., Yero, O. M., Navarro, M. I. V, Hurtado, C. A. B., López, J. A. C., &Mejía, L. B. G. (2011). Effect of squash seed meal (Cucurbita moschata) on broiler performance, sensory meat quality, and blood lipid profile. Revista Brasileira de Ciencia Avicola, 13(4), 219–226. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-84857862596&partnerID=tZOtx3y1

Bressani, Ricardo, and Rodolfo Arroyave. "Nutritive Value of Pumpkin Seed Essential Amino Acid Content and Protein Value of Pumpkin Seed (CucurbitaFarinosa)." Journal of Agricultural and Food Chemistry 11.1 (1963): 29-33.

Crespo, N., & Esteve-Garcia, E. (2001). Dietary fatty acid profile modifies abdominal fat deposition in broiler chickens. Poultry Science, 80, 71–78.

Crespo, N., and Esteve-Garcia, E. (2002). Nutrient and Fatty Acid Deposition in Broilers Fed Different Dietary Fatty Acid Profiles. Poultry Science 81:1533–1542

Cullison, A. E. 1979. Feeds and Feeding. Second Edition. Prentice Hall Co. Reston Virginia, Reston Publishing Co. Inc. p. 18.

Haciseferogullari, H., and M. Acaroglu. "Energy balance on pumpkin seed production." Journal of Agricultural Science and Applications 1.2 (2012): 49-53.

Hasan, Mohammad R., and Matthias Halwart. "Fish and feed inputs for aquaculture." Practices, sustainability and implications. FAO Fisheries and aquaculture technical paper 518 (2009).

Latshaw JD. Daily Energy Intake of broiler Chickens is Altered by Proximate Nutrient Content and Form of the Diet. Poultry Science 2008;87(10):89-95.

Martínez, Y., Valdivie, M., Martínez, O., Estarrón, M., &Córdova, J. (2010). Utilization of pumpkin (Cucurbitamoschata) seed in broiler chicken diets. Cuban Journal of Agri-

cultural Science, 44(4), 387–392. Retrieved from http://www.scopus.com/inward/record.url?eid=2-s2.0-79959741402&partnerID=tZOtx3y1
Mateos G, Piquer G, Medel P. Utilización de grasas y Subproductos lipídicos en dietas para avicultura. Memórias do 14th Congresso Latinoamericano de Avicultura;1995;Santiago.
McCourt, J. A., and R. G. Duggleby. "Acetohydroxyacid synthase and its role in the biosynthetic pathway for branched-chain amino acids." Amino acids 31.2 (2006): 173-210.
Murkovic M, Piironen V, Lampi A, Kraushofer T, Sontag G. Changes in chemical composition of pumpkin seeds during the roasting process for production of pumpkin seed oil.(Part 1: non-volatile compounds). Food chemistry 2004; 84(3):359-366
Rosebrough RW, McMurtry JP, Vasilatos-Younken R. Dietary fat and protein interactions in the broiler. Poultry Science 1999;78 (7):992-998.
Teves, J. F. C., Fernandez, M. N. M., &Ragaza, J. A. (2014). Effects of replacing fishmeal with squash seed meal (Cucurbita maxima) on performance of juvenile Nile tilapia (Oreochromisniloticus). AACL Bioflux, 7(2), 68–75.
Tůmová , E., Teimouri, A. Fat deposition in the broiler chicken: A review. Scientia Agriculturae Bohemica, 41, 2010 (2): 0–0
Winn, N.P., Godfrey, F.E. The effect of humidity on growth and feed conversion of broiler chickens. International Journal of Biometeorology. Volume 11, Issue 1, pp 39-50

CHALLENGES IN TEACHING SPECIAL EDUCATION AMONG SPECIAL EDUCATION TEACHERS AND THE ACADEMIC PERFORMANCE OF THE SPECIAL EDUCATION PUPILS IN THE PROVINCE OF BOHOL

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ABSTRACT

The study aims to determine the teacher's perception of work challenges in teaching special education pupils concerning their academic performance in the Province of Bohol. The researcher used a descriptive survey design using a modified questionnaire adapted from the study of Allam and Martin (2021). It was conducted via Messenger and email using Google forms. There were 63 teachers-respondent using a total enumeration of the teacher handling pupils with disabilities. The study revealed using a percentage that most teachers were married female belongs to the age interval of 20-29 who obtained baccalaureate degree with Teacher 1 rank and 1-5 years of teaching experiences. The weighted mean results of the overall academic performance of the learners constitute a developing degree. The teacher's challenges encountered where the classrooms are not conducive to learning. Teachers need appropriate strategies and curriculum guides as well as a budget to teach learners with disabilities. Further, they have insufficient local funds or government support regarding speech-language facilities, tools, and instructional materials. Spearman rank-order correlation results found out that there was a significant moderate positive relationship between the academic performance of the SPED pupils and the challenges encountered by the teacher. The best recommendation is to design training and seminars to capacitate the teacher handling special needs. School heads or administrators need to collaborate with the Local Government Units (LGU) officers and other government agencies to avail the essential tools and services and address the needs of the pupils with disabilities.

Keywords: Challenges, Learners with Special needs, Special Education, Teachers, Work

INTRODUCTION

Inclusive education is a process of identifying the most effective responses to diversity and attempting to understand how to benefit from differences (Mehta and Panju, 2018). Historically, inclusion in education envisions a model where children with special educational needs spend most of their time with non-disabled peers (Methodist, 2016). Inclusion entails providing a high-quality, equitable education to all students, without regard for their potential marginalization due to a disability, gender, emotional or behavioral difficulties, family background, ethnic origin, giftedness, migrants, poverty, hearing or visual impairment, or language delay, among other factors. It entails including temporarily or permanently disabled people and those who possess exceptional talents (Mehta and Panju, 2018).

All legislators, school boards, administrators, guidance counselors, instructors, parents, and students must guarantee that all educational settings are inclusive. Inclusivity is no longer limited to those with physical or cognitive impairments. Still, it encompasses the entire human variety in ability, language, age, culture, gender, and other characteristics. By framing special needs education as a problem for and a solution to educational injustice, we emphasized the inherent access and equality in the educational system. Special needs education is one of the methods for students who struggle with learning to be included in and excluded from the kinds of schooling ordinarily accessible to children of comparable ages (Methodist, 2016).

Since the country's formal adoption of the idea in the early 1980s, Cameroon's inclusion in schools to address students with disabilities has encountered difficulties. Despite the Cameroonian government's ratification of treaties and laws supporting inclusion in all primary and secondary educational institutions, the pace of implementation of inclusive education reform has been gradual. The government reaffirmed its commitment to school inclusion by signing the UNESCO Salamanca Statement. It recognizes that many countries, including Cameroon, had "well-established systems of special schools" for students with specific disabilities, which could also serve as a "valuable resource for the development of inclusive schools" (Mngo and Mngo, 2018).

Numerous public schools remain underequipped in the Philippines, both in urban and distant or rural regions. It may be one of the causes behind many general education instructors in the Philippines with reservations about their ability to teach in an inclusive setting. This challenge is exacerbated further by the inability to fulfill other critical criteria of good IE. Currently, teachers in the Philippines, whether trained or not, must accept that they are spread too thin in an inclusionary setting because the presence of students with special needs in a large group of students necessitates the preparation of more than one lesson plan, which needs much consideration. While the Philippines has already implemented an inclusion strategy, many schoolteachers have yet to completely grasp the significance of inclusion education (IE) (Muega & Echavia, 2011).

This scenario triggered the researchers to undertake the study whose primary goal is to determine the teacher's perception of work challenges in teaching special education pupils concerning their academic performance in the Province of Bohol.

THEORETICAL BACKGROUND

Maslow's Motivational Theory believed that humans are always motivated to achieve can fulfill their self needs. As shown in Maslow's Hierarchy of Needs, this concept charts the progression of human needs from physiology through safety, love and trust, self-appreciation, and ultimately self-fulfillment. The degree of need takes precedence when a fundamental human need is met (Xiaoqin 2016; Maslow, 1954). If human necessities did not fulfill according to the hierarchy, problems or conflicts would occur, and that person could not shift to another level of needs. Thus, this survey was based on Maslow's Motivational Theory to identify and prioritize the difficulties encountered by exceptional education instructors while educating children with various impairments to assist them in overcoming the problems according to the hierarchy of needs.

As a result of the current educational environment, educating children with special needs is no longer only responsible for special education (SPED) teachers. Since adopting the Individuals with Disabilities Education Improvement Act (IDEA), the general education classroom positioned as the least restrictive setting and the most effective learning space (O'Connor, Yasik, and Homer, 2016; O'Connor et al., 2016). Additionally, on June 13, 1968, Republic Acts 3562 and 5250 were enacted, requiring the Department of Education to educate SPED and underprivileged teachers, administrators, and supervisors. (Allam and Martin, 2021).

According to Savolainen (2009), teachers have a critical role in providing high-quality education. The quality of an education system cannot be higher than the quality of its instructors in any given year. The inclusion of children with disabilities is more likely to occur when instructors believe they are competent and equipped to teach students with impairments. Hull (2005) emphasizes the need for continuing training to help with differentiated teaching and changing and adjusting the curriculum to suit the requirements of diverse students.

In addition, the people who have two or more impairments have multiple disabilities (Norshidah & Manisah, 2010). Multiple disabilities are a mix of disabilities that result in unique educational requirements. Still, no special education programs are rehabilitated to a single type of disability (e.g., autism) (Centre for Parents Information and Resources, 2013). Although the IDEA 2004 definition did not contain the deaf-blind category, Malaysian authorities sanctioned the term. At the same time, severe disabilities refer to a person with severe disabilities. They need different measurements and evaluations in politics, society, laws, education, health, and finances to ensure their education rights effectively and with the best quality (Manuel et al., 2014).

The curriculum and teaching techniques of educators are critical in achieving successful teaching in inclusive classrooms. However, an inflexible and rigorous curriculum that does not account for individual variations may result in a breakdown of learning (Motitswe, 2015). Education can be detrimental by a lack of relevant topic matter, an absence of suitable learning tools, resources, assistive technologies, rigid teaching and classroom management, and ineffective evaluation techniques.

Motitswe (2015) states that one of the most significant obstacles to learning inside the curriculum is located within it and is mainly due to its inflexibility. This notion precludes it from addressing the varied requirements of learners; as a result, the revised curriculum meets all students' needs while also taking the learner-centeredness principle into account. The rigid structure of the curriculum hinders it from addressing the varied requirements of learners.

According to Zimba (2011), a lack of teacher training has resulted in difficulties with administrative criteria in certain inclusive schools in Swaziland since neither the administration nor the instructors were competent with an inclusive curriculum. Additionally, Fakudze and Maseko (2014) suggest that instructors should pursue self-improvement on a part-time basis.

Exceptional education instructors must exercise caution in recognizing and comprehending the needs of children with various disabilities since each kid has unique talents, strengths, and educational requirements (Centre for Parents Information and Resources 2013). Thus, all instructors should make an effort to discover and understand their students' strengths and interests to encourage them and improve the quality of their education. The education system for students with disabilities has adopted various successful methods or approaches, and a thorough evaluation or assessment encourages the learner. Students with severe learning disabilities who cannot communicate may benefit from their education system if the instructor and students utilize augmentative and alternative communication in the teaching and learning process (Noraini et al., 2012).

Support is any activity that enhances a school's ability to respond to diversity (Mahlo 2011). A supportive environment where there is a collaboration among teachers, district officials, principals, parents, and learner support for teachers is crucial for the successful implementation of inclusive education.

Teacher preparation programs (TPPs) and professional development (PD) can provide educators with the tools necessary to effectively interact with students with disabilities in general education classrooms. However, most pre-and in-service programs struggle to adequately inform and equip public educators with the tools necessary to interact effectively with students with disabilities in general education classrooms (Ingvarson et al., 2014; Rock et al., 2016).

More precisely, teacher preparation for working with children in their Least Restrictive Environment (LRE) is crucial. It is one of the only programs that include critical information on managing student behavior, assessments, and professional interaction requirements. Inclusive environments emphasize collaborative and coordinated practices among educators to inform better teaching for all students (Leko et al., 2015).

Opertti (2009) states that teachers should be equipped with the appropriate skills and materials to teach diverse students and meet the diverse needs of all different types of learners. Avramidis (2010) states that support from specialists is an essential factor in shaping positive teacher attitudes to inclusion. Cook (2004) concurs with Avramidis, claiming the combined effect between variables such as resources, parental support, larger budgets, and greater availability of special service personnel would contribute to improved attitudes in teachers.

OBJECTIVES

The specific objectives of the study are:

1. To determine the profile of the teacher-respondents.
2. To determine the academic performance of the SPED learners.
3. To determine the challenges encountered in teaching SPED learners in curriculum and learning environment.
4. To determine the challenges encountered in teaching SPED learners in accessibility and availability of services and tools.
5. To determine the relationship between the perceived academic performance and the challenges teachers encounter in handling the SPED learners in terms of the curriculum and learning environment and accessibility and availability of services and tools.

RESEARCH METHODOLOGY

DESIGN

The researchers employed the descriptive survey method with the aid of the modified survey questionnaire utilizing Google forms to gather data to address the aim of this study.

ENVIRONMENT AND RESPONDENTS

The study was conducted in the Province of Bohol, which is a first-class province divided into three (3) congressional districts, comprising the capital city of Tagbilaran with a land area of 4,821 km2 (1,861 sq. mi) and a coastline of about 261 km (162 mi) long, comprising of forty-seven (47) municipalities.

There were sixty-three (63) teachers handling special needs in the Province of Bohol. There were thirty-seven (37) public elementary SPED centers. The following Sped Centers are located as follows: Albuquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tubigon, Bein Unido, Buenavista, Clarin, Dagohoy, Danao, Getafe, Inabangga, Pres. Carlos P. Garcia, Sagbaan, San Isidro, San Miguel, Talibon, Trinidad, Ubay, Alicia, Anda, Batuan, Bilar, Candijay, Carmen, Dimiao, Duero, Garcia Hernandez, Guindulman, Jagna, Lila, Loay, Loboc, Mabini, Pilar, Sevilla, Siera Bullones and Valencia.

INSTRUMENTS / TOOL

The researcher used a modified survey questionnaire adopted from the study of Allam and Martin (2021). The questionnaire has four (4) instruments: questionnaire for the profile of the SPED teachers, perceived academic performance of the SPED learners, challenges encountered in terms of curriculum, learning environment, and availability and accessibility of services and tools.

DATA GATHERING PROCEDURE

The researchers sought approval to conduct the study of the school authorities of Bohol Island State University – Candijay Campus and the Department of Education Division of Bohol channeled through the Dean of the College of Advanced Studies, and the Division SPED Coordinator. Then, the researchers distributed the questionnaire through Google forms via email and Messenger. After a week with constant follow-up, the questionnaires were retrieved. The data were closely tabulated, analyzed, calculated, and interpreted. Tables were made to show a better understanding and comparison of results.

STATISTICAL TREATMENT

To assess the challenges in teaching special education among special education teachers and the academic performance of the special education pupils in the Province of Bohol, the percentage, weighted mean, and Spearman Rank Correlation Coefficient were used.

1. To determine the profile of the respondents, the simple percentage was used with the formula:

   $$P = (F/N) * 100$$

   Where:
   - P = Percentage;
   - F = Frequency; and,
   - N = Total sample size.

2. To determine the respondents' challenges encountered in terms of curriculum, learning environment, availability and accessibility of services and tools, and the perceived academic performance of the learners, the weighted mean was used with the formula:

   $$WM = \sum Fx/N$$

   Where:
   - WM = weighted mean
   - /N = summation of scale value x
   - N = number of cases

3. To determine the significant relationship between the challenges encountered in terms of curriculum, learning environment, availability, and accessibility of services and tools offered, Spearman Rank Correlation Coefficient was used with the formula:

   $$r_s = 1 - [6 \sum D^2 / n\,(n^2 - 1)]$$

   Where:
   - rs = Spearman Rank Correlation Coefficient
   - 2 = sum of the squares of the difference rank x and y
   - N = sample size
   - 6 = constant

THE FINDINGS

Table 1. Profile of the Teachers Respondents

1.1 Age	**Frequency N=63**	**Percentage**	**Rank**
20 - 29	26	41.3	1
30 – 39	25	39.7	2
40 – 49	4	6.3	4
50 - 59	7	11.1	3
60 years old and above	1	1.6	5
1.2 Sex			
Male	2	3.2	2
Female	61	96.8	1
1.3 Civil Status			
Single	21	33.3	2
Married	42	66.7	1
Annulled / Divorced	0	0.0	3.5
Widowed	0	0.0	3.5
1.4 Highest Educational Attainment			
Baccalaureate Degree	24	38.1	1
Bachelor's Degree Holder with Master's Units	9	14.3	3
Bachelor's Degree Holder with Master's Units in SPED	16	25.4	2
MA Complete Academic Requirements (CAR)	3	4.8	5.5
MA Complete Academic Requirements (CAR) in SPED	8	12.7	4
Master's Degree Holder	0	0.0	8.5
Master's Degree Holder in SPED	3	4.8	5.5
Master's Degree Holder with Doctorate Units	0	0.0	8.5
Master Degree Holder with Doctorate Units in Sped	0	0.0	8.5
Doctorate Degree Holder	0	0.0	8.5
1.5 Rank or Position			
Teacher I	36	57.1	1
Teacher II	0	0.0	5
Teacher III	1	1.6	3
Master Teacher I	0	0.0	5
Master Teacher II	0	0.0	5
Spet I	26	41.3	2
1.6 Number of Years of Teaching Special Education Pupils			
1-5 years	43	68.3	1
6-10 years	10	15.9	2
11-15 years	3	4.8	4
16-20 years	2	3.2	5
21 years and above	5	7.9	3

Table 1 shows that the teachers handling SPED pupils, the majority were young at age 20-29 years old (41.3%), females (96.8%), and already married (66.7%) were still novices in their service were baccalaureate degree holders (38.1). Some are pursuing a post-graduate degree who are the teacher I with plantilla item (57.1%) and designated as teacher handling special needs.

According to Pijl and Meier (2002), inclusive education is only effective when instructors foster acceptance for all learners and have enough support and resources to educate the learners. It is a positive step toward capacity building; many teachers already in the field believe they lack the skills and tools necessary to teach learners with diverse needs since most of them have never received training in inclusive education. Capacity-building workshops have not reached the majority of teachers in the field.

Table 2. Perceived Academic Performance of SPED learners

	WM	**DI**	**RANK**
2.1. Listening			
The learners follow a simple direction.	2.90	D	1
The learners distinguish different types of sounds.	2.67	D	3
The learners comprehend simple and familiar stories.	2.41	B	5
The learners listen attentively to stories, poems/rhymes.	2.62	D	4
The learners engage in communication with others.	2.73	D	2
Average Weighted Mean (WM)	**2.67**	**Developing**	
2.2 Speaking			
The learners increase their vocabulary to describe things.	2.41	B	2
The learners increase vocabulary to express their feelings.	2.48	B	1
The learners increase their vocabulary to share information.	2.30	B	3
The learner' answers and responds to questions accordingly.	2.24	B	4
The learners narrate simple and familiar stories.	2.17	B	5
Average Weighted Mean (WM)	**2.32**	**Beginning**	
2.3 Reading			
The learners classify objects according to function.	2.22	B	1.5
The learners note details in pictures.	2.16	B	3
The learners visualize objects and pictures from memory.	2.22	B	1.5
The learners comprehend picture stories.	2.05	B	4.5
The learners perform relevant study skills.	2.05	B	4.5
Average Weighted Mean (WM)	**2.14**	**Beginning**	
2.4. Writing			
The learners hold and grips the pencil correctly.	2.92	D	1
The learners trace lines and shapes.	2.84	D	3
The learners trace letters, numbers, and one's name correctly.	2.89	D	2
The learners copy lines, shapes, letters, numbers, and one's name correctly.	2.68	D	5
The learners use basic strokes correctly.	2.75	D	4
Average Weighted Mean (WM)	**2.82**	**Developing**	
Overall Average Weighted Mean (WM)	**2.48**	**Developing**	

Legend: 1.00-1.75 = Not Observed (NO), 1.76-2.50 = Beginning (B), 2.51-3.25 = Developing (D), 3.26-4.00 = Approaching Proficiency (AP)

Table 2 presents the perceived academic performance of the SPED learners. In table 2.1, as to Listening, the learners who followed simple directions got a weighted mean of 2.90 while the learners who comprehend simple and familiar stories got a weighted mean of 2.41. Regarding Speaking in table 2.2, the learners whose vocabulary increases to express one's feelings got a weighted mean of 2.48. In contrast, the learners who narrate simple and familiar stories got a weighted mean of 2.17. In table 2.3, as to reading, the learners who classify objects according to function and visualizes objects and pictures from memory got a weighted mean of 2.22.

On the other hand, the learners who comprehend picture stories and perform relevant study skills got a weighted mean of 2.05. In terms of Writing, in table 2.4, the learners who held and gripped pencil properly got a weighted mean of 2.92. In contrast, the learners who correctly copied lines, shapes, letters, numbers, and one's name got a weighted mean of 2.68. The overall average weighted mean is 2.48, described as developing.

The result aligns with the study conducted by Ahammed (2018), who has also revealed the results in his research that most students have problems in literacy (spelling, reading complex words, and write long terms) and numeracy (counting, subtraction, multiplication, and divide). As the common teaching practice found to have minimal effect on children's literacy and numeracy, the current study suggests rethinking a new pedagogical approach for improving literacy and numeracy for slow learners. Based on the findings of the research performed by Hurwitz, Perry, Cohen, et al. (2019), the test scores of children with impairments improved after being enrolled in special education. Additionally, students who graduated from special education showed a consistent upward trend in their academic performance, indicating that involvement in special education in this district links with long-term gains in academic performance.

Table 3. Teachers' Challenges Encountered in Teaching SPED learners in terms of Curriculum and Learning Environment

3.1 Curriculum	**WM**	**DI**	**RANK**
Lack of appropriate strategies.	3.5	AE	1.5
Lack of specific teaching aids.	3.3	AE	4
Lack of curriculum guide.	3.5	AE	1.5
Lack of instructional materials for learners with different disabilities.	3.4	AE	3
Lack of time in other ancillary work or other tasks.	3.1	SA	5
Average Weighted Mean (WM)	**3.36**	**AE**	
3.2 Learning environment			
The teachers are adjusting to different learning disabilities.	3.26	AE	5
Absences of accessibility or appropriate infrastructure for learners with a disability like a ramp, handrail, and grab bars.	3.27	AE	4
Support from the stakeholder, local government (LGU), and other agencies.	3.5	AE	2
Overcrowded classrooms are not conducive to learning.	3.3	AE	3
Lack of budget to provide an academic classroom for learners with disabilities.	3.7	AE	1
Average Weighted Mean (WM)	**3.4**	**AE**	
Overall Average Weighted Mean (WM)	**3.3**	**AE**	

Legend: 1.00-1.75 = Never Encountered (NE), 1.76-2.50 = Rarely Encountered (RE), 2.51-3.25 = Sometimes Encountered (SE), 3.26-4.00 = Always Encountered (AE)

Table 3 connotes that special-needs teachers encountered challenges in teaching SPED learners in curriculum and learning environments. In table 3.1, as to curriculum, the lack of appropriate strategies and curriculum guide got a weighted mean of 3.5. While overloaded with other ancillary work or another task got a weighted mean of 3.1. The average weighted mean of the challenges encountered by SPED teachers in the curriculum is 3.36, described as always encountered. On the other hand, in table 3.2, it is shown that teachers also encountered challenges in the learning environment of the SPED learners. The lack of budget to provide an academic classroom for learners with disabilities got a weighted mean of 3.7, while the lack of expertise to teach learners with different learning disabilities got the highest rank with a weighted mean of 3.26. The average weighted mean of the challenges encountered by SPED teachers in the learning environment is 3.4, described as always encountered.

Allam and Martin (2021) substantiate the study's conclusion that instructors assigned to SPED courses lack methods for interacting with students with impairments. Classrooms for children with learning disabilities in the Division of Ilagan generally lack appropriate learning environments to promote SPED, as shown by a lack of financing, a curriculum guide, instructional materials (IMs), and even school infrastructure, as found during the investigation. One might argue that placing learners with disabilities in an inclusive classroom with typically developing peers is insufficient in the absence of appropriate assistance. Learners with disabilities did not get the required help and services to access curricular facilities, and stakeholder support is inadequate to meet the requirements of SPED pupils. On the other hand, the technical challenges and issues addressed provided a comfortable working environment for school administrators, teachers, and stakeholders. The Department of Education Training and Development should arrange opportunities for ongoing professional development on inclusion methods for learners with SPED needs in cooperation with regional in-service officers.

Table 4. Teachers Challenges Encountered in Teaching SPED learners in terms Availability, and Accessibility of the Services and Tools offered

4.1 Availability and Accessibility of the Services Offered	**WM**	**DI**	**RANK**
The learners can avail and access services on psychological services.	1.67	NAA	5
The learners can avail and access services on early identification and evaluation of disabilities in children.	2.70	OAA	2

The learners can avail and access services on speech Language and audiology services.	1.57	NAA	6
The learners can avail and access services on occupational and physical therapy.	1.78	SAA	4
The learners can avail and access services on school health and school nurse services.	2.73	OAA	1
The learners can avail and access services on parents' counseling and training.	2.21	SAA	3
Average Weighted Mean (WM)	**2.11**	**SAA**	
4.2 Availability and Accessibility of the Tools Offered			
The SPED pupils can avail the devices…			
The learners can avail devices like a tape recorder.	1.59	NAA	6
The learners can avail devices like a typewriter.	1.46	NAA	7
The learners can avail devices like a computer.	1.87	SAA	4
The learners can avail devices like a laptop.	2.35	SAA	2
The learners can avail devices like braille.	1.81	SAA	5
The learners can avail devices like television.	2.22	SAA	3
The learners can avail devices like a large print/ picture.	2.75	OAA	1
Average Weighted Mean (WM)	**1.72**	**NAA**	
Overall Average Weighted Mean (WM)	**1.9**	**SAA**	

Legend: 1.00-1.75 = Not Available & Accessible (NAA), 1.76-2.50 = Seldom Available & Accessible (SAA), 2.51-3.25 = Oftentimes Available & Accessible (OAA), 3.26-4.00 = Always Available & Accessible (AAA)

As shown in Table 4.1, as to the availability and accessibility of services offered, the statement "The learners can avail and access services on school health and school nurse services," got the highest rank with a weighted mean of 2.73, while the statement "The learners can avail and access services on speech-language and audiology services" got the lowest rank with a weighted mean of 1.57. The average weighted mean of the availability and accessibility of services offered is 2.11, described as seldom available and accessible. On the other hand, the availability and accessibility of the tools provided, the statement "T The learners can avail devices like a large print picture" got the highest rank with a weighted mean of 2.75. In contrast, item no. 2, "The learners can avail devices like a typewriter," got the lowest weighted mean of 1.46. The average weighted mean on the availability and accessibility of the tools offered is 1.72, described as not available and accessible. The availability and accessibility of the services and tools offered have an overall average weighted mean of 1.9, described as seldom available and accessible.

This finding is consistent with Zwane's (2018) research, which found that crucial respondents and instructors agreed that a shortage of instructional resources impedes access to all-inclusive education, in which parents assist learners. Due to a severe shortage of instructional resources, inclusive education is now in a state where students with Learning with Special Needs (LSENs) lack access to necessary learning aids, appliances, and equipment.

Table 5. Relationship between Performance of the SPED learners and Challenges Encountered by the Teachers handling Special Needs

Dependent Variable	Independent Variable (Challenges)	Correlation Coefficient (r_s-value)	Critical value =0.05	Interpretation
Academic Performance	Curriculum	0.462	0.25	Significant, moderate positive correlation
Academic Performance	Resources (Services and Tools Offered)	0.426	0.25	Significant, moderate positive correlation
Academic Performance	Learning environment	0.480	0.25	Significant, moderate positive correlation

Table 5 reveals the relationships between teachers' assessment of the SPED pupils' academic performance and the challenges encountered by the teachers. For the independent variable in curriculum, resources, and learning environment, the correlation coefficient of 0.662, 0.426, and 0.480, respectively, is greater than the critical value of 0.250 with 61 degrees of freedom. The results warrant the rejection of the null hypothesis. It indicates that there is a significant moderate relationship between the variables.

These findings corroborate Bar Nava's (2015) research, which found that the entrance stage of the starting teacher is separate in the cycle of teachers' professional growth and characterized by many obstacles and problems. Mdlankomo (2017) found during an inclusive primary school opening that the school's curriculum is not adjusted to suit learners with a range of educational requirements. Using mainstream methods to educate students with learning impairments (LD) creates difficulties for both the instructor and the learner in an inclusive classroom.

CONCLUSIONS

In the light of the findings presented, the following conclusions are formulated by the researchers.

Based on the findings, the majority of the teachers handling SPED pupils were young, females, already married. Still, neophytes in their service, baccalaureate degree holders, and some are pursuing a post-graduate degree who are Teacher I with plantilla item. These teachers are utilizing interactive strategies for the learners. On the other hand, SPED pupils have problems in their academic performance in writing, listening, speaking, and reading since the curriculum has not adequately aligned with their needs. Further, the teachers have insufficient local funds or government support regarding speech-language facilities, tools, and instructional materials. School health nursing services and large print pictures were available and accessible as needs arise. Lastly, teachers encountered challenges in identifying the pupil's strengths and weaknesses with different behavioral patterns and learning disabilities.

RECOMMENDATIONS

To utilize the study's findings, the researcher recommends that the school administrators conduct curriculum reviews to address and cater to the needs of the SPED pupils with different disabilities. Design training and seminars to capacitate the teacher handling special needs and fill in the gap in professional development, focusing on the strategies in inclusive education. Teachers should be resourceful enough in providing the needed equipment or devices to the learners with special needs to improve their academic performance. Further, they may collaborate with the Local Government Unit (LGU) officers and other government agencies to avail the essential tools and services to meet pupils with disabilities.

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REFERENCES

Ahammed, H. (2018). Challenges faced by the teacher while teaching with learning disability. Retrieved from https://bit.ly/3g6PBjR

Allam, F.C., & Martin, M.M. (2021). Issues and challenges in special education: A qualitative analysis from teacher's perspective. *Southeast Asia Early Childhood Journal*, 10(1), 37-49. Retrieved from https://files.eric.ed.gov/fulltext/EJ1296259.pdf

Avramidis, E. & Norwich, B. (2002). Teacher's attitudes towards integration/ inclusion: a review of literature. *European Journal of Special Needs Education*, 17(2), 129-147. Retrieved from https://www.tandfonline.com/doi/pdf/10.1080/08856250210129056

Centre for Parents Information and Resources. (2013). Multiple Disabilities. Retrieved from https://www.parentcenterhub.org/multiple/

Cook, B. (2004). Inclusive Teachers' Attitudes towards Their Students with Disabilities: A replication and extension. *The Elementary School Journal*, 104(4). Retrieved from https://bit.ly/3sig6aW

Fakudze, S.S. & Maseko, N. (2014). Supporting Teacher to Implement Inclusive Education in Kwaluseni District, Swaziland. Retrieved from https://bit.ly/3g3BUCc

Hurwitz, B., Perry, B., Cohen, E., et. al. (2019). Special education and individualized academic growth: a longitudinal assessment of outcomes for students with disabilities. http:// doi.org.10.3102/0002831219857054. journal.cagepub.com.

IDEA. 2004. IDEA 2004: Building the Legacy. Adapted from http://idea.ed.gov/part-c/statutes.

Ingvarson, L., Reid, K., Buckley, S., Kleinhenz, E., Masters, G., Rowley, G. (2014). Best practice teacher education programs and Australia's own programs. Canberra: Department of Education.

Leko, M. M., Brownell, M. T., Sindelar, P. T., & Kiely, M. T. (2015). Envisioning the future of special education personnel preparation in a standards-based era. *exceptional children, 82* (1), 25-43.

Manuel López-Torrijo & Santiago Mengual Andrés. 2014. Students with Severe, Permanent Disabilities and Their Educational Inclusion in Spain. International Education Studies. 7 (2): 91–105.

Maslow, A. (1954). *Motivation theory.* www.simplypsychology.org.

Mdlankomo, A.P. (2017). Investigating the impact and attitude of social workers in assisting people with disability in Alice in the Eastern Cape of South Africa*. Journal of human ecology (New Delhi)*, 3(2), 72-81. Retrieved from https://www.researchgate.net/publication/320585154_Investigating_the_Impact_and_Attitudes_of_Social_Workers_in_Assisting_People_with_Disabilities_in_Alice_in_the_Eastern_Cape_of_South_Africa

Mehta, Anju and Panju, Namreta. (2018). Teaching Competencies in Inclusive Classroom. *International Journal of Research in Humanities, Arts and Literature*, 6(8); 131-136. Retrieved from http://oaji.net/articles/2017/488-1537502980.pdf

Methodist, Susana. (2016). Role of Teacher in Inclusive Education. *International Journal of Education and Applied Research*. Retrieved from http://ijear.org/vol61/TEP2016/34-gunjan-tyagi.pdf

Mngo, Zachary and Mngo, Agnes. (2018). Teachers' Perceptions of Inclusion in a Pilot Inclusive Education Program: Implications for Instructional Leadership. *Hindawi Education Research International*. Retrieved from https://www.hindawi.com/journals/edri/2018/3524879/

Motitswe, J., 2012, teaching and learning methods in inclusive classrooms in the foundation phase. Retrieved from http://hdl.handle.net/10500/6037

Nava, B., (2015). Difficulties experienced by special education novice teachers in their induction year, at the various special education frameworks in Israel: outline of a research study jan. DOI: 10.14746/se.2015.37.22.

Neese, B., (2020). 15 Assistive technology tools & resources for student with disability. Alvernia University. teach throught.com

Norshidah Mohd, S. & Manisah Mohd, A. (2010). Students with Visual Impairments and Additional Disabilities. *Procedia Social and Behavioral Sciences*, 7, 714–719.

O'Connor, E. A., Yasik, A. E., & Horner, S. L. (2016). Teachers' knowledge of special education laws: What do they know? *insights into learning disabilities, 13*(1), 7-18.

Opertti, O. (2009). Teacher education for inclusion. Project kick off meeting. Dublin, Ireland

Pavlović, S. (2016). Inclusive school is (not) possible—pupil's voice. *Universal Journal of Educational Research, 4*(11), 2502-2508.

Pijl, S.J. & Meier, C. (2002). Factors in inclusion: Framework. In *Inclusive Education*, 18-23. Routledge. Retrieved from https://www.taylorfrancis.com/chapters/edit/10.4324/9780203015728-8/factors-inclusion-framework-sip-jan-pijl-cor-meijer

Zimba, Z., (2011). Managing an inclusive school in Swaziland. Research report, Rhodes University, Grahamstown.

Zwane, S. L., & Malale, M. M. (2018). Investigating barriers teachers face in the implementation of inclusive education in high schools in Gege branch, Swaziland. *African journal of disability*, *7*, 391. https://doi.org/10.4102/ajod.v7i0.391

INFLUENCE OF DEMOGRAPHIC PROFILE ON THE EMOTIONAL MATURITY AND EMOTIONAL INTELLIGENCE HIGHER EDUCATION EMPLOYEES: A PROPOSE MEASURE

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ABSTRACT

The study examined the influence of demographic profile on the Emotional Intelligence and Emotional Maturity of 437 permanent employees from selected State Universities in Central Visayas. The design of the study is descriptive. Two standardized questionnaires were used: [1] Emotional Intelligence Self Evaluation Measurement by Dr. Nicholas Hall and [2] Emotional Maturity Scale (ESM) developed by Singh and Bhargava. Descriptive statistics such as frequencies, percentages, means and inferential statistic of Chi square test of Contingency were used to analyze the data. It was found out that the test correlations between EI and the demographic profile along age, gender and years of work experience has an insignificant degree of correlation, whereas a significant correlation along Self-Motivation, Managing One's Emotions and Coaching Other's Emotion was obtained. While the test correlations between EM and the demographic profile along age, gender and years of work experience disclosed an insignificant correlation along gender and years of work experience except in Social Adjustment with significant correlation. A significant correlation was found between EM and age profile. Finally it was revealed that there is a insignificant correlation between Emotional Intelligence and Emotional Maturity. In conclusion, the Emotional Intelligence of respondents is generally not influenced by the selected demographic profile of the respondents while the Emotional Maturity of respondents was generally influenced by age and years of work experience but did not affect on Gender.

INTRODUCTION

The relationship between organizations and employees are getting more complex. Organizations nowadays are faced with the challenge of developing and maintaining the social and emotional skills of its employees. It is not enough for an individual to have an excellent IQ because more often a person experiences a type of disconnect in real-life situations. The intelligence of the individual alone cannot explain and guarantee their success in all the ups and downs of life and cannot make people well prepared for the right solution to a problem. A person may have learned the concepts of EI at an intellectual level, but he still finds it hard to manage their emotions or emotional reactivity. A person quickly reverts to self-destructive emotional habits and patterns when certain triggers are pulled (Vajda,2013). The emotional side of the personality is not only neglected but frequently looked down upon. Getting in touch with one's emotions and managing them when interacting with others plays a major part in organizational effectiveness.

Emotions, therefore, play a very critical role in the overall quality of the personal and professional life of a person. Emotions are part of being human. It is a proof that everyone is experiencing the richness and complexities of life. Emotions are not just about feeling or experiencing, but also how one expresses their emotions in relation to other people, including how he perceives other people's emotions and how these emotions affect their behaviour.

Emotional Intelligence (EI) and Emotional Maturity (EM) are two different terms often confused as one. EI refers to understanding of emotions. It is the person's capacity to supervise, direct their emotions and to recognize the emotions of others. Emotional maturity, on the other hand, is the ability to differentiate and to properly identify one's emotions while granting individual the freedom to experience whatever emotion is appropriate to a given situation. According to Smitson (1974) as cited by Begum and Satsangi (Begum & Satsangi,2017), emotional maturity is a process in which personality is continuously striving for greater sense of emotional health, both intra-physical and intrapersonal. An emotionally matured person is one who is able to control their feelings and able to suffer in silence. Such person is not subject to swing in mood and expresses their emotion, with moderation, decency and in good order. That said, emotional maturity and emotional intelligence are key factors in maintaining healthy relationships in an organization (Cumberlander,2017).

Although there is a wealth of literature on emotional intelligence and emotional maturity promoting its benefits to the organization, and even how it can be developed in employees, there is minimal literature regarding employee understanding and application of EI and EM within the higher educational institutions (HEIs). It is in this context that the study aimed to examine the influence of demographic profile on the emotional intelligence and emotional maturity of Higher Education employees.

STATEMENT OF THE PROBLEM

This study examined the influence of demographic profile on the Emotional Intelligence and Emotional Maturity among higher education employees of selected State Universities, SY 2018-2019 as bases for an intervention scheme.

Specifically, it sought to answer the following sub problems:

1. What is the demographic characteristics of respondents along;
   a. Age;
   b. Gender; and
   c. Years of work experience?
2. What is the extent of respondents' Emotional Intelligence?
3. How do employees assessed their Emotional Maturity?
4. Is there a significant degree of correlation between the:
   a. respondents' demographic profile vis a vis Emotional Intelligence;
   b. respondents' demographic profile and Emotional Maturity; and
   c. respondents' Emotional Intelligence and Emotional Maturity?
5. From the findings of the study, what intervention scheme could be suggested to strengthen respondents' emotional intelligence and emotional maturity?

RESEARCH METHODOLOGY

Research Design

The study employed the quantitative methodology of research under which a descriptive survey was used to investigate the phenomenon of emotional intelligence and emotional maturity of higher education employees. The descriptive survey method was employed because it is a proven way of effectively answering research questions and it is designed to depict the participants in an accurate way. Simply put, descriptive research is all about describing people who take part in the study.

Research Respondents and Environment

The locale of the study comprises the State universities in the province of Bohol, Cebu, and Negros Oriental. Specifically, it includes the Bohol Island State University (BISU), the Cebu Technological University (CTU) Main campus, and the Negros Oriental State University (NORSU) in Dumaguete City.

The respondents were four hundred thirty-seven (437) permanent employees of the mentioned State universities composed of university administrators, faculty and non-teaching personnel. Stratified probability sampling was used to determine the respondents of the study. The researchers used Slovin's formula in obtaining its sample size.

Research Instrument

The research instrument consists of three parts. The first part asks the individuals questions related to their demographics (age, gender, and years of work experience).

The second part of the instrument includes the self-evaluation of respondents' level of emotional intelligence. The standardized questionnaire on Emotional Intelligence Self Evaluation Measurement by Dr. Nicholas Hall (27:2007) measures five areas of emotional intelligence including: [1] Emotional Awareness, [2] Managing One's Emotions, [3] Self-Motivation, [4] Empathy, and [5]

Relationship Management / Coaching Others' Emotion. The respondents responded to the items by indicating a numerical value of 6,5,4,3,2, and 1 to the statements under each aspect.

The third part which uses the Emotional Maturity Scale (EMS) was developed by Singh and Bhargava in 1991(Singh & Bhargava,2017). The scale measures a list of five broad factors of Emotional Maturity - Emotional Stability, Emotional regression, Social Adjustment, Personality Disintegration and Independence. Items of the scale are in question form demanding information for each in any of the 5 options: Always, Mostly, Uncertain, Usually, Never. The items are so stated that if the answers are Always a score of 5 is given, for Mostly 4, for Undecided 3, for Usually 2, and for never a score of 1 is given.

Data Gathering Procedure

The researchers sought approval from the University Presidents for the conduct of the study. The letter of approval was forwarded to the respective campuses after permission was granted. The researchers personally distributed their questionnaires to all respondents involved in the study. The accomplished questionnaires were personally retrieved by the researchers. The tabulation, encoding and analysis of the gathered data subsequently followed.

Data Analysis

The quantitative data collected using structured questionnaires was analyzed. Prior to analysis, a code for the various quantitative variables was prepared for purposes of the numbering system of the questionnaires.

The data on the demographic profile of respondents was obtained using the Mean for establishing the profile table: M=Ex/N; where Ex is the summation of all data and N is the number of respondents.

The Emotional Intelligence of respondents was determined by utilizing the Emotional Intelligence Self Evaluation Measurement. The EI of respondents was determined by adding the score for the various areas of emotional intelligence according to:

EI	Item Numbers	Score
Emotional Awareness	Items 1+2+4+17+19+25	=
Managing One's Emotion	Items 3+7+8+10+18+30	=
Self-Motivation	Items 5+6+13+14+16+22	=
Empathy	Items 9+11+20+21+23+28	=
Coaching Other's Emotions	Items 12+15+24+26+27+29	=

The obtained score were then compared to the chart below to assess one's current standing on the various emotional competencies

Legend:

EA - Emotional Awareness
MOE - Managing One's Emotions
SM - Self Motivation
E - Empathy
COE- Coaching Other's Emotion

Meanwhile, the Emotional Maturity of respondents was determined using the Emotional Maturity Scale (EMS). The respondents' EM was obtained by adding the scores under the specific dimension. If the answer is Always then a score of 5 is given, a score of 4 for Mostly, a score of 3 for Undecided, a score of 2 for Usually, and for Never a score of 1 is given. The total score of the scale is an indicative of emotional maturity. Greater score on the scale is expressed in terms of Emotional Maturity.

In addition, a score range of 41-50 (ES/EP/SA/ PI) / 33-40 (I) indicate Stable emotional maturity; a score range of 31-40 (ES/EP/SA/ PI) / 25 -32 (I) suggest Unstable emotional maturity; a score range of 21-30 (ES/EP/SA/ PI) / 17-24 (I) implies Moderately Unstable emotional immaturity; and a score range of 10-20 21-30 (ES/EP/SA/ PI) / 8-16 (I) means Extreme Unstable emotional immaturity. The scores were compared to the chart below to interpret one's level of maturity. The higher the score on the scale, greater the degree of the emotional maturity and vice versa.

Score	Interpretation
10-20 (ES,EP/SA/PI)/8-16(1)	Extremely Unstable
21-30 (ES,EP/SA/PI)/17-24(1)	Moderately Unstable
31-40 (ES,EP/SA/PI)/25-32(1)	Unstable
41-50 (ES,EP/SA/PI)/33-40(1)	Stable

Legend:

ES - Emotional Stability
EP - Emotional Progression
SA - Social Adjustment
PI - Personal Integration
I - Independence

Statistical Treatment

Descriptive statistics such as frequencies, percentages, means and inferential statistics of Chi square were used to analyze the data. The Chi square test of Contingency was used to determine the relationship between the [1] demographic profile of respondents and emotional intelligence, [2] the demographic profile of respondents and emotional maturity, and [3] the EI and EM of respondents.

The formula for chi square is:

$$X^2 = \sum (fo - fe)^2/fe$$

X^2 = chi-square factor
fo = observed frequency
fe = expected or theoretical frequency

FINDINGS

1. A total of four hundred thirty-seven (437) respondents representing permanent employees of selected state universities in Region VII were involved in the study. Specifically, there were ninety-five (95) (21.74 percent) respondents from Bohol Island State University (BISU), one hundred seventy-five (175) (40.04 percent) from Cebu Technology University-Main Campus (CTU), and one hundred sixty-seven (167) (38.22 percent) from Negros Oriental State University (NORSU).
2. Majority of the respondents were between 20-30 years old, females and had at least 5 years of experience. The respondents were young professionals
3. The test of correlations between selected demographic profile of in relation to the five dimensions of emotional intelligence disclosed that:
   a. Age Profile. The correlations were insignificant and null hypotheses were accepted, implying that age profile did not impact the EI of employees.
   b. Gender Profile. The correlations were insignificant and null hypotheses were accepted, suggesting that the EI of employees was not influenced by gender.
   c. Years of work experience profile. The correlations were significant in the dimensions of self-motivation, managing one's emotions, and coaching other's emotions, hence, the null hypotheses were rejected. Meanwhile, there were insignificant degree of correlations in the dimensions of emotional awareness and empathy, thus, the null hypotheses were accepted.

Table II. Summary of Correlation Between Emotional Intelligence and Demographic Profile of Employees

EI Dimension	Table Values	Computed Value	Correlation	Null Hypothesis
Emotional Awareness				
Age	12.592	2.84	Insignificant	Accepted
Gender	5.991	2.96	Insignificant	Accepted
Years of work experience	12.592	4.70	Insignificant	Accepted
Managing One's Emotions				
Age	12.592	2.75	Insignificant	Accepted
Gender	5.991	1.42	Insignificant	Accepted
Years of Work experience	12.592	20.67	Significant	Rejected
Self Motivation				
Age	12.592	1.0	Insignificant	Accepted
Gender	5.991	3.95	Insignificant	Accepted
Years of Work Experience	12.592	16.38	Significant	Rejected
Empathy				
Age	12.592	7.48	Insignificant	Accepted
Gender	5.991	3.95	Insignificant	Accepted
Years of Work Experience	12.592	3.32	Insignificant	Accepted
Coaching other's Emotion				
Age	12.592	6.72	Insignificant	Accepted
Gender	5.991	2.54	Insignificant	Accepted
Years of Work Experience	12.592	13.71	Significant	Rejected

4. The respondents' level of emotional maturity along the five broad factors of Emotional Stability, Emotional Progression, Social Adjustment, Personality Integration and Independence indicated that employees possessed an Extremely Unstable emotional maturity along Emotional Progression and Personal Integration and Moderately Unstable in Emotional Stability, Social Adjustment and Independence.
5. The test of correlations between selected demographic profile of in relation to the five dimensions of emotional maturity disclosed that:
   a. Age. The correlations were generally significant in the 4 dimensions (emotional stability, emotional progression, social adjustment, and personal integration). The null hypotheses were rejected, implying that age profile has an impact on the 4 dimensions of employees' emotional maturity. However, age profile did not affect the Independence of respondents.
   b. Gender. The correlations were all insignificant and null hypotheses were accepted, suggesting that gender did not affect the emotional maturity of employees.
   c. Years of work experience. Generally, the correlations were insignificant in the 4 dimensions of emotional stability, emotional progression, personal integration, and independence; hence, the null hypotheses were accepted. Meanwhile, a significant degree of correlation in the dimension of social adjustment was noted, thus, the null hypotheses were rejected.

Table III. Summary of Correlation between Emotional Maturity and Demographic Profile of Employees

EM Dimension	Table Values	Computed Value	Correlation	Null Hypothesis
Emotional Stability				
Age	16.919	31.16	Significant	Rejected
Gender	7.815	3.88	Insignificant	Accepted
Years of work experience	28.869	20.21	Insignificant	Accepted
Emotional Progression				
Age	16.919	31.16	Significant	Rejected
Gender	7.815	7.01	Insignificant	Accepted
Years of Work experience	28.869	26.19	Significant	Accepted
Social Adjustments				
Age	16.919	17.52	Significant	Rejected
Gender	7.815	5.41	Insignificant	Accepted
Years of Work Experience	28.869	40.34	Significant	Rejected
Personal Integration				
Age	16.919	31.16	Significant	Rejected
Gender	7.815	2.82	Insignificant	Accepted
Years of Work Experience	28.869	18.56	Insignificant	Accepted
Independence				
Age	16.919	10.30	Insignificant	Accepted
Gender	7.815	1.66	Insignificant	Accepted
Years of Work Experience	28.869	14.27	Insignificant	Accepted

6. The correlation between Emotional Intelligence and Emotional Maturity resulted to an obtained chi-square of 3.21which was lower than the tabular value of 12.592 at 6 df at .05 level of significance. The correlation was insignificant; hence, the null hypothesis was accepted. This implies that emotional intelligence did not affect the emotional maturity of employees. Having high level of emotional intelligence does not necessarily mean one is already matured. It is necessary to have emotional intelligence in order to have emotional maturity. One needs to understand emotions first in order to develop emotional maturity

CONCLUSIONS

From the findings arrived at, the following conclusions were deduced:

1. Emotional Intelligence has no impact on the emotional maturity of respondents.
2. The emotional intelligence of employees needs some development. The aspect of coaching other's emotion was the only definite strength of employees.
3. Employees possessed an extremely unstable emotional maturity along emotional progression and personal integration and moderately unstable in emotional stability, social adjustment and independence
4. The emotional intelligence of respondents was generally not influenced by the selected demographic profile of age, gender and years of work experience.
5. The EI dimensions of self motivation, managing one's emotions and coaching one's emotions had an impact on the demographic profile of years of work experience.
6. The emotional maturity of respondents was generally influenced by age and years of work experience.
7. Gender did not affect the emotional maturity of respondents.
8. A culture of emotional intelligence is not the responsibility of the employees, but of the organizations in which they work for. Differences in personality and backgrounds can be expected with a diverse set of individuals. In these instances, organizations cannot expect their employees to resolve these situations on their own without guidance. Organization can address these issues by investing in their people and this starts with those in leadership positions. These individuals must display qualities that promote teamwork in ways that influence, motivate, stimulate, and consider others.
9. Employees cannot solely rely on cognitive abilities, but must be adept in both cognitive skills and EI to innovate and collaborate with co-workers to foster productive workplace environments.

RECOMMENDATIONS

An analysis of the descriptive data and the findings of the study formed the basis for the following recommendations:

1. Employees' level of emotional intelligence must be considered as a major part of customer service in organization. There is the need for higher education officials to reorient their ideologies on the importance of emotional intelligence. Human Resource Officers of HEI's should bear in mind not only IQ brilliant prospective employees should be considered when they are hiring staff but also EI brilliant prospective employees.
2. Efforts should be geared towards the total improvement of employee level of emotional intelligence through education. HEI employees should be educated on the importance of

emotional intelligence (EI) and be made aware of their respective scores so as to work to improve their EI levels. This will enable them to put in more efforts not only in improving in their technical know-how but also their emotional quotients.

3. A recommendation to address the reasons for improving emotional intelligence in staff can be done through trainings, job for a and job fairs which should be formulated to support the growth and awareness among the general public which includes job seekers. This will ensure a greater knowledge in the concept of emotional intelligence in relation to customer service.
4. Management should look for an organizational wide approach of bringing the employees closer to each other like organizing get together activities, end of the year parties and other social events so that they can understand themselves better as this will go a long way in increasing their awareness of others and relate well with others.
5. The organization should institute a reward system where employees that exhibit outstanding empathy are recognized as this will engender group cohesion and understanding.
6. Organization takes into consideration the recommended proposed program so that the present EI and EM level of HEI employees can be enhanced.
7. It is also suggested that HEIs consider addressing specific issues/weaknesses identified to see how it can be remedied.
8. The researchers would like to take the opportunity of disseminating the findings of the research to raise awareness on the importance of social and emotional intelligence so it can be utilized to help us connect and understand one another.

REFERENCES

1. Vajda, P. (2013). *Emotional Intelligence or Emotional Maturity?*
2. Begum, A. & and Satsang, A. (2017). *Emotional Maturity: Intelligence and Academic Streams.* VOL.-6, ISSUE-3, ISSN No. 2349-9443 Asian Resonance.
3. Cumberlander, S. (2017). *The Effects and Levels of Emotional Intelligence on Leadership Styles and Employee Morale*. Dissertation: Carson-Newsman Univeirsty, Jefferson City, Tennessee.
4. Thaler, R. H., & C. R. Sunstein, Nudge (2019). *Improving Decisions about Health, Wealth and Happiness* (Yale University Press, New Haven, CT).
5. *1987 Philippine Constitution*
6. Cherniss, C. (2010). *Emotional Intelligence: Toward Clarification of a Concept. *Industrial and Organizational Psychology*, (pp 110–126).
7. Overstreet, Robert L. (2016), "*The Relationship Between Leaders' Emotional Intelligence and Employees' Organizational Citizenship Behavior and Job-Related Affective Well-Being: Dissertations:Andrews Universit'.*
8. Riopel, L.(2020). *Emotional Intelligence Frameworks, Charts, Diagrams, and Graphs.Midland Michigan, Northwood University*.
9. Chamorro-Premuzic, T. (2015). *How To Work With People Who Aren't Good at Working with People. Harvard Business Review.*
10. Marquet, D. (2015). *Myths About Empowering Employees. Harvard Business Review.*
11. Chavda, H. (2018). *Emotional Maturity and Mental Health Among Working and Non-Working Women.* Department of Psychology Suarashtra University, Rajkot-360 005, Gujarat (India). Volume 5 I Issue 1 I Jan. – March 2018] EISSN 2348 –1269, Print ISSN 2349-5138
12. Pope, J. (2010). *Characteristics of an Emotionally Matured Person*. http://www.helium.com/items /1754428-emotional-maturity. 2010
13. Ansari, M. (2015). *Role of Emotional Maturity on Stress Among Undergraduate Students, The International Journal of Indian Psychology*.
14. Kumar, P (2016). *Demographic Variables and Its Effect on Emotional Intelligence: A Study on Indian Service Sector Employees. Annals of Neuroscience.*
15. Rai, D. (2017). *Emotional Intelligence and Emotional Maturity and their relationship with Academic Achievement of College Students in Sikkim*. International Journal of Education and Psychological Research (IJEPR) Volume 6, Issue 2, June 2017
16. Pooja, P. (2016). *Demographic Variables and Its Effect on Emotional Intelligence: A Study on Indian Service Sector Employees*. Annals of Neuroscience.
17. Gutierrez, AF, (2017) . *The Impact of Emotional Intelligence on the Leadership of Public School Superintendents California*: Brand-

man University.
18. Hall, N. (2007). *Emotional Intelligence Self Evaluation Measurement.*
19. Singh and Bhargava (1991). *Emotional Maturity Scale (EMS).*

PARTICIPATORY ANALYSIS OF THE INTERNAL AUDIT SERVICES IN STATE UNIVERSITIES AND COLLEGES IN REGION 02: BASIS FOR QUALITY MANAGEMENT AND GOVERNANCE

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ABSTRACT

This research investigation employed the multi-research method or the triangulation design of research utilizing the correlation method and focus group discussion which was undertaken to further validate the responses of the respondents. It focused on participatory analysis affecting the level of awareness and extent of implementation of the internal audit services of state universities and colleges in Region 02, Philippines. A total of 99 policy makers, policy implementors and policy stakeholders were considered as respondents. Questionnaires were used to gather the needed quantitative data. Results showed the respondents have high level of awareness and appraisal of the implementation of the internal control system, management audit, and operations audit of state universities and colleges in the research settings. Further, the level of awareness along financial control system significantly relates with the assessment on the extent of implementation of the internal audit services along internal control system, management audit, as well as with operations audit. Level of awareness along administrative control significantly relates with appraisal of internal control system, management audit, and operations audit. The level of awareness of program control has significant relationship with appraisal of internal control system, very significant relationship with management audit and operations audit. There exist very significant relationships between level of awareness on management audit and assessment on the extent of implementation of the internal audit services along management audit, and operations audit. Level of awareness on operations control is very significantly related with assessment on the extent of implementation along management audit and operations audit. With these findings, management and governance intervention materials were developed.

Keywords: Governance, Internal Audit Services, Internal Control System, Management Audit, Operations Audit, Quality Management

INTRODUCTION

The internal audit is an essential part of the operations of an organization. The Institute of Internal Auditors, an international association of internal auditors, offers this definition: “An independent, objective assurance and consulting activity designed to add value and improve an organization’s operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.” To this end, internal auditing furnishes staff with analyses, appraisals, and recommendations relating to these activities.

An internal audit’s primary objective is to examine key controls: Financial—how is money handled within the organization? For example, who authorizes payment, and what checks and balances are in place to prevent unauthorized spending and fraud? Administrative—are these conducive to meeting strategic objectives? Systems-related—what systems are in place departmentally and across the organization, and how do they fit together?

An internal audit examines a variety of aspects on the way in which an organization operates. It does not focus solely on financial issues. Write an audit brief or strategy that sets detailed priorities and gives some idea of the proportion of time you expect the auditor to spend on the various aspects of the audit. An internal audit should be a continuous process. You cannot expect a single audit to pick up all the potential weak links in your systems. Nor can you expect it to be a day-to -day management control mechanism.

If handled insensitively, an internal audit can make staff members feel that they are being scrutinized with the intention of finding fault. Staff should be briefed on the benefits of the audit and keep them informed of the findings and of the positive action that has been taken as a result of it.

Internal audit exists to support University administration and the Board of Regents in the effective discharge of their responsibilities with enough knowledge and professional judgment. It will provide an independent appraisal of the University's financial, operational, and control activities. It will report on the adequacy of internal controls, the accuracy and propriety of transactions, the extent which assets are accounted for and safeguarded, and the level of compliance with institutional policies, government laws and regulations. Additionally, it will also provide analyses, recommendations, counsel, and information concerning the activities reviewed.

Internal audit is a part of the organization's management control structure. It performs audit of lower level on behalf of the top management. Some of its most important function is to test the management controls themselves and to assist management in assessing risk and in developing more cause effective control.

No audit, however thorough, can provide absolute assurance of detecting every irregularity or error. A government that is convinced of the need to build and strengthen its control and analysis capabilities needs to define a strategy for accomplishing these goals and establishing responsibility of doing so.

Given the premise above, SUCs' primary function as stewards of public funds and the education of every Filipino should ensure effective and efficient operation within of course, the confines of existing laws, policies and procedures, rules and regulations. Within their mandate, daily operating practices and procedures should be sufficient to minimize the possibility of operational failure, overspending or other actions inconsistent with policy or violation of the law.

The management of such SUC's in the Philippines, certain conditions and situations demand salient actions and decisions viewed as necessary and expedient and must be promptly undertaken. Thus, this study was crafted in an attempt to measure the level of awareness and to measure the extent of implementation on the practices of Internal Audit Services (IAS) of State Universities and Colleges (SUCs) and likewise, to fully understand the internal audit department, that focuses on organization, independence, competence, reporting, and accomplishments in response to the clamor of transparency and accountability in the government service.

Statement of the Problem

This study sought to answer the following research questions:

1. What is the respondents' level of awareness on the internal audit services of state universities and colleges (SUCs) in Region 02, Philippines, along appraisal of internal control system, management audit, and operations audit?
2. What is the respondent's assessment on the extent of implementation of the internal audit services of the said SUCs along appraisal of internal control system, management audit, and operations audit?
3. Does the respondents' level of awareness relate significantly with their assessment on the extent of implementation of the internal audit services of said SUCs along its threefold practices?
4. Based on the findings of the study what quality management and governance intervention can be evolved to improve the internal audit services of SUCs in the region?

With the above research problems, the study tested the hypothesis: the respondents' level of awareness does not relate significantly with their assessment on the extent of implementation of the internal audit services of said SUCs along its threefold practices.

Conceptual Framework

The five circles at the outer layer of the paradigm represent the phases done to arrive at a quality management internal audit services with a governance intervention to further improve this service.

Circle 1 is the profiling of the three sets of respondents namely, policy makers, policy implementors, and policy stakeholders along socio-demographic and professional variables categorized from designation orders, special office orders and/or appointment papers of the respondents. It determines the degree of relationship the researcher have with its respondents, building a mutual trust and understanding to gather salient information for linkage and interaction.

Circle 2 is the determination of awareness level and extent of implementation of the internal audit service practices. Ideally, this is where internal control systems are appraised, be it financial (accounting and budget), administrative and program control systems. It is within this context that specific auditing objectives and auditing activities particularly management and operations audit are identified and measured to strengthen a common problem-solution oriented process.

Circle 3 is the analysis and interpretation of data. Several tables were prepared and presented based on the above two circles. They are linked to one another for raising awareness, information learning, facilitating learning, supporting participation and for collaborative actions. Clearly, these should go hand in hand and be done in a systematic and scientific way through research statistical tools.

Circle 4 is the validation of results through a focus group discussion. This is another important documentation activity wherein a written story was made after completing all statistical analysis. This is an evaluation process jointly participated in by all respondents, members of the panel and other development stakeholders so that it will become a learning experience for everyone involved in the study process.

Circle 5 is the quality management and governance intervention phase. This phase focused on a framework linked to help respondents and everyone involved in this study in the implementation, monitoring of what are being accomplished and to facilitate further evaluation of the internal audit services in state universities and colleges. The intervention crafted will be made available to different users usually as an extension and an advocacy.

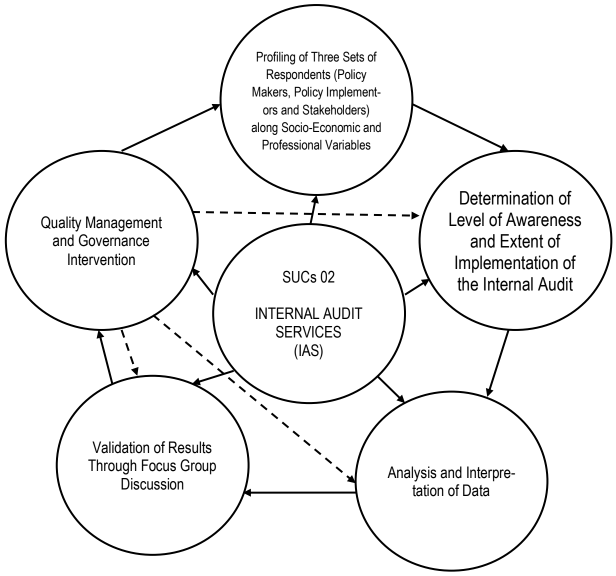

Figure 1. The Paradigm of the Study Showing Participatory Research Model

METHODOLOGY

The mixed-method research design was used in this study to analyze the internal audit services of state universities and colleges. This means that both quantitative and qualitative designs were utilized in the study. Questionnaires were used to extract quantitative data while triangulation and focus group discussion were employed to collect qualitative data.

Three state universities and one state college constitute the research environment: Cagayan State University, Tuguegarao, Cagayan; Isabela State University, Echague, Isabela; Nueva Vizcaya State University, Bayombong, Nueva Vizcaya; and Quirino State College, Diffun, Quirino.

The sample frame was made up of three groups summing up to 99 administrators, chiefs of offices and other staff and personnel classified based on designation orders, special office orders and/or appointment papers indicating their terms of preferences issued to them during the conduct of this study. There were 47 (47.47%) policy makers which included the vice presidents, the college deans, and the directors, 32 (32.32%) policy implementers which included chiefs of sections, namely chief administrative officer, human resource management officer, budget officer, procurement officer, supply officer, accountant, cashier, records officer, internal audit officer, and 20 (20.21) policy stakeholders which included selected faculty and staff.

The statistical tools used were weighted mean to evaluate the respondent's level of awareness and extent of implementation on the practices of the internal audit services, and Pearson r to establish significant relationship between the respondent's level of awareness and assessment on the extent of implementation on the practices of the internal audit services. The level of significance utilized in testing the null hypotheses was 0.05.

RESULTS AND DISCUSSION

This section presents, analyzes and discusses the findings of the study as to the benchmark data on the level of awareness and extent of implementation of the internal audit services of the SUCs of Region 02, and the development and validation of the quality management and governance tool.

Respondents' level of awareness on the internal audit services of state universities and colleges (SUCs) in Region 02, Philippines

To determine the respondent's awareness on the internal audit services in state universities and colleges (SUCs), the means of their responses to the questionnaire were computed. The results are presented in tabular form as follows.

Internal Control System. Table 1 presents the respondents' mean level of awareness on the internal audit services along appraisal of internal control system, otherwise known as financial control system. It can be gleaned from the table that the respondents have high level of awareness on the internal audit services of their institution along its financial control system, as indicated by the overall mean of 4.14.

Table 1. Respondents' Level of Awareness on the Internal Audit Services of State Universities and Colleges (SUCs) in Region 2, Philippines

Area of Appraisal	Mean	Verbal Description
Internal Control System	3.99	High
Financial Control System	4.14	High
Administrative Control System	4.05	High
Program Control System	3.79	High
Management Audit	3.88	High
Operations Audit	3.89	High
Grand Mean	*3.92*	*High*

In a nutshell, the respondents are very knowledgeable about the duties and functions of finance officers, the processes involved in and policies governing financial control.

This result is affirmed by Mckinney (1995), who asserted that despite the critical role that financial control system plays in every phase of management, only minimal attention is typically given to it. The lack of attention is due to the general view that it is purely or mainly a financial function to be controlled and managed by those charged with controlling finances. McKinney stressed that this is a very inaccurate perspective of its true functions because evidence shows that financial controls are indispensable to agencies of all sizes.

Furthermore, the overall mean of 4.05 indicates that the respondents are highly aware of the internal audit service along administrative control system.

Governance is the influence on an organization exercised by the executive body or the chief executive which or who governs its. The executive body may be a board of directors, board of trustees, council, legislative or similar entity. The chief executive maybe the president, chancellor, commissioner, chief judge or any individual elected or appointed as the highest-ranking person in the organization.

Further, the respondents' mean awareness level of the internal audit services in their universities and colleges along appraisal of their program control system, is high as supported by the overall mean of 3.79.

Management Audit. The respondents' mean awareness level of the internal audit services along management audit is high. The respondents are highly aware of management auditing objectives – audits fully briefed with clear objectives and defined responsibilities and ownership, cost and benefits clearly determined and properly monitored, and audits completed successfully in line with plan, time and budget.

The overall mean of 3.88, with the qualitative description of high implies that the respondents are much aware of internal audit services along management audit.

This finding is supported by Dizon (1990) who averred that management audit is a comprehensive and constructive examination of an organizational structure of a company, institution, or branch of government, or any component, such as division, department or the whole, its plan and policies, its financial controls, the methods of operations and its use of human and physical facilities.

Operations Audit. Taken as a whole the grand mean of 3.89 indicates that the awareness level of the respondents of the internal audit services along operations audit is high. With respect to the level of awareness along operations audit, the respondents are much aware of the management auditing objectives, as follows: to provide all levels of management an independent appraisal of their operations and assist them in achieving maximum efficiency, review adequacy and effectiveness of internal controls, provide value-added recommendations geared towards overall operational efficiency, present audit findings and recommendations to the executive committee, review or revisit the implementation process to ascertain level of compliance by the functional or operational units being audited, perform substantial audit on said processes whenever necessary, conduct investigations of alleged misconduct, misappropriation, and acts on complaints or anomalous activities involving the different operations and departments as directed by top management.

This context shares the view of Dizon (1990) that operational auditing is commonly used to define the extension of internal auditing into all operations of an organization as contrasted from the traditional financial and accounting areas. In other words, operational auditing is the audit examination and appraisal of areas in management other than financial and accounting. Operational auditing is an approach in internal auditing where areas of audit covers operations rather than financial and accounting.

Respondents' assessment on the extent of implementation of the internal audit services of state universities and colleges (SUCs) in Region 02, Philippines

To determine the respondents' assessment on the extent of implementation of the internal audit services in state universities and colleges (SUCs), the means of their responses to the questionnaire were computed. The grand mean representing the assessment of the respondents is 3.87 which is qualitatively described as high extent of implementation of the internal audit services. The details of this finding are presented in tabular form as follows.

Internal Control System. Table 2 displays the respondents' mean assessment of the extent to which the internal audit services along appraisal of internal control system is implemented.

It can be gleaned from the table that the respondents marked their assessment of the extent of implementation of the internal control system at 4.06, which is qualitatively described as high. Specifically, the level of implementation of internal control system along financial or accounting, budget, administrative, management, and program controls is qualitatively described as high.

This could mean that the financial operations of the SUCs under study are properly conducted, the financial reports are presented fairly and the generally accepted accounting principles duly adhered to are consistent with the preceding year. Further, this could mean that the respondents observe or undergo the budget process consisting of the budget preparation, budget legislation or authorization, budget execution and budget accountability.

Table 2. Respondents' Assessment on the Extent of Implementation of the Internal Audit Services of State Universities and Colleges (SUCs) in Region 2, Philippines

Area of Appraisal	Mean	Verbal Description
Internal Control System	4.06	High
Financial Control System	4.15	High
Budget Control	4.27	High
Administrative Control System	3.90	High
Management Control	4.01	High
Program Control System	3.95	High
Management Audit	3.59	High
Operations Audit	3.96	High
Grand Mean	*3.87*	*High*

This likewise implies that the respondents are satisfied with the governance responsibilities of the executive bodies of the university, how the regulatory control imposed on physical layout of offices and assets, and procedures on all transactions and significant events, are implemented. Similarly, they are satisfied with the communication system and the monitoring system of the university or college.

Ebreo (2003) disclosed that the respondents found the financial control system in their respective units to be very effective in terms of client satisfaction, accuracy of accounting records and prevention of fraud. She attributed this effectiveness to the knowledge and skills, as well as work behavior which were nurtured by continuous professional training.

The Institute of Internal auditors' Codification of Standards for the Professional Practice of Internal Auditing advanced the idea that internal auditing has become increasingly oriented toward operational control, oversight, and protection, all of which are major responsibilities of the board of directors. Internal auditing has moved further away from financial auditing, its traditional role, and closer toward operational auditing, its emerging role.

Management Audit. Same table illustrates the respondents' mean assessment of the extent of implementation of the internal audit services of SUCs in Region 2 along management audit. As reflected in the table the respondents rated the extent of implementation of the internal audit services along management audit in their respective institution as high. This is indicated by the overall mean of 3.59, to refer to high level of implementation along plans and objectives, organizational structure, policies and practices, systems and procedures, means of operation, human and physical facilities, and methods of control.

This could be interpreted to mean that the management auditing objectives are clearly defined, cost and benefits are clearly determined and properly monitored, and audits are completed successfully based on plan time and budget; planning, organizing, monitoring and controlling aspect of management auditing are carried out effectively, projects are managed efficiently and effectively, stakeholders' needs are met; and other safeguards and controls are highly implemented.

This finding clearly runs parallel with the definition of management audit as a comprehensive and constructive examination of an organization structure or its components such as division or department, its plans and objectives, policies, its financial controls, its methods of operations and its use of human and physical facilities, according to Dizon (1990).

Operational Audit. Table 2 also shows the respondents' mean assessment of the extent of implementation of the internal audit services along operational audit. As shown in the table, the respondents marked the audit of programs in the university or college as high with the overall mean of 3.96. This rating refers to high extent of implementation along policies, plans, regulations and procedure; all accounts of income; properly reported disbursements; finances and operations of field office; utilization, control and safeguard of all types of properties; accurately kept books of accounts; managerial controls to protect the university management and its personnel; agency management information; and performance of operations. The items on payrolls however are qualitatively described as very high.

This suggests that the respondents are remarkably impressed with how operations audit is being conducted in their universities and colleges. This finding shares the contention of Pomeranz, as cited by Dizon (1990), that the element of internal auditing is a must for management to ensure the desired benefits from a sound system of internal control. For the realization of the objective to assure efficiency and effectiveness in management through a sound system of internal control, operational auditing is selected as an area in internal auditing.

Analysis of relationship between respondents' level of awareness and their assessment on the extent of implementation of the internal audit services of said SUCs along its threefold practices

It is reflected in table 3 that there lies a marked substantial relationship between the respondents' level of awareness of the financial control system and their assessment on the extent of implementation of the internal audit service along its three practices namely, appraisal of internal control, management audit, and operations audit.

This is indicated by the correlation coefficient of 0.213, and its computed value of 2.147, as a result of the conversion of the correlation coefficient to t-value. The resulting computed t-value is higher than the critical value of 1.988 for the degree of freedom equal to 97 at 0.05 level of significance.

Table 3. Analysis of Relationship between Respondents' Level of Awareness on Financial Control System and their Assessment on the Extent of Implementation of the Internal Audit Services

Practices	Correlation Coefficient	Computed t-Value	Remarks
Internal Control	0.213	2.147	Significant
Management Audit	0.480	5.389	Significant
Operations Audit	0.300	3.097	Significant

Critical t-Value = 1.988; df = 97; Alpha = 0.05

In a similar vein, level of awareness on financial control very significantly relates to management audit and operations audit, as supported by the correlation coefficients of 0.480 and 0.300, respectively. When these coefficients were subjected to conversion to t-value, the computed values obtained are higher than the critical value of 1.988 for a degree of freedom of 97 at 5 percent level.

It could be conceptualized that for every high level of awareness there is a corresponding high level of assessment on the implementation of the internal audit service. The high level of awareness of the financial control system paves the way to high level of evaluation on the internal audit service along internal control system, management audit and operations audit.

This could be interpreted to mean that when respondents are highly aware of the institutions financial control system, it follows that they are in a better position to assess how internal audit service along its three practices. This goes to say that no one can objectively judge something he is not aware of.

Table 4 displays the correlation coefficient between the respondents' level of awareness on administrative control system and the extent of implementation of the internal audit service.

Table 4. Analysis of Relationship between Respondents' Level of Awareness on Administrative Control System and their Assessment on the Extent of Implementation of the Internal Audit Services

Practices	Correlation Coefficient	Computed t-Value	Remarks
Internal Control	0.298	3.075	Significant
Management Audit	0.493	5.581	Significant
Operations Audit	0.519	5.980	Significant

Critical t-Value = 1.988; df = 97; Alpha = 0.05

As shown in the table, the respondents' level of awareness on administrative control system is very significantly related with the assessment on the extent of implementation of the IAS along its three practices. This is evident in the correlation coefficient of 0.298 for appraisal of internal control system; 0.493 for management audit; and 0.519 for operations audit. These coefficients when converted to t, arrived at a computed value of 3.075, 5.581, and 5.980, respectively, all of which are higher than the t-value of 1.988 for 97 degrees of freedom at 0.05 level of significance.

Administrative controlling, according to Daft (1997), is the final link in the functional chain of management activities and brings the functions of management cycle in full circle. Control is the process through which standards for performance of people and processes are set, communicated, and applied. Effective control systems are mechanisms to monitor activities and take corrective action if necessary. The administrators observe what happens and compares that with what was supposed to happen. They must correct below-standard conditions and bring results up to expectation. Effective control systems allow administrators to know how well implementation is going.

The next table presents the summary of correlation coefficient between the respondents' level of awareness on program control system and their assessment on the extent of internal audit services.

Table 5. Analysis of Relationship between Respondents' Level of Awareness on Program Control System and their Assessment on the Extent of Implementation of the Internal Audit Services

Practices	Correlation Coefficient	Computed t-Value	Remarks
Internal Control	0.243	2.467	Significant
Management Audit	0.403	4.337	Significant
Operations Audit	0.435	4.758	Significant

Critical t-Value = 1.988; df = 97; Alpha = 0.05

Data in the table show that the respondents' level of awareness on program control system is significantly related with their assessment on the extent of implementation of the IAS, as evidenced by the correlation coefficient of 0.243. The computed t-value resulting from the conversion of the correlation is marked at 2.467, which is higher than the critical value of 1.988. Likewise, awareness level on program control is very significantly related to the extent of implementation along management audit and operations audit. This is pointed out by the correlation coefficients of 0.403 and 0.435, respectively, which when converted to t obtained a value of 4.337 for the former and 0.435 for the latter. These computed values are higher than the critical value of 1.988 for 97 degrees of freedom at 0.05 level of significance.

The succeeding table exhibits the summary of correlation coefficients between the respondents' level of awareness on management audit and their assessment on the extent of implementation of the internal audit service.

The respondents' level of awareness of management audit very significantly relates with the extent of implementation of the internal audit services, as indicated by the correlation coefficients of 0.450 with a computed value of 4.963 for the former and 0.280 with a computed value of 2.873 for the latter. Both computed values are higher than the critical t-value of 1.988 for 97 degrees of freedom at 5 percent level of significance.

Table 6. Analysis of Relationship between Respondents' Level of Awareness on Management Audit and their Assessment on the Extent of Implementation of the Internal Audit Services

Practices	Correlation Coefficient	Computed t-Value	Remarks
Internal Control	0.182	1.823	Not Significant
Management Audit	0.450	4.963	Significant
Operations Audit	0.280	2.873	Significant

Critical t-Value = 1.988; df = 97; Alpha = 0.05

According to Dizon (1990), planning and implementation are two different things. Evaluation of the result is another thing. But these three things should be treated equally. They should co-exist, and co-existing means complimenting one another in the attainment of the common goal – in government, the goal is optimum service to and maximum satisfaction of the entire people.

The table that follows reflects the summary of correlation coefficients between the respondents' level of awareness on operations audit and their assessment on the extent of implementation of the internal audit service.

As shown in the table, the respondents' level of awareness on operations audit is very significantly related with the assessment on the extent of implementation of the IAS. This is evident in the correlation coefficients of 0.449 and 0.283, respectively. When subjected to conversion to t, this yielded the computed values of 4.949 and 2.906, respectively, which are higher than the critical value of 1.988 for 97 degrees of freedom at 0.05 significance level.

Table 7. Analysis of Relationship between Respondents' Level of Awareness on Operations Audit and their Assessment on the Extent of Implementation of the Internal Audit Services

Practices	Correlation Coefficient	Computed t-Value	Remarks
Internal Control	0.060	0.592	Not Significant
Management Audit	0.449	4.949	Very Significant
Operations Audit	0.283	2.906	Very Significant

Critical t-Value = 1.988; df = 97; Alpha = 0.05

This is in line with the inference of Dizon (1990) that internal auditing is a tool of management, a staff function which serves as the eyes and ears of the organization. The existence of internal auditing unit in an organization is a good indication that the internal control system is regularly evaluated. However, for internal auditing to serve the purpose of management, it must be properly organized, given broad functions, and granted a real independent status. The evaluation of such should substantially cover the following areas: organization and independence, professional skills, audit performance and reporting practices.

Quality management and governance interventions evolved to improve the internal audit services of SUCs in the region

After substantially discussing with focus group the results of this research venture, the following interventions were derived.

To address the **quality management** needs of individuals who implement the internal audit services of SUCs in the region, the commitment of policy makers firstly is deemed.

SUCs in Region 2 should consider that internal auditing when effectively implemented can be considered the most important tool in quality management system (QMS), its output is critical to its growth – identification of system ineffectiveness, corrective actions and ultimately its continual improvement.

Their approval, support and encouragement will make the internal audit process a critical and important activity as any other process within their institution's QMS.

An institution that understands and supports its internal audit system keeps its QMS edge sharp. Their policy implementors have acquired the skill to identify system and compliance ineffectiveness; have progressed to understand the subtlety of continual improvement for this system.

Secondly, it is also proper to effectively utilize internal auditors.

Auditing is and acquired skill like playing a musical instrument. The more it's practiced the better one becomes at it. Simply, the more one audits, the better and more comfortable they in auditing.

Policy makers invest time and money to train their internal auditors yet uses them on a minimal basis – these are wasted opportunities. It is more beneficial for them to be exposed and engaged doing more of the audit process.

Utilize a wide variety of internal auditors to take advantage of new thoughts, perspectives and ideas. Rotate internal auditors, give them new assignments, spread them out to keep the institutions QMS fresh and updated. Share audit results and findings among the entire organization as lessons learned exercise because one person's corrective action could be someone else's preventive action.

As a **governance intervention**, the following training activities were designed.

Internal Audit Service (IAS) Capability Training Workshop. This capability training workshop was developed to reinforce the importance of internal auditing in public sector governance and accountability particularly in SUCs in Region 2. It will be a three-day activity to be participated by policy makers, policy implementors, policy stakeholders.

On Site Training for Internal Auditors in the Public Sector. Following the active participation of the Association of Government Internal Auditors (AGIA) as partners in public auditing and the strict implementation of Administrative Order 270, training for civil servants requiring a qualification for professional internal auditors in the public sector was developed. Internal audit is a key element of public financial management and public sector governance. It will be a three-day activity to be participated by policy makers, policy implementors, policy stakeholders.

CONCLUSIONS

Premised on the foregoing findings, it is concluded that:

1. High level of awareness is manifested by the respondents on appraisal of internal control system along financial, administrative, pro-

gram control system, management audit and operations audit.
2. The respondents' assessment on the extent of implementation of the internal audit service along appraisal of internal control system, management audit and operations audit is high.
3. Level of awareness on financial control is very significantly related with assessment on the extent of implementation of the internal audit services along management audit and operations audit and significant with appraisal of internal control. Administrative control awareness level relates very significantly with appraisal of internal control, management audit and operations audit; awareness level on program control significantly relates with appraisal of internal control system, and very significant with management audit and operations audit. Level of awareness along management audit relate very significantly with the assessment on the extent of implementation of management audit and operations audit; and level of awareness along operations audit is very significantly related to management audit and operations audit.
4. Quality management and governance interventions were developed to enhance awareness of stakeholders on internal audit services of the SUCs.

RECOMMENDATIONS

In the light of the salient findings and conclusions, the following recommendations are offered:

1. While it is true that the respondents' level of awareness and assessment on the extent of implementation of the IAS are high, there is still a wide room for improvement in the overall status of the SUCs internal audit services. As such, personnel who deal with fiscal matters may be given opportunities for continuing education such as attending relevant service trainings and conferences.
2. Since there are still personnel who have not finished their master's degree, they may be encouraged to pursue such along appropriate disciplines in consonance with CHED's verticalization scheme. Likewise, those with master's degree should be motivated for the doctorate degree since it adds prestige to the department they belong and the University as a whole.
3. In view of the finding that majority of the respondents acquired non-related professional eligibility, they may try getting the appropriate eligibility by motivating them to attend review classes on official time with a reasonable stipend.
4. The intervention program being proposed should be conducted as soon as possible to determine its effectiveness.
5. A replication of this study should be conducted to cross validate the findings of this study or to explore other variables not considered in this study.

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My family who made my life so full, complete and peacefully happy;

To my Heavenly Father who has created every blessing in my lifetime, I give him all the glory, honor and praise!

REFERENCES

Aguada, R. (2004). Supervision of Law Enforcement among Administrators of the Land Transportation Office in Region 02: Its Relationship to their Management and Leadership Practices. NVSPC.

Apostol, E. P. (2008). The Influence of the Social, Cultural, and Economic Subsystems of the NVSU On Faculty Professional Path Decisions: Basis for Policy Review. A dissertation, NVSU.

Coronel, S. S. (2000). “Betrayals of the Public Trust,” Phil. Center for Investigative Journalism

Daft, F.R. (1997), “Are you not for Profit Clients Ready for Compliance Auditing?” Journal of Accountancy

Dizon, C. L. (1990), “Internal auditing Principles and Practices” COA

Malubay, H. A. (2001). “Values Integration in Financial Management of Philippine Catholic Universities,” Warnborough University

Manlulu, C. J. V. (2004). Human Resource Management Practices of the Local Government Unit of Bambang, Nueva Vizcaya: Its Implication to Public Administration, NVSPC.

McKinney, R.L. (1995). Internal Auditing: Principles and Techniques, Altamonte Springs, FL: The Institute of Internal Auditors, Inc.,

Pascual, C. M. (2008). Intellective and Non-Intellective Variables Affecting the Managerial and Social Skills of Administrators in Higher Education Institutions in Nueva Vizcaya. NVSU (A Dissertation)

Paras, L. S. (2010). COA Salary Standardization its Relationship to the Work Performance, Work Attitude and Morale of Auditing Personnel in Region III.

Ricchute, D. N. (2001), “Auditing and Assurance Services,” South Western College Publishing

Tablang, R. T. (1998). The Formulation and Implementation of Academic and Administrative Policies in Selected State Colleges and Universities

Training Handbook on Internal control Structure, COA 2002.

AWARENESS LEVEL OF SELECTED MICRO AND SMALL ENTERPRISES IN CAVITE TOWARDS GREEN MARKETING: A BASIS FOR POLICY INTERVENTION

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ABSTRACT

Green marketing refers to a variety of ideas and tactics for selling goods and services in an ecologically sustainable manner. More specifically, it entails a variety of activities such as product development, process adjustment in operations, and corporate strategies that are aligned with environmental conservation and preservation methods. Hence, the researchers attempted to determine the level of awareness of selected micro and small enterprises in Cavite towards green marketing concepts and strategies to augment a systematic basis in crafting programs, strategies and policies which promotes environment-responsible production in the province. The researchers used descriptive and inferential research designs in the conduct of the study. The proponents found out that the enterprises were start-up to young enterprises, mostly on sole proprietorship organization type and have small number of staffs. The participants were moderately aware in relation to concept concerning green marketing, somehow aware as to green marketing strategies and finally, the micro and small enterprises under study were not engaged in green marketing strategies. Considerably, there are no significant relationships between the participants' profile with their awareness level towards concepts and strategies as well as their engagement level as regard to green marketing practices; and the challenges identified were: the engagement or participation in green marketing is costly, they have lack of knowledge and skill and they are not interested due to personal reasons.

INTRODUCTION

Marketing as a unique and recognized discipline in business is dynamic and responsive. It evolves, modify and improve on various facets of creating value among products and services from enterprises to its final consumers. Marketing nowadays, is more varied, strategic and responsive compared on the previous decades hence, green marketing was conceived as a response for an environment-responsible production and was a growing concept at the onset of early 2000s (Moravcika, Kliestikova and Rypakova, 2017).

Green marketing pertains to the different concepts and strategies pertaining to the marketing of goods and services in an environmentally friendly way. More so, it involves various activities including product innovation, modification of process in operations and business strategies that align with environment conservation and preservation practices (Laheri, Dangi, and Vohra, 2014). The current and modern society poses adjustments in creating pathways for more responsible business activities as related to environment protection and conservation. Hence, green marketing is a growing concept related to sustainable internal business operations and corporate social responsibilities.

Thus, the researchers attempted to conduct an inquiry on the level of awareness of selected micro and small enterprises in Cavite towards green marketing concepts and strategies to augment a systematic basis in crafting programs, strategies and policies which promotes environment-responsible production in the province.

OBJECTIVES

Generally, the researchers analyzed the awareness level of selected micro and small enterprises in Cavite towards green marketing concepts and strategies.

Specifically, the researchers attempted to:

1. determine the profile of micro and small enterprises in terms of:
   a. length of operations;
   b. type of business organization; and
   c. number of staff;
2. determine the level of awareness of micro and small enterprises towards green marketing in terms of:
   a. Key concepts; and
   b. Strategies;
3. determine the significant relationship of micro and small enterprises' profile and their awareness level towards green marketing;
4. determine the perceived challenges or constraints that impedes entrepreneurs to engage or participate in green marketing; and
5. propose strategies to boost green marketing practices in entrepreneurship among micro and small enterprises

REVIEW OF RELATED STUDIES AND LITERATURE

A green promotion is also known as the communication that promotes the product. In addition to supporting the green advertising campaign, it should also include the features to boost social responsibility in the corporate picture. The success of green innovation and green promotion is therefore a success factor that affects the output of companies. Finally, the success of businesses is calculated in terms of economic performance (financial returns, market share, and growth in sales) and operational performance (aspects related to improving process efficiency, such as product quality). The authors concluded that green innovation, product and process efficiency has a positive impact on the company's performance, while the process of green innovation is seldom addressed in the literature, it is very important to highlight the process of green innovation, as it is easy to mimic the final product compared to the process. In view of the rapid and accelerating growth of green goods worldwide, marketers need to seize this opportunity to recognize the best green marketing strategy in order to win the desires and wishes of consumers (Hasan and Ali, 2015). Green marketing pertains to the different concepts and strategies pertaining to the marketing of goods and services in an environmentally friendly way. More so, it involves various activities including product innovation, modification of process in operations and business strategies that align with environment conservation and preservation practices (Laheri, Dangi, and Vohra, 2014).

A study entitled Consumers' Preferences on the Use of Eco-Friendly Bags: A Green Marketing Perspective (Gano-an, 2018). The authors identified that there's a change in consumer behaviour with regards to living eco-friendly. The problem with minimizing the effect of plastic products on the surrounding keep on prevailing even there are numerous green marketing campaigns led by the environmentalists. This study provided an analysis of the emerging issues caused in hypermarkets and supermarkets by using plastic bags with the coordination of environmentalists and the government sector, this study aims to lessen the usage of plastic bags when shopping and promote environmental campaigns in order to established awareness among consumers. This paper sought to understand the view of local customers and address the differences in order to assess the consumers' preferences on the use of eco-friendly shopping bags. The researcher formulated a survey questionnaire that aligns with the research objectives so as to provide accurate results. The consumers' preferences and perceptions on the use of eco-friendly bags were the main variables of the study. The demographic data of respondents were the independent variable while consumer awareness, environmental benefit, price, and public acceptance were the dependent variables of the study. It assessed the level of awareness of the eco-bags movement. Based on the data provided, most of the respondents were female consumers, the majorities were young professional ages 20 to 29 years old, and most of them were already married. Moreover, consumer awareness resulted that consumers were highly aware of the campaigns being advertised by the environmentalist on used eco-friendly bags instead of using plastic bags. Environmental benefit reveals that consumers were highly acknowledged the environmental benefits of using eco-friendly bags as a substitute for plastic bags and also it shows that consumers are aware of how to protect the environment. Price, it perceived that consumers were highly willing to purchase eco-bags on its price range. Since the consumer can still use it once they go shopping again. In comparison, eco-friendly products are way too expensive than the conventional ones, but still willing to buy these products. Public acceptance reveals that local consumers highly accepted the green marketing campaigns by the environmentalists and government it is because consumers know the harmful effect of plastic on the environment. As to moderating variables, only gender shows a significant difference, it shows that most females showed interest in environmental marketing. While marital status and age, show no significant difference. It means these variables don't affect their awareness of environmental marketing. The study concludes that consumers are highly aware of the environmental campaigns led by the environmentalists and the government. The movement of using eco-friendly products brings interest to consumers.

The main problem of green marketing researches that have been conducted in South Africa is that it lacks an indication of the awareness level of green marketing and the managerial implications of it to the manufacturing sector in the country specifically in the province of KwaZulu-Natal (KZN). This study aims to investigate the level of awareness regarding green marketing in selected South African Manufacturing Small, Medium, and Micro Enterprises (SMMEs) and secondly, its managerial implications in KwaZulu-Natal (KZN). The author conducted the study to show an exploratory study with regards to the awareness level of green marketing and its managerial implications associated with the South African manufacturing sector. the result of the research study reveals that the South African

Environmental Act and Consumer Protection Act are also additional factors that influence their business operation as indicated by the SMMEs' owners/managers. The author of the study concludes that South African Manufacturing Small, Medium and Micro Enterprises (SMMEs) need to increase their awareness, knowledge, and understanding regarding the green marketing concept and its benefit to their sector for them not to pay expensive marketing consultants. Further, the study identified that the lack of skilled marketing personnel is the ultimate barrier that hindrances companies to practice green marketing and the lack of having marketing specialists makes SMEs spend a huge amount of money to acquire marketing consultants. Due to the conclusions that the author has made, thus, the study recommends that the SME owners or managers are needed to undergo training programs with the help of government training centers and public institutions for them to be able to train their employees. The study also recommends conducting customer training with regards to green products so that the customers will become more aware of green marketing (Lekhanya, 2020).

METHODOLOGY

Research Design

The researchers used descriptive-correlational research designs in the conduct of the study. Descriptive design was used to describe respondents' profile and their respective awareness levels toward green marketing. Considerably, inferential design through correlation (Spearman-Rho) was employed to facilitate the determination of significant relationship between respondents' profile and their awareness level. Moreover, non-parametric purposive sampling design was used across the province to identify respondents and digital survey methods will be employed through online forms and scheduled phone calls. One hundred fifty entrepreneurs were selected from each of micro and small enterprises categories, a total of 300 participants.

Participants of the Study

The authors have utilized the registered micro and small enterprises registered in the province of Cavite under the Department of Trade and Industry, CALABARZON Region IV-A. The study initially targeted 300 participants purposively; 150 from microenterprises and 150 from small enterprises, the study retrieved the following; 112 from microenterprises (representing the 74.67% of the targeted sample), 115 from small enterprises (representing the 76.67% of the targeted sample) and a total composite sample of 227 participants collectively (64.86% of the total targeted sample size).

Sources of Data

The study used both the primary and secondary data sources in collecting the data. The primary data are from the participants and also the results from the survey questionnaires which were distributed through Google forms, multimedia survey approaches and flexible retrieval approaches. The secondary source of data came from the internet such as research studies, journals, e-books, and any related sources that will support the study.

Data Analysis

The researchers used the following data matrix for liker-type scaling in the survey questionnaires.

Table 1: Likert-scale of Awareness Level

Quantitative Value	Qualitative Value	Description
5	Highly Aware	Expresses highest awareness towards the concepts, mechanisms, operations, formulation and execution.
4	Moderately Aware	Shows awareness but not fully towards the concepts, mechanisms, operations, formulation and execution.
3	Somehow Aware	Expresses awareness but has a major gap in fully identifying the rigor of concepts, mechanisms, operations, formulation and execution
2	Not Aware	Responding no awareness to the rigor of the concept but is knowledgeable towards the term used.
1	Extremely Not Aware	Total unawareness towards the whole concept and rigor.

Table 2: Likert-scale of Engagement Level

Quantitative Value	Qualitative Value	Description
5	Highly Engaged	Expresses highest and full participation and engagement towards green marketing concept and activities
4	Engaged	Shows engagement towards green marketing concept and activities but has minor reservations.
3	Somehow Engaged	Expresses engagement towards green marketing concept and activities but has major reservations.
2	Not Engaged	Responding with no engagement but has plans to participate given an opportunity.
1	Highly Not Engaged	expresses strong intention of not engaging and participating towards green marketing concepts and strategies

FINDINGS

The researchers have tabulated, organized and treated data from the instrument used in this study. Below are the findings of this baseline study.

Table 3. Length of Operation

Years	Frequency	Percentage
0 to 1 year	108	47.60
2 to 3 years	59	26.00
4 to 5 years	13	5.70
6 years and above	47	20.70
Total	227	100.00

Table 3 shows the length of operations of micro and small enterprises in Cavite. It implies that most of the enterprises are operating one year and below and considerably 5.70 percent are operating from four to five years which has the least percentage. This showcases that enterprises were start-up enterprises in the province as far as micro and small enterprise are concerned.

Table 4. Type of Business Organization

Types	Frequency	Percentage
Sole Proprietorship	182	80.20
Partnership	36	15.90
Cooperative	9	4.00
Total	227	100.00

Table 4 presents the type of business operation of micro and small enterprises in Cavite. It shows that most of the enterprises are sole proprietorships and noticeably 4.00 percent are cooperative which has the least percentage. These indicate that enterprises were the sole proprietorship enterprises category in the province.

Table 5. Number of Staff

Staffs	Frequency	Percentage
1 to 15 staffs	220	96.90
16 to 30 staffs	7	3.10
Total	227	100.00

Table 5 reveals the number of staff of micro and small enterprises in Cavite. It depicts that most of the enterprises have 1 to 15 staffs. Significantly 3.10 percent are operating with 16 to 30 staffs which have the least percentage. This showcases that enterprises have small to medium staff composition.

Table 6: Awareness of the Concept of Green Marketing

Category	Mean Value	Descriptive Value
1. Are you aware of the concept of green marketing?	3.74	Moderately Aware
2. Are you aware that green marketing products are presumed to be environmentally safe?	3.92	Moderately Aware
3. Are you aware that green marketing raise awareness on important environmental or social issues?	3.96	Moderately Aware
4. Are you aware that green marketing undergoes product modification, changes to the production process, packaging changes, as well as modifying advertising?	3.77	Moderately Aware

5. Are you aware that green marketing adhering to sustainability principles while achieving maximum profit potential?	3.57	Moderately Aware
6. Are you aware that green marketing helps in waste reduction?	3.96	Moderately Aware
7. Are you aware that green marketing brings a competitive advantage to your business?	3.54	Moderately Aware
8. Are you aware that green marketing creates a wider choice of marketing points that can promote and discuss with the customers, which go beyond traditional strategies such as having the lowest price, durability and style?	3.59	Moderately Aware
9. Are you aware that green marketing can be more expensive, but it can also be profitable due to the increasing demand?	3.88	Moderately Aware
10. Green marketing describes a business' efforts to advertise the environmental sustainability of their business practices?	3.83	Moderately Aware
Grand Mean: 3.78	**Moderately Aware**	

Table 6 reveals the awareness of the concept of green marketing among micro and small enterprises in Cavite. It pertains to the fact that most of the enterprises are moderately aware of green marketing and 3.57 is the least average of businesses that are moderately aware of green marketing. It shows that most of the businesses in the province are moderately aware of the concepts of green marketing. Generally, the participants are moderately aware as far the awareness towards green marketing is concerned. It implies that there is presence of awareness but not fully towards the concepts, mechanisms, operations, formulation and execution.

Table 7: Awareness of the Strategies of Green Marketing

Category	Mean Value	Descriptive Value
1. Are you aware of green product designing where products are designed in environment friendly way?	3.37	Somehow Aware
2. Are you aware of green positioning where core component of its corporate practices, an organization should specifically support its sustainable output and that of its goods and services?	3.06	Somehow Aware
3. Are you aware of green pricing where a business should illustrate how a green product or service will help to conserve key resources for customers and actively participate in sustainability?	2.97	Somehow Aware
4. Are you aware of green logistics where includes all activities forward and reverse flows between the point of production and the point of consumption of goods, information and services?	3.03	Somehow Aware
5. Are you aware of green waste disposal where unsustainable disposal practices can be hazardous to both the environment and human health?	3.13	Somehow Aware
Grand Mean: 3.11	**Somehow Aware**	

Table 7 shows the awareness of the strategies of green marketing of micro and small enterprises in Cavite. It pertains that most of the enterprises are somewhat aware of the green product designing and 3.37 is the average of businesses that are moderately aware of the green pricing. It shows that most of the micro and small enterprises under study responded somehow aware towards the strategies of green marketing which means that they have expressed awareness but have a major gap in fully identifying the rigor of mechanisms, operations, formulation and execution.

Table 8: Engagement level in Green Marketing and Strategies

Category	Mean Value	Descriptive Value
Engagement level in green marketing and strategies (Green design, green positioning etc.)?	2.30	Not Engaged

Table 8 shows the engagement level of micro and small enterprises in Cavite in green marketing and strategies. It implies that most of the enterprises are not engaged in green marketing strategies by having a mean value of 2.30 which means that the small and microenterprises understudy responded with no engagement or participation towards strategies but has plans to participate given an opportunity.

Table 9. Correlation of Length of Operations with Concept Awareness

Category	Correlation Coefficient	p-value	Significance
Concept [1. Are you aware of the concept of green marketing?]	-0.123	0.065	Insignificant
Concept [2. Are you aware that green marketing products are presumed to be environmentally safe?]	-0.028	0.674	Insignificant
Concept [3. Are you aware that green marketing raise awareness on important environmental or social issues?]	-0.182	0.006	Significant
Concept [4. Are you aware that green marketing undergoes product modification, changes to the production process, packaging changes, as well as modifying advertising?]	-0.049	0.463	Insignificant
Concept [5. Are you aware that green marketing adhering to sustainability principles while achieving maximum profit potential?]	-0.032	0.632	Insignificant
Concept [6. Are you aware that green marketing helps in waste reduction?]	-0.149	0.025	Significant
Concept [7. Are you aware that green marketing brings a competitive advantage to your business?]	-0.070	0.291	Insignificant

Concept [8. Are you aware that green marketing creates a wider choice of marketing points that can promote and discuss with the customers, which go beyond traditional strategies such as having the lowest price, durability and style?]	-0.089	0.181	Insignificant
Concept [9. Are you aware that green marketing can be more expensive, but it can also be profitable due to the increasing demand?]	-0.143	0.052	Insignificant
Concept [10. Green marketing describes a business' efforts to advertise the environmental sustainability of their business practices?]	-0.221	0.051	Insignificant

Table 9 reveals the correlation of the length of operations with concept awareness of micro and small enterprises in Cavite. Generally, it implies that length of operation and concept awareness are insignificant that has a correlation coefficient of -0.028. It pertains that the length of operations of businesses does not have a significant relationship with the concept of green marketing. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with length of operations and level of awareness towards green marketing concepts.

Table 10. Correlation of Length of Operations with Strategy Awareness

Category	Correlation Coefficient	p-value	Significance
Strategies [1. Are you aware of green product designing where products are designed in environment friendly way?]	-0.218	0.061	Insignificant
Strategies [2. Are you aware of green positioning where core component of its corporate practices, an organization should specifically support its sustainable output and that of its goods and services.?]	-0.210	0.053	Insignificant
Strategies [3. Are you aware of green pricing where a business should illustrate how a green product or service will help to conserve key resources for customers and actively participate in sustainability?]	-0.113	0.089	Insignificant
Strategies [4. Are you aware of green logistics where includes all activities forward and reverse flows between the point of production and the point of consumption of goods, information and services?]	-0.114	0.088	Insignificant
Strategies [5. Are you aware of green waste disposal where unsustainable disposal practices can be hazardous to both the environment and human health?]	-0.042	0.530	Insignificant

Table 10 presents the correlation of the length of operations with strategy awareness of micro and small enterprises in Cavite. It pertains that length of operation and strategy awareness is insignificant that has a correlation coefficient of -0.042. It shows that the length of operation of micro and small businesses has no significant relationship with the awareness of green marketing strategy. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with length of operations and level of awareness towards green marketing strategies.

Table 11. Correlation of Business Organization with Concept Awareness

Category	Correlation Coefficient	p-value	Significance
Concept [1. Are you aware of the concept of green marketing?]	0.356	0.119	Insignificant
Concept [2. Are you aware that green marketing products are presumed to be environmentally safe?]	0.113	0.089	Insignificant
Concept [3. Are you aware that green marketing raise awareness on important environmental or social issues?]	0.051	0.440	Insignificant
Concept [4. Are you aware that green marketing undergoes product modification, changes to the production process, packaging changes, as well as modifying advertising?]	0.128	0.054	Insignificant
Concept [5. Are you aware that green marketing adhering to sustainability principles while achieving maximum profit potential?]	0.214	0.061	Insignificant
Concept [6. Are you aware that green marketing helps in waste reduction?]	0.002	0.975	Insignificant
Concept [7. Are you aware that green marketing brings a competitive advantage to your business?]	0.046	0.487	Insignificant
Concept [8. Are you aware that green marketing creates a wider choice of marketing points that can promote and discuss with the customers, which go beyond traditional strategies such as having the lowest price, durability and style?]	0.123	0.064	Insignificant
Concept [9. Are you aware that green marketing can be more expensive, but it can also be profitable due to the increasing demand?]	0.163	0.054	Significant
Concept [10. Green marketing describes a business' efforts to advertise the environmental sustainability of their business practices?]	0.150	0.063	Insignificant

Table 11 depicts the correlation of the business organization with concept awareness of micro and small enterprises in Cavite. It shows that the business organization and concept awareness is insignificant that has a correlation coefficient of -0.046. It pertains that the business organization doesn't have a significant relationship with the awareness of the green marketing concept among micro and small enterprises in Cavite. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with type of business organization and level of awareness towards green marketing concepts.

Table 12. Correlation of Business Organization with Strategy Awareness

Category	Correlation Coefficient	p-value	Significance
Strategies [1. Are you aware of green product designing where products are designed in environment friendly way?]	0.039	0.562	Insignificant
Strategies [2. Are you aware of green positioning where core component of its corporate practices, an organization should specifically support its sustainable output and that of its goods and services.?]	0.050	0.455	Insignificant
Strategies [3. Are you aware of green pricing where a business should illustrate how a green product or service will help to conserve key resources for customers and actively participate in sustainability?]	0.117	0.080	Insignificant
Strategies [4. Are you aware of green logistics where includes all activities forward and reverse flows between the point of production and the point of consumption of goods, information and services?]	0.080	0.229	Insignificant
Strategies [5. Are you aware of green waste disposal where unsustainable disposal practices can be hazardous to both the environment and human health?]	0.039	0.561	Insignificant

Table 12 presents the correlation of the business organization with strategy awareness of micro and small enterprises in Cavite in green marketing. It implies that the business organization and strategy awareness is insignificant that has a correlation coefficient of 0.039. It reveals that the business organization doesn't have a significant relationship with the awareness of green marketing strategy among micro and small enterprises in Cavite. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with type of business organization and level of awareness towards green marketing strategies.

Table 13. Correlation of Number of Staff with Concept Awareness

Category	Correlation Coefficient	p-value	Significance
Concept [1. Are you aware of the concept of green marketing?]	0.162	0.515	Insignificant
Concept [2. Are you aware that green marketing products are presumed to be environmentally safe?]	0.122	0.068	Insignificant
Concept [3. Are you aware that green marketing raise awareness on important environmental or social issues?]	0.032	0.637	Insignificant
Concept [4. Are you aware that green marketing undergoes product modification, changes to the production process, packaging changes, as well as modifying advertising?]	0.064	0.339	Insignificant
Concept [5. Are you aware that green marketing adhering to sustainability principles while achieving maximum profit potential?]	0.207	0.052	Insignificant
Concept [6. Are you aware that green marketing helps in waste reduction?]	0.108	0.105	Insignificant
Concept [7. Are you aware that green marketing brings a competitive advantage to your business?]	0.114	0.088	Insignificant
Concept [8. Are you aware that green marketing creates a wider choice of marketing points that can promote and discuss with the customers, which go beyond traditional strategies such as having the lowest price, durability and style?]	0.099	0.137	Insignificant
Concept [9. Are you aware that green marketing can be more expensive, but it can also be profitable due to the increasing demand?]	0.228	0.051	Insignificant
Concept [10. Green marketing describes a business' efforts to advertise the environmental sustainability of their business practices?]	0.188	0.064	Insignificant

Table 13 depicts the correlation of the number of staff with concept awareness on green marketing of micro and small enterprises in Cavite. It implies that the number of staff and concept awareness are insignificant that has a correlation coefficient of 0.032. It reveals that the number of staff doesn't have a significant relationship with the concept awareness of green marketing among micro and small enterprises in Cavite. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with type of number of staff and level of awareness towards green marketing concepts.

Table 14. Correlation of Number of Staff with Strategy Awareness

Category	Correlation Coefficient	p- value	Significance
Strategies [1. Are you aware of green product designing where products are designed in environment friendly way?]	0.006	0.929	Insignificant
Strategies [2. Are you aware of green positioning where core component of its corporate practices, an organization should specifically support its sustainable output and that of its goods and services.?]	0.105	0.114	Insignificant
Strategies [3. Are you aware of green pricing where a business should illustrate how a green product or service will help to conserve key resources for customers and actively participate in sustainability?]	0.051	0.446	Insignificant
Strategies [4. Are you aware of green logistics where includes all activities forward and reverse flows between the point of production and the point of consumption of goods, information and services?]	0.100	0.131	Insignificant
Strategies [5. Are you aware of green waste disposal where unsustainable disposal practices can be hazardous to both the environment and human health?]	0.134	0.044	Insignificant

Table 14 presents the correlation of the number of staff with strategy awareness on green marketing among micro and small enterprises in Cavite. It shows that the number of staff and strategy awareness are insignificant that has a correlation coefficient of 0.006. It reveals that the number of staff doesn't have a significant relationship with the strategy awareness of green marketing among micro and small enterprises in Cavite. With the given insignificance, the researchers accepted the null hypothesis that there is no significant relationship with type of number of staff and level of awareness towards green marketing strategies.

Table 15. Challenges of Participants (Multiple Responses)

Challenges	Frequency	Percentage
1st Costly	200	37.81
2nd Lack of Knowledge	120	22.68
3rd Lack of Skill	115	21.74
4th Personal Reasons/ Not Interested	94	17.77
Total	529	100.00

Table 15 presents the identified challenges in this study. The entrepreneurs have perceived that engaging in green marketing is very costly and can mean a decrease in the profit of their respective enterprise. Lack of knowledge ranked the 2nd, they are pertaining to the concrete elements and strategies of green marketing which they do not have a foundation which impedes them to participate. Lack of skill and personal reasons follows.

CONCLUSION

Based on the prevailing data sets, discussions and analysis, the researchers conclude the following:

1. Micro and small enterprises understudy were start-up to young enterprises, mostly on sole proprietorship organization type and have small number of staffs.
2. Micro and small enterprises were moderately aware with regard to concept concerning green marketing. Considerably, microenterprises where somehow aware as to green marketing strategies that can be employed in their businesses. Finally, the micro and small enterprises under study were not engaged in green marketing strategies.
3. Generally, there are no significant relationship between the participants' profile with their awareness level towards concepts and strategies as well as their engagement level as regard to green marketing practices as purported by the acceptance of null hypotheses; and
4. The challenges identified among the microenterprises were: the engagement or participation in green marketing is costly, they have lack of knowledge and skill and they are not interested due to personal reasons.

RECOMENDATION

Given the data, analysis and findings of this baseline study, the researchers formulate the following policy interventions and study recommendations:

1. Promotion of Green Marketing Practices and Strategies through Information Dissemination and Capability Trainings. The local government through coordination with the Department of Trade and Industries may collaborate to conceptualize, strategize and execute the above mentioned recommendation in order to increase the awareness level of micro and small enterprises towards green marketing concepts and strategies.
2. Provision of incentives, financial augmenting activities and avenues to increase the engagement level of small and microenterprises towards green marketing. The Department of Trade and Industries may craft program under their MSMEs sustainability and advocacy program to encourage the participation of the enterprises towards green marketing.
3. Exploration of other variables that can further showcase deeper understanding of enterprise and the intrinsic and extrinsic factors that may affect operations, profitability and business' behavior towards adoption or engagement of green marketing.

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REFERENCES

Ahmad, M.I and Lee G., (2017) The impact of green marketing strategy on the firm's performance in Malaysia. Springer Link. https://link.springer.com/chapter/10.1007/978-3-319-17320-7_28 last accessed November 2020.

Gano-an, Jonathan C.(2017), Consumers' preferences on the use of eco-friendly bags: a green marketing perspective. Journal of Economics, Business and Accoutancy ISSN 2087-3735. https://journal.perbanas.ac.id/index.php/jebav/article/view/1104 last accessed January 2021.

Kilumile et. al. (2020). The Relationship Between Green Marketing Adoption and Business Size: Evidences from Agro-processing Sector in Morogoro, Tanzania. https://www.researchgate.net/publication last accessed November 2020.

Lekhanya, L. (2020). The level of awareness of green marketing and its managerial implications amongst selected South African manufacturing Small, Medium, and Micro Enterprises (SMMEs) in KwaZulu Natal. Journal of Economics and Behavioral Studies, 6(8), 625 – 635. https://doi.org/10.22610/jebs.v6i8.523

Majerova, J. (2015). Analysis of Slovak Consumer's Perception of the Green Marketing Activities. Procedia Economics and Finance, Volume 26, Pages 553-560, ISSN 2212-5671. https://doi.org/10.1016/S2212-5671(15)00954-5

Mishra, K., Choudhury, D. & Rao, K. (2019). Impact of Strategic and Tactical Green Marketing Orientation on SMEs Performance. Theoretical Economics Letters, 9, 1633-1650. https://doi.org/10.4236/tel.2019.95104

Moravcikova, D., Kliestikova, J., Krizanova A. and Rypakova, M. (2017). Green Marketing as the Source of the Competitive Advantage of the Business. MDPI Open Access Journals. https://doi.org/10.3390/su9122218 last accessed November 2020.

REVITALIZING THE LOST TRADITION OF *PANJARDIN* FOR CULTURAL SUSTAINABILITY

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ABSTRACT

This study aimed to revitalize the lost tradition of Panjardin. This all-women tradition was a three-hour exaltation to the Holy Cross manifested through singing and dancing in Canaman, Camarines Sur, Philippines. It vanished alongside the passing of its culture bearers over the years. The study focused on its revitalization which is made available for transmission to education for sustainability. Specifically, the study aimed to reveal the historical background of panjardin, create a short choreography for staging purposes, identify the costumes and props used, notate the dance steps based on Francisca Reyes-Aquino's dance notation format, and notate the music used as accompaniment. The United Nations Education, Scientific, and Cultural Organization (UNESCO) argues that it is imperative to protect and revitalize cultural traditions because they assert people's identity and they contribute to the sustainable development of a community. The methods of this study were instrumental in the recovery of panjardin. Stimulated recall and interviews, focus group discussions, field notes, photo and video documentation were done in order to resurface this once lost tradition. After the collective recollection by the key informants, I was able to recover a thirty-minute fragment out of the original three-hour performance. It revealed that panjardin is composed of four parts: pagpuon (introduction), paglaog (entrance), pagbubo (watering of plants), and pagdulot nin palma (offering of flowers). The movements particular to the dance are tarok-tarok, change step, and waltz. A three-minute piece for staging and instructional purposes was created with musical accompaniment. The choreography was evaluated by the key informants and dance experts as to the figures and movements; costumes and props; and musical transcription. It was rated as highly relevant and accepted. Revitalization and proliferation of traditional dances such as the panjardin not only support the Culture-Based Education curriculum but also sustain the culture and tradition of a community. It is recommended that panjardin be included in the conduct of contextualized classroom instructions and community festivals.

Keywords: Intangible cultural heritage, oral tradition, revitalization, sustainability, performing art

INTRODUCTION

In recent years, cultural traditions were given utmost attention in research and education. The United Nations Education, Scientific, and Cultural Organization (UNESCO) 2003 Convention urged member countries to safeguard, revitalize, and promote cultural traditions. In the convention, the importance of safeguarding and sustaining Intangible Cultural Heritage (ICH) was underscored. Intangible Cultural Heritage is defined as the representations, practices, expressions, knowledge, skills that communities recognize as their cultural heritage. It includes stories, cuisine, weaving, performing arts, among others. UNESCO states that it is imperative to put effort in protecting our ICH because they assert people's identity and they are vital for the sustainable development of a community. The first Convention for the Protection and Promotion of the Diversity of Cultural Expressions in 2005 further stressed creation, production, distribution/dissemination, access and enjoyment of cultural expressions transmitted by cultural activities, goods and services, with a strong focus on developing countries. (UNESCO, 2005).

Davis (2019) defines Cultural Revitalization as a process through which unique cultures regain a sense of identity, such as through promoting heritage, languages, or reviving traditions and customs. He further stressed that it is the bringing back of a way of life that has been lost or dying. The cultural revitalization efforts should be a race against time because we are in an era of rapid change due to the advent of globalization. Globalization is said to be one of the strongest forces that draw most nations toward standardization of cultural expression. The advent of globalization allows easier access to other cultures which can promote intermingling of different peoples and identities (Kaul 2012). It has seen as a trend toward homogeneity that will eventually make human experience everywhere essentially the same (Watson, 2017). Unfortunately, vulnerable countries such as the developing countries may face cultural challenges in addition to economic challenges. Affirming our own traditions will serve as an antidote to this new form of invasion by more powerful nations. Another reason why it is essential to immediately safeguard and revitalize traditions is that these traditions are commonly nurtured by culture bearers who are mostly elderly people. For years, they have served as agents for cultural transmission. It is an unfortunate reality at present that according to the report of the Vanishing Cultures Project (VCP), a tribal elder dies every two weeks and brought along their death are the knowledge and skills which are part of the cultural identity of the group that they belong to. There is a strong possibility that the same happens to the culture bearers in the lowland. The problem with most of the cultural traditions is that they are mostly passed down orally, aurally, or kinesthetically. The absence of a culture bearer would derail the culture's transmission to the younger generation. Without proper documentation and dissemination, these traditions will most likely vanish. A lost tradition creates a gap on people's knowledge of their identity.

Villaruz (2015) argues that many forms of performing arts are under threat today—as cultural practices become standardized, many traditional practices are abandoned. Weak research culture in our country especially in the Philippine countryside adds up to the struggles of ICH survival. One of the regions which is considerably weak in local history is the Bikol Region. In the book, Camarines by the Vicor River, Dr. Danilo M. Gerona, a renowned Bikol historian captured this problem by saying that "there is a dearth in Bicol local history and its death only a stone's throw away."

Cultural practices of the regions down to the smallest communities should receive equal attention in the field of research because they too occupy a layer of our history. Allowing our culture to succumb to the threats of the present situation is like letting a part of our history vanish before our very eyes. And from among the arts and ICH, dance should be given preferential attention because dance authorities agree that it is the most ephemeral of all the arts (Rosenberg, 2012). Its fragility was explained by Thomas (2003) by saying that dance, unlike other arts does not leave a record of its existence in the form of a tangible object because once you perform it, it will be gone.

In the Philippines, two National Artists on Dance were able to save a wide collection of folkdances which were disseminated both onstage and in the Philippine education curriculum. Francisca Reyes-Aquino and Ramon Obusan were able to produce volumes of books on Philippine Folkdance which are used as references in teaching and performances. Other authors who emulated their works were Libertad Fajardo (1973) who came up with a collection of Visayan dances in print and Jovita Singson-Friese for Pangasinense dances (1980). At present, there is no collection of Bikolano dances in print. It is unfortunate that Bikol dances, despite being present, continue to be marginalized in the field of research. If the focus of research does not shift from the center to the periphery, Bikol traditional dances will be forgotten. The disappearance of Bikolano traditional dances further threatens the accounts of Bikol local history.

Social forgetting is real and has occurred in many localities. In Canaman, Camarines Sur (Bikol, Philippines) for example, there are a number of performing arts that were shown in the past that are not any more observed at present. These were sarzuela—a Spanish form of musical drama; moro-moro—a drama which displays a fight between the Christians and Muslims; pastora—a song and dance that celebrate the Nativity; panjardin—a song and dance performance that exalt the Holy Cross (Margate, 2015). Among all these colorful performances, lagaylay is the only surviving tradition that can be witnessed by the present generation. These traditions, like other ICH, were not only manifestations of people's ingenuity and creative expressions but they were also instrumental in gathering people together. They were an opportunity for people to engage with one another by opening up a chance for them to play different roles in the preparation and performance. It is just unfortunate that the said traditional performing arts, except for lagaylay, vanished along with the death of the culture bearers.

In order to combat social amnesia, revitalization of the lost tradition of Panjardin was done. This study aimed to reveal its historical background, identify figures and movements, identify the costumes and props used, choreograph a short version based on the storyline for staging purposes, notate the dance steps based on Francisca Reyes-Aquino's dance notation format, and notate the music used as accompaniment.

Research Design

This is a qualitative research that sought to unearth the historical background, figures, movements, costumes, props, musical accompaniment of the panjardin through collective recollection. Personal accounts from (former) performers and daughters of panjardin's known trainer and musician was the main method for reviving and revitalizing this tradition. Supplemental information was taken from other elderly informants who witnessed the panjardin performance in their younger years. It is essential to utilize the actual body or physical movements of people in ritual performances because images and recollected knowledge of the past are conveyed and sustained by ritual performances. It is explained in Connerton's Embodied Memory Theory which suggests that memory is not only personal and cognitive but also socially habitual (1989). In other words, memory is embodied in social practice. It is imperative to document the living witnesses' account of panjardin both in words and in action. In Connerton's theory, living models help us learn the past through kinesthetic activity—an essential aspect of social memory that until now has been badly neglected (1989).

Methods used to revive and revitalize this tradition are in-depth interviews, focus group discussion, and field notes. There were more than six hundred (600) minutes of interview with the key informants and other elderly. After the transcription, the meaning was condensed and the theme was categorized as to the historical background, figures, movements, costumes, props, and musical accompaniment. As a way to establish the credibility of the data, I had to go back to the key informants to ask for their feedback to help enhance the accuracy and validity of the study. Member checking, informant feedback and validation of result by the key informants were done after the themes were categorized. A video of the choreography I made (performed by my Physical Education students) based on the interview transcription was evaluated by the key informants using a checklist. The checklist consists of three categories, namely, figures and movements; costumes and props; and musical transcription. Figures and movements means that the whole concept of the choreography signifies the original piece and the dance sequence corresponds to the storyline of the original piece. The costumes and props category checks on the performer's wearing of appropriate costumes and use of props based on the original performance. The third category is musical transcription which looked into the application of the appropriate melody, rhythm, and harmony based on the original musical accompaniment. The key informants were satisfied with the overall choreography based on the storyline. They rated it as highly relevant and accepted. Experts in Physical Education and dance were also asked to evaluate the choreography using the same evaluation tool. They also rated it as highly relevant and accepted. The movements were notated following the dance notation format of Francisca Reyes-Aquino and the musical accompaniment was arranged and notated following the Western musical conventions. Some of the lyrics were also recovered. Ethical considerations like voluntary participation of the key informants were ensured. An informed consent form translated in the local language was accomplished and signed by the key informants.

The Locale

In Canaman, Camarines Sur, Panjardin used to be performed by a group who hailed from Barangay San Francisco also known to many as "Bawa." In the past, the husband-wife tandem of Gregorio Nuňez (Tata Gorio) and Soledad Bermudo-Nuňez (Nana Soling) worked together in sustaining various traditional performing arts. Their group performed panjardin as a prelude to the ninth (last) performance of lagaylay during the May festival or the Santacruzan. They performed both in Barangay San Francisco and at the poblacion.

Fig. 1. Map of Camarines Sur

Canaman is one of the older towns in Camarines Sur. Founded in the 1580's this old town was declared as doctrina, meaning a place that receives regular gospel teaching from Spanish Friars (Gerona, 2012).

Barangay San Francisco is one of the riverine Barangays of Canaman. It is also known to the locals as Bawa. According to the Barangay Socio-economic and Development Plan (2010) the word Bawa was from the word, pawa-pawa which means small-sized individuals slash burn clearings made for temporary tillage. Another source states that the word pawa-pawa means a small, forested and grassland area. Barangay San Francisco is bounded on the south by Barangay Fundado, on the west is Barangay Liaga, and on the south east by Barangay San Nicolas. Not much is written about this Barangay. Although it is a known fact in Canaman that Bawa, apart from being one of the cradles of performing arts in Canaman, is also known as a place where a Civilian Scout of Tangcong Vaca guerrilla unit come from. This troop is known as the strongest troop that have fought Japanese soldiers without the help of the Americans and troops from other parts of the Philippines. Like most of the people of Canaman, residents of Barangay San Francisco are predominantly Catholic. In fact, this Barangay celebrates two Catholic fiestas in a year—one in October and one in May. In October, they celebrate the feast of St. Francis of Assisi, the Barangay's Patron Saint. The fiesta celebrated in May in honor of the Holy Cross manifests the locals' special affection to this important Catholic symbol.

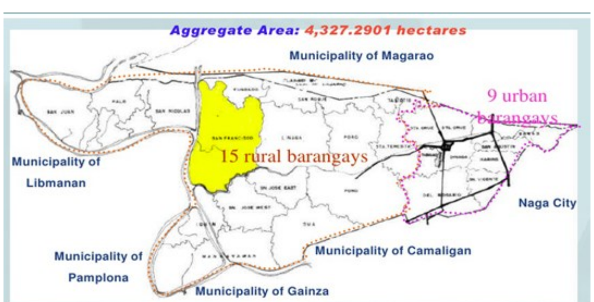


Fig. 2. Map of Canaman, Camarines Sur San Francisco is one of the rural Barangays of Canaman along Bikol River

The key informants are Helaria Nuňez-Baynas and Teresita Nuňez-Barrosa, daughters of the former performers of panjardin. Other informants are a few elderly who were eye witnesses during the glory days of panjardin including Mr. Gregorio Nuňez, Jr., brother of the key informants who served as accompanist during the process of reviving the lost tradition. The group of informants recalled that in the past, the entire performance lasted for more than three hours. With sentiment, they claimed that it was the most colorful performance during the May festival in Canaman. However, it vanished for more than fifty (50) years when its trainers reached their declining years and people involved changed interests.

RESULTS AND DISCUSSIONS

Focus group discussions and interviews revealed that Panjardin is a form of exaltation to the Holy Cross. The part called, "Panjardin sa Mahal na Santa Cruz" can be found at the last portion of the Novena to the Holy Cross (In Bikol, Novena sa Mahal na Sta. Cruz). It is intended to be recited or sung by the devotees, but for the people of Canaman, this practice of praising the Holy Cross comes with a dance. In San Francisco (Bawa), Canaman, Camarines Sur a group of women used to perform this half a century ago. Its performance took place in a makeshift garden with a Holy Cross erected in front. The storyline of panjardin begins when a group of women (referred to as visita), while searching for the Holy Cross, came across with a garden of flowers maintained by two Jardineras (female gardeners). The visita (visitors) pleaded that they be allowed to enter the garden, hoping to find the Holy Cross inside. After a long plea, the Jardineras eventually welcomed them in the garden where the Holy Cross is erected. The visita then helped the jardineras nurture the flowering plants inside the garden. Nurturing involves singing, dancing, watering the plants with naturally-flowing water, which was considered miraculous (referred to as milagrosong tubig in the lyrics). After the flowers have bloomed, they pick and offer them to the Holy Cross.

Fig. 3. The Panjardin The first Panjardin performance after being lost for more than half a century. The one at the center is called a notador—the one who dictates the lyrics and verses of panjardin. She moves around the performance area in order to get closer to the performer/s and dictate their part

Panjardin is composed of four (4) parts. These are pagpoon (introduction), paglaog (entrance), pagbubo (watering of plants), and pagdulot nin palma (offering of flowers to the Holy Cross). The flowers utilized as props are the ones available around the local environment. Based on the lyrics, these flowers are called ayao-ayao, bokinggan, lirio, sampaga, rosas, azucena, and rosal. There are eight (8) performers, composed of all women standing in pairs. The first pair in front standing closest to the Holy Cross is called Jardinera . The rest are referred to as visita. The visita are labelled as primera (which means first). They stand at the back of the Jardinera. Next to the primera is the pair called segunda (second), and the last pair is tercera (third). The pair of Jardinera usually takes the lead in the singing and dancing. They are followed by the rest of the pairs according to their ordinal number. The one who dictates the lyrics and verses is called notador. According to the informants, the group may be composed of different age groups: youth, adult, and middle-aged to elderly. Middle-aged to elderly women composed the group of panjardin performers during the conduct of this research. Most of them were former performers and/or eye witnesses of the performance in the past under Nana Soling and Tata Gorio. The fragment recovered in this study lasted for thirty-minutes. It encapsulated all the parts mentioned earlier. The most important implement in panjardin are bunches of flowers stuck in banana trunks about one foot and a half to two feet in height. Beside each of the performer is a bunch of flowers stuck in a banana trunk that is one and a half foot in height and about five (5) inches in diameter. These are the ones they nurture as manifested in the lyrics and dance steps. Placed at the center of the formation is a bigger and higher banana trunk with more bunches of flowers. During the pagbubo part, the performers take turns in watering the bunch of flowers at the center. According to the key informants, they used to construct small pipes made of bamboo and hoses attached to a water source, controlled by a props man. As part of the drama, the water would flow upon the command of the performers. In the present rendition, a jar is utilized to water the biggest bunch of flowers at the center. The jar used is made of rattan. The costumes are baro't saya—loose blouse with bell-shaped sleeves and floor-length skirt. These are the traditional attire for women in the lowland Christian groups. They wear bakya as footwear to create rhythmical sounds while performing the figures. Bakya is a pair of clogs made of light wood, commonly-used by women in the Philippines in pre-Spanish times

Fig. 4. Bunches of flowers stuck in a banana trunk

Fig. 5. Panjardin Attire: baro't saya, a traditional attire for Filipino women in the lowland provinces. A pair of bakya (traditional wooden clogs) is worn as footwear

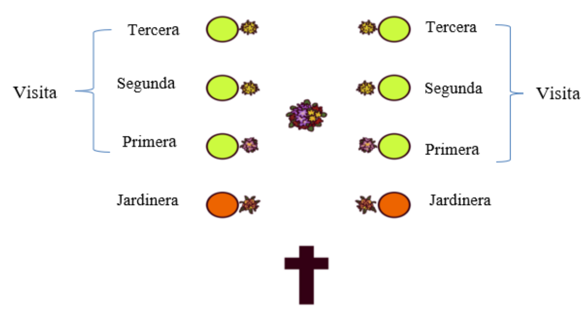


Fig. 6. Basic Formation of Panjardin

The prevalent movements of the panjardin are tarok-tarok, change step, and waltz. Tarok-tarok is to slightly raise right and left foot to the front alternately, which has a step pattern of raise and close (with a slight brush off the floor), counting 1, 2 to a measure. Change step has a step pattern of step, close, step counting 1 and 2 to a measure. Close step has a step pattern of step, close counting 1, 2 to a measure. This can be done sideward right and left or forward and backward alternately or continuing. Waltz has a step pattern of step, close, step with slight raising of heels on the last count. The counting is one, two, three to a measure. Various arm movements are performed together with footwork like raising of the right arm forward to fifth (5th) position, while left hand holds skirt; arms in fifth position swaying slightly right and left alternately, and a few others. Oftentimes, free hand is placed on skirt. The routine also includes turns specifically a three-step turn and a whirl around the bunch of flowers.

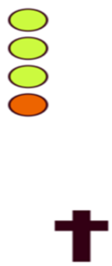


Fig. 7. Formation during the pagpuon (introduction): dancers are compressed at the end of the hall

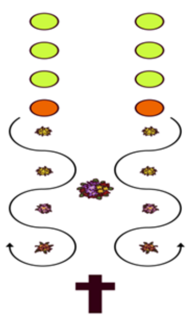


Fig. 8. Paglaog (entrance) Performers pass in and out alternately until they reach the basic formation

Fig. 9. Pagbubo (watering of plants)Performers take turns in watering the biggest bunch of flowers at the center

Fig. 10. Pagdulot nin Palma (Offering of flowers)

Movements particular to the dance are tarok-tarok, change step, and waltz. Below are the images of step pattern for the tarok-tarok:

Figure 11. Tarok-tarok

The change step has a step pattern of step, close, step counting one and two to a measure. The waltz has a step pattern of step, close, step counting one, two, three to a measure.

A three-minute choreography that captured the highlights of panjardin for instructional and staging purposes was made. It was based on the thirty-minute routine which was the product of collective recollection from oral and kinesthetic memory by the key informants. Below are the highlights of panjardin dance notation which followed the dance notation format of Francisca Reyes-Aquino:

Panjardin

Dance Researcher: Jiye A. Margate
Resource Persons: Helaria Nuñez-Baynas and Teresita Nuñez-Barrosa
Place of Origin: San Francisco (Bawa), Canaman, Camarines Sur
Ethnoliguistic Group: Bikolano (Lowland Christian Group)
Classification: Religious

(A)
Introduction:

3/4 Music A
All take eight (8) change steps forward moving in and out of the bunch of flowers on the sides (R & L). *(see fig. 7 and 8).* 16m

4/4 music b
Throughout this figure, all face in.
a) Extend r arm down (like pointing to the flower) with trunk slightly bent forward, palms facing up. They move their arm (and trunk) up and down every measure. Feet do tarok-tarok in every measure. 8m
b) Take four (4) change steps (facing out and in) around the designated flower, hands hold skirt. 4m

Interval: Take eight tiny steps to go around the flower.

II

3/4 Music C
a) All face in. Waltz fwd and bwd R and L alternately. Move R arm up and down, L hand on waist.
b) Waltz R and L alternately passing L to L shoulders. Hands hold skirt. Finish to partner's place.
c) Repeat (a-b). Finish in proper places.

Interval: Take a four-step turn to form a circle at the center (around the big bunch of flower). *Jardinera* on the L line gets the jar on the last count. *(see fig. 9.*

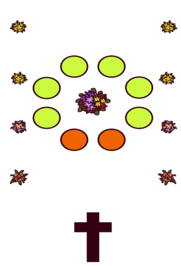


Fig. 12. Formation for *Pagbubo*

III

3/4 Music D *Pagbubo*
Note: While in circle formation, R shoulders towards the big bunch of flowers. 2m
a) All waltz R (towards the flower, and L away from the flower). *Jardinera* 1 holds the jar overhead. She does the act of pouring water from the jar when she waltzes to the R.

IV

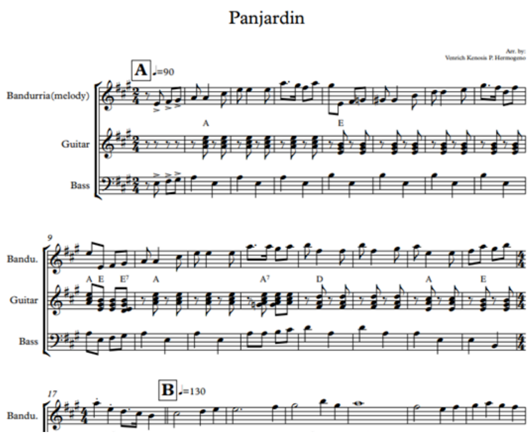
3/4 Music E *Pagdulot nin Palma*
2 *Jardineras* take four (4) waltz steps R and L alternately forward. R arm extended fwd and sway R and L. Left hand holds skirt. After offering the flowers, they go back to their proper places beside their respective bunch of flowers. 4m 22m
Note: After two (2) measures, 2 *Primera* pick flowers from the bunch. They do the same figure as the *Jardinera.* And so on…
When all are in proper places, waltz to the R and L alternately two (2) times fwd and two (2) times bwd. 4m

***Fig. 14. Pagdulot nin Palma* (Offering of flowers)**

Take a three-step turn in place. 1m

Exit
Music A
Starting with the inside foot, take a series of change steps R (L) and L (R) to cast-in. Arms in 5th position, sway R (L) and L (R) to exit. 16m

Below is a part of the musical transcription and sample lyrics based on the recollection of melody by the key informants.



Panjardin
Oh banguing orog kadiklom
Natatakpan nin panganoron
Lilipot nin mga ambon
Nin rosas na magayon

Jardinera:
Ogmang aldao asin bulan
Nin bitoon na kadaklan
Pagdatong kan kaaldawan
Nin santa cruz na paladan

Panjardin
Oh such a dark evening.
Blanketed with clouds.
Chilly fog of glorious flowers

Female gardener (Jardinera):
Festive day and month
Of stars of many
On the advent of feast
Of the Blessed Cross

CONCLUSIONS

The main purpose of the study was to revitalize the lost tradition of *panjardin* through in-depth interviews and focus group discussion among the key informants. It sought to reveal its historical background, figures, movements, costumes, props, and musical accompaniment. After a series of interview sessions and FGDs, it revealed that *panjardin* is a form of an exaltation to the Holy Cross manifested through singing and dancing. In the past, it was one of the colorful activities during the May festival in Canaman, Camarines Sur (Luzon, Philippines). One of the relevant outputs of this research is the thirty-minute fragment of the original three-hour performance. It was performed by the key informants themselves and other elderly from Barangay San Francisco "Bawa," Canaman, Camarines Sur. The thirty-minute performance reflected the storyline, figures, movements, costumes, props, and musical accompaniment of the original *panjardin*. Specifically, *panjardin* is composed of four (4) parts which are the *pagpuon* (introduction), *paglaog* (entrance), *pagbubo* (watering of plants), *pagdulot nin palma* (offering of flowers). The costume worn by performers in this all-female performance is a set of *baro't saya* (loose blouse and floor-length skirt)—a traditional attire for Filipino women in the lowland. They use *bakya* or wooden clogs—a traditional footwear of women in the Philippines, especially in the lowland. *Bakya* is also considered as a prop, as it creates rhythmical sounds during the performance. The most important props are cut banana trunks with bunches of native flowers stuck on top. These provide an ambience of a flower garden in the performance area. The musical accompaniment follows the Western musical conventions with a rhythm of 2/4, 3/4, and 4/4 time signatures. The thirty-minute dance fragment served as my basis for creating a short choreography for staging purposes. The choreography was evaluated by the key informants and dance experts as to figures, movements, costumes, props, and musical accompaniment. The result was highly relevant and accepted which means that the choreography can be performed in public and referred to as *panjardin*. For better safeguarding of this tradition, it was captured on photos and videos and the movements were notated based on Francisca Reyes-Aquino's dance notation format. The musical accompaniment was also transcribed following Western musical conventions.

Recollection from human memory is difficult after a tradition is lost because human memory is made to be reliably unreliable (Hammond, 2012). But based on the Embodied Memory Theory of Connerton (1989), bodily performance helps us recollect and preserve the past. In this research, bodily performances of the culture bearers were vital in extracting from memory the historical background, figures, movements, costumes, props, and musical accompaniment of *panjardin*. Additionally, writing the elusive art of dance such as the *panjardin* and transplanting it to education are the more stable ways to ensure its sustainability. It is imperative to maintain a tradition because it contributes to the sustainable development of a culture and the community in general. Furthermore, emulating the works of our National Artists for Dance such as Francisca Reyes-Aquino and Ramon Obusan is essential to the vitality of Philippine Dances. This advocacy-research does not only safeguard the traditional Filipino dances but also the Filipino identity.

RECOMMENDATIONS

It is recommended for scholars to extensively safeguard traditions and recover the heritage that suffered from social amnesia so as to maintain diversity and continue define a nation's identity. It is further recommended that such effort must be done with much urgency because of the aging population of the culture bearers. The National Artists' scholarly works of uncovering the historical background, figures, movements, costumes, props, and musical accompaniment of traditional performing arts in the Philippines are essential up to this day because they help maintain the integrity of the traditions. It is recommended that new scholars and researchers hold on to the integrity of the traditions. It is further recommended for experts to institutionalize the results of their research both in the policies of the local government units and in the education curriculum to ensure cultural sustainability. Furthermore, the relevant information about panjardin may be utilized in cutting across other subjects like literature and agriculture.

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REFERENCES

Aquino, Francisca Reyes (1964). *Philippine Folkdances.* Quezon City: New Day Publishers.

Beiner, G. (2016). Making Sense of Memory: Coming to Terms with Conceptualisations of Historical Remembrance. 10.1017/CBO9781316550403.002.

Connerton, P. (1989). *How Societies Remember.* Cambridge UP.

Fajardo, L. (1966). Visayan Folkdances. Manila.

Friese, J. (1980), *Pangasinan dances.* Vantage Press.

Gerona, D. (2008). *Canaman through four centuries.* Goldprint Publishing.

Intangible Heritage domains in the 2003 Convention (2003, October 17). Retrieved from http://www.unesco.org/culture/ich/en/1COM________ (1999). The creation of the province of Camarines Sur. In Obias, J.F., et.al. (Eds), *Camarines by the Vicor River*. Provincial Government of Camarines Sur.Kaul, V. Globalization and Crisis of Cultural Identity https://pdfs.semanticscholar.org/bfba/fa95bb15fec5dbbdaf3a27cf4c245784c958.pdf *Journal of Research and International Business and Management* (ISSN: 2251-0028) Vol. 2 (13) pp. 341-349, Dec. 2012. Retrieved from: www. Interesjournals.org/JRIBM

Margate, J. Safeguarding Lagaylay, an intangible cultural heritage of Canaman, Camarines Sur, Philippines. *Asia-Pacific Journal of Multidiscipliary Research.* (APJMR) Vol. 3 No. 4 November 2015.

Thomas, Helen. (2003). The Body, Dance and Cultural Theory. 10.1007/978-1-137-48777-3. Viejo-Rose, Dacia. (2015). Cultural heritage and memory: untangling the ties that bind. Culture & History Digital Journal. 4. e018. 10.3989/chdj.2015.018. http://cultureandhistory.revistas.csic.es/index.php/cultureandhistory/article/view/83/275

Villaruz, B. E. (2015, April 14). Philippine Dance Research and Documentation. Retrieved from http://ncca.gov.ph/subcommissions/subcommission-on-the-arts-sca/dance/philippine-dance-research-and-documentation/

Watson, J. (2017). Cultural Globalization. Encyclopædia Britannica, Inc. Access date: August 15, 2019.

Other online sources:

Barangay San Francisco Soioeconomic and development plan. http://canaman.gov.ph/wp-content/uploads/brgy%20profiles/SEP%20-%20SAN%20FRANCISCO

Convention for the Safeguarding of the Intangible Cultural Heritage 2003 http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html

Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005 http://portal.unesco.org/en/ev.php-URL_ID=31038&URL_DO=DO_TOPIC&URL_SECTION=201.html

The Vanishing Cultures Project.(2018). Retrieved from http://www.vcproject.org

Ramon Obusan Folkloric Group. *Pagdiwata.*Retrieved from https://ramonobusanfolkloric.wordpress.com/calendar-of-events/

Map of Canaman, Camarines Sur. https://www.google.com/search?q=map+of+canaman,+camarines+sur

Map of San Francisco, Camarines Sur. https://www.philatlas.com/luzon/r05/camarines-sur/canaman/san-francisco.html

Villaruz, B.E. Philippine dance research and documentation. https://ncca.gov.ph/about-ncca-subcommissions/subcommission-on-the-arts-sca/dance/philippine-dance-research-and-documentation/

ASSESSING THE AWARENESS, ADAPTATION AND MITIGATION PRACTICES ON CLIMATE CHANGE AMONG FIRST YEAR STUDENTS OF PSU ALAMINOS CITY CAMPUS

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ABSTRACT

Climate change phenomena have been affecting modern civilization. Its impact across countries affects human beings as well as plants and animals. This study reported on Assessing the Awareness, Adaptation and Mitigation Practices on Climate Change Among First Year Students of PSU Alaminos City Campus with a total of 207 respondents (145 females, 65 males) and mostly single. Results showed that all respondents were aware on climate change, and that single and married students have a similar level of awareness on climate change when group according to civil status. The level of consciousness when students are grouped according to their course, showed identical or almost the sale levels of knowledge. meanwhile, for adaptation practices, a significant difference in their age group was observed. Older students (20-29 years old) tend to implement adaptation and mitigation practices more frequently than younger students (13-19 years old). Further, female students are more likely to participate in climate-change adaptation and mitigation practices than male students.

Keywords: Climate Change, PSU, adaptation, mitigation, first year

INTRODUCTION

One of the greatest problems facing humanity nowadays is global climate change. It is the increase in average pattern of the weather, related changes in oceans, land surfaces and ice sheets, occurring over time. The climate is currently changing mostly due to increased human activities like burning fossil fuels of coal, oil or natural gas, agriculture or land clearing. Some of the recent changes over the years include increased ocean temperature, widespread melting of snow and ice as well as rising sea levels. Increasing temperature is caused by the heat being trapped by greenhouse gases in the Earth 's atmosphere, which causes the average temperatures to rise all around the world . Oceans are important in keeping our carbon cycle in balance (IPCC,2007). With carbon dioxide levels increasing in the atmosphere, the oceans begin to absorb it. This then causes the oceans to become more acidic, leading temperature increase, causing ice to melt, thus resulting to cause flooding in various areas .

In the Philippines Climate Change is confronting serious negative results of the unwanted adjustments with its two seasons. During the dry season, it is noticeable that the gradual increase of surface temperature that leads to El Niño affecting the country 's various sectors such as water resource from dams, agricultural productions, and even human health care. The most widely recognized impact of El Niño is drought and reduced rainfall. Consequently, agricultural productions were affected when the dam shutdowns farm irrigation bringing about the loss of crops additional operational cost. It does not end there because as the heat index amidst the El Niño phenomenon hit 32°C to 41°C, the heat exhaustion which can a cause heat stroke and heat cramps that can prompt to sudden death especially to elderly.[3] Humans impacts on global climate change continues to accumulate. Data indicated that earth's surface temperature is rising. This increase can be attributed, in part, to human-caused increasing in greenhouse gases such as carbon dioxide. It is becoming apparent that these climate changes are negatively affecting physical and biological systems worldwide. Carbon dioxide and other pollutants result from burning of coal to produce electricity. Electricity generated at power plants is carried by power lines to users, sometimes hundreds of miles away (IPCC 2013).

La Niña is the reverse of the El Niño, it brings more rains to the environment, resulting to catastrophic floods, cyclones affecting agricultural lands as well as the economy. Unexpected class suspension and inconvenience among students in going to school were some of its effect. In addition to sudden floods, heavy rains, soil erosion and landslides. Truly, humans impact on global climate change continues to accumulate.

The findings of this study would provide insights as to the knowledge of the students in relation to climate change awareness, adaptation, mitigation practices and in order for the HEI to determine whether there's a need to integrate such in their in their subjects.

Objectives of the Study

Generally, this study aimed to assess on the awareness, adaptation and mitigation practices on climate change Among First Year Students of PSU Alaminos City Campus. Specifically , it sought to answer the following:

1. To describe the profile of the respondents in terms of course, sex, and age;
2. To determine the extent of awareness of the respondents on climate change;
3. To describe the adaptation and mitigation practices of the respondents on climate change; and
4. To determine the significant difference between the respondents' awareness on climate change, the adaptation and mitigation practices and their profile variables.

Review of Related Literature

Climate change refers to the change in the environmental conditions of the earth. This happens due to many internal and external factors. The climatic change has become a global concern over the last few decades. Besides, these climatic changes affect life on the earth in various ways. These climatic changes are having various impacts on the ecosystem and ecology. Due to these changes, a number of species of plants and animals have gone extinct. According to Smith & Olesen (2010) , climate change is the world's regressive tax and its impact is primarily experienced by the poorest. Hence, adaptation to climate change poses a difficult hurdle that developing countries must face.

Lewis (2017) in his report, defined Climate Change based on United Nations Framework Convention on Climate change (UNFCC) in which it is directly or indirectly attributed by human activities that alters the composition of global atmosphere. Climate change constitutes one of the 21st-century essential challenges to develop the world over (UNDP, 2007) . Issues on climate change and global warming are no longer new in the recent decade. Throughout the years, various conferences and campaigns were made on the media, reports, and studies such as the Rio Earth Summit. Natural causes of climate change, the current warming trend has been primarily blamed on human activities mainly the burning of fossil fuels, industrial pollution, deforestation, and land use changes (IPCC, 2007). Stern (2014) and Weitzman (2011) stated that climate change is primarily an issue of risk management. This phenomenon exposed countries that are bad at managing environmental misfortunes. Additionally, climate regimes have not been experienced for millions of years – no climate model could guarantee that changes will not turn to be calamitous. Furthermore, there studies believes that the initial step towards solving this problem is to first develop our understanding of our vulnerability to climate change's effects.

In the Philippines, climate change has brought typhoons and other environmental hazards that have devastated homes due to landslides, excessive flooding, and volcanic eruptions- making some part of the country to be in halt. The Philippines has been considered as one of countries most at risk from the impacts of climate change (Espina 2018) . In fact, it ranks fifth on the Global Climate Risk Index 2017 in terms of extreme weather events (Kreft et.al 2016). Many Filipinos both from urban and rural areas suffered due to climate change and lost their shelters, experienced hunger, scarcity of potable water, damage to their crops or vegetation and lost and dead animals. Further, cancellation of classes among students due to these catastrophes were all evidence of this climate change. Occurrences of calamity brought about by climate change lead some parents to request that the opening of classes in the Department of Education will be move in August, however Education Secretary decided to stick to June school to avoid diseases and other related illnesses during summer like sore eyes, stomach ache, dengue, and others". Moreover, classes on the College level have already shifted in some Universities and Colleges on August-to-June (Malipot 2018).

Meanwhile, due to the casualties in the Philippine, government and different government units are working together for a better understanding of climate change. Last July 2012, The Disaster RiskReduction and Management Council had been established and have launch the Nationwide Operational Assessment of Hazards (NOAH) project that has been in the process of installing over 500 pieces of weather equipment composed of automated weather stations (AWS), automatic rain gauges (ARG), and combinations of AWS-ARGs along the 18 major river basins in the country by end of July 2013 (https://www.officialgazette.gov.ph/aquino-administration/disaster-preparedness/). Different gadgets such as Doppler radars, surveillance cameras, tsunami detectors, and alerting siren-continuously were being installed in various locations, to ensure useful location-specific forecasts seven days ahead (as opposed to the three-days-ahead estimates in the past) throughout the Philippines.

METHODOLOGY

This research utilized descriptive survey method as a research design, since it needs to assess climate change Awareness, Adaptation and Mitigation Practices. The instrument of this study was patterned from the study of De Vera (2017). It contained sections of A, B, and C. The personal data for A, B for the Awareness and C for adaptation and practices of the students.

Using Slovin's formula with a margin of 5 % error of generated 207 samples from the 402 enrolled freshmen.

For awareness, a Likert Scale type of Very Highly Aware (VHA), Moderately Aware (AW), slightly Aware (SA) and Not Aware (NA) was used while for Adaptation and Mitigation, Practices likert scale of Always (A) , Often (Of) , Occasionally (Oc), Rarely (R) and Never (N) were used.

FINDINGS

Table 1. shows the profile of the respondents in terms of the respondents distribution ,sex, and civil status. There were 207 respondents mostly from Bachelor of Elementary Education and BS Information Technology with a frequency of 48 or 23.19% . While there were only seven (7) or 3.38% for Bachelor of Secondary Education Major in Mathematics since the course have the least numbers of enrollees.

Table 1. Profile of the Respondents

COURSES	Frequency	Percentage
Bachelor of Elementary Education	*48*	*23.19%*
Bachelor of Secondary Education Major in English	*23*	*11.11%*
Bachelor of Secondary Education Major in Mathematics	*7*	*3.38%*
BS Information Technology	*48*	*23.19%*
Bachelor of Science in Business Administration	*46*	*22.22%*
Bachelor of Science in Hospitality Management	*35*	*16.91%*
Total	***207***	
Variable	***Frequency***	***Percentage***
SEX		
Male	*62*	*29.95%*
Female	*145*	*70.05%*
CIVIL STATUS		
Single	*202*	*97.58%*
Married	*5*	*2.42%*
Age		
13-19	*110*	
20-29	*97*	

Climate Change Awareness

Table 1 shows the Awareness of freshman students towards climate change. It shows that the indicator stating that " Global warming promotes climate change " got the highest mean of 4.58 followed by " Cutting down of trees promote Climate Change" with an average weighted mean (AWM) of 4.67 were among the indicators having a description of a VHA or very highly aware . It can also be gleaned on the table 1 that indicators stating that " Climate change causes diseases" with a mean of 4.49, and " Climate Change causes flooding (La Niña)." and , " Climate change may result in damage to vegetation (El Niño, La Niña)" were among those who indicators which obtained high weighted mean.

Table 2. Climate Change Awareness of Students

Indicators	Mean	Interpretation
1. Global warming promotes climate change.	4.58	VHA
2. Burning of fossils causes climate change.	4.08	HA
3. Cutting down of trees helps Climate Change.	4.67	VHA
4. Climate change causes diseases.	4.49	HA
5. Climate Change causes flooding (La Niña).	4.47	HA
6. More garbage/wastes cause climate change.	4.45	HA
7. Climate change may result in damage to vegetation(El Niño, La Niña)	4.46	HA
8. Climate Change may cause diseases of animals.	3.78	HA
9. Pollution may also lead to Climate Change	4.45	HA
10. Green House gases such as methane promote Climate Change	4.30	HA
Overall	**4.37**	**HA**

VHA-Very Highly Aware (4.51-5.00) SA-Slightly Aware (1.51-2.50)
HA- Highly Aware (3.51-4.50) NA- Not Aware (1.00-1.50)
MA-Moderately Aware (2.51-3.50)

Climate Change Adaptation and Mitigation Practices

Table 3 presents the Climate Change adaptation practices of the freshmen students who were enrolled during the academic year 2019-2020. Apparently, millennial are also considered as technology-oriented hence, the findings revealed that the freshman student respondents have answered "often" to the following indicator having highest mean of 4.18 " I usually send messages or group chat whenever I learn from the news/ media that a weather disturbance and the like is coming for them to have an idea". A descriptive rating which occasionally observed on the following: " I turn off the lights and unplug sockets when there are not in use.", (mean 3.41); " I practice waste segregation in school and at home" (mean 3.29), " I usually post information about climate change awareness and adaptation practices on our group chat in school" (mean 3.14) , " I attend seminars/training pertaining to Climate Change and Adaptation" (mean 2.97), ". Ford and King (2013), adaptation readiness is defined as "the extent to which human systems (e.g. nations, regions, businesses, communities etc.) are prepared to adapt, providing an indication or measure of the likelihood of adaptation taking place". According to Bosello and De Cian (2012), adaptation could be identified along three dimensions: 1) the subject of adaptation (who or what adapts); 2) the object of adaptation (what they adapt to); 3) the way in which adaptation takes place (how they adapt) . These three dimensions were used in this study.

Table 3. Climate Change Adaptation and Mitigation Practices

Indicators	Mean	Interpretation
1. I practice waste segregation at home and in school.	3.29	Occasionally
2. I attend seminars/training about climate change	2.97	Occasionally
3. I joined the tree planting activities to help stop climate change.	2.79	Occasionally
4. I attend the necessary life support seminar in preparation for the effects of climate change	1.62	Rarely
5. I joined the water search and rescue operation and training in case of emergency	1.10	Never
6. I help in the information dissemination regarding climate change in our barangay.	1.73	Rarely
7. I prepared first aid kit for my family in case of occurrence of disaster brought about by climate change.	2.03	Rarely
8. I discussed to my family the things that I have learned regarding Climate Change	1.87	Rarely
9. I encouraged the members of our family to refrain from burning the garbages and I/we recycle at home.	2.58	Occasionally
10. I organized groups to help other students and individuals to discuss and disseminate Climate Change.	1.86	Rarely
11. I turn off the lights and unplug the sockets when appliances are not in use.	3.41	Occasionally
12. I coordinate and communicate with my classmates, friends, teachers and other authorities during the crisis.	2.64	Occasionally
13. I usually send messages or group chats whenever I learn from the media that a weather disturbance and the like is coming for them to have an idea.	4.18	Often
14. I usually post information about climate change awareness and mitigation on our group chat.	3.14	Occasionally
15. I explain to my classmates the reasons for having climate change.	2.44	Rarely
Overall	**2.51**	**Occasionally**

Significant difference across Profile Variables

Differences in the Level of Awareness of Students Across Profile Variables

Table 4. Differences in the Level of Awareness of Students Across their Age Group

Variable		SD	Mean	MD	t	p
Age	13-19	0.32	4.37	-0.05	-0.77	0.44
	20-29	0.36	4.42			

*p<.05

Table 4 shows that there is no significant difference in the level of awareness of students across their age group as signified by the p-value 0.44 which is greater than 0.05 significance level. This means that the students have similar levels of awareness on climate change when grouped according to age.

Table 5. Differences in the Level of Awareness of Students Across Sex

Variable		SD	Mean	MD	t	P
Sex	Male	0.33	4.39	0.02	0.307	0.76
	Female	0.32	4.37			

*p<.05

Clearly, there is no significant difference in the level of awareness of students across sex (Table 5). This is manifested by the p-value 0.76 which is greater than 0.05 significance level. Hence, when students are grouped according to sex, male and female students would have the same levels of awareness on climate change.

Table 6. Differences in the Level of Awareness of Students Across Civil Status

Variable		SD	Mean	MD	t	P
Civil Status	Single	0.32	4.38	0.56	0.382	0.70
	Married	0.36	4.32			

*p<.05

It can be gleaned from Table 6 that there is no significant difference in the level of awareness of students across civil status since the p-value 0.70 is greater than the 0.05 significance level. This result suggests that single and married students would have similar levels of awareness on climate change when grouped according to civil status.

Table 7. Differences in the Level of Awareness of Students Across their Course

Sources of Variations	Sum of Squares	df	Mean Square	F	p
Between Groups	0.577	5	0.115	1.100	0.362
Within Groups	21.092	201	0.105		
Total	21.699				

*p<.05

It can be observed from Table 7 that there is no significant difference in the level of awareness of students across their course. This is manifested by the p-value 0.362 which is greater than the 0.05 significance level. This entails that when students are grouped according to their course, they would have similar or almost the same levels of awareness on climate change.

Differences in the Mitigation Practices of Students Across Profile Variables

Table 8. Differences in the Mitigation Practices of Students Across their Age Group

Variable		SD	Mean	MD	t	P
Age	13-19	0.25	2.49	-0.13	-2.515	0.013
	20-29	0.24	2.62			

*p<.05

It can be gleaned from Table 8 that there is a significant difference in the mitigation practices of the students across their age group as signified by the p-value 0.013 which is less than 0.05 significance level. This result suggests that older students (20-29) tend to implement mitigation practices more frequently than the younger students (13-19) who rarely help in mitigating or reducing the severity and ill effects of climate change.

Table 9. Differences in the Mitigation Practices of Students Across Sex

Variable		SD	Mean	MD	t	P
Sex	Male	0.25	2.40	-0.14	-1.397	0.016
	Female	0.25	2.54			

*p<.05

Table 9 reveals that there is a significant difference in the mitigation practices of the students across their sex. This is manifested by the p-value 0.016 which is less than 0.05 significance level. This further entails that female students are more likely to participate in the climate change mitigation practices than male students, who rarely help in mitigating or reducing the severity and ill effects of climate change.

Table 10. Differences in the Mitigation Practices of Students Across Civil Status

Variable		SD	Mean	MD	t	p
Civil Status	Single	0.26	2.51	0.03	0.272	0.79
	Married	0.24	2.48			

*p<.05

It is disclosed in Table 10 that there is no significant difference in the mitigation practices of students across civil status. This is manifested by the p-value 0.79 which is greater than 0.05 significance level. The result suggests that regardless of civil status, students have similar extent of implementing mitigation practices in order to reduce the seriousness and harmful effects of climate change.

Table 11. Differences in the Mitigation Practices of Students Across their Course

Sources of Variations	Sum of Squares	df	Mean Square	F	p
Between Groups	0.577	5	0.115	1.559	0.185
Within Groups	21.092	201	0.105		
Total	21.669	206			

*p<.05

It is shown in Table 11 that there is no significant difference in the mitigation practices of students across civil status as signified by the p-value 0.185 which is greater than 0.05 significance level. Hence, regardless of the course, students have similar extent of implementing mitigation practices in order to reduce the seriousness and harmful effects of climate change.

CONCLUSION

In conclusion, students are highly aware of climate change regardless of their course. That older student's older students (20-29) tend to implement adaptation practices more frequently than the younger group (13-19) who rarely help in mitigating or reducing the severity and ill effects of climate change.

Further, it entails that female students are more likely to participate in climate change mitigation practices than male students, who rarely help in mitigating or reducing the severity and ill effects of climate change.

RECOMMENDATION

Based on the findings of the study, it is recommended that the community through its Sangguniang Kabataan"SK" Program should undergo a process of information dissemination, trainings on emergency preparedness to combating climate change. Further, the role of the academe is to orient and give trainings to their students particularly , on awareness , adaptation and mitigation knowledge about the vulnerability of humans in risks caused by this environmental threat.

REFERENCES

De Vera, Jocelyn S. (2017) CLIMATE CHANGE AWARENESS AND PRACTICES AMONG BARANGAY OFFICIALS AND NON-OFFICIALS OF SELECTEDIJBPAS, October, 2017, 6(10): 20562063https://ijbpas.com/pdf/2017/October/1506936566MS%20IJBPAS%202017%204292.pdf

Espina, N. (2018). Planning for Climate Resilient Barangays in the Philippines: The Case of Barangay Tumana in Marikina City, Metro Manila. Consilience, (19), 130-162. Retrieved from http://www.jstor.org.ezproxy.upd.edu.ph/stable/26427716

IPCC (2007) Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team,Pachauri, R.K. and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland. IPCC (2013).

KIM, S. (2011). Public Perceptions of Climate Change and Support for Climate Policies in Asia: Evidence from Recent Polls. The Journal of Asian Studies, 70(2), 319-331. Retrieved from http://www.jstor.org.ezproxy.upd.edu.ph/stable/41302307

Klein, R.J.T., Tol, R.S.J. 1997. Adaptation to Climate Change: Options and Technologies—An Overview Paper. Technical paper FCCC/TP/1997/3, United Nations Framework Convention on Climate Change Secretariat, Bonn, Germany

Kreft, Sönke, David Eckstein, and Inga Melchior. 2016. Global Climate Risk Index 2017. Edited by Joanne Chapman-Rose and Daniela Baum. Berlin: Germanwatch e.V. www.germanwatch .org/en/cri

Lewis, Alexandra Simon (2017), What is Climate Change? The definition, causes, and effects. http://www.wired.co.uk/articles/what-is-climate.definition

SMITH, P. & Olesen, Jørgen. (2010). Synergies between the mitigation of, and adaptation to, climate change in agriculture. The Journal of Agricultural Science. 148. 543 - 552. 10.1017/S0021859610000341.

Stern, D. I., & Kaufmann, R. K. (2014). Anthropogenic and natural causes of climate change. *Climatic change*, *122*(1-2), 257-269

Tol, R.S.J. 2005. Emission abatement versus development as strategies to reduce vulnerability to climate change: an application of FUND, Environment and Development Economics 10: 615- 629

UNEP, 2009. ClimateChangeStrategy, Nairobi, Kenya

Weitzman, M. (2011). "Fat-Tailed Uncertainty in the Economics of Climate Change," in: *Review of Environmental Economic Policy*, 5(2), 275-292.

https://cdkn.org/wp-content/uploads/2019/11/IPCC-Land_Latin-America_WEB_20Nov2019.

SOLID WASTE MANAGEMENT PRACTICES IN THE MUNICIPALITY OF CANDIJAY, BOHOL: PROPOSALS FOR IMPROVEMENT

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ABSTRACT

Republic Act 9003, also known as the Ecological Solid Waste Management Act of 2000, has been approved for over 19 years in the Philippines. However, Candijay, Bohol LGU, still faces challenges when it comes to the implementation of its practices. The municipality is expected to generate up to 13.2 metric tons of garbage daily by 2020. Measures must be taken to address solid waste issues because of the impact it brings to the environment, health, and safety of the general public. This study examines the extent of the implementation of such Act in Candijay, Bohol as perceived by the barangay, households, and commercial establishments in terms of segregation, collection, transport, source reduction, reuse, recycling, composting, and disposal of wastes as well as the imposition of penalties and fines to violators. Based on the result, measures are proposed to improve waste management practices. Data were collected using a survey questionnaire in the form of an audit and gap analysis checklist supplemented with an interview and site observation. Purposive non-probability sampling was used in selecting the respondents. The result shows that the implementation of solid waste management practices in most barangays is weak. Basis in developing proposals for sustainable implementation of the said practices are provided in this study.

Keywords: *Solid waste management, solid waste practices, segregation, collection, source reduction, recycling, composting, disposal*

INTRODUCTION

The management of solid waste continues to be a significant challenge in many urban areas around the world, particularly in the rapidly growing cities and towns of the developing countries (Foo, 1997). Global municipal solid waste generation in 1997 was about 0.49 billion tons, with an estimated annual growth rate of 3.2 – 4.5% in developed nations and 2 - 3% in developing countries like the Philippines (Suocheng et al., 2001). Within this context, there is a need for the solid waste management system to be enhanced to suit the waste quality, quantity, and composition produced in each community.

The Philippines' waste generation increases with the country's rising population, growing living standards, economic expansion, and industrial development, particularly in urban areas. The National Solid Waste Management Commission (NSWMC) calculated that the country's waste generation rose steadily from 37,427.46 tons per day in 2012 to 40,087.45 tons in 2016. Both rural and urban areas are expected to generate 0.40 kilograms of waste per person per day. The World Bank (2012) projected a 47.3 percent rise in the urban population in 2025. As a result, the amount of solid waste generated by Philippine cities is expected to increase by 165 percent from 29,315 tons per day to 77,776 tons (SEPO Publications, 2017).

This study is anchored on the theory which states that "in a municipal solid waste management system, decision-makers have to develop an insight into the processes such as waste generation, collection, transportation, processing, and disposal to create effective and more efficient practices" (Yadaf et al., 2017). Solid waste management practices are established to address the health and environmental issues resulting from the improper garbage disposal. The components of municipal solid waste management practices include segregation of waste, collection, transportation, source reduction, reuse and recycling, composting, disposal, and penalties and fines (Yap, 2015).

Segregation of solid waste materials is one of the crucial aspects of modern waste management. The general practice is that waste is separated from other wastes according to type. But the essence of segregation at the source is to sort waste and separate waste components according to the kind of material as it is generated. For example, a plastic used to cover a carton box must be separated first before throwing both materials into separate waste collection bins. Implementing this practice is a challenge for it adds additional workload and cost to waste generators; that is why it is essential to state the purpose of doing it. Segregation at the source allows easy recovery of recyclable materials to be sold to appropriate recyclers, and each group of waste can be treated and disposed of separately (Christensen, 2011). If done the right way, it is easier for authorities to identify appropriate treatment methods for different kinds of waste. There are various technologies for processing of wastes available today, but non-segregated waste hinders a successful operation of it that is compliant with environmental regulation (Ahluwalia and Patel, 2018).

Uncollected wastes take the toll when left unsolved. It can cause clogged drains, flood in the city, the spread of diseases, and a decline of the economy (UN-HABITAT, 2010). Waste collection's ultimate purpose is to remove solid waste from generation (household and commercial establishments) to the sorting or treatment point. This is considered the most cost extensive component of the solid waste management system (DENR, 2018).

There are two methods of collection schemes: bring and kerbside. In bring method, the household or commercial establishments need to deliver their wastes to designated collection points. In kerbside method, the generators will store their garbage in their bins, and it will be collected at their own home. Combining these methods is also possible where generators are required to bring their recyclables to a drop-off or buy- 6 back centers (bring system). Simultaneously, other types of waste will be collected by the collectors (kerbside system) (McDougall et al., 2009).

In the Philippines set up, the barangay is in charge of the segregation and collection of solid waste from the generator's point. Simultaneously, the municipality LGU is responsible for the collection and disposal of residual and special wastes. Part of the LGUs' effort to have an efficient collection is implementing "no segregation, no collection" policy. But, there are waste collection systems that are still struggling due to some reasons. These include poor labor management and supervision, more workers than what is needed, poor cooperation from residents, inappropriate type and size of collection vehicles, non-rational routes for collection service, failure to optimize vehicle productivity by selecting the appropriate crew size and shift duration, inadequate communal container capacity at the communal collection points, long vehicle downtimes from poor equipment maintenance and repair, long haulage times to disposal sites coupled with lack of transfer stations, and harsh driving conditions at disposal sites cause vehicle and tire damage (DENR, 2018).

Source reduction involves using processes, practices, or products to reduce or eliminate the generation of pollutants and wastes. There are various methods towards waste reduction, such as green procurement, eco-labeling, identification of non-environmentally acceptable products implementation of 3Rs. Philippines Executive Order (EO) No. 301 mandates the executive branch of government to institute a Green Procurement Program (GPP) and establish a systematic and comprehensive National Eco-Labelling Program. These government programs consider the environmental impacts of materials in making purchase decisions (DENR, 2018).

Reuse, the second level of the waste hierarchy, is another way of addressing the growing volume of wastes. Reusing means reutilizing materials as it is for another purpose without undergoing any process. This method prevents materials from going to the waste stream and ultimately ends up in the disposal site. Most industries realized that this method is economical because it brings more savings in cost and energy, especially when materials are expensive. It is not only a money-saving activity, but it also promotes the preservation of resources and reduces the generation of waste (Pariatamby and Tanaka, 2014).

Recycling, like reuse, also avoid materials from being dumped into the final disposal facility. The recycling method means that the waste materials will undergo reprocessing and convert it into the same or another product. This is the least preferred method among the three Rs but is way better than discarding and treating waste.

Different strategies can be employed to ensure the collection of recyclable materials from households, industries, and other commercial establishments. These include curbside collection of segregated materials, provision of drop-off or buy-back centers where waste generators can place their recyclables items, and construction of material recovery facility (MRF) to separate mixed items. To have a successful recycling program, there must be an available market for the recovered materials.

Composting is one way of treating solid wastes. Through composting the amount of garbage sent to the landfill is reduced, the organic matter is reused rather than dumped, and it is recycled into a useful soil amendment. Composting is a way of harnessing the natural process of decomposition to speed up the decay of waste.

Composting is a feasible method in treating organic waste in developing countries because it is not capital intensive, and there is an opportunity for income generation (Samaniego et al., 2017). There are different composting schemes available such as backyard composting, neighborhood composting, market waste composting, and centralized composting (Da Zhu et al., 2008). Composting is a way of harnessing the natural process of decomposition to speed up the decay of waste.

Solid waste disposal must be managed systematically to ensure environmental best practices. Solid waste disposal and management is a critical aspect of environmental hygiene, and it needs to be incorporated into environmental planning. Solid waste disposal and management include planning, administrative, financial, engineering, and legal functions. It is typically the generator's job, subject to local, national, and even international authorities. Solid waste disposal management is usually referred to as the process of collecting and treating solid wastes. It provides solutions for recycling items that do not belong to garbage or trash. Solid waste management can be described as how solid waste can be changed and used as a valuable resource.

One way to have effective enforcement of environmental regulation and standards is to impose fines. The level of penalties, coupled with an adequate inspection to waste generators, is crucial in environmental management success. If the penalties are expensive, and the probability of being caught is high, most waste generators will be inclined to comply with the environmental standards (www.denr.gov.ph accessed in November 2019).

To develop feasible, solid waste and pollution control strategies in Philippines, the Republic Act 9003, better known as the Ecological Solid Waste Management Act of 2000, was enacted in 2001. The Law provided for the necessary institutional solid waste management program to ensure the implementation of solid waste management plans and prescribe policies to achieve the Act's objectives. Under RA 9003, the implementation of the Act’s provisions is mainly the responsibility of the Local Government Units (LGUs). More than 19 years have passed since the Act was implemented. Yet, its compliance and enforcement remain a daunting task for many Local Government Units (LGUs) like the municipality of Candijay in Bohol due to technical, political, and financial constraints. The Municipality of Candijay is still facing significant concerns about proper solid waste practices such as but not limited to indiscriminate dumping of garbage, random collection of wastes, inadequate waste storage and insufficient funds for program implementation are just some of the prevalent problems in solid waste management in the area. This study was conducted to assess the current solid waste management practices in terms of segregation, collection and transport, source reduction, reuse and recycling program, composting, and penalties and fines adopted by the Municipality of Candijay in Bohol and provide the basis for developing sustainable proposals to improve the implementation of the said practices.

STATEMENT OF THE PROBLEM

This research sought to ascertain the extent of implementation of the solid waste management practices in all barangays of the municipality of Candijay in Bohol. The expected output of this endeavor was to develop proposals for the improvement of solid waste management practices.

This study specifically aimed to answer the following questions:

1. What is the extent of implementing solid waste management practices as perceived by the barangay officials and staff, households, and commercial establishments in terms of segregation of wastes, collection and transport of wastes, source reduction, reuse and recycling program, composting, disposal of wastes, and penalties and fines.
2. Based on the study's findings, what proposals can be implemented to improve solid waste management practices?

METHODOLOGY

Study Area

The study was conducted in the Candijay area, one of the municipalities of Bohol, Philippines. This area was chosen because of its booming tourism industry and increase in population during school period which contributes to the increase in solid waste volume making management of solid waste in this municipality very vital. Candijay is situated in the eastern part of the island, about 92 kilometers away from Tagbilaran, the capital city of Bohol. Candijay has 21 barangays and 6,771 households based on the 2015 census.

Figure 1. Map of the Municipality of Candijay, Bohol.

Research Design

The nature of this research was descriptive quantitative. Primary data were gathered using the researcher-made questionnaire. They were authenticated through unstructured interviews and direct observation. Field visits were likewise conducted to gather additional data and validate information regarding the extent of implementation of the solid waste management practices among the different barangays in the municipality of Candijay in Bohol.

Research Respondents

In this study, all 21 barangays in the municipality of Candijay were subjected for evaluation for an adequate representation of the overall population. Convenience sampling was used in selecting the respondents. Two respondents from each household and one from commercial establishments (if applicable) were chosen in every purok of the barangay and three from the barangay officials and staff. Respondents were selected based on the following criteria: (1) they must be a resident of that particular barangay, (2) they must be of legal age, (3) they must be in charge of solid waste management and disposal, and (4) they must be willing to take part in the study.

Research Instrument

The study used a researcher-made survey questionnaire in the form of an audit and gap analysis checklist as the primary tool for gathering data from the selected respondents. They were authenticated through pilot testing, unstructured interviews, direct observation, and focus group discussion on validating and substantiating the information derived from the survey instruments. One set of questionnaire was used by the barangay, households, and commercial establishments to assess the extent of implementation of the solid waste management practices in all barangays of the municipality of Candijay. The respondents answered the items in the questionnaire by encircling the number that corresponds to their evaluation. The following number scales were used in the assessment with the following quantitative and qualitative interpretation:

4 – All the Time (AT)	-	means that the solid waste management practices are implemented or applied in all cases.
3 – Most of the Time (MT)	-	means that the solid waste management practices are implemented or applied in majority of the cases.
2 – On Rare Occasion (RO)	-	means that the solid waste management practices are implemented or applied in some of the cases.
1 – Not at All (NA)	-	means that the solid waste management practices are not implemented or applied.

Data Collection Procedure

Before proceeding with the study, a letter requesting permission to conduct the research was given to each barangay's barangay captain. Once the request was granted, a brief discussion was organized together with the barangay solid waste management committee members to deliberate on the scope and objectives of the study, set schedule on the conduct of the survey and site visit as well. Before the commencement of the survey among the identified respondents of the barangay solid waste management committee, households, and commercial establishments, the researcher thoroughly discussed the purpose of the study and encouraged the respondents to give an honest and objective assessment. Furthermore, it was explained to the respondents that the information provided by them would be treated with the utmost confidentiality. Note-taking and voice recording was done so that all the pieces of information given were duly recorded and noted.

After the survey, an on-site observation was implemented to supplement the results gathered from the study. Proper documentation was employed through picture taking and the use of a prepared checklist. All gathered data were summarized, presented, and analyzed. A focus group meeting was done to examine the results of the survey and on-site observation. Furthermore, comments and suggestions on how to enhance current solid waste management practices were also encouraged.

Data Analysis

All gathered data were tallied and tabulated. Weighted mean was computed for each item in the questionnaire: household, establishment, and barangay solid waste management committee. The results were used to analyze and interpret the data. Tables and charts were employed to present the data visually. The following scales were used to interpret the responses from all categories.

Mean Value	Interpretations
3.26 – 4.00	All the time
2.51 – 3.25	Most of the time
1.76 – 2.50	On rare occasion
1.00 – 1.75	Not at all

FINDINGS

Segregation of Wastes Practices

The segregation of wastes was perceived by the three groups of respondents to be implemented all the time with factor mean of 3.45. Respondents perceived that the barangay is insisting on the segregation of waste at the generation level all the time. However, some respondents said that some wastes generators were confused as to what kind of waste they were generating. Simultaneously, some of them simply did not comply with the segregation ordinance. Implementers said that waste generators were reminded of the segregation of wastes during barangay assembly meetings conducted twice every year, but it was still not consistently practiced. Additionally, garbage collectors said that generators were reminded of the proper segregation whenever they find containers with non-segregated wastes (Interview, September to November 2019).

Respondents assessed that the collection of hazardous waste with utmost care separate from other types of wastes was generally implemented all the time. They said that collectors are cautious in handling this type of waste. However, it was noted by some residents that hazardous wastes were stored and transported in sub-standard containers or sacks which could lead to spills and potential major accidents or hazards. Some of the key informants averred that there is a need for proper handling of hazardous materials to reduce the risk of accidents involving hazardous materials especially if these are ignitable, corrosive, toxic or reactive (Interview, September to November 2019).

Table 1. Segregation of wastes practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishment		Composite Mean	
The barangay is insisting on segregation of waste at generation level.	3.54	AT	3.46	AT	3.62	AT	3.54	AT
The barangay has provided properly designed containers for each type of waste placed in designated areas for which residents can put their garbage awaiting for collection.	3.49	AT	3.26	AT	3.44	AT	3.40	AT
The solid waste containers are properly marked as:								
biodegradable (ex. peel of fruits, eggshell)	3.62	AT	3.41	AT	3.54	AT	3.52	AT
non-biodegradable (ex. plastic bags, styrofoam)	3.65	AT	3.47	AT	3.54	AT	3.55	AT
recyclable (ex. paper, plastic bottles)	3.67	AT	3.46	AT	3.49	AT	3.54	AT
special wastes (ex. household batteries, paints)	3.49	AT	3.24	MT	3.37	AT	3.37	AT
Average	3.61	AT	3.39	AT	3.49	AT	3.50	AT
Hazardous wastes are collected with utmost care separate from other types of wastes.	3.43	AT	3.18	MT	3.38	AT	3.33	AT
Barangay is segregating waste after collection.	3.43	AT	3.20	MT	3.39	AT	3.34	AT
Factor Average	3.54	AT	3.34	AT	3.47	AT	3.45	AT

Legend: AT = All the Time, MT = Most of the Time,
ORC = On Rare Occasion, NAA = Not At All

Collection and Transport of Wastes Practices

The respondents revealed that collection and transport of solid wastes were implemented all the time with a factor mean of 3.28. They exposed that a definite schedule for garbage collection indicating the day and time the garbage truck will be at the particular vicinity to collect garbage was implemented all the time. The frequency of collection varies depending on the volume of garbage produced from each purok or barangay. In some barangays, collection was done on a door to door basis (Interview, November, 2019).

Furthermore, the respondents gave the lowest rating of 3.14 when it comes to the sufficiency of the number of waste containers provided in the barangay. This means that this practiced was implemented most of the time. Some respondents averred that there were certain puroks in which the waste bins were not enough to accommodate the volume of wastes generated by the various sectors of the community. Because of this issue, some waste generators dumped their garbage in the sewage, canals or worst placed them on the streets which were scattered by stray dogs and rodents posing serious health concerns (Interview, November, 2019).

Table 2. Collection and transport of wastes practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishments		Compo-site Mean	
2.1 The collectors and other personnel directly dealing with collection of solid waste are equipped with appropriate personal protective equipment to protect them from the hazards of handling solid wastes.	3.25	MT	3.08	MT	3.29	AT	3.21	MT
2.2 All collectors and other personnel directly dealing with collection of solid waste have received the necessary trainings for proper handling of solid wastes.	3.27	AT	3.13	MT	3.28	AT	3.23	MT
2.3 Properly designed containers or receptacles are provided in selected collection points in the barangay for the temporary storage of solid waste while awaiting collection.	3.40	AT	3.21	MT	3.30	AT	3.30	AT
2.4 The number of waste containers provided in the barangay is sufficient.	3.19	MT	3.09	MT	3.15	MT	3.14	MT
2.5 Waste containers are maintained in proper condition. The authorities are repairing and replacing it when required.	3.30	AT	3.13	MT	3.20	MT	3.21	MT
2.6 There is definite schedule for garbage collection indicating the day and time the garbage truck will be at the particular vicinity to collect garbage.	3.56	AT	3.20	MT	3.30	AT	3.35	AT
2.7 The waste collection schedule is consistently followed.	3.51	AT	3.16	MT	3.30	AT	3.32	AT
2.8 All garbage is collected in every collection schedule.	3.33	AT	3.06	MT	3.21	MT	3.20	MT
2.9 Non-segregated or unsorted wastes are excluded in the collection.	3.40	AT	2.97	MT	3.08	MT	3.15	MT
2.10 Segregation of waste is practiced during collection or transport of wastes by means of installing appropriate compartments or containers and covers in vehicles to avoid mixing of sorted wastes while in transit or by having separate collection schedules and/or separate trucks or haulers used for specific type of waste.	3.30	AT	2.96	MT	3.22	MT	3.16	MT
2.11 The solid wastes are properly handled by collectors.	3.64	AT	3.24	MT	3.39	AT	3.42	AT
2.12 The equipment or vehicle used in the collection and transportation of solid waste are operated and maintained in such a manner as to minimize health and safety hazards to solid waste management personnel and the public.	3.65	AT	3.27	AT	3.45	AT	3.46	AT
2.13 There is MRF for segregation, processing and or buying area for recyclables.	3.67	AT	3.32	AT	3.40	AT	3.46	AT
Factor Average	3.42	AT	3.14	MT	3.27	AT	3.28	AT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

Source Reduction Practices

The practice of source reduction benefits the environment through reduced energy consumption and pollution, conservation of natural resources, and extension of valuable landfill space. The respondents perceived the practices pertaining to source reduction as generally implemented all the time as shown by the factor mean of 3.38 (Table 3). They revealed that the barangay gives orientation about tips or activities on how to minimize the generation of solid wastes in households or commercial establishments all the time. It can be deduced from the finding that conducting trainings on how to make do with less garbage was a very effective motivator for the waste generators to consider the possibility of producing less wastes. According to the key informants from the commercial establishments, participating in the orientation activity was a requisite before their business permits will be renewed (Interview, October – November, 2019).

Table 3. Source reduction practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishments		Compo-site Mean	
The barangay has program(s) that promotes the reduction and minimization of wastes generated at source.	3.54	AT	3.15	MT	3.29	AT	3.33	AT

There is a strict implementation of the source reduction program in the barangay.	3.64	AT	3.17	MT	3.30	AT	3.37	AT
The barangay gives orientation about tips or activities on how to minimize the generation of solid wastes in households or commercial establishments.	3.62	AT	3.36	AT	3.41	AT	3.46	AT
The barangay has informed the waste generators about waste characterization.	3.54	AT	3.34	AT	3.44	AT	3.44	AT
The "no littering policy" is strictly implemented in the barangay.	3.43	AT	3.13	MT	3.34	AT	3.30	AT
Factor Average	3.55	AT	3.23	MT	3.36	AT	3.38	AT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

On the other hand, respondent affirmed that the barangay has practiced the strict implementation of the "no littering policy" all the time with a score of 3.30. The said ordinance was intended to ensure that people will not leave food, packaging, and other materials to rot which will ultimately provide a fertile breeding ground for bacteria to thrive, resulting in a health hazard for those that come into contact with it. Despite the general findings, during site visits, the researcher observed that some litter were thrown along the road and even in public places like barangay gymnasium or plaza. Some key informants claimed that there were some individuals who chose to defy the local ordinance including children and teenagers (Interview, October – November, 2019).

Re-use and Recycling Practices

The respondents from the three categories declared that the re-use and recycling practices was generally implemented most of the time with a factor mean of 3.23 (Table 4). Nevertheless, when they were asked if barangay has the continuing effort in promoting re-use and recycling at waste generator level they affirmed that it is practiced all the time. The local officials in charge with solid waste management said that they encouraged the various community stakeholders to resort to recycling and re-use to reduce the volume or prevent the creation of waste at the source making the environment cleaner and healthier (Interview, October – November, 2019).

Respondents further claimed that the barangay Material Recovery Facility (MRF) can temporarily store all recyclable materials collected in a single hauling schedule all the time. The main function of the MRF is to maximize the quantity of recyclables processed, while producing materials that will generate the highest possible revenues in the market. MRFs can also process wastes into a feedstock for biological conversion or into a fuel source for the production of energy. However, during the on-site visit conducted by the researcher, it was observed that some of the MRFs were already full or overflowing. Some of the collected solid wastes (non-biodegradables, recyclables, and special wastes) were found outside the facility, and some were scattered on the ground.

Table 4. Reuse and recycling practices

Indicators	Barangay Officials and Staff		Household		Commercial Establishments		Composite Mean	
There is a separate collection system or convenient drop-off locations for recyclable materials to ensure that they are not disposed of in landfill.	3.27	AT	3.08	MT	3.23	MT	3.19	MT
The barangay has continuing effort to promote reuse and recycling at waste generator level.	3.54	AT	3.19	MT	3.32	AT	3.35	AT
The barangay has an enhance partnership with the industry, academic and community groups to reuse recycled materials.	3.25	MT	2.90	MT	3.04	MT	3.06	MT
The barangay Material Recovery Facility (MRF) can temporarily store all recyclable materials collected in a single hauling schedule.	3.57	AT	3.09	MT	3.23	MT	3.30	AT
Factor Average	3.41	AT	3.07	MT	3.20	MT	3.23	MT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

Composting Practices

Composting is an aerobic method (meaning that it requires the presence of air) of decomposing organic solid wastes. It can therefore be used to recycle organic material. Respondents assessed that the composting practices was generally implemented all the time in the barangay as evidenced by factor mean of 3.34 (Table 5). They declared that the barangay has implemented the composting of kitchen and garden wastes among the households and commercial establishments all the time as denoted by the composite mean of 3.37. Composting is considered by many local officials as a very promising area for the recovery organic wastes. Volume of waste for composting available in the various barangays make it a good choice for sustainable municipal solid waste management method. However, respondents divulged that not all households and commercial establishments practiced composting. Some respondents confessed that they were aware of such ordinance, but they cannot comply with it due to lack of sufficient space where the generators can put their compost pit (Interview, September to November 2019).

The respondents perceived that the barangay conducts regular monitoring for households or commercial establishments which practice composting of wastes all the time as evidenced by the composite mean of 3.31. The local officials consider composting as a very good strategy or means of accomplishing all three of the R's – reduce, reuse and recycle. Through composting, the amount of garbage sent to the landfill is reduced, the organic matter is reused rather than dumped and it is recycled into a useful soil amendment. Lastly, composting is a way of harnessing the natural process of decomposition to speed up the decay of waste. However, respondents disclosed that the Rural Health Workers (RHW) and Barangay Health Workers (BHW), who are tasked for its implementation, seldom conduct evaluation on solid waste practices in a year. However, waste generators are reminded to practice composting of biodegradable wastes during barangay assembly, which is conducted twice a year (Interview, September to November 2019).

Table 5. Composting practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishments		Compo-site Mean	
The barangay is implementing composting of kitchen and garden wastes in households and establishments.	3.46	AT	3.30	AT	3.36	AT	3.37	AT
The barangay conducts regular monitoring for households or commercial establishments which practice composting of waste.	3.38	AT	3.22	MT	3.32	AT	3.31	AT
Factor Average	3.42	AT	3.26	AT	3.34	AT	3.34	AT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

Disposal of Wastes Practices

Waste disposal involves all the activities and actions that entail how to manage wastes from its inception to its final removal. This includes among other things the collection, transport, treatment and discarding of wastes together with monitoring and regulation. Waste disposal practices was perceived by the respondents to have been implemented all the time with a factor mean of 3.35 (Table 6). The respondents considered the barangay to have keep away from doing open dumping, open burning or burying of collected non-compostable or non-biodegradable materials as practiced all the time. However, respondents admitted that they burn their garden wastes due to several reasons such as they do not have enough space for composting, they want to get rid of insects, and they smoke their plants to increase their growth. Because of these reasons, residents suggested that they should be allowed by the barangay to burn their garden waste. Furthermore, respondents divulged that some residents throw garbage in remote areas and some are in the seashore or mangrove areas (Interview, September to November 2019).

Respondents perceived the practice of imposing fines and penalties for the violation of any prohibited acts as implemented most of the time (refer to Table 7). The said penalties and fines are anchored under the implementing guidelines of Republic Act 9003 otherwise known as the Ecological Solid Waste Management Act of 2000. Respondents claimed that the practice of imposing fines and penalties to any person or entities that violate the solid waste management ordinance was implemented all the time. It can be inferred from the findings that the local officials are serious when it comes to the enforcement of the law. Respondents said that they are aware that there is a corresponding penalty in any violation of the solid waste management ordinance, which includes Php500.00 for the first offense, Php1,000.00 for the second offense, and Php2,500.00 for the third offense (Interview, September to November 2019).

Table 6. Disposal of wastes practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishments		Compo-site Mean	
The barangay prohibits the residents open dumping, burying or burning of biodegradable or non-biodegradable materials.	3.64	AT	3.47	AT	3.42	AT	3.51	AT
The barangay keeps away from doing open dumping, open burning or burying of collected non-compostable or non-biodegradable materials.	3.73	AT	3.51	AT	3.52	AT	3.59	AT
Non-biodegradables and special wastes are collected by the municipality on a fixed schedule.	3.14	MT	3.00	MT	2.89	MT	3.01	MT
Recyclables materials are donated or sold to recyclers or junk shops.	3.49	AT	3.32	AT	3.42	AT	3.41	AT
Remaining solid waste brought and disposed in municipal landfill.	3.35	AT	3.11	MT	3.19	MT	3.22	MT
Factor Average	3.47	AT	3.28	AT	3.29	AT	3.35	AT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

Table 7. Penalties and fines practices

Indicators	Barangay Officials and Staff		House-hold		Commer-cial Estab-lishments		Compo-site Mean	
Fines and penalties are imposed to any person or entities that violated the solid waste management ordinance.	3.32	AT	3.23	MT	3.27	AT	3.27	AT
The barangay strictly implements the imposition of fines and penalty to any person or entities that violated the solid waste management ordinance.	3.21	MT	3.15	MT	3.17	MT	3.18	MT
The barangay regularly updates the schedule of penalties and fines for violation of the solid waste management ordinance.	3.21	MT	3.10	MT	3.14	MT	3.15	MT
Factor Average	3.25	MT	3.16	MT	3.19	MT	3.20	MT

Legend: AT = All the Time, MT = Most of the Time, ORC = On Rare Occasion, NAA = Not At All

As to the practice where the barangay strictly implements the imposition of fines and penalties to any person or entities that violated the solid waste management ordinance, the respondents claimed that it was implemented most of the time as denoted by the composite mean of 3.18. Despite the presence of the implementing guidelines of RA 9003 in terms of violations and its corresponding fines and penalties, the respondents said they had never heard of anyone punished because of solid waste related violations. Respondents divulged further that if the barangay enforcer or waste collector found a person violated the solid waste management ordinance, he or she would only be warned and advised to comply next time, otherwise they would be penalized. Implementers claimed that they are having a hard time catching solid waste violators as the generators will secretly dispose of their waste when there are no enforcers around (Interview, September to November 2019).

CONCLUSION

The Municipality of Candijay has already practiced solid waste management. However, some areas needed to be enhanced, as assessed by the respondents, to ensure that the solid waste management practices are well implemented. Based on the study results, the researcher concludes the following:

1. Segregation practices is implemented all the time in the municipality of Candijay. However, storing and handling of hazardous waste needs to be improved.
2. Collection and transport of waste practices is employed all the time with a factor average of 3.28. But the municipality of Candijay needs to examine their practices in terms of the measures to protect the welfare of the personnel directly dealing with waste collection, adequacy and maintenance of garbage containers, proper dissemination and consistent implementation of collection schedule, and the efficiency of the waste collection system.
3. Source reduction practices is executed all the time in the municipality of Candijay. Yet, the barangays need to enhance their effort in promoting the reduce, re-use and recycling practices at the generator level.
4. Re-use and recycling program practices is implemented most of the time as evidenced by a factor average of 3.23. Additional measures should be taken to have a better collection system for recyclable materials, enhance partnerships with the industry and academe, and manage the waste in the MRF.
5. Composting practices are instigated all the time (factor average = 3.34). However, the LGU needs to give alternative measures to residents with no available space for composting.
6. Disposal of wastes practices has a factor average of 3.35 when indicates that it is employed all the time. But methods of collection of special wastes needs to be considered.
7. Penalties and fines practices are most of the time with a factor average of 3.20. Data suggest to enhance the enforcement mechanism of their municipal solid waste ordinance.

RECOMMENDATIONS

Based on the study results, some solid waste management practices are not well implemented in the municipality of Candijay, Bohol. The following are the recommendations formulated by the researcher based on the findings of the study:

Primary Recommendation

In all 21 barangays, the barangay officials may consider implementing the measures toward sustainable and improved solid waste management (SWM) practices proposed herein:

1. Separate container, with proper labels, shall be allocated or provided to contain hazardous or special wastes inside the garbage vehicle.

The container should be made of good, durable material with cover.

2. The LGU and the barangay should supply adequate number of appropriate PPE and paraphernalia to garbage collectors. Sufficient budget shall be allocated for this purpose. Funds may be sourced from fees collected, fines, and other fees collected pursuant to the municipal ordinance on solid waste management.
3. The LGU shall identify the type of trainings necessary for SWM personnel especially those directly dealing with collection of solid waste. The frequency or timing of training shall also be identified.
4. The barangay shall provide sufficient number of waste containers, especially for recyclable materials, in designated areas. The barangay solid waste management council shall conduct monitoring and keep maintenance record for waste containers.
5. The barangay shall establish a route sequence for waste collection indicating the garbage vehicle will be at the particular vicinity. It shall be placed in public place to raise awareness to residents.
6. The LGU and the barangay shall conduct regular cleaning and maintenance of garbage vehicle to avoid unnecessary breakdowns. Adequate inventory of spare parts shall be maintained.
7. The barangay shall examine the efficiency of their collection method. They may consider two methods of waste collection. In curbside pick-up approach waste generators leave their garbage directly outside their homes according to a garbage pick-up schedule set with the barangay. This is suitable for areas where collectors have an easy access to waste generators place. Community bin serves as a temporary storage where residents can place their garbage waiting for collection. This is recommended to areas where accessibility to waste generators' location is difficult. Bins shall be placed in strategic locations.
8. Remind collectors of the "no segregation, no collection" policy. Collectors shall be part of the incentive and reward system to encourage them to report any entities which violated the policy.
9. The barangay shall create drop-off center where waste generators can deliver their recyclable materials. Drop-off center must be accessible to households and commercial establishments. Recycling containers with signs and clear labels shall be provided. Make an agreement with recyclable buyer, duly recognized by the municipality, to have periodic pick up of recyclable materials in its area.
10. The barangay shall develop strategies and promote reduce, reuse and recycling programs such as:
    a. restricting the use of single-use materials. The scope of its application must be broadened, i.e. to include households, institutions, and all types of commercial establishment. Monitoring and inspection activity should be done to identify entities which do not follow the ordinance and impose fines.
    b. provide recycling bins in public places with signage which clearly indicate acceptable items;
    c. require residents to have a separate reusable container, with label, for recyclable materials. All recyclable materials shall be separated and stored in this container until collected by the barangay or sent to drop-off center;
    d. require commercial and institutional establishments to develop and implement its own reduce, re-use and recycling program;
    e. develop an incentive or reward system for every recyclable material brought to drop-off center (e.g. buy materials at reasonable price);
    f. convey recycling message to community through posting of posters in public spaces such us recycling bins, garbage vehicles, etc. or use of social media; and
    g. organize re-use and recycling events such as "Swap Day" (exchange of recyclable wastes for school supplies).
11. Establish partnership with peoples' organization (e.g. women's organization) to include conversion of waste materials into recycled products. Identify markets for recycled products. Establish partnership with academe to include the use of recyclable materials as part of its curriculum activities.
12. Enhance the size of the MRF to accommodate all collected materials while waiting to be sold or transferred to a final disposal site. It should have separate compartments for each type of waste, e.g. separate compartment for used papers, glass, metal, rubber, recyclable plastic or bottles. The dimension of the compartment may be changed depending on the

estimated volume of collected recyclable materials.

13. Aside from compost pits, the LGU shall promote different composting schemes to waste generators such as tire composter, rotating drum composter, coconut shell stack, can composting, clay pots, plastic sacks and vermicomposting. Offer compost bins at a reduced price to households and commercial establishments with no available space for composting. Develop promotional activities on composting like giving leaflets and film showing in the big LED screen in the public market about the different composting methods.
14. The SWM enforcers, in coordination with the barangay, shall monitor households and commercial establishments which practice composting. Regular schedule (e.g. quarterly) for the conduct of monitoring and inspection as well the responsible team/person should be clearly defined.
15. Municipal collectors shall be directed to include especial wastes every collection. Standard receptacles for special wastes shall be provided in the garbage vehicle.
16. The LGU shall enhance enforcement mechanism of the solid waste management ordinance by:
    a. broadening the members of the deputized SWM enforcers. It shall consist of three groups, namely, regular enforcers (SWM enforcement personnel, PNP, MHO, etc.), auxiliary enforcers (Barangay Officials, Barangay Tanods), and voluntary enforcers (Pos, NGOs, youth groups, etc.). Each group must have well defined functions;
    b. Enforcers shall conduct regular monitoring activities and investigation on waste generators who practiced illegal disposal or violated any of the solid waste ordinances. Anyone caught violating the ordinance must be strictly imposed with corresponding penalties and fines. Enforcers shall be required to submit a report of their inspection/performance; and
    c. Develop an incentive and/or reward system for enforcers who issued citations to violators (e.g. for every apprehension, a cash award of twenty five percent (25%) of the penalty actually paid shall be given).

Secondary Recommendations

1. Strengthen the educational campaign to shift the mindset of waste generators about proper waste management and its importance.
2. The Local Government Unit of Candijay should formulate additional measures to minimize the waste (e.g., employing the 3R concept) generated in the area. The effectiveness of the measures shall be measured based on the percent reduced in its volume. Proper execution of the formulated measures should be practiced.
3. Establish livelihood programs that aim to minimize the volume of wastes that will be disposed of and uplifting the economic status of the stakeholders involved. Recyclable materials collected in the area shall be the primary component of its products.
4. The solid waste ordinance must be administered strictly by the assigned officers or personnel to ensure that solid waste management practices are followed.
5. The Municipality of Candijay shall conduct a periodic review of its Solid Waste Management program and revise it when necessary. The performance of the implemented measures shall be evaluated as to whether the targets and objectives were attained.

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REFERENCES

Ahluwalia, I. J. and Patel, U. (2018). Solid waste management in India an assessment of resource recovery and environmental impact. Available at https://thinkasia.org/bitstream/handle/11540/8143/Working_Paper_356.pdf?sequence=1

Christensen, T. (2011). Solid Waste Technology and Management Volume 1. United Kingdom: A John Wiley and Sons, Ltd.

Da Zhu, Asnani, P.U., Zurbrügg, C., Anapolsky, S., and Mani, S. (2008). Improving Municipal Solid Waste Management in India A Source-book for Policy Makers and Practitioners. Washington, D.C.: The World Bank

DENR Administrative Order No. 2001-34 Series of 2001, Implementing Rules and Regulations of Republic Act 9003. Available at https://emb.gov.ph

Foo, T. S. (1997). Recycling of Domestic Waste: Early Experiences in Singapore. Habitat International, 21, 277-289

McDougall, F., White, P., Franke, M., and Hindle, P. (2009). Integrated Solid Waste Management: a Life Cycle Inventory 2nd Edition. United State: Wiley-Blackwell

Pariatamby, A. and Tanaka, M. 2014). Municipal Solid Waste Management in Asia and the Pacific Islands Challenges and Strategic Solutions. Singapore: Springer

Philippine Statistics Office (2015). Total Population by Province, City, Municipality and Barangay. Available at www.psa.gov.ph/sites/default/files/attachments/hsd/ pressrelease/R07.xlsx

Province of Bohol (2017). Municipality of Candijay. Available at https://bohol. gov.ph/candijay/

Samaniego, J., Murcia, M. D., Bustamante, M. A., Espinosa, A., Paredes, C., Lopez, M., Lluch, D. B., Teran, I., and Moral, R. (2016). Composting as sustainable strategy for municipal solid waste management in the Chimborazo Region, Ecuador: Suitability of the obtained composts for seedling production. Journal of Cleaner Production, 141, 1349-1358.

SEPO Publications (2017). Philippine solid wastes at a glance. Available at https://www.senate.gov.ph/publications/SEPO/AAG_Philippine%20Solid%20Wastes_Nov2017. pdf

Suocheng, D., Tong, K.W., Yuping, W. (2001). Municipal solid waste management in China: Using commercial management to solve a growing problem. Utilities Policy, 10(1), 7-11. Available at https://doi.org/10.1016/S0957-1787(02)00011-5

United Nations Human Settlements Programme (UN-HABITAT) (2010). Solid Waste Management in the World's Cities Water and Sanitation in the World's Cities 2010. London, Washington, D.C.: Earthscan

World Bank (2012). What a waste: A global review of solid waste management. Available at http://documents1.worldbank.org

Yadaf, V., Bhurjee, A. K., Karmakar, S. and Dikshit, A. K. (2017). A Facility Location Model for Municipal Solid Waste Management System Under Uncertain Environment. Science of the Environment, 603-604, 760-771

Yap, H. (2015). Solid waste management practices of selected barangays in Mandaue City: Proposed intervention scheme (Unpublished master thesis). University of San Jose – Recoletos, Cebu City, Philippines.

MODIFIED E-CLASS RECORD XX'XX: COPING THE STANDARD FOR EVALUATION OF STUDENTS' PERFORMANCE AMIDST NEW NORMAL EDUCATION

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ABSTRACT

The pandemic caused by COVID19 changed not only the Philippine educational system but also in almost all countries around the world. One of the changes it caused is in the assessment and recording of the academic performance of students based on the DepEd Memorandum No. 30, series of 2020. This study evaluated the Modified e-Class Record XX'XX in terms of acceptability and satisfaction of all teachers using the program in the entire Region 12. Using the descriptive-correlational design, the researcher used the mean and frequency count to rate the teachers' level of acceptability and satisfaction. Data were gathered online to observe health protocols, including the electronic questionnaire for the level of acceptability and satisfaction of the program to teachers. The Pearson-r was used to test the significant relationship of the teachers' level of acceptability and satisfaction of schools' location; be it urban or rural. The findings revealed the highest acceptance and satisfaction level of teachers after using the e-Class Record XX'XX program and marked no significant relationship to their school's location. This study concluded that the teacher's integration of technology using the program was not dependent on whether their school is situated in urban or rural area. Regardless of school location, it is observed that teachers' have common reaction and evaluation of the program. The program is therefore recommended for dissemination in the entire region for wide usage.

Keywords: e-Class Record XX'XX, acceptability, satisfaction, assessment, performance, integration

INTRODUCTION

The crisis caused by the COVID-19 virus has far-reaching effects in nearly all social areas, including education. Schools were closed in March 2020 in almost all countries in the world. The struggle against the COVID-19 epidemic has far-reaching consequences and repercussions in practically every human field. These have resulted in widespread disruption, such as travel restrictions (Chinazzi et al., 2020), closure of schools (Viner et al., 2020). To mention a few, the global economic downturn (Fernandes, 2020), political disputes (Barrios & Hochberg, 2020), racism (Habibi et al., 2020), and disinformation and disputes (Enitan et al., 2020).

Today, the Department of Education is committed to maintaining continuity in teaching and learning while also improving the protection, safety, and well-being of its students, teachers, and workers, issued DepEd Order No. 012, s. 2020 the Adoption of the Basic Education Learning Continuity Plan (BE-LCP) for School Year 2020-2021 in light of the COVID-19 pandemic. As stated in the DepEd Order No. 031, s. 2020, of the same memo, schools must take stock of assessment and grading practices that will meaningfully support learner's development and respond to varied contexts at this time.

DepEd Order 31, s. 2021 has the mandates to implement the three (3) categories of assessment across all subjects: the Written Works, Performance Tasks, and Periodical examinations, only two (2) only remain the Written Works and Performance Tasks. Most of the schools in the Division of Sultan Kudarat used the same Microsoft Excel Program in computing grades in the previous years, the Revised-Grading System for Grade 1-12 under the New Curriculum developed by Ronil D. Manayon.

With the same sheet format and to avoid a new style for the teacher, the researcher developed another program to cater to the new method of evaluating the students' academic performance. Added to the existing features of the system also includes computation of grades of students in the early education like Kindergarten, and Grade 1 to III, which explicit teaching occurred.

It also offers an automatic computation of the general average for a class with one (1) teacher across all subject areas. It developed the exact process for the Grade 4 to 6 and Grade 7 to 10 levels. All senior high school subjects across all strands and specialization were also catered to make teachers' workload easier. Based on the memo, there were indicated percentages for written output and performance tasks for each subject.

The system also has an additional feature to automatically set each percentage in every selection of subjects to be encoded. The implementation of the program in school-based started in the 1st quarter of the school year. Some teachers promoted the said program and submitted a correction by presenting the errors they observed.

In this research, it is now the time to innovate and adopt the new way of assessment for the students. Using MODIFIED e-CLASS RECORD XX'XX, teachers will only mind the requirements needed by the students to pass; the system will do the rest of the computation. Therefore, this action research will provide an electronic assessment tool to increase teacher's interest through an interactive and ICT integrated assessment approach.

REVIEW OF RELATED LITERATURE

By compiling a review of relevant literary works, the researchers provided and established his ideals and ideas from the most trustworthy sources possible, ensuring that any interpretive explanations are comprehensible, adequate, and supporting the external research interference.

Grades are numerical statistics that reflect the academic performance of pupils in a classroom environment and their intellectual capacity. The aim of grading pupils is to assess their intellect and general performance in the classroom. That is why many teachers rely on what pupils have learned in previous classes. The quality model for product evaluation includes six quality characteristics: functionality, usability, dependability, efficiency, portability, and maintainability (ISO, 1991).

Mercado (2017) stated that the Microsoft Excel software application was beneficial in creating her study's electronic class record. The input data, which includes the faculty member's name, section, topic, timetable, room, and subject type, as well as the student's name, base mark, passing rate, the total number of items, participation, and accomplishment, is defined by the electronic class record. It started with ascertaining its acceptance, testing, deployment, and assessment. Each term, an attendance sheet was used to track students' absences and tardiness. The Preliminary, Midterm, and Final Term tabs all serve the same purpose. Its purpose is to receive data entry.

According to Hermans, et al. (2015), spreadsheet programming is the most effective and well-known kind of programming in the modern era [8]. According to studies, spreadsheets have a feature termed "liveness" that is critical to its users. Additionally, the liveliness of spreadsheets can be classified into two categories: the first is direct manipulation, which enables the user to edit the spreadsheet directly rather than using another program to achieve the desired result—using spreadsheets simplifies the process for users because there is no distinction between the actual data and the spreadsheet's code—and the second is indirect manipulation, which enables the user to edit the spreadsheet directly rather than using another program.

Some e-Class Records were created before the pandemic. The Department of Education's (DepEd) "Electronic Class Record" (E-Record) is an essential instrument that Senior High School Faculty/Teachers rely on because of its usefulness and efficacy on their work load/s as a whole. According to the study's respondents, adopting the Electronic Class Record (E-Class Record) may make their class recording reports efficient, quick, and accurate. It may also assist instructors in calculating the grades of Senior High School students at Diliman College - Quezon City. Teachers in some schools claim that adopting the "Electronic Class Record (E-Class Record)" makes their job more accessible and more controllable since the grading results are now more accurate and trustworthy.

As per Department Order No. 31, s.2020, "Interim Policy Guidelines for Assessment and Grading in Light of the Basic Education Learning Continuity Plan," written works and performance tasks will be given to evaluate content and performance requirements. Quarterly exams will no longer be part of the school year's grading system, which traditionally assigned equal weight to written and performance assignments.

Many rural schools operate in communities that embrace or promote technology usage (Howley et al., 2010). However, as mentioned above, these institutions have unique difficulties in increasing teachers' use of technology. Most rural teacher technology usage initiatives, according to research, concentrate on either acquiring or utilizing technology. A rural school's accessibility to technology may be improved by receiving federal or state technology funds, according to Cullen and colleagues (2004).

Aside from the E-Rate program, Park et al. (2007) note that rural schools benefit from the program but must handle their computer and software purchases, as well as teacher training requirements.

Using Ayman's (2015) Technology Acceptance Model (Unified Theory of Acceptance for the Use of Technology UTAUT), we determined the degree of acceptance for the use of information technology. These ideas examine the user's capacity to embrace new technologies and their ability to cope with them. The Technology Acceptance Model assists managers and decision-makers in determining the effectiveness of technology adoption within an organization and motivates users to embrace new technologies.

STATEMENT OF THE PROBLEM

This research investigated the teachers' coping mechanism on the students' performance amidst new normal education to improve the quality of computing grades using the Modified e-class Record XX'XX. Specifically, this research found answers to the following questions:

1. To what extent do teachers assess the level of acceptability of Modified e-class Record XX'XX in terms of:
   a. performance expectancy;
   b. effort expectancy;
   c. social influence;
   d. facilitating condition; and
   e. behavioral intentions?
2. To what extent do teachers assess the level of satisfaction of Modified e-class Record XX'XX in terms:
   a. usefulness; and
   b. approval?
3. Is there a significant relationship between the level of acceptability and satisfaction of teachers using the Modified e-class Record XX'XX in terms of school location such as rural or urban?

Hypotheses:

H_o: There is no significant relationship between the level of acceptability and satisfaction of teachers using the Modified e-class Record XX'XX in terms of school location such as rural or urban.

METHODOLOGY

Research Design

This study employed a descriptive-correlational design to tabulate, analyze, and interpret data. Data were obtained from the survey questionnaires on the level of acceptability and satisfaction of teachers in using the Modified e-class Record XX'XX.

The researcher used descriptive statistics and inferential statistics. Descriptive statistics define the mean and standard deviation of the level of acceptability and satisfaction of the intervention. To get the significant relationship of the level of acceptability and satisfaction to the teachers' location was undergone inferential statistics using Pearson's r test was done.

Research Respondents

The respondents included 50 teachers in Region XII, particularly in the Division of Sarangani, South Cotabato, Koronadal City, Kidapawan City, and Sultan Kudarat. The teachers who already used the program during the end of the 1st quarter were qualified to answer the survey. The researcher used purposive sampling for the selection of the respondents.

Data Gathering Methods

Survey Questionnaire was the main instrument used in gathering information to evaluate the teacher's level of acceptability and satisfaction in using the Modified e-Class Record XX'XX which undergone validity and reliability tests distributed to selected teachers in the region. The statements of this survey instrument rating scale was adapted from the criteria for evaluating the survey questionnaire set forth by Good and Scates (1972). There were 20 questions in the questionnaires, and data about their location were asked if they are teaching in urban or rural area. Reliability Test using Cronbach Method resulted to 0.992 at 0.05 level of significance.

The researcher used the Google Forms link to survey. The data were utilized to answer the levels of acceptability and satisfaction in relation to location. The result was tabulated to convey the effect further.

The researcher also interviewed randomly selected participants of the study. It was done to elicit opinions, feelings, and experiences in using the program. The researcher gathered and utilized the data as a feedback mechanism that would help navigate the flow of the study.

Data Analysis Plan

The gathered raw data from the survey questionnaires were tabulated and analyzed quantitatively by the researcher. The table below was used to measure the level of acceptability and satisfaction of Modified e-Class Record XX'XX in coping with the demand of the new assessment for the new normal in education and the relationship of the school's location. The adjectival equivalence or rating was adapted from the book of Hechanova et al. (2012) to interpret the computed results of the correlation coefficient and degree of relationships.

The Rating Scale used to Interpret the Response of the Respondents.

Numerical Description	*Adjectival Description*	*Qualitative Description*
4.21 – 5.00	Strongly Agree	The respondents agree with highest extent.
3.41 – 4.20	Agree	The respondents agree with high extent.
2.61 – 3.40	Undecided	The respondents are undecided.
1.81 – 2.60	Disagree	The respondents disagree with low extent.
1.80	Strongly Disagree	The respondents disagree with lowest extent.

Pearson-r scale used to Interpret Correlation of the Level of Acceptability and Satisfaction to School's Location

Computed *r value*	**Adjectival Equivalence**	**Interpretation**
±1.00	Perfect Correlation	Perfect Magnitude of Relationship
±0.91 to ±0.99	Very Strong Correlation	Very Strong Magnitude of Relationship
±0.71 to ±0.90	Strong Correlation	Strong Magnitude of Relationship
±0.41 to ±0.70	Moderate Correlation	Reasonable Magnitude of Relationship
±0.21 to ± 0.40	Weak Correlation	Weak Magnitude of Relationship
±0.01 to ±0.20	Very Weak Correlation	Very Week Magnitude of Relationship
0.00	No Correlation	Zero Magnitude of Relationship

The following scale in Table 4 exhibited the corresponding adjectival equivalence or rating was adapted from the book of Hechanova et al. (2012) to interpret the computed results of the correlation coefficient and degree of relationships.

FINDINGS

This chapter presented the general results, analysis, interpretation of the accordingly by which the statements of the problem were presented in this study.

Table 1 summarizes the level of acceptability, categorizing it into Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Condition, and Behavioral Intentions. Teachers strongly agreed that the level of acceptance of the teachers to Modified e-Class Record XX'XX had an overall mean rating of 4.60. This shows that the respondents agreed with highest extent and coped with the demand to deliver a faster, dependable, and built-in program that will satisfy the department's needs in contemporary times or new normal education. On the other hand, teachers strongly agreed that they were satisfied in using the Modified e-Class Record XX'XX with a grand mean of 4.64 with an implication that the respondents agreed with highest extent.

This is to reassure teachers despite the current epidemic crisis a well-designed and easy-to-manipulate program may also prevent teachers from directly contacting their co-teachers, thus avoiding close contact. In this approach, we can assist teachers in working effectively with their students.

Table 1. Level of Acceptability

Indicators	Mean	Interpretation	Description
Performance Expectancy	4.71	Strongly Agree	The respondents agree with highest extent.
Effort Expectancy	4.60	Strongly Agree	The respondents agree with highest extent.
Social Influence	4.51	Strongly Agree	The respondents agree with highest extent.
Facilitating Condition	4.54	Strongly Agree	The respondents agree with highest extent.
Behavioral Intentions	4.65	Strongly Agree	The respondents agree with highest extent.
Mean	4.60	Strongly Agree	The respondents agree with highest extent.

Regarding performance expectancy, the teachers strongly agreed on a mean rating of 4.71 for performance expectancy with an implication that the respondents agreed with highest extent signifying that the application is trustworthy and earned the users' trust when calculating grades. The application enabled teachers to work more quickly in terms of performance expectancy and provided error-free output during the new normal educational approach during a pandemic.

In terms of expectancy, the teachers strongly agreed with a mean rating of 4.60 for effort expectancy implying that the respondents agreed with highest extent. The user's manual that the researcher-programmer gave also included instructions on how to utilize the tool effectively. In terms of effort expectancy, it was evident that the software did not create conflict with teachers due to the education and actions required to use the program. Additionally, it showed the system's attempts to give teachers a user-friendly interface with clear and focused commands.

The teachers strongly agreed with a mean rating of 4.51 for social influence which implied that the respondents agree with highest extent. Other teachers were convinced of the program's usefulness through social influence by sharing their own experiences. Because teachers' shared objective is to stay on top of their work, particularly in computing grades, principals and school heads also encouraged teachers to utilize the program.

In terms of facilitating conditions, the teachers strongly agreed with a mean rating of 4.54 which implied that the respondents agreed with highest extent. In particular, teachers indicated and strongly agreed that they might seek assistance which is accessible if they have challenges in using the software. Before the pandemic, most teachers were familiar with the e-Class Record, also operated in Microsoft Office with a patched application that retained all of the original functionality. Several functions are kept notably in the encoding of grades. The distinctions were limited to the topic selection and supplementary grading computations for MAPEH subjects, Grades 1 to 3, and a consolidated grading system for elementary. In terms of facilitating conditions, the program and the programmer take excellent care of the teachers. This also indicated that the teacher learning the program may review the handbook given by the programmer or request a favor from him from time to time.

The teachers strongly agreed on a mean rating of 4.65 for behavioral intentions which implied that the respondents agreed with highest extent. Their willingness to share indicated that they would suggest the program to others. The application is accessible to a link in the Google Drive for quick access and downloading. Teachers' behavioral intentions following the use of the program are just a sign that the program affected their daily tasks by computing grades following the department's mandate. The adjustment phase for teachers was not demanding in terms of grade computation, and through experience and immersion in the program, they may resume average productivity.

Table 2. Level of Satisfaction

Indicators	Mean	Interpretation	Description
Usefulness	4.63	Strongly Agree	The respondents agree with highest extent.
Approval	4.64	Strongly Agree	The respondents agree with highest extent.
Mean	4.64	Strongly Agree	The respondents agree with highest extent.

Table 2 summarizes the level of satisfaction of the teachers to Modified e-Class Record XX'XX in terms of usefulness, the teachers strongly agreed with a mean rating of 4.63 which implied that that the respondents agreed to the highest extent. The program was modified to meet the educational system's needs for assessment of students' performance in the new normal. From three (3) grading categories, namely Written Task, Performance Task, and Periodical Exam, the department required the use of two (2) grading categories: Written Task and Performance Task. It was adjusted to include this function precisely to meet the needs of the teachers. The program has a feature that meets the requirements and sends testing results immediately which supports the programmer's goal to resolve current problems on assessment since the program was developed based on the experiences encountered.

The teachers strongly agreed with a mean rating of 4.64 in terms of approval which implied that the respondents agreed with highest extent. The program satisfied the teachers' need to display their students' progress in the manner requested. They may examine and revisit their students' grades from a prior rating sheet included inside the same file. The program is simple in terms of evaluating learning performance which enables teachers to obtain the required results the use each use of the program is a developing process wherein users are satisfied with the system's overall quality and functions. These manifestations resulted from the researcher's goal of providing an easy-to-access program that satisfies its requirements.

Table 3. Analysis of Results to School's Location

Indicators	r	p-value	Result	Interpretation
Acceptability:				
Perfor-mance Expectancy	-0.082	0.57	No Significant	Very Weak Magnitude of Relationship
Effort Ex-pectancy	-0.156	0.28	No Significant	Very Weak Magnitude of Relationship
Social Influ-ence	-.0.137	0.34	No Significant	Very Weak Magnitude of Relationship
Facilitating Condition	-0.234	0.10	No Significant	Very Weak Magnitude of Relationship
Behavioral Intentions	-0.132	0.10	No Significant	Very Weak Magnitude of Relationship
Satisfaction:				
Usefulness	-0.132	0.359	No Significant	Very Weak Magnitude of Relationship
Approval	-0.035	0.807	No Significant	Very Weak Magnitude of Relationship

In Table 3, the five (5) components in the level of acceptability of the teachers according to their school location, whether in an urban or rural, resulted in a very weak magnitude of relationship to schools' location. Facilitating condition and effort expectancy garnered the two highest r-values of -0.234 and -0.156, respectively. While next in the row are social influence with an r-value of -0.137, behavioral intentions with an r-value of -0.132, and r-value of -0.082 to performance expectancy. Generally, the level of acceptability of the teachers has no significant relationship with the school's location they belong. This is a positive manifestation that even teachers in rural areas have a positive review of the program. The program was able to subside technical skills regardless of the location of the school they belong to.

This result also resolved that no matter how difficult the school's internet signal has, teachers still acknowledged the program as very helpful. Using the program gave them a chance to explore because it is applicable in any available software, and no need for an updated operating system or platform to run the E-Class Record. On the other hand, teachers in the urban also have the same level of acceptability. Knowing that they have all the resources in terms of technology, they still express the equal significant response of acceptability compared to the existing one.

The two (2) components in the level of satisfaction of the teachers according to their school location, whether it is in an urban or rural, resulted in no significant relationship and a very weak magnitude of relationship to schools' location. Categories such as usefulness and approval garnered an r-value of -0.132 and -0.035, respectively.

The overall result expressed no significant relationship between the level of satisfaction of teachers to their school location, whether their school is in urban or rural. Both teachers in the urban and rural admitted that they were satisfied with the program because it is timely and served their needs to automate or computerize the computation of grades. Regardless of location, in dealing with the pandemic, teachers perform tasks efficiently, and the program was able to minimize their works in this time of the pandemic.

CONCLUSION

It is common for every teacher to compute the students' grades no matter what the process is. One of the most tedious teachers' activities every end of the quarter or periodical is giving the students a quantitative presentation of their performance. Sometimes we carry the burden of this task; even we repeatedly do this task for many years. The pandemic came, and our country's educational system turned into doom, especially in sustaining the learning of students in the new normal of education. Thus, the researcher-programmer created a program called e-Class Record XX'XX, to fill the gap caused by the pandemic.

DepEd Order No. 031, s. 2020 was a great challenge to everyone using 21st Century skills, there is a need to address the problem immediately. After a series of quality assurance from the field and different experts in the region, the researcher-programmer produced it for urban and rural teachers.

In this action research titled, "Modified e-Class Record XX'XX: Coping the Standard for Evaluation of Students' Performance Amidst New Normal Education", it can be concluded that the intervention is strongly acceptable by the teachers and provided a high satisfaction to their work after using it.

On the other hand, there is no significant relationship between the teachers' level of acceptability and satisfaction with their school's location, whether in urban or rural areas. The descriptive and inferential data acquired and created by the respondents indicated that adopting the Electronic Class Record XX'XX may help teachers create more efficient, timely, and accurate class recording reports. Additionally, it may assist and support teachers in minimizing work-related concerns and obstacles associated with calculating students' grades in new normal education. Moreover, teachers in other schools said that utilizing the "Electronic Class Record (E-Class Record)" makes their jobs more accessible and more manageable since their students' grades are now more accurate and dependable. In conclusion, using the Electronic Class Record XX'XX is one of the most acceptable and pleasant electronic programs developed by the researcher-programmer to generate improved class recording management reports during the pandemic and for the 21st Century.

RECOMMENDATIONS

In the light of the above, the researcher wishes to make some recommendations, which, if taken into consideration, might bring some positive changes to the current approach.

1. Sustain the needs of the teachers who already use the program by giving them updates on the program.
2. Wider dissemination of the e-Class Record XX'XX within the Division of Sultan Kudarat, and other Divisions of SOCSKSARGEN.
3. Introduce to teachers to have better Computer Literacy through seminars and workshops.
4. The program may be patented for the benefit of the school and administration.
5. Further testing of the program to address minimal errors and discrepancies in the system.
6. Future researchers could use the result as a reference for their future research.
7. Other teachers may test the program on how effective and efficient in solving grades of students.
8. Further studies may be conducted to test further the program.

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REFERENCES

Ayman, A.A.(2015). Unified Theory of Acceptance and Use of Technology (UTAUT). Retrieved from https://www.linkedin.com/pulse/unified-theory-acceptance-use-technology-utaut-ayman-alqudah

Barrios, J. M., & Hochberg, Y. (2020). Risk Perception Through the Lens of Politics in the Time of the COVID-19 Pandemic. National Bureau of Economic Research. https://doi.org/10.3386/w27008

DepEd Order. No. 013, s.2020. "Interim Guidelines for Assessment and Grading in Light of the Basic Education Learning Continuity Plan"

Enitan, S., Adeolu, O., Olayanju, A., & Eleojo, I. (2020). The 2019 Novel Coronavirus Outbreak: Current Crises, Controversies and Global Strategies to Prevent a Pandemic. International Journal Fo Pathogen Research, 4(1), 1-16. https://doi.org/10.9734/IJPR/2020/v4i130099

Gay, L. R., Mills, G. E., & Airasian, P. (2012). Educational Research Competencies for Analysis and Application 10th ed., Pearson.

Good, C.V., & Scates, D.E. (1972). In Paler-Calmorin, L., & Calmorin, M.A. (1997). Statistics in education and the sciences. Manila, Philippines: Rex Bookstore

Chinazzi, M., Davis, J. T., Ajelli, M., Gioannini, C., Litvinova, M., Merler, S., … Vespignani, A. (2020). The effect of travel restrictions on the spread of the 2019 novel coronavirus (COVID-19) outbreak. Science, 368(6489), 395. https://doi.org/10.1126/science.aba9757

Fernandes, N. (2020). Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy. https://doi.org/10.2139/ssrn.3557504

Fernandes, N. (2020). Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy. https://doi.org/10.2139/ssrn.3557504

Habibi, R., Burci, G. L., de Campos, T. C., Chirwa, D., Cina, M., Dagron, S., … Hoffman, S. (2020). Do not violate the International Health Regulations during the COVID-

19 outbreak. The Lancet, 395(10225). https://doi.org/10.1016/S0140-6736(20)30373-1
Howley, A., & Howley, C. (2008). Planning for technology integration: Is the agenda overrated or underappreciated. Educational Planning, 17(1), 1-17.
Howley, A., Howley, C., Klein, R., Belcher, J., Tusay,M., Clonch, S., Miyafusa, S., Foley, G., Pendarvis, E., Perko, H., Howley, M., & Jimerson, L. (2010). Community and place in mathematics education inn selected rural schools. Athens, OH: Appalachian Collaborative Center for Learning, Instruction, and Assessment in Mathematics; Ohio University. (ERIC Document Reproduction Service No. ED 512 400).
Hermans, F.,&Van Der Storm, T., (2015).“Copy-paste tracking: Fixing spreadsheets without breaking them,” in Proceedings of the 1st International Conference on Live Coding (ICLC)
ISO (1991). Information Technology - Software quality characteristics and subcharacterics. ISO/IEC 9126-1.
Mercado, N.P. (2017). Design and Evaluation of Electronic Class Record in University of Perpetual Help System-Laguna.Retrieved from https://www.ijese.org/wp-content/uploads/Papers/v4i10/J11710541017.pdf
Park, E., Sinha, H., & Chong, J. (2007). Beyond access: An analysis of the influence of the E-rate program in bridging the digital divide in American schools. Journal of Information Technology Education, 6, 387-406
Tria, J.Z. (2020). The COVID-19 Pandemic through the Lens of Education in the Philippines: The New Normal International Journal of Pedagogical Development and Lifelong Learning, 1(1), ep2001.https://doi.org/10.30935/ijpdll/8311
UNESCO. (2020). COVID-19 Educational Disruption and Response. Retrieved from https://en.unesco.org/covid19/educationresponse
Viner, R. M., Russell, S. J., Croker, H., Packer, J., Ward, J., Stansfield, C., Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: A rapid systematic review. The Lancet Child & Adolescent Health, 4(5), 397-404. https://doi.org/10.1016/S2352-4642(20)30095-X
WHO. (2020a). R&D Blueprint and COVID-19. Retrieved from https://www.who.int/teams/blueprint/covid-19
WHO. (2020b). Coronavirus disease 2019 (COVID-19) Situation Report - 51. World Health Organization. Retrieved from https://www.who. int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf?sfvrsn=1ba62e57_10
Winthrop, R. (2020, April 10). Top 10 risks and opportunities for education in the face of COVID-19. Brookings. Retrieved from https://www.brookings.edu/blog/education-plus-development/ 2020/04/10/top-10-risks-and-opportunities-for-education-in-the-face-of-covid-19/
Worldometer. (2020). Coronavirus Update (Live): 4,254,131 Cases and 287,257 Deaths from COVID-19 Virus Pandemic - Worldometer. Retrieved from https://www.worldometers.info/coronavirus/
www.microsoft.com
UNESCO (2003, June). Building Capacity of Teachers/Facilitators in Technology-Pedagogy Integration for Improves Teaching and Learning, Final Report: 18-20, Bangkok Thailand, 2003

COGNITIVE OUTCOMES OF DIFFERENTIATED INSTRUCTION IN THE TEACHING OF INTEGRAL CALCULUS

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ABSTRACT

The primary purpose of differentiated instruction is to maximize the learning opportunity of the students to address students' learning needs. The study investigates students' academic performance in Integral Calculus of Bohol Island State University using differentiated instruction and a conventional approach. It was conducted to sixty-six (66) Bachelor in Science in Environmental Science and Teacher Education students using two intact classes utilizing a quasi-experimental design with pretest and posttest. The students in the control group were exposed to the traditional method, while the experimental group was exposed to differentiated instruction. The study hoped to answer these sub-problems: students' academic performance profile using the pretest and posttest scores and the significant differences between the students' performance before and after the experimental study. Findings revealed that the experimental and control groups had almost the same math performance at the start of the experiment. The experimental group outsmarted the control group in the posttest and obtained higher scores than the control group. T-test shows a substantial difference between the pretest and posttest performance of the students who belonged to the experimental group. The study concluded that differentiated instruction is an effective approach in teaching higher mathematics courses. The study recommends that teachers are encouraged to employ differentiated instruction in teaching higher mathematics at the tertiary level.

Keywords: Academic Performance, Cognitive Outcomes, Differentiated Instruction, Integral Calculus, students, Traditional Instruction

INTRODUCTION

Teaching mathematics invites the learners' attention to accomplish the needed skill. Students need to learn independently to allow individual growth, specifically in strategies that resolve and explore mathematical problems. An atmosphere conducive to analyzing, solving problems, thinking creatively, processing data, reasoning logically, and evaluating results is essential, especially in complex subjects at the tertiary level like Calculus. College instructors and professor has many roles in their students' education. No matter its purpose, it is clear that college calculus is viewed as a required course in university education (Hagman, 2019).

Guinocor et al. (2020) emphasized in their report that Trends in International Mathematical Science Study (TIMMS) examined patterns of students' achievement in mathematics and found out that for over 20 years, there were some declines in the students' performances in the countries being assessed. In the case of Indonesia, the PISA report (2012) showed that the achievement scores of Indonesian students in mathematics are recorded very low and was ranked 64th out of 65 countries (Ajisuksmo & Saputri, 2017).

Despite this situation, the curriculum and teaching techniques have not been significantly modified to accommodate diverse students and fulfill their individual educational goals. At the collegiate level, the conventional paradigm of lecture-style instruction and teacher-driven education, which is one size fits all, continues to predominate. Universities have discovered that many students are repeating college because of the growing diversity of adult learners and the lack of higher education teaching techniques (Dosch and Zidon, 2014). The trend is observed in the Philippines and the province of Bohol, where the students are not performing exceptionally well in mathematics in tertiary education.

In a typical mathematics class, the instructor reviews prior content and homework before demonstrating low-level problem solving, followed by seatwork modeled after the teacher's example (Stonewater, 2005; Lessani et al., 2017). This educational method, which places the instructors as knowledge transmitters, is consistent with behaviorist theory (Hackman, 2004). The typical way of teaching mathematics using the traditional approach is teacher-centered, with the majority of lessons consisting of a lecture delivered by the instructor (Lessani et al., 2017).

This scenario prompted the researcher to conduct an experimental study on cognitive outcomes of differentiated instruction in higher mathematics like integral Calculus. The cognitive dimensions include the students' results in the assessment test score towards to subject.

LITERATURE REVIEW

One of the reasons why most students perform poorly in mathematics is academic factors such as instruction, curricular resources, and learners' poor background on the subject matter. Another reason is personal characteristics such as short attention span and insufficient knowledge of the language of mathematics. Thus, to successfully train the students with those skills required for solving mathematical problems, teachers need to be knowledgeable about the society in their students' lives and work (Sherman, Richardson, and Yard, 2014).

According to the Educational Act of 1992, section 2 that,

> *"One of the students' rights in school is the right to receive primarily through competent instruction, relevant quality education in line with national goals conducive to their full development as persons with human dignity."*

Further, the code of Ethics for Public School Teachers Republic Act (4670) section 7 states that,

> *"the work of the teacher in the development and guidance of young is the tremendous responsibility for which he is accountable to God, to his country and posterity. It is a trust that every teacher should strive to be worthy and should be his self-imposed duty to improve himself constantly".*

Thus, the conventional memorizing, rote learning, and applying facts and processes shall be shifted to a method that stresses conceptual understanding and reasoning rather than rote learning (Goldsmith and Mark, 1999). Using this method, students can understand mathematics, realize its significance in their lives as they apply it in real-life circumstances, and appreciate the strength of their mathematical reasoning. These characteristics become much more apparent when they are required to make rational choices for themselves and others.

In Pakistan's educational institutions, the conventional method of teaching mathematics is still widely used in a significant number. Except for the whiteboard, teachers do not utilize activity or AV aids in their instruction under this approach. Unfortunately, this method is not well accepted by the students (Noreen and Rana, 2019).

According to policymakers and academics, teachers are being urged to embrace diversity and adjust their teaching to meet the varied learning requirements of the kids in their classrooms (Schleicher, 2016; Unesco, 2017). To answer the need, a strategy that caters to diverse learners is needed. Differentiation is an educational strategy rather than an organizational one. (Stradling & Saunders, 1993). It is a method through which instructors adapt teaching and learning routines to suit the needs of students who differ in terms of preparedness, interests, and learning styles (Tomlinson, 1999, 2001). Instead of defining learning as a one-size-fits-all curriculum, the personalized learning approach focuses on tailoring the curriculum, teaching methods, resources, learning activities, and student outcomes to individual students and small groups of students to provide a wide range of opportunities for each student in a classroom (Bearne, 1996; Tomlinson, 1999).

Theoretical Framework

The fundamental strategy to be tried out is anchored on Vygotsky's concept of the "Zone of Proximal Development" (ZPD), which posits that human potential is theoretically limitless. Still, the practical limits of human potential depend upon quality social interactions and residential environment. This theory is related to the present study in developing the students existing ability related to the topic for discussion. It is similar in changing the altitude of each student's difficulty for them to learn at the same level despite their unique abilities and diversity.

Another theory that is related to the present study is "The Theory of Multiple Intelligences." This theory suggests that traditional psychometric views of intelligence are too limited. Gardner first outlined his theory in the 1983 book titled “Frames of Mind”: he indicated that all people have different kinds of intelligence. Gardner proposed eight bits of intelligence and suggested the possible addition of a ninth known as "existentialist intelligence.”

Difficulty-based education (also known as differentiated instruction) is a philosophy of teaching based on the idea that students learn best when their instructors accommodate variations in their preparation levels, interests, and learning profiles. When using differentiated instruction, one of the primary goals should maximize each student's learning potential (Subban, 2006). Diversified instructional approaches embrace variety in student populations, and they acknowledge that each student learns uniquely. The differentiated classroom assists the instructor in identifying and responding to the academic needs of each student in the class.

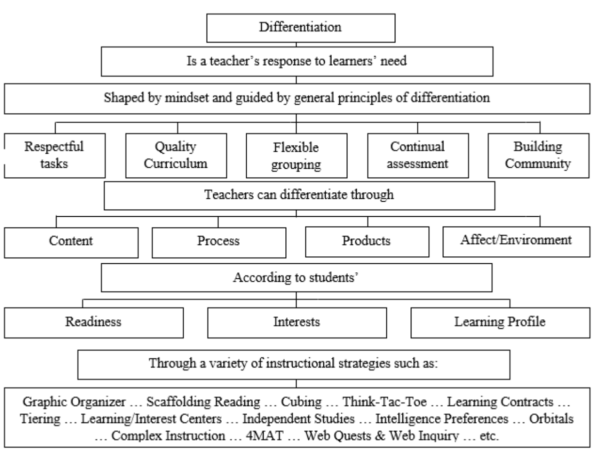

Figure 1. Differentiated instruction flow chart from Tomlinson (1999, 2008)

As shown in Figure 1, Tieso (2003) and Tomlinson (1999) proposed four principles that guide teachers in differentiating classroom practices. The first principle is to focus on the relevant ideas and skills in each content area. Then the second principle is to be responsive to the individual differences of students. The third principle is to integrate the assessment and instruction. Lastly, an ongoing evaluation of content, process, and outcomes adjust teaching practices to meet students' individual needs based on prior knowledge, critical thinking, and expression styles, as cited by Scott (2012). Chen et al. (2017) proposed that differentiated approaches in teaching maximizes learning opportunities for each student in a classroom and address the diverse needs of each student and small groups of students.

According to Tomlinson (2004), instructors may diversify their teaching using four methods: content differentiation, process differentiation, product differentiation, and learning environments differentiation. Various Bloom's Taxonomy levels categorize activities, and these activities come within the content category. The process refers to how a learner makes sense of and learns from the material. Material delivery per students' chosen learning methods is a multi-step procedure. The product is the medium through which students demonstrate what they have learned and can do due to their study into a specific subject. The result is an assessment depending on the chosen learning method of the pupils. The learning environment is responsible for meeting the physical and psychological requirements of pupils. Tomlinson's approach argues that when teaching is focused on students' readiness levels, interests, and learning profiles, instructors may promote equality and excellence by distinguishing high-quality material, process, and output (Santangelo & Tomlinson, 2009). Dosch and Zidon (2014), who included the impact variable in the list for instructional differentiation, provide further support for this viewpoint.

Tomlinson (2009) examined diversified teaching methods such as supplementary readings, tiered assignments, interest-based centers, independent study projects, flexible groups, deadlines, and reading comprehension assistance. They discovered that successful differentiation requires a significant investment of time, effort, and commitment on the part of the teacher. Although studying for any college course may be considered necessary, preparing for an approach involving different materials, processes, and products. They also discovered that differentiated teaching enabled each student to gain knowledge and comprehension of course material and activities tailored to their level of preparedness, interests, and personal learning profiles, thereby affecting their learning goals and performance.

Furthermore, a differentiated teaching approach is a proactive rather than a reactive manner. When a lesson does not work for particular pupils, lesson plans are designed to account for the wide range of learner preferences. Among the benefits of differentiated teaching, according to Tulbure (2011), are the following: it puts students at the center of the instructional process, it provides for flexibility in learning activities, it reevaluates and respects the variations between individual student needs and preferred learning modalities, and it levels the playing field for student achievement. Moreover, teachers may react to students' distinct and unique personalities, backgrounds, and skills when using differentiated teaching (Turner et al., 2017).

Previous studies of Aranda et al. (2015) and Bikic et al. (2016) revealed that students' academic performance in the experimental group is higher than the control group. These studies conclude that differentiated instruction is more effective in facilitating students' achievement than the lecture method.

However, although the idea of differentiated teaching is well-known, instructors struggle to apply it in their classrooms (Van Casteren et al., 2017; Smale-Jacobse et al., 2019). Teachers need a paradigm shift in the art of teaching to meet the needs of the struggling students enrolled in Integral Calculus who come from various backgrounds, mental capacities, learning settings, and learning styles. If differentiated teaching is successful in higher mathematics, such as Integral Calculus, questions arise as to whether or not differentiated instruction is beneficial in lower mathematics. Furthermore, research on differentiated teaching limitations in mathematics must be conducted (Turner et al., 2017).

According to a recent study, teachers in various countries seldom adapt their instruction to the specific requirements of individual students (Schleicher, 2016; Smale-Jacobse et al., 2019).

Another study of differentiated instruction practices in primary education shows that students' results may improve when varied teaching methods are correctly implemented (Deunk et al., 2018). Likely, these results are not applied directly to secondary education since secondary school teachers are expected to teach various subjects, which varies from primary education instructors' responsibilities (Van Casteren et al., 2017; Smale-Jacobse et al., 2019)

On the other hand, the study of Cannon (2017) is incongruent with the previous studies as its finding revealed, based on statistics, that there was no significant difference among mathematics scores (achievement) gains and the type of instructional pedagogy in which the students participate (Cannon, 2017). In addition, although the application of differentiated instruction made a significant difference between the pretest and posttest results in the experimental group, the difference in performance between these students and their counterparts in the control group was not statistically significant (AlHashmi & Elyas, 2018). The pretest achievement of the differentiated and non-differentiated groups is in the "low" mark, while in the critical thinking skills area, it shows "unreflective." However, the posttest results show that the differentiated instruction group has a "high" mark in mathematics achievement and a "developing" impact on thinking skills. The non-differentiated group has an "average" mark in mathematics achievement and "developed" critical thinking skills. According to Odicta (2017), the significant difference in the results means that differentiated instruction in both achievement and critical thinking skill areas positively affects the differentiated group.

OBJECTIVES

This research aimed to investigate if differentiated teaching outperformed conventional approaches to improve students' academic performance in Integral Calculus.

The following objectives are specifically targeted:

1. profile of students' academic performance based on their previous math subjects;
2. profile of the students' assessment test performance in terms of the content of their previous mathematics subject (Differential Calculus);
3. profile of the student's performance during the pretest and posttest; and
4. the significant difference between the pretest and posttest mean gain.

RESEARCH METHODOLOGY

DESIGN

This study employed quasi-experimental research using the pretest and posttest. The pretest and posttest had used the same researcher-made questionnaire, which is composed of 40 items. The two groups were formed of Bachelor of Environmental Science and Bachelor in Secondary Education Major in Mathematics. Participants in the experimental group were exposed to differentiated instruction, while those in the control group were only exposed to a conventional classroom.

The final exam result was the basis for the assessment test scores' computation and analysis of the dependent variable.

ENVIRONMENT AND RESPONDENTS

This study was conducted in Bohol Island State University, located at Barangay Cogtong, Candijay, Bohol. It was approximately 4 kilometers away from the town proper.

Two Bohol Island State University-Candijay Campus courses were chosen to be the study participants, one for the control group and the other for the experimental group. The control group was composed of thirty-three (33) students from the Bachelor of Environmental Science, and Teacher Education major in Mathematics enrolled in Integral Calculus. The experimental group was also composed of thirty-three (33) students enrolled in Integral Calculus. There was a total of sixty-six (66) students for this study.

INSTRUMENTS / TOOL

The research instrument used in this study was a researcher-made questionnaire. The pretest and posttest questionnaires had questions about the Integral Calculus topics. It was submitted to the experts for comments and suggestions. Thorough checking and editing of the test questions were done to assess the appropriateness of mathematical skills. After the validation, the test questionnaire was finalized, and pilot tested to 30 students from BSED-Mathematics and Marine Biology students who had taken the subjects in the previous semester. The validity of the test items was determined using item analysis. Item analysis was made to identify the issues which were included in the Pretest and Post-test. The result of the item analysis selected the items to be included in the test. From the 48 item-test, eight (8) items are revised because these items are identified as poor and considered very difficult. Some are very easy based on the results of the item analysis. The questionnaires were written based on the topics covered in Integral Calculus. The obtained split-half reliability of the test was 0.726. To get the reliability of the whole test Spearman-Brown formula was used. The reliability coefficient obtained was. 0.77. Using the Kuder-Richardson Formula 20 and 21, the resulting reliability coefficient were 0.81 and 0.813, respectively. The values obtained show that the test is highly reliable. The computed test-retest ratio was 0.77, which shows that the test was highly stable and dependable.

ETHICAL CONSIDERATION

The respondents of this study will be assured that ethical guidelines will be followed such that the students' names will not appear on any of the pages of the survey unless written permission is obtained. The dignity and well-being of the students shall likewise be protected at all times. The researcher will also make sure that data will be gathered throughout the study will remain confidential. Personal information of the respondents will be treated with privacy thus shall be stored safely.

DATA GATHERING PROCEDURE

The data was gathered first by asking permission of the Campus Director of Bohol Island State University-Candijay Campus. The pretest was given to the control and experimental group in the second week of June. The pretest was a validated researcher-made questionnaire to assess the students' learning profile and readiness, composed of the different topics in Differential Calculus. After the pretest, the researcher administered the instrument to assess the pre-requisite topics like Algebra, Trigonometry, and Differential Calculus to identify the student's academic background and determine students' readiness before subjecting to instruction. The control group was given a conventional approach in their Integral Calculus lessons in the prelims until the final, teaching lessons and conducting the same activities for all students.

In contrast, a differentiated approach was given to the experimental group. For the experimental group, the researcher prepared lessons according to the learner's school ability and profile in terms of their score in the assessment test. The researcher identified at least three groups of students: poor, fair, and satisfactory. Every lesson was explicitly designed based on the learning capacity of the students, while flexible grouping was applied as the need arose.

Only one instructor, the researcher, taught the study. It lasted for sixteen weeks; which control group was only exposed to the conventional approach while the experimental group was only exposed to differentiated instruction. Every two weeks, an assessment test was administered to the two groups to assess if the approach was receptive to students learning.

STATISTICAL TREATMENT

To assess the students' academic performance in Integral Calculus of Bohol Island State University using differentiated instruction and a conventional approach.

1. To determine the students' academic performance based on their previous math subjects, the simple percentage was used using the formula:

$$P = \frac{F}{N} \times 100$$

Where:
P = Percentage
F = Frequency
N = Number of cases

2. To determine the students' assessment test performance in terms of the content of their previous mathematics subject, a simple percentage was used using the formula:

$$P = \frac{F}{N} \times 100$$

Where:
P = Percentage
F = Frequency
N = Number of cases

3. To determine the student's performance during the pretest and posttest, the simple percentage and weighted mean were used using the formula:

$$P = \frac{F}{N} \times 100$$

Where:
P = Percentage
F = Frequency
N = Number of cases

$$WM = \sum \mathbf{Fx}/N$$

Where:
WM = weighted mean
$\sum \mathbf{Fx}/N$ = summation of scale value x
N = number of cases

4. To determine the significant difference between the pretest and posttest mean gain, a t-test was used using the formula:

$$t = \frac{(\overline{x_1} - \overline{x_2})(\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where:
$\overline{x_1}$ = mean of the first sample
$\overline{x_2}$ = mean of the second sample
μ_1 = population mean of the first sample
μ_2 = population mean of the second sample
s_1^2 = Standard deviation of the first sample
s_2^2 = Standard deviation of the second sample
n_1 = sample size of the first sample
n_2 = Sample size of the first sample

THE FINDINGS

Table 1. Profile of the Students' Academic Performance based on their Previous Mathematics Subject (Control and Experimental Group)

Range Grade	Description	Control Group (Conventional Method)		Experimental Group (Constructivist with Differentiated Instruction)	
		F	%	F	%
1.0 –1.5	Excellent	0	0	0	0
1.6 –2.0	Very Satisfactory	0	0	0	0
2.1 – 2.5	Satisfactory	9	28.26	8	23.91
2.6 – 3.0	Fair	18	54.35	19	56.52
3.1 – 3.5	Poor	6	17.39	6	19.56
Total		33	100	33	100
Average		$\bar{x}$ = 2.75		$\bar{x}$ = 2.76	

Table 1 reveals that most students' academic performance in their previous mathematics subject can be described as "fair" academic performers. They have almost the same knowledge at the onset of the study. These students need more inputs and strategies to improve their academic performance. One of the reasons why most students perform poorly in mathematics is educational factors such as instruction, curricular resources, and learners' poor background on the subject matter. Another reason is personal characteristics such as short attention span and insufficient knowledge of the language of mathematics.

These students were taught using the conventional method of memorizing, rote learning, and applying facts and processes. The traditional way shall be shifted to stresses conceptual understanding and reasoning rather than rote learning (Goldsmith and Mark, 1999). Using this method, students can understand mathematics, realize its significance in their lives as they apply it in real-life circumstances, and appreciate the strength of their mathematical reasoning. These characteristics become much more apparent when they are required to make rational choices for themselves and others. Thus, to successfully train the students with those skills necessary for solving mathematical problems, teachers need to know about society in their students' lives and work (Sherman, Richardson, and Yard, 2014).

In Pakistan's educational institutions, the conventional method of teaching mathematics is still widely used in a significant number. Except for the whiteboard, teachers do not utilize activity or AV aids in their instruction under this approach. Unfortunately, this method is not well accepted by the students (Noreen and Rana, 2019).

Table 2. Profile of Students' Assessment Test Performance in terms of the content of their Previous Mathematics subject (Differential Calculus)

Concepts	Percentage of Students Who Understood the Concept		Difference of the Percentage between Control and Experimental Group
	Control Group N=33	Experimental Group N=33	
1. Relations and Functions	22%	30%	8%
2. Limits and Continuity of Algebraic Functions	35%	40%	5%
3. The Derivative	38%	20%	18%
4. Maxima and Minima	45%	25%	20%
5. Exponential and Logarithmic Functions	20%	50%	30%
6. Trigonometric and Inverse Trigonometric Functions	35%	25%	10%

Table 2 indicates that students in the control group need more inputs and understanding of contents in Exponential and Logarithmic Functions. In contrast, students in the experimental group need additional information in understanding the contents of The Derivative. It also implies a gap in understanding the contents in Exponential and Logarithmic Functions between the two groups. The control and experimental groups have fewer gaps in their understanding of the contents of Limits and Continuity of Algebraic Functions.

The percentage difference of the students implies that students who enrolled in the Integral course have varied learning experiences in their previous subject in terms of content. Besides, they also have different learning environments and learning styles as most live in boarding houses. Some are coming from other places away from the area where our university is located.

The results warrant the teacher to apply the idea of Tomlinson (2009), who examined diversified teaching methods such as supplementary readings, tiered assignments, interest-based centers, independent study projects, flexible groups, deadlines, and reading comprehension assistance. They discovered that successful differentiation requires a significant investment of time, effort, and commitment on the part of the teacher. Although studying for any college course may be considered necessary, preparing for an approach involving different materials, processes, and products. They also discovered that differentiated teaching enabled each student to gain knowledge and comprehension of course material and activities tailored to their level of preparedness, interests, and personal learning profiles, thereby affecting their learning goals and performance.

Furthermore, a differentiated teaching approach is a proactive rather than a reactive manner. When a lesson does not work for particular pupils, lesson plans are designed to account for the wide range of learner preferences. Among the benefits of differentiated teaching, according to Tulbure (2011), are the following: it puts students at the center of the instructional process, it provides for flexibility in learning activities, it reevaluates and respects the variations between individual student needs and preferred learning modalities, and it levels the playing field for student achievement. Moreover, teachers may react to students' distinct and unique personalities, backgrounds, and skills when using differentiated teaching (Turner et al., 2017).

Table 3. Profile of the Students Performance during the Pretest and Posttest

Range Score	Pretest, N=33			
	Control Group		Experimental Group	
	F	%	F	%
39 – 48 (E)	0	0	0	0
29 – 38 (VS)	0	0	0	0
19 – 28 (S)	7	21.21	7	21.21
9 – 18 (F)	23	69.70	22	66.67
0 – 8 (P)	3	9.09	4	12.12
Total	33	100%	33	100%
Average	$\bar{x}$ = 14.74	S	$\bar{x}$ = 14.62	
Range Score	**Post-Test, N = 33**			
	Control Group		Experimental Group	
	F	%	F	%
39 – 48 (E)	1	3.03	10	30.30
29 – 38 (VS)	5	15.15	15	45.45
19 – 28 (S)	19	57.58	8	24.24
9 – 18 (F)	8	24.24	0	0
0 – 8 (P)	0	0	0	0
Total		100%	33	100%
Average	$\bar{x}$ = 23.19		$\bar{x}$ = 34.10	

Legend: 0-8 = Poor (P), 9-18 = Fair (F), 19-28 = Satisfactory (S), 29-38 = Very Satisfactory (VS), 39-48 = Excellent (E)

Table 3 reveals the pretest and posttest scores of the students in the control and experimental groups. In the control group, it is reflected that most of the students got fair performance which increased to satisfactory performance with excellent performance of only 3 percent of the group's population after exposure to the conventional method. Most experimental groups of students were also described as having a fair performance at the start of the study, which increased to satisfactory and excellent performance for about 30 percent of the population. These indicate an increase in the students' performance in the control and experimental groups after exposure to the conventional method and differentiated instruction.

On the other hand, students in the control group had means of 14.74 and 23.19 in the pretest and posttest, respectively. At the same time, students in the experimental group had means of 14.62 and 34.10. The data implies that there is an increase in the mean scores of the students for both in the control and experimental group with an evident drastic increase. The experimental group taught with differentiated instruction manifests better Mathematics performance than the control group taught with a conventional method. It means that learning occurred when students engaged in activities with their peers and the tiered activities wherein content and processes were differentiated with the teacher as facilitator. Thus, students learn the subject in a meaningful way. The result is supported by Chen et el., 2017 that differentiated approaches in teaching maximizes learning opportunities for each student in a classroom and address the needs of each student and a small group of students. The students' cognitive outcome also follows the previous studies of Aranda et al. (2015) and Bikic et al. (2016) revealed that students' academic performance in the experimental group is higher than the control group. These studies conclude that differentiated instruction is more effective in facilitating students' achievement than the lecture method.

However, although the idea of differentiated teaching is well-known, instructors struggle to apply it in their classrooms (Van Casteren et al., 2017; Smale-Jacobse et al., 2019). Teachers need a paradigm shift in the art of teaching to meet the needs of the struggling students enrolled in Integral Calculus who come from various backgrounds, mental capacities, learning settings, and learning styles.

Table 4. Difference between the Pretest and Post Test Mean Gain on the Assessment Test of the Control and Experimental Group of Students in Integral Calculus

Group	Mean Scores		Mean Gain	Computed t- value	Tabular value	Interpretation	Decision
	Pretest	Post-test					
Control	14.74	23.19	8.45	5.77	2.015	significant	Reject H_o
Experimental	14.62	34.10	19.48	13.95	2.015	significant	Reject H_o

Table 4 reveals the significant difference between the pretest and posttest and the mean gain on the students' assessment scores. The differentiated instruction or experimental group works better than the conventional one. The data is proven in the difference in the group mean. A difference of 19. 48 in the computed mean, which is significant with the calculated t value of 13.95, greater than the tabular value of 2.015. The result that the differentiated instruction made a difference against the conventional approach means that the differentiated classroom must be given way in teaching strategies. However, the teachers play an essential role in any lesson discourses. The control group has a mean gain of 8.45 in the computed mean with the calculated value of 5.77, which is also greater than the tabular value of 2.015—indicating progress in the learning process manifested in the experimental and control groups.

Consequently, the mean gains were 8.45 and 19.48 for the control and experimental group, respectively. The result implies that the experimental group outsmarted the control group after gaining better than the former. This result is confirmed in the research of Tomlinson (2009 quoted in Turner, 2017), that differentiated teaching enabled each student to gain knowledge and comprehension of course material and activities tailored to their level of preparedness, interest, and personal learning profiles. Moreover, the implementation of tiered assignments, interest-based learning centers, independent study projects, and flexible groupings were the reasons for the significant increase in students' cognitive outcomes in a differentiated classroom. Further, it takes a considerable amount of time, effort, additional materials, methods, and commitment from the teacher.

CONCLUSION

Based on the findings, the following conclusions are drawn. The control and experimental group had a fair academic performance in their previous math subjects. The two groups of respondents have low academic performance at the onset of the study. Students in the control and experimental group are diverse learners with varying cognitive abilities on the assessment test of their pre-requisite subjects. The conventional method and differentiated instruction increase the students' performance after the study period. There is a dramatic increase in the mean gain of the scores in the experimental group. The students' scores increase is attributed to the teaching strategy applied, which is differentiated instruction. There were significant increases in the mean scores of the students. The mean scores of the experimental group, which was taught with differentiated instruction, is an effective or even better approach in teaching higher mathematics courses.

RECOMMENDATION

In light of the findings and conclusion, the following recommendations were made. Teachers are invigorated to utilize different methods, strategies, and techniques in teaching higher mathematics to improved student's performance. School administrators and teachers may design seminar workshops and interventions to address diverse students' needs. Students' may respond positively towards implementing differentiated instruction to improve their academic performance in mathematics. Teachers are encouraged to employ differentiated instruction in teaching higher mathematics.

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REFERENCES

AlHashmi, B and Elyas, T. (2018). Investigating the effect of Differentiated Instruction in light of the Ehrman Leaver Construct on Grammar learning. *Arab World English Journal (AWEJ)*, 9(3). Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3258787

Aranda et al. (2017). Using Differentiated Instruction in Improving the Academic Performance of Students in the Filipino Language.

Bikic, N., Maricic, S. & Pikula, M., (2016). The Effects of Differentiation of Content in Problem-solving in Learning Geometry in Secondary School, *Eurasia Journal of Mathematics, Science & Technology Education*, 2016, 12 (11), 2783-2795

Cannon, M. (2017). Differentiated Mathematics Instruction: An Action Research Study. Doctoral Dissertation. Retrieved from https://scholarcommons.sc.edu/cgi/viewcontent.cgi?article=5235&context=etd

Chen, J. & Chen, Y. (2017). Differentiated instruction in a Calculus Curriculum for College Students in Taiwan, General Education Center, Army Academy R. O. C., Taiwan, Available: http://doi.org/10.5539/jel.v7n1p88

Dosch, M., and Zidon, M. (2014). "The Course Fit Us": Differentiated Instruction in the College Classroom. *International Journal of Teaching and Learning in Higher Education*, 26(3), 343- 357.

Gardner, H. (1983). Theory of Multiple Intelligences. https://www.verywellmind.com/gardners-theory-of-multiple-intelligences-2795161

Goldsmith, L. T. & Mark, J. (1999). What is a Standards-based Mathematics Curriculum? *Educational Leadership*, 49.

Guinocor, M., Almerino, P., Mamites, I., Lumayag, C., Villaganas, M.A. and Capuyan, M. (2020). Mathematics Performance of Students in a Philippine State University. *International Electronic Journal of Mathematics Education*, 15(3). https://doi.org/10.29333/iejme/7859

Hagman, J. (2019). Towards a Forward-Thinking College Calculus Program. *Theorizing STEM Education in the 21st Century*. Retrieved from https://www.intechopen.com/chapters/68166

K to 12 Curriculum, (2016). Republic of the Philippines Department of Education Retrieved from: http://www.deped.gov.ph/mandate-Ladson-Billings, G. (1994).

Lessani, A, Yunus, A. & Bakar, K. (2017). Comparison of New Mathematics Teaching Methods with Traditional Method. *PEOPLE: International Journal of Social Sciences*, 3(2), 1285-1297. Retrieved from https://grdspublishing.org/index.php/people/article/view/667/2711

Noreen, R. and Rana, A.M.K. (2019). Activity-based teaching vs. Traditional Method of Teaching in Mathematics at Elementary Level. *Bulletin of Education and Research*, 41(2). Retrieved from https://files.eric.ed.gov/fulltext/EJ1229426.pdf

Scott, B., (2012) The Effectiveness of Differentiated Instruction in the Elementary Mathematics Classroom

Sherman, H.J., Richardson, L.I. & Yard, J., (2014) Why do students struggle with mathematics, Pearson Allyn Bacon Prentice Hall, Updated on April 30, 2014, Available: www.education.com

Smale-Jacobse, A., Meijer, A., Helmz-Lorenz, M.

and Maulana, R. (2019). Differentiated Instruction in Secondary Education: A Systematic Review of Research Evidence. *Frontiers in Psychology*, 10(2366). Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02366/full#h5

Subban, P. (2006). Differentiated Instruction: A research basis. *International Education Journal*, 7(7), 935-947. Retrieved from https://files.eric.ed.gov/fulltext/EJ854351.pdf

Tomlinson, C. A. (1999). Mapping a route toward differentiated instruction. *Pers. Learn.* 57, 12 –16.

Tomlinson C. A., (2008) The Goals of Differentiation Differentiated instruction helps students not only master content but also form their own identities as learners. Educational Leadership 66 (3), pp. 1-6

Tomlinson, C. A. (2014). The Differentiated Classroom. Responding to the Needs of All Learners, 2nd Edn. Alexandria, VA: ASCD.

Tulbure, C. (2011). Differentiating instruction upon learning styles in higher education: A controversial issue. Bulletin of the Transilvania University of Braşov, 53(1).79-84.

Vygotsky, L. (1978). ZPD: The Zone of Proximal Development. http://bb.plsweb.com/DI_sakai/m3/m3topicc_keyinfo1.html

MATHEMATICS STUDENTS ANXIETY CONCERNING MATH CONTENT AND TEACHERS' PRACTICES DURING THIS PANDEMIC CRISIS

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ABSTRACT

Mathematics is a fundamental subject in education that encourages the development of learners. It paves the way to a more advanced field of inventions, yet; it is challenging. The study's purpose was to determine the student's mathematics anxiety level concerning math content and teachers' practices during the pandemic period. The researchers used a descriptive survey design using a modified questionnaire adapted from Shehayeb and Anouti (2018) to collect data for the study. It was conducted via Messenger using Google forms to the forty-one (41) Calculus students at the tertiary level. Percentage, weighted mean, and chi-squared used in treating the data revealed that the students' anxiety levels were high, directly related to the difficulty in the math content of Calculus subjects at the tertiary level and teachers' practices in understanding the concept with limited time. The Chi-square test revealed a statistically significant relationship between students' math anxiety and instructors' practices and mathematics content in the classrooms studied. The researcher concluded that the content of mathematics is a factor that contributes to the student's anxiety, especially those students who have a limited background in mathematics. Teachers' practices could create students' anxiety and unfriendly behavior towards academic situations. For the recommendation, teachers should use an intervention program to fill the gaps in mathematical topics not addressed in prior years. The online platform may support teachers' modular instruction to reduce students' anxiety levels and cope with their mathematics curriculum's required competencies.

Keywords: Anxiety, Content, Math, Pandemic, Teachers' Practices

INTRODUCTION

Mathematics, as a discipline, is one of the keys to the advancement of the modern world. It is essential in various fields because it serves to quantify things, events, and even abstract concepts. Thus, learning the processes and principles of mathematics is vital to prepare oneself for understanding and being a part of society's different activities. It paves the way to a more advanced field of inventions and innovation in various fields using technology (Rozgonjuk et al., 2020). It provides more productive citizens by providing jobs and opportunities (Li & Schoenfeld, 2019).

Results from the Trends in International Mathematics and Science Study conducted in 2019; the Philippines ranked the lowest in reading, mathematics, and science (Magsambol, 2020; Paris, 2019). Additionally, the results of the (PISA) showed that math anxiety might influence a variety of variables (Foley et al., 2017), including methodological differences and participant educational level (e.g., elementary, junior, and senior high school levels) (Krinzinger et al., 2009; Passolunghi et al., 2014). (Zhang et al., 2019).

COVID-19 caused schools and universities to indefinitely close as it became the worst pandemic in the millennium. It affected more than 300 million students worldwide (McCarthy, 2020). Academic institutions switched from face-to-face instruction to modular distance learning or virtual classes (Khoshaim, Al-Sukayt, Chinna, Nurunnabi, Sundarasen, Kamaludin, Baloch & Hossain, 2020; Jandric, 2020).

An appropriate pedagogical change in the art of teaching is required to address this pandemic problem. The face-to-face instruction mode of learning replaced modular instruction in some universities in Bohol, especially in Bohol Island State University. Almost all other teaching activities in mathematics have a nearly equivalent online version with virtual meetings, breakout rooms, web-based whiteboards, and collaborative documents (Victoria, 2020, as cited by Chaturvedi et al., 2020). The situation causes fear and anxiety to the students.

Mathematics anxiety is a sense of stress and apprehensions that interferes with students' ability to manipulate numbers and solve mathematical problems in class. (Bjälkebring, 2019; Sokolowski and Ansari, 2017). Anxiety is in connection with deep and surface learning (Marton & Säljö, 1984). There is an underlying relationship between math anxiety and stress (Bessant, 1995). Students with the proper disposition towards mathematics are likely to learn more and experience concept learning, not just memorization. Students alone believe in themselves to discover the best they can (Prat-Sala & Redford, 2010, Gorero & Balila, 2016, Rozgonzuk, 2020).

The researcher is a math professor handling Calculus subjects in all semesters in one of the universities in Bohol. Students who took up Bachelor of Science in Education majors in mathematics were products of senior High School. The students who enrolled in Bachelor of Science in Education experienced difficulties and fear of the issue, considering they did not have enough higher mathematics background. Besides, based on the literature and findings of several studies, it has been revealed that teacher-learning practices are causes of students' fear and discomfort while attending classes.

Hence, the study aimed to determine the relationship between students' mathematics anxiety level and Math content. Besides that, the study determined teachers' practices when dealing with students and the anxiety level of students.

LITERATURE REVIEW

Math Anxiety

The study anchors Freud's (1930) Psychoanalytic theory, which defined anxiety as an unpleasant inner state that people seek to avoid. (Thompson, 2009). In the same way, students avoid some experiences in school as a defense mechanism to protect their anxieties. This notion may lead to less participation and poor study habits. These all result in poor achievement in Mathematics.

Further, according to the Experiential Learning Theory (ELT) of Kolb (1984), learning is the act of building knowledge through transforming experience. Likewise, various learning experiences influence students' current conditions.

Moreover, the progressivist's philosophy of Dewey (1941), as cited by Henson (2009), recognizes the learner has both psychological and social dimensions. It is a matter of understanding how the learner's abilities, interests, and habits may aid the learner's success in the community that an education program will succeed. It is essential to focus on assessing students' learning from teacher-dominated into learner-centered nature using modern assessment strategies that answer students' and interests.

Hellum-Alexander (2010) stated that this anxiety comes in several forms: worry, fear, high negative emotions, self-deprecatory thought, sweaty palms, or a racing heart (Estonanto and Dio, 2019; Namkung et al., 2019, Musa & Maat, 2021). It could also be a fear of "simply using Math to solve practical problems in everyday life (Warren, 2007; Chang and Beilock, 2016)." This phenomenon is true for most of the students in the world. Mathematics anxiety often relates to testing anxiety. According to Cavanaggh and Sparrow (2011), who conducted an extensive review of studies in mathematics education, results from mathematics anxiety measures and test anxiety measures are often linked, suggesting a resemblance between the two anxiety types.

The students feel anxious about receiving their grades and notification of their incorrect answers (Smith, 2004). Mathematics teachers may be a part of the students' Mathematics anxiety (Erdogan, Kesici, and Sahin, 2011). Mathematics anxiety has a detrimental effect on mathematical abilities, such as working memory with math problems (Skagerlund et al., 2019; Li & Schoenfeld, 2019). Moreover, students with math anxiety try to evade a situation relative to delayed behavior (Akinsola et al., 2007), as cited by Luttenberger et al. (2018). Thus, curriculums with competency-based learning are needed.

Content in Calculus

Calculus is a discipline of mathematics that concerns the study of areas and volumes related to time rates of changing quantities (Muzangwa & Chifamba, 2012). Students' mental understanding of calculus topics affects their performance and engagement in mathematics. The concept in calculus contributes to future scientists, technicians, mathematicians, and engineers (Bressoud, Carlson, Mesa & Rasmussen, 2013; Carlson & Oehrtman, 2005; Kinley, 2016; Roble, 2017; Sadler & Sonnert, 2016). Thus, calculus allows people to realize remarkable achievements to improve their quality of life Sebsibe, 2019).

Previous math courses pave the way for the students to solve problems more logically and analytically. It provides essential skills in decision making and connecting with linkages and between relationships of events in solving real-life problems. (Ashcraft, 2002 cited in Siaw et al., 2020).

According to the study of Espino, Pereda, Recon, Perculeza & Umali (2017) that math-anxious students took strands that involve less mathematical content like Humanities and Social Sciences (HUMSS). The General Academic (GA) strand students are learners with no clear areas of preference. They have second thoughts about the course they would like to pursue at the tertiary level (Sison, Galvez & Coronel, 2017). Salimaco (2020) found out that senior high students in the HUMSS strand and TVL strand were moderately anxious towards Mathematics, while students in the ABM strand and STEM Strand have low anxiety on the same subject.

Most of the students in Calculus subjects experience difficulty in the content. There is a need to be vigilant enough for teachers and researchers regarding students' behavior inside and outside the classroom. Implementing an approach and appropriate strategies is necessary to overcome the difficulties encountered(Areaya & Sidelil, 2012; Denbel, 2015; Walelign, 2014).

Contextualized activities are the critical task of the teachers in addressing students' needs and understand math concepts. An appropriate strategy is essential to combine the practical knowledge and the abstract ideas so that students gain adaptable knowledge to different backgrounds (Sebsibe, 2019).

A study found out that a large number of students have poor achievement in mathematics. The trend of national learning assessment showed that students' performance in science and mathematics was deficient. Besides, the World Bank document disclosed that national averages of the mathematics learning assessment scores at grade 12 decline because of the difficulty of math content from 2010 to 2014 (World Bank, 2017).

Teachers Practices

Teachers' practices in developing student's metacognitive skills involve training on how to become an independent learner and be aware of the mistakes in problem-solving also contributes to math anxiety to complete the given task. (Magno, 2009).

Findings revealed that stress induction, time pressure manipulations, and strategy selection could contribute to math anxiety can interfere with or modulate the selection of problem-solving strategies (Caviola et al., 2017).

These are some of the teacher's practices that cause students anxiousness. The students feel worried the moment their teachers fail to respond to them. They embarrass the time their teachers display negative attitudes towards them. Further, there are also cases when teachers lack understanding, like additional time to grasp complex concepts. (O'leary et al., 2017).

Jackson (2012) stressed that the deep approach is learning the concept, not just rote memory or surface learning. Understanding the idea indicates that the students utilize their critical thinking skills to analyze and reflect on their knowledge to solve real-life problems (NOU 2015; Fauskanger and Bjuland, 2018). The deep learning approach focuses on students' understanding (Postareff, 2019) and involves more cognitive functions and in-depth acquisition of knowledge, thus enabling "higher quality learning outcomes" (Marton & Saljo, 1976; Desierto, Maio, O'Rourke & Sharp, 2018).

Singh et al. (2016) revealed that college students practice rote learning, and their academic performance does not show the development of mathematical thinking. Furthermore, the teaching approach used by the teachers focuses on computations that do not need higher critical thinking ability. Teaching instructions should gradually move from knowing the rules for doing tasks to comprehending mathematical ideas that help develop a mindset that encourages more profound mathematical knowledge.

This research is on the country's legal bases concerning teacher and students factors. According to the Educational Act of 1982, Section 2, one of the rights of the students in the school is the right to receive primarily through competent instruction, relevant quality education in line with rational goals conducive to their full development as persons with human dignity. In connection to this, students, especially in Mathematics, deserve a nurturing learning environment that primarily comes from the teachers.

Article VII, Section 2 of the Code of Ethics for Profesional teachers, states that a teacher shall recognize that the interest and welfare of learners are his first and foremost concern and shall handle each learner justly and impartially. With this provision, mathematics anxiety is a concern of the students themselves and the teachers. In addition, it is part of the teacher's duty to employ a democratic teaching personality that gives every student fair treatment.

Article VIII, Section 9 of the same provision states that a teacher shall ensure that conditions contribute to the extent needed assistance in preventing learners' problems and difficulties. As students' second parents in the Mathematics classroom, mathematics teachers have to share their time-solving students' mathematics difficulties, one of which is poor achievement and anxiety in the subject.

The previous readings and research laid the foundation of this study on the Mathematics Students Anxiety Concerning Math Content and Teachers' Practices During this Pandemic crisis in Bohol Island State University – Candijay Campus of the second semester 2020-2021.

OBJECTIVES

The specific objectives of the study are:

1. To determine the students' perceptions on math anxiety;
2. To determine the students' perceptions of mathematics content;
3. To determine the students' perception of their teachers' practices; and
4. Is there a significant relationship between math anxiety and mathematical content as well as teachers' practices?

Null Hypothesis

H01. There is no significant relationship between mathematics content and teachers' practices to students' level of math anxiety.

RESEARCH METHODOLOGY

DESIGN

The researcher employed the descriptive survey design with the aid of the modified survey questionnaire utilizing Google forms to gather data to achieve the purpose of this study.

ENVIRONMENT AND RESPONDENTS

Bohol island State University – Candijay Campus, formerly known as Central Visayas State College of Agriculture, Forestry and Technology (CVSCAFT), was the research environment of the study. It is the first state university and the third university established in Bohol.

Forty-one (41) randomly selected students enrolled in Secondary Education Major in Mathematics with Calculus I with Analytic Geometry and Calculus 2 (Integral Calculus) represent the study's respondents. The respondents have previously enrolled in Senior High School in the strands offered under Academic track in their secondary levels such as Accountancy, Business, and Management (ABM), Science, Technology, Engineering, and Mathematics (STEM), Humanities and Social Sciences (HUMSS) and General Academic (GA). There were student respondents enrolled under the Technical Vocational Livelihood track.

INSTRUMENTS / TOOL

The researcher used a modified survey questionnaire adopted from the study of Shehayeb and Anouti (2018). The questionnaire has three (3) instruments: questionnaire for math anxiety level, math content, and teachers teaching practices.

DATA GATHERING PROCEDURE

The researcher asked permission from the campus director to conduct the study. Then, the researcher sent the questionnaires in Google forms via Messenger. The researcher retrieved the answered questionnaire after a week then analyzed it accordingly.

The questionnaires were sent to math experts in other universities for comments and suggestions regarding the face and construct validity of the statements. Some items were too easy, and others were difficult to suit the respondents' needs; revision of the item takes place. The questionnaires were validated and obtained Cronbach's alpha for the given variables. For math anxiety = 0.846, math content = 0.814 and teachers' practices = 0.947. It indicates that the questionnaires are valid and reliable.

STATISTICAL TREATMENT

1. In determining the student's anxiety level, math content, and teachers' practices, the weighted mean was used with the formula:

$$WM = \sum Fx/N$$

Where:
WM = weighted mean
$\sum Fx/N$ = summation of scale value x
N = number of cases

2. In determining the relationship between math content and math anxiety, as well as teachers' practices and students' math anxiety, the chi-squared test was used with the formula:

$$x^2 = \sum \frac{(O-E)^2}{E}$$

Where:
x^2 = Chi-squared
O = Observed Frequency
E = Expected Frequency

THE FINDINGS

Table 1. Student's Perception of Math Anxiety

Statements	WM	DI	RANK
1. I have felt insecure about studying.	3.40	SA	8.5
2. I understand Math now, but I worry that it will get difficult soon.	3.80	SA	1
3. I am not particularly eager to look through mathematics books.	3.20	SA	10
4. I am afraid of facing a question that I cannot solve.	3.56	SA	4.5
5. When I open my math book and look at the pages, I fear the writings inside.	3.79	SA	2
6. I often worry that mathematics classes will be difficult, and I have no one to ask and assist me.	3.56	SA	4.5
7. I get very tense with a low internet connection when I must do mathematics homework.	3.54	SA	7
8. I get very nervous about doing mathematics problems during a brownout.	3.70	SA	3
9. I feel helpless when doing a mathematics problem in the absence of my gadgets.	3.40	SA	8.5
10. I worry that I will get poor grades in mathematics.	3.55	SA	6
Average Weighted Mean (AWM)	**3.55**	**SA**	

Legend: 1.00-1.75 = Strongly Disagree (SD), 1.76-2.50 = Disagree (D), 2.51-3.25 = Agree (A), 3.26-4.00 = Strongly Agree (SA)

Table 1 shows the student's responses on student's math anxiety. The students can understand math at the start of the discussion, but they worry that it will be difficult in some parts of lessons got the highest with a weighted mean of 3.80, described as strongly agree implies high anxiety. Students perceived as not eager to look through their mathematics books got the lowest weighted mean of 3.20, described as strongly agree. Due to the pandemic, the students read the instructional modules provided by their instructors and professors. The average weighted mean of 3.55, which is strongly agreed, indicates that the students were anxious. It implies that the students are nervous about the different situations due to the complex topics in the Calculus subject.

Anxiety caused by the complexities of manipulating numbers and solving mathematical issues may be called mathematics anxiety (Bjälkebring, 2019; Sokolowski and Ansari, 2017). Hellum-Alexander (2010) stated that this anxiety comes in several forms: worry, fear, high negative emotions, self-deprecatory thought, sweaty palms, or a racing heart (Estonanto and Dio, 2019; Namkung et al., 2019, Musa & Maat, 2021). It could also be a fear of "simply using Math to solve practical problems in everyday life (Warren, 2007; Chang and Beilock, 2016)." This phenomenon is true for most of the students in the world.

Additionally, students cannot consider mathematical issues before the instructor elaborates on how to solve mathematical difficulties. Fear heightens when students are required to verify that the question is correct. (Smith, 2004; Shields, 2006, Ayadi, 2018). Students were anxious when they committed mistakes in answering the teachers' questions (Smith, 2004). Mathematics teachers are part of students' Mathematics anxiety (Hadfield and McNeil, 1994; Erdogan, Kesici, and Sahin, 2011).

Table 2. Students' Perceptions on Mathematics Content

Statements	WM	DI	RANK
1. Math content has usually been difficult for me to understand.	3.42	SA	4
2. Math content is quite complicated.	3.24	A	7
3. Math content was limited in the previous years.	3.59	SA	1.5
4. Math content makes me feel lost and unable to keep up and understand the topics given in the modules.	3.59	SA	1.5
5. Math content is clear to me in class, but it felt like I was never there when I went home.	3.47	SA	3
6. Math content makes my mind blank, and I cannot think about solving a series of problems.	3.34	SA	5
7. I do not particularly appreciate being introduced to new mathematical content from one class to another.	3.29	SA	6
8. Math content causes me a stomach ache.	3.18	A	8
Average Weighted Mean (AWM)	**3.39**	**SA**	

Legend: 1.00-1.75 = Strongly Disagree (SD), 1.76-2.50 = Disagree (D), 2.51-3.25 = Agree (A), 3.26-4.00 = Strongly Agree (SA)

Table 2 displays the student's responses to math content. The results show that the highest weighted mean of 3.59, which states that math content was limited in the previous years and feel unable to keep up and understand the topics given in the modules—the lowest weighted mean of 3.18, in which students perceived that math content causes them a stomachache. The average weighted mean is 3.39, described as strongly agree. It implies that the students perceived that math content is complex because of the limited background of the subject.

The primary concern of the instructors and professors is the awareness of the students' background in their Senior High School (SHS) years. It refers to the Science, Technology, Engineering, and Mathematics (STEM) strand, which provides two subjects such as Pre-Calculus and Calculus, that serve as the foundation of higher mathematics like Differential and Integral Calculus. Learning and mastering the subject in their previous math courses paves the way for the students to solve problems more logically and analytically. It provides essential skills in decision making and connecting with linkages and between relationships of events, reasoning, predicting, and solving real-life problems. It is also a springboard towards success, like inventions and innovations in science and arts (Ashcraft, 2002 cited in Siaw et al., 2020).

The findings support the research of Acosta and Acosta (2016) that Senior High School aims to give appropriate time to the students in integrating the knowledge, skills, and competencies to prepare them for the future (Estonanto, 2017; Herrera and Dio, 2016) as cited by Juadinez (2019). Moreover, Mamolo (2019) revealed that senior high school students have not yet mastered the necessary competencies in General Mathematics.

Table 3. Students' Perception on their Teachers' Practices

Statements	WM	DI	RANK
1. My math teacher explains lessons in the modules, which are not exciting.	3.20	FP	6
2. My math teacher prepares activities that are difficult for us to answer.	3.19	FP	7
3. My math teacher fails to give immediate feedback of our concern in clarifying our ideas	2.52	FP	10
4. My math teacher spends limited and insufficient time in the group chat in helping us to understand complex math concepts.	3.40	AP	4
5. My math teacher uses modules instead of different online platforms in delivering the lessons	3.46	AP	3
6. My math teacher teaches us new skills that help us understand more with a time limit	3.49	AP	1.5
7. My math teacher uses varied references to reinforce my understanding of concepts	3.37	AP	5
8. My math teacher gives priority to understanding the concept and not just memorization	3.49	AP	1.5
9. My math teacher reprimands us for the mistake we commit	2.62	FP	8
10. My math teacher provides limited time for remedial activities for us to learn	2.60	FP	9
Average Weighted Mean (AWM)	**3.13**	**FP**	

Legend: 1.00-1.75 = Not Practiced (NP), 1.76-2.50 = Sometimes Practiced (SP), 2.51-3.25 = Frequently Practiced (FP), 3.26-4.00 = Always Practiced (AP)

Table 3 illustrates the students' responses to teachers' practices. The result shows that the highest weighted mean of 3.49, described as frequently practiced, which the students perceived that their math teacher taught them new skills to understand more and works on understanding, not just on memorization. Students perceived that their math teacher realized they did not understand the lesson.

The results align with the idea of Jackson (2012), which stressed learning the concept, not just rote memory or surface learning. Understanding the concept indicates that the students utilize their critical thinking skills to analyze and reflect on their knowledge to solve real-life problems (NOU 2015; Fauskanger and Bjuland, 2018). Further, the result of the study aligns with the study of Singh et al. (2016), which revealed that college students practice rote learning, and their academic performance does not show the development of mathematical thinking. The teaching approach used by the teachers focuses on computations that do not need higher critical thinking ability. Teaching instructions should gradually move from knowing the rules for doing tasks to comprehending mathematical ideas that help develop a mindset that encourages more profound mathematical knowledge

Table 4. Relationship of the Variables

Variable	Sig. value	α	Interpretation
Math Content vs Student's Math Anxiety	0.000	0.05	Significant relationship
Teacher's Practices vs. Student's Math Anxiety	0.000	0.05	Significant relationship

Table 4 shows the relationship of the variables. The study revealed that math content is a factor that contributes to calculus student's anxiety level where sig. value of 0.00 is 0.05. Tertiary Mathematics curriculum like Calculus needs enough background in their senior high school mathematics subjects and other pre-requisite subjects such as Algebra, Trigonometry and Analytic Geometry. Most of the respondents were from a general academic strand with different majors where the mathematics curriculum is limited. Teachers' practices are also an intervening factor that increases student's math anxiety. Math anxiety negatively influenced mathematics ability, such as working memory with math problems (Skagerlund et al., 2019; Li & Schoenfeld, 2019).

In addition, Clark (2010) revealed that teachers' attitudes and strategies influence students' actions and thoughts in math-related activities. He further supported that effective teaching methods using various strategies and techniques will spark students' interests and reinforce their understanding of mathematics concepts, such as student-centered assessment practice cited by Mann & Walshaw (2019).

CONCLUSION

In conclusion, the content of mathematics is a factor that contributes to student's anxiety, especially those students who take up general academic strand in their senior high school. Senior high school curriculum like Science Technology Engineering Math (STEM) prepares the students to higher mathematics subjects at the tertiary level. Teachers' practices can create students' anxiety and unfriendly behavior towards academic situations.

RECOMMENDATION

Students interested in pursuing a mathematics degree should choose a strand related to their area of interest. Teachers may create an intervention program to make up for missed mathematical material in prior years. Moreover, online platforms may reduce students' anxiety levels and cope with their mathematics curriculum's required competencies. Additionally, teachers may identify their teaching approaches, methods, strategies, and techniques for students' positive learning environment at the tertiary level during this pandemic period. Future researchers may also conduct a parallel study to verify students' math anxiety, content, and teacher practices.

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REFERENCES

Ayadi, F. (2018). The Effect of Anxiety on Performance of Students on Mathematics. Retrieved from https://www.researchgate.net/publication/327645979_THE_EFFECT_OF_ANXIETY_ON_PERFORMANCE_OF_STUDENTS_IN_MATHEMATICS

Bjälkebring, Pär. (2019). Math Anxiety at the University: What Forms of Teaching and Learning Statistics in Higher Education can Help Students with Math Anxiety? *Frontiers in Education*. 4:30. Retrieved from https://www.frontiersin.org/articles/10.3389/feduc.2019.00030/full

Caviola, S., Carey, E., Mammarella, I. & Szucs, D. (2017). Stress, Time Pressure, Strategy Selection and Math Anxiety in Mathematics: A Review of the Literature. *Frontiers in Psychology*, 8(1488). Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01488/full

Chaturvedi, S., Purohit, S. & Verma, M. (2021). Effective Teaching Practices for Success During COVID 19 Pandemic: Towards Phygital Learning. *Frontiers in Education*, 6(646557). Retrieved from https://www.frontiersin.org/articles/10.3389/feduc.2021.646557/full

Desierto, A., Maio, C., O'Rourke, J. & Sharp, S. (2018). Deep or Surface? The learning approaches of enabling students in an Australian public university. Retrieved from https://unistars.org/papers/STARS2018/05A.pdf

Erdogan, A., Kesici, S., Sahin, I. (2011) Prediction of High School Students Math Anxiety by their Achievement Motivation and Social Comparison. Elementary Education Online. 10(2), 646-652. Retrieved from http://www.ilkogretim-online.org/index.php?mno=122748

Espino, M., Pereda, J., Recon, J., Perculeza, E., & Umali, C. (2017). Mathematics Anxiety and Its Impact on the Course And Career Choice of Grade 11 Students. *International Journal of Education, Psychology and Counselling*, 2 (5), 99-119. Retrieved from http://www.ijepc.com/PDF/IJEPC-2017-05-09-08.pdf

Estonanto, A.J., and Dio, R. (2019). Factors causing Math anxiety of Senior High School Students in Calculus. *Asian Journal of Education and e-Learning*, 7(1). Retrieved from https://www.researchgate.net/publication/337775954_Factors_causing_Mathematics_Anxiety_of_Senior_High_School_Students_in_Calculus

Fauskanger, J. and Bjuland, R. (2018). Deep Learning as Constructed in Mathematics Teachers' Written Discourses. *International Electronic Journal of Mathematics Education*, 13(3), 149-160. Retrieved from https://files.eric.ed.gov/fulltext/EJ1227374.pdf

Hellum-Alexander, A. (2010). Effective teaching strategies for alleviating math anxiety and increasing self-efficacy of secondary students. Master's Thesis. The Evergreen State College. Retrieved from https://archives.evergreen.edu/masterstheses/Accession89-10MIT/Hellum-Alexander_AMIT2010.pdf

Henson, Kenneth. (2009). Foundations for learner-centered education: a knowledge base. *School of Education*. Retrieved from https://www.itma.vt.edu/courses/currip/lesson9/Henson2003LearnerCenteredEduc.pdf

Jackson M. (2012). Deep Approaches to Learning in Higher Education. In: Seel NM (ed) *Encyclopedia of the Sciences of Learning*. Springer, Boston, MA. Retrieved from https://link.springer.com/referenceworkentry/10.1007%2F978-1-4419-1428-6_1843

Jandric, P., Hayes, D., truelove, I., et al., (2020). Teaching in the Age of Covid-19. *Postdigital Science and Education*. 2, 1069-1230. Retrieved from https://link.springer.com/article/10.1007/s42438-020-00169-6

Juadinez, Aljemedin. (2019). Teaching Senior High School Mathematics: Problems and Interventions. *Pedagogical Research*, 4(2). Retrieved from https://www.researchgate.net/publication/333098065_Teaching_Senior_High_School_Mathematics_Problems_and_Interventions

Khoshaim, H.B., Al-Sukayt, A., Chinna, K., Nurunnabi, M., Sundarasen, Sheela, Kamaludin, K., Baloch, GM & Hossain, S.F.A. (2020). Anxiety Level of University Students During COVID-19 in Saudi Arabia. *Frontiers in Psychiatry*. Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyt.2020.579750/full

Li, Y., Schoenfeld, A.H. (2019). Problematizing teaching and learning mathematics as "given" in STEM education. *International Journal of STEM Education*, 6(44). Retrieved from https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-019-0197-9

Lindblom-Ylänne, S., Parpala, A. & Postareff, L. (2019). What constitutes the surface approach to learning in the light of new empirical evidence? *Studies in Higher Education*, 44:12, 2183-2195. Retrieved from https://www.tandfonline.com/doi/full/10.1080/03075079.2018.1482267

Luttenberger, S., Wimmer, S., & Paechter, M. (2018). Spotlight on math anxiety. Psychology Research and Behavior Management, Volume 11, 311–322. https://doi.org/10.2147/PRBM.S141421

Magno, C. (2009). Investigating the effect of school ability on self-efficacy, learning approaches, and metacognition. *The Asia - Pacific Education Researcher*, 18(2), 233-244. De La Salle University. Retrieved from https://www.researchgate.net/publication/250278537_Investigating_the_Effect_of_School_Ability_on_Self-efficacy_Learning_ Approaches_and_Metacognition

Magsambol, B. (2020). PH lowest among 58 countries in math, science – a global assessment. *Rappler, Philippines*. Retrieved from https://www.rappler.com/nation/filipino-students-lagging-behind-math-science-timms-international-results-2019

Mamolo, Leo. (2019). Analysis of Senior High School Students' Competency in General Mathematics. *Universal Journal of Educational Research*, 7(9): 1938-1944. Retrieved from https://www.researchgate.net/publication/337076086_Analysis_of_Senior_High_School_Students'_Competency_in_General_Mathematics

Mann, L. C., & Walshaw, M. (2019). Mathematics anxiety in secondary school female students: issues, influences, and implications. *New Zealand Journal of Educational Studies*, 54(1), 101–120. Retrieved from https://doi.org/10.1007/s40841-019-00126-3

McCarthy, Kelly. (2020). The Global Impact of Coronavirus on Education. *ABC News Network* Retrieved from https://abcnews.go.com/International/global-impact-coronavirus-education/story?id=69411738

Musa, N. H., & Maat, S. M. (2021). Mathematics Anxiety: A Case Study of Students' Learning Experiences through Cognitive, Environment, and Behavior. *International Journal of Academic Research in Business and Social Sciences*, 11(3), 932-956. Retrieved from https://hrmars.com/papers_submitted/8992/mathematics-anxiety-a-case-study-of-students-learning-experiences-through-cognitive-environment-and-behaviour.pdf

O'Leary, K., Fitzpatrick, C. & Hallett, D. (2017). Math Anxiety is Related to Some, but Not All, Experiences with Math. *Frontiers in Psychology*, 8(2067). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5770635/

Paris, J. (2019). The Philippines ranks among the lowest in reading, math, and science in the 2018 study. *Rappler, Philippines*. Retrieved from https://www.rappler.com/nation/philippines-ranking-reading-math-science-pisa-study-2018

Rameli, M.R.M. (2016). Challenges in Mathematics Learning: A Study from School Students' Perspective. *Academic Buoyancy*. Retrieved from https://www.researchgate.net/publication/321873178_Challenges_in_Mathematics_Learning_A_Study_from_School z_Student's_Perspective

Rozgonjuk, D., Kraav, T., Mikkor, K., Orav-Puurand, K. & That, K. (2020). Mathematics anxiety among STEM and social sciences students: the roles of mathematics self-efficacy, and deep and surface approach to learning. International Journal of STEM Education, 46. https://stemeducationjournal.springer open.com/articles/10.1186/s40594-020-00246 -z

Salimaco Jr., R. (2020). Mathematics Achievement of Senior High School Students: Impact of Study Habits and Anxiety. *International Journal of English and Education*, 9(3). Retrieved from https://www.researchgate.net/publication/343276344_Mathematics_Achievement_of_Senior_High_School_ Students_-_Impact_of_Study_Habits_and_ Anxiety

Sebsibe, A.S. (2019). Overcoming difficulties in learning calculus concepts: the case of Grade 12 students. *Dissertation*. http://uir.unisa.ac.za/handle/10500/26225

Shehayeb, S. & Anouti, M. (2018). The Impact of Teacher's practices and Content of Mathematics on Student's Anxiety in Secondary and Intermediate Classes. Journal of Depression and Anxiety. 7(4). Retrieved from https://www.longdom.org/open-access/the-impact-of-teachers--practices-and-content-of-mathematics-on-students--anxiety-in-secondary-and-intermediate-classes-2167-1044-1000320.pdf

Siaw, E.S., Geok Shim, G.T., Azizan, F.L. & Shaipullah, N.M. (2021). Understanding the Relationship Between Students' Mathematics Anxiety Levels and Mathematics Performances at the Foundation Level. *Journal of Education and Learning*, 10(1). Retrieved from https://files.eric.ed.gov/fulltext/EJ1283672.pdf

Singh, P., Hoon, T.S., Rasid, N.S., Nasir, N.A., Han, C.T. & Rahman, N.A. (2016). Teaching and Learning of College Mathematics and Student Mathematical Thinking: Are the lines of the same track? *Asian Journal of University Education*. Retrieved from https://files.eric.ed.gov/fulltext/EJ1207811.pdf

Sison, R., Galvez, J.M.D. & Coronel, M. (2017). Assessing the learning styles of senior high school students of La Consolacion University Philippines: Implications in the teaching-learning process. *International Journal of Education and Research*, 5(12), 45-52. Retrieved from https://www.academia.edu/40851679/Assessing_the_Learning_Styles_of_Senior_High_School_Students_of_La_Consolacion_University_Philippines_Implications_in_the_Teaching_Learning_Process

Smith, R. (2004). Math Anxiety: Causes, Effects, and Preventive Measures. Math Anxiety 1. https://core.ac.uk/download/pdf/58825205.pdf

Sokolowski, H.M. and Ansari, D. (2017). Who is afraid of Math? What is Math Anxiety? And what can you do about it? *Frontiers for Young Minds*. Retrieved from https://kids.frontiersin.org/articles/10.3389/frym.2017.00057

Zhang, J., Zhao, N. & Qi, PK (2019). The Relationship Between Math Anxiety and Math Performance: A Meta-Analytic Investigation. *Frontiers Psychology*, 10(1613). Retrieved from https://www.frontiersin.org/articles/10.3389/fpsyg.2019.01613/full

PRE-REINTEGRATION REFERRAL SYSTEM: ITS INFLUENCE TO INMATES AND EX-CONVICTS REFORMATION

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ABSTRACT

The purpose of this study was to investigate the influence of the pre-reintegration referral system on the reformation of inmates and ex-convicts. The study employed the descriptive correlation technique of research, which included the use of a questionnaire checklist to collect data. In total, 401 people were polled for the study. The study's key statistical methods were frequency count, percentage distribution, t-test, analysis of variance, and Pearson r Product Moment Coefficient of Correlation. Most of the inmate's pre-reintegration referral system services were very well influential according to the personnel, warden and the ex-convicts while on the views of inmates it was well influential. Education and vocational skills and sports and recreation were well influential to the inmates, personnel and warden while to the ex-convicts these were very well influential. That inmates and ex-convicts were very much reformed. There were significant differences in respondents' ratings of paralegal assistance, religious and guidance counseling, livelihood and income generation, advocacy on networking for adequate basic needs, sports and recreation, and enhancement through therapeutic community modality, but no significant differences in education and vocational skills. The amount of reformation of inmates and ex-convicts did not differ much. The referral system had a tremendous impact on the reformation of inmates and ex-convicts. The pre-reintegration referral mechanism should be maintained since it has a significant impact on inmate and ex-convict reform. And that inmate's reformation be closely monitored especially those inmates who are about to be reintegrated to the community for assurance purposes of their reformation.

Keywords: Ex-convict, Inmate's Welfare Program, Jail, Reformation, Reintegration Program

INTRODUCTION

Today, penal institutions around the globe, are heavily focused on development efforts after-care programs to reform inmates and ex-convicts. With the aim to become productive citizens after finishing their sentence, offenders are brought to corrections to reform or rehabilitate them (Maciones, 2001; Mondido 2015). Insofar as the correction pillar is concerned, reformation refers to the efforts that seek to change the behavior of criminals so that they will not reoffend. It includes all activities designed to produce socially desirable results, healthier inmates, higher educational attainment, decreased dependence on illegal drugs and the like.

In fact, the Philippines implemented a pre-reintegration referral system primarily to assist offenders in becoming changed, as well as an after-care program for ex-convicts, with the assistance of partner agencies around the country. The Bureau of Jail Management and Penology is a line bureau under the Department of the Interior and Local Government (DILG) that has jurisdiction over all district, city, and municipal jails to ensure a safe, clean, adequately equipped, and sanitary place for the custody and safekeeping of inmates, as mandated by law under Republic Act 6975 (Forronda, 2007).

Unfortunately, it is commonly known that the Bureau has never had the resources to meet the needs of offenders in terms of equipment, facilities, and basic needs in the form of supplies and materials while incarcerated. In truth, the problems of inferior and inadequate facilities and equipment have gone unaddressed for the past fifteen years. When it comes to dealing with the difficulties plaguing the entire business, the Jail Bureau must rely on its own resources. The recurrent worries have reached a height as the jail population has grown, and inmates' fundamental needs are rarely satisfied due to a lack of advocacy and networking systems. The conditions most of BJMP jails are gruesome and pathetic for the inmates and personnel as well, (Forronda, 2007).

Systematic paralegal activities, as one of the dimensions for inmates' wellbeing, are introduced to decongest jail populations by enacting legal remedies with the assistance of service providers with competence in paralegal activities. For spiritual and value enhancement of inmates, a well-designed program on religion, guidance counseling, and education is provided as a tool to mold and develop their spirituality, conduct, attitude, and capacities. These help them overcome their antisocial conduct and rediscover the reason for their existence, as well as recognize the existence of the Almighty One, the Creator. As a result, mutual trust and confidence develop among the community members and the inmates themselves. Non-formal education, vocational technological, and entrepreneurial programs in jails, on the other hand, need to be institutionalized in order to improve income-generating and job possibilities in order to minimize recidivism.

Inmate health and personal hygiene programs are prioritized and implemented. According to the World Health Organization's definition of health, the emphasis is on "complete well-being." With the congestion problem, particularly in urban jails, 'Health in the Hands of the Inmates' must be its thrust, giving weight in the training of "Jails paramedics" –maximizing the presence of alternative healing modalities such as herbal medicines, shiatsu, reflexology, massage, pranic healing, Tetada Kalimasada, divine healing; and others, in addition to western treatment intervene. Physical, emotional, spiritual, psychological, mental, dental, and optical health activities could be included in the Integrated Health Approach (IHA) or Primary Health Care (PHC) through these programs and activities. Following the inmates' release from custody, options for effective reintegration into the community are made available through a long-term pre-reintegration referral system.

REVIEW OF LITERATURE

Adler, Mueller and Laufer (2007), revealed that a tailored after-care program will be required, which will be closely monitored and supported by a strong and capable institution, either government or non-government. This occurs when an offender is released from incarceration as part of the reintegration process into society, with the goal of preventing recidivism and ensuring that the inmate, or even the ex-convict, has been reformed. They went on to say that this is what allows offenders to holistically recover their lives after being in a deplorable mental state inside a prison cell.

The jail experience is a psychologically harmful event that resembles the struggle of a disaster survivor, especially for life-sentenced prisoners, making it difficult to change to a better life as emphasized by Conklin (2007). In this light, a life-changing program, such as paralegal assistance, religious and guidance counseling, livelihood and income-generation, education and vocational skill, advocacy and networking on basic needs, Sports and recreation, and Enhancement through therapeutic community modality service, is required.

In the same vein, when an individual encounters some sort of tragedy in the normal world outside of prison, they are able to focus upon another part of their life which may be the source of encouragement and provide the catalyst for recovery. However, imprisonment means that the prisoner is unable to pitch certain domains of his life against each other, since it obstructs other sources of potential pride or happiness, such as family or work. Imprisonment therefore is likely to be experienced as a tragic event which others believed cannot be resolved. Furthermore, a long prison sentence can lead to a 'spoiled identity', whereby the prisoner loses certain aspects of his identity like 'husband' or 'teacher' and is stigmatized through negative labels like 'dirty old man's Conklin (2007).

This is especially important for historic or first-time offenders, who may have spent a significant amount of time raising families or establishing careers. These life courses become established in their identity, and first-time imprisonment is likely to be a terrible experience since it strips the offender of these engrained identities. This has a particularly negative impact on an inmate's self-esteem (Garcia 2003). As a result, the prisoner is more likely to experience the effects of relocation stress, which occurs when a person enters a foreign setting for the first time (Adler et al). (2007). These threats to identity become heightened for older prisoners who find themselves unable to engage in meaningful program.

There are also concerns regarding a loss of contact with the outside world, particularly for life -sentenced prisoners. Cox and Wade (2000) illustrated the difficulties in maintaining relationships in such confined and restrictive settings. He noted a general decline in involvement with the external world with the length of the sentence, marked by a reduction of letters sent and received, as well as a fewer number of visits. For some, this might be due to the natural pressures that are imposed upon relationships in the course of incarceration. For other prisoners, contacts might be old and frail and unable to visit the sometimes-distant institutions that the prisoner is placed. Yet for others, loss of contact with those on the outside might be part of a conscious decision on behalf of the prisoner in an attempt to cope. Foronda (2007) observed a 'decathexis of relationships' in the prison setting, whereby lifers cut off contact with the outside world, since maintaining relationships was deemed by some prisoners to be more stressful. These issues may aggravate loneliness and anxiety and can also worsen the prospects of release in the knowledge that they have little waiting for them on the outside.

The concerns raised thus far have meant that the potential for successful reintegration of some of these individuals is very limited. Psychologically, reintegration might be particularly challenging. Jewkes (2006) argued that life sentenced prisoners are in a permanent state of transition (termed 'liminality'). Having spent a considerable period of their lives in prison, they are less likely to disengage with previous identity which makes reintegration particularly problematic, since these prisoners must engage in a new environment without necessarily being psychologically ready to do so. This relates to the concept of 'institutionalization', which is underpinned by the monotony of the prison lifestyle and results in apathy, decreasing motivation and dependency on routine. From being catered for, to having clothes washed for them, through to abiding by a strict day-to-day structure, the prisoner exists in an almost robotic state. The prison experience has the potential to strip a prisoner of responsibility by making decisions for him, which can be infantilizing for the prisoner (Jewkes, 2006). After a prolonged period of exposure to such a system, the prisoner is at risk of losing the ability to function as a normal person. If the prisoner is released in this condition, he is likely to face serious difficulties with resettlement.

The continual cycling of offenders from jail, to the community, and back to jail, has led to the common perception that current custodial and community corrections practices are failing, neither helping the offender nor protecting the public (Broadhurst, 2006). Along this view, researchers conducted various studies with post-release prisoner populations, often male parolees, with the aim of providing the knowledge required to make recommendations for best practice in relation to prisoner reentry. Such research seeks to provide an understanding of the reentry process, reporting what actually happens between release from jail and recidivism or successful reintegration, thereby addressing the challenge of how society can support released prisoners who are trying to beat the odds of recidivism.

On the same vein, a study conducted by the Vera Institute of Justice in New York examined the day-today experience of being on parole and reintegrating into the wider community from the perspectives of forty-nine parolees released from New York State prisons (Schaefer 2005). Acknowledging that prison release represents an important turning point, being a time of choosing between criminal and non-criminal involvement, and thus the critical nature of the first few weeks, the study interviewed participants two weeks prior to release and several times throughout the one-month period after release.

All the above various literature and studies have some bearing to the present investigation. All dealt with same subject specially investigated on the extent of influence of inmates' pre-reintegration referral system to inmates and ex-convicts' reformation. However, the time the studies were conducted differed as well as the respondents of the study. Uniqueness of this study lies in the locale since the present investigation covered inmates and ex-convicts in the western part of Mindanao, Philippines, popularly known as the hub of terrorist in the country.

STATEMENT OF THE PROBLEM

This study aimed to look into the extent of influence of pre-reintegration referral system to inmates and ex-convicts' reformation.

Specifically, it sought answers to following questions:

1. What is the extent of implementation of the pre-reintegration referral system in terms of:
   1.1. Para-legal assistance service;
   1.2. Religious and guidance counseling services;

1.3. Livelihood and income-generating services;
1.4. Education and vocational skill services;
1.5. Advocacy and networking on basic needs service;
1.6. Sports and recreation service; and
1.7. Enhancement thru therapeutic community modality service?

2. What is the extent of reformation of inmates and ex-convicts?
3. Is there a significant difference on the extent of influence of pre-reintegration referral system as perceived by the jail personnel, inmates and ex-convicts?
4. Is there a significant influence of pre-reintegration referral system to the inmates and ex-convicts' reformation?

METHODOLOGY

The study employed the descriptive correlational technique of research, which included the use of a questionnaire, an interview, and documents. The data for the study came from the Bureau of Jail Management and Penology's Office. The researcher distributed the questionnaire to the inmates, jail warden, jail officers, and ex-convicts of each respective jail and reviewed each topic with them. In addition, the researcher conducted interviews with the respondents in order to verify the data's accuracy and authenticity. Purposive sampling was used in selecting 401 respondents. The study's key statistical methods were frequency count, percentage distribution, t-test, analysis of variance, and Pearson r Product Moment Coefficient of Correlation.

FINDINGS

The following findings were revealed:

Table 1 shows the extent of influence of pre-reintegration referral system in terms of paralegal assistance. According to the respondent inmates, paralegal assistance was influential. It obtained a mean of 3.21 while the personnel, warden and ex-convicts said that it was very well influential, with means of 4.35, 4.33 and 4.52 respectively.

This means that speedy trial, providing legal counsel, updating inmates with the progress of their cases, availability of lawyer and proper coordination, supervision and monitoring of lawyers are available to the inmates and ex-convicts. And that systematic paralegal activity is introduced to decongest jail population by effecting legal remedies through the aid of service providers with the expertise in paralegal activities. This implies that paralegal assistance at least can free the inmates from stress due to failure to financially support a lawyer to defend them from the start of the litigation to the final judgment of the case.

Table 1. Pre-reintegration Referral System in Terms of Paralegal Assistance

Paralegal Assistance	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Ensures a speedy trial on their case.	3.11	I	3.08	I	3.50	WI	4.25	VWI
Provides counsel to inmates who cannot afford to pay	3.13	I	5.00	VWI	5.00	VWI	4.25	VWI
Enlightens the minds of the inmates on what's going on with their cases.	3.35	I	4.06	WI	4.00	WI	4.35	VWI
Extends to inmate the legal services needed for individualized solution of their case.	3.14	I	5.00	VWI	5.00	VWI	4.75	VWI
Ensures availability of lawyer which is expert in a particular case.	3.23	I	4.06	WI	4.00	WI	4.65	VWI
Ensures proper coordination, supervision and monitoring of lawyers who regularly help in solving cases for inmates.	3.24	I	4.92	VWI	4.50	VWI	4.85	VWI
Mean	3.20	I	4.35	VWI	4.33	VWI	4.52	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Religious and Guidance Counselling Services

Table 2 presents the data on the ratings of the respondents on the extent of influence of pre-reintegration referral system in terms of religious and guidance counseling services. The data on the table show the means of 3.76, 4.82, 4.83 and 4.96 for inmates, personnel, warden and ex-convicts' ratings respectively. Looking closely at the figures reveal that the inmates obtained the lowest rating with a qualitative equivalent of well influential. The rest of the respondents rated the item as very well-influential. This means that the government really tried to develop the spiritual aspect of the inmates, and that religious and guidance counselling materials and activities are made available and accessible. Inmates were given the opportunity to pursue their religious beliefs and practices and avail pastoral services while in the cell. They were also given opportunity to continue attending religious services, activities and meetings as a way to shape and nurture their spirituality, behavior, attitude and capabilities. These will soften their anti-social behavior and restore their awareness on the purpose of their existence and recognize the existence of the Almighty One, the Creator. Religious and guidance counselling could be of great help to the inmates in order to restore the respect and mutual confidence of the community. Books and other religious related reading materials are made available for them.

This finding is supported by Dakir (2012) who conducted a study on. The Influence of Religious Guidance and Counseling on Malaysian Prisoners' Self- confidence. It revealed that majority of the prisoners expressed the need for religious guidance and counseling during their serving time. The respondents revealed that religious guidance and counseling program help them to build and restore their confidence to adapt with society. The observation of religious guidance and counseling session revealed that these groups of people are really in need of someone who are really willing to listen to their story and frustrations besides letting out their anger and vengeance as well as lighten up their stresses and anxieties.

This finding is also supported by Mondido (2015) who revealed in his study that efforts were evident in BJMP to help inmates by giving them time to turn to God.

Table 2. Pre-reintegration Referral System in Terms of Religious and Guidance Counseling

Religious and Guidance Counseling	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Extends to inmates/ detainees the freedom and opportunity in pursuing individual religious beliefs and practices	3.86	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures the spiritual-moral-pastoral care of inmates/ detainees.	3.76	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures equal opportunity for the inmates/detainee to attend religious services, activities, or meeting.	3.81	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures that crisis invention and spiritual awareness programs are available.	3.67	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures proper coordination, supervision and monitoring of religious volunteers from outside agencies who regularly visit the jail.	3.73	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures the availability of religious books and related materials	3.73	WI	4.00	WI	4.00	WI	4.75	VWI
Mean	3.76	WI	4.83	VWI	4.83	VWI	4.96	VWI

AWV – Average Weighted Value, D – Descriptor, WI – Well Influential, VWI – Very Well Influential

Livelihood and Income Generating

Shown in Table 3 are the ratings of the respondents on livelihood and income generation. It could be seen on the table that livelihood and income generation was well-influential according to the inmates while the personnel, warden and ex -convicts averred it was very well-influential. The means were 3.52, 4.52, 4.50 and 4.71 in the same order proved such claims. This means that the respondents have real trust and confidence that livelihood and income generation can change their lives. This implies that these inmates are hopeful that while serving for the whole duration of the case where they are involved their time in learning livelihood skills ultimately benefit them when they come-out from the jail.

This further means that the government is trying all its best to develop the creativity and potentials of the inmates in livelihood and income generation while in jail and continue innovating products to earn not just inside jail but also after their released. This further show that although these people have violated the law, but they still deserve to be treated as human beings and opportunity are offered to unleash their potentials. On the other hand, by so doing such it allows incarcerated people to forget about time while they complete the penalty afforded to them relative to the crime that they have committed. Furthermore, these people are also prepared in a way of developing their skills so that when they will be released from jail, they could find ways and means to support their families economically. The skills in livelihood were very important because these would allow the offenders to have a source of living be they inside or outside the prison cell.

Livelihood is always part and parcel of the duties and responsibilities of people working in the Bureau of Jail Management and Penology and Bureau of Corrections. Accordingly, it offers a variety of inmate work programs, from agricultural to industrial. The purpose of the inmate work program is to keep the inmates busy and divert their attention to worthwhile and lucrative activities and keep them away from committing another crime. They are afforded opportunities to sell their innovated products for their personal expenses and their families as well as help them acquire livelihood skills, in order that they may become productive citizens once they are released and assimilated back into the mainstream of society.

The finding is corroborated by the study of Paoline as cited by Mondido (2015) that livelihood training develops skills of inmates.

Table 3. Pre-Integration Referral System in Terms of Livelihood and Income Generating

Livelihood and Income Generating	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Provides livelihood programs for the purpose of alleviating inmates' frustration.	3.58	WI	3.94	WI	4.00	WI	4.25	VWI
Generates income to sustained inmates personal needs.	3.45	WI	3.94	WI	4.00	WI	4.10	WI
Develops the creativity of inmates.	3.57	WI	4.27	VWI	4.00	WI	4.65	VWI
Encourages inmates to continue innovating products to earn not just inside jail but also after release.	3.49	WI	4.96	VWI	5.00	VWI	5.00	VWI
Helps inmates to recover from the frustration.	3.54	WI	5.00	VWI	5.00	VWI	5.00	VWI
Supports the needs of ex-convict to survive.	3.48	WI	5.00	VWI	5.00	VWI	5.00	VWI
Mean	3.52	WI	4.52	VWI	4.50	VWI	4.71	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Educational and Vocational Skills

Table 4 shows the extent of influence of pre-reintegration referral system in terms of vocational skills. The table shows means of 3.57, 4.15, 4.17 and 4.39 from the inmates, personnel, ward and ex-convicts. This shows high level of influence of these referral systems. This means that the inmates are developed in terms of the different skills, so that they could make use or benefit from these skills when they go out to their communities. Vocational skills may include adult education, secondary education. Vocational training like cooking, dressmaking, cabinet and furniture making and like, as well as supervised learning.

Along this line, the respondents really believed that the government has provided the jails with such programs in support to the inmates. This is the very reason why visitors sometimes go to the jail to buy items which are produced by the inmates. This is a way of earning while developing their vocational skills.

Table 4. Pre-reintegration Referral System in Terms of Education and Vocational Skills

Education and Vocational Skills	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Provides Adult Basic Education designed to assist adult inmates/ detainees in improving their communication and computation.	3.68	WI	5.00	VWI	5.00	VWI	4.85	VWI
Provides Secondary Education program designed for a regular high school diploma in coordination with the DepEd.	3.70	WI	5.00	VWI	5.00	VWI	4.75	VWI
Prepares the inmates for an occupation after released.	3.45	WI	4.05	WI	3.00	I	4.00	WI
Provides vocational training program for the inmates.	3.50	WI	4.00	WI	4.00	WI	4.10	WI
Organizes work program which utilizes inmates' manpower.	3.49	WI	3.73	WI	4.00	WI	4.15	WI
Gives opportunities for inmates/ detainees to participate in supervised learning.	3.58	WI	3.12	I	4.00	WI	4.50	VWI
Mean	357	WI	4.15	WI	4.17	WI	4.39	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Advocacy and Networking on Adequate Basic Needs

Presented in Table 5 are the data on the respondents' ratings in terms of advocacy and networking on adequate basic needs. Along this line, the respondents rated such provisions as well-influential. This provision included ration and its equitable distribution, preparation and distribution, selection of special menu and provisions of mat, pillow, and mosquito net upon admission. Moreover, the jail officers established linkages with kind-hearted individuals so that they can augment what the government provided to the inmates.

Provision of basic needs is very important because it may affect health and physical well-being of the inmates. It is important because it speaks about being physically fit as the inmates develop themselves holistically and hopefully fit to perform their duty and obligation when they go back to their communities. If inmates are not provided well, they may suffer health problems which may hinder them to profit from other programs like education, skills development and livelihood training. These are necessary especially upon their release so they can start a living and normal life. Many have experienced being ostracized from groups when one is an ex-convict. Aside from being rejected to get an employment.

Table 5. Pre-reintegration Referral System in Terms of Advocacy and Networking on Adequate Basic Needs

Advocacy and Networking on Adequate Basic Needs	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Establishes linkages and networks with good hearted individuals.	3.53	WI	3.94	WI	4.00	WI	4.00	WI
Ensures allocations of ration inmates/ detainees based on accurate body account.	3.56	WI	5.00	VWI	5.00	VWI	4.75	VWI
Ensures equitable distribution of foods to the inmates/detainees.	3.59	WI	4.96	VWI	5.00	VWI	4.90	VWI
Ensures proper supervision on the preparation and distribution of food to the inmates/ detainees.	3.70	WI	5.00	VWI	5.00	VWI	4.85	VWI
Provides special menu for inmates undergoing medical treatment.	3.57	WI	4.96	VWI	5.00	VWI	5.00	VWI
Provisions of bed, mat, pillow, blanket and mosquito net upon admission of the inmates/ detainees.	3.52	WI	3.37	I	3.00	I	4.15	WI
Mean	3.58	WI	4.54	VWI	4.50	VWI	4.61	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Sports and Recreation

Table 6 presents the data on the ratings of the respondents on the level of influence of pre-reintegration referral system as to sports and recreation. The data on the table shows that sports and recreation were well-influential according to the inmates, personnel and the warden. These groups of respondents rated it with 3.77, 4.01, and 4.00 respectively. On the other hand, the ex-convicts rated higher the item with 4.75 with a qualitative description of very well-influential.

The overall results on sports and recreational activities were well-influential in the jail. The respondents affirmed that sports and recreational activities were scheduled and that there were available equipment and facilities. Teams were also established as well as individual competitions. On the other hand, entertainment like movies, videos and stage shows were also done inside and that a one-hour daily exercise is also done.

This means that the inmates are enjoying physical fitness activities, as well as sports and leisure activities. This implies that the inmates are still physical active, healthy and strong. Basically, though they are in jail, their lives are still normal as they still have time to enjoy and play.

Table 6. Pre-Integration Referral System in Terms of Sports and Recreation

Sports and Recreation	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Provides variety of recreation and sports activities.	3.84	WI	3.90	WI	4.00	WI	4.50	VWI
Ensures availability of recreational and sports facilities.	3.76	WI	3.16	I	3.00	I	4.60	VWI
Ensures the availability of resources and athletic equipment necessary to undertake recreation and sports program.	3.74	WI	4.02	WI	4.00	WI	4.75	VWI
Establishes Individual and team sports among prisoners/ detainee.	3.72	WI	4.02	WI	4.00	WI	4.85	VWI
Provides group entertainment for inmates/detainees occasionally like movies, videos, and stage shows.	3.76	WI	4.02	WI	4.00	WI	5.00	VWI
Provides one our daily exercises in the open air to the inmates.	3.80	WI	4.96	VWI	5.00	VWI	4.80	VWI
Mean	3.77	WI	4.01	WI	4.00	WI	4.75	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Enhancement Thru Therapeutic Community Modality

Table 7 shows the influence of the pre-integration referral system in terms of enhancement Thru Therapeutic Community Modality (TCM). According to the inmates, the pre-integration program was well-influential while the personnel, warden and the ex-convicts averred this was very well-influential. The figures point out that this program is well-influential and that the personnel in charge of the program made it a point to continuously develop the inmates and the ex-convicts. This means that inmates are given opportunities to exhibit civic consciousness and prove themselves that they can still be good citizens of the country. In this program, the needs of the individual inmate are addressed.

Over time and in response to the changing needs of participants, many TCs have begun incorporating professional staff with substance abuse counselling or mental health training, some of whom are also recovering themselves. Today, programs often have medically trained professionals like psychiatrist consultants, nurses, and methadone specialists as staff members, and most offer medical services on-site.

Therapeutic communities (TCs) have a recovery orientation, focusing on the whole person and overall lifestyle changes, not simply abstinence from drug use. This orientation acknowledges the chronic, relapsing nature of substance use disorders (SUDs) and holds the view that lapses are opportunities for learning (De Leon, 2012). Recovery is seen as a gradual, ongoing process of cognitive change through clinical interventions, and it is expected that it will take time for program participants to advance through the stages of treatment, setting personal objectives along the way. In this particular aspect, the government maximizing community in helping the inmates transformed to be a better and responsible citizen in the country.

Table 7. Pre-reintegration Referral System in Terms of Enhancement Thru Therapeutic Community Modality (TCM)

Enhancement Thru Therapeutic Community Modality (TCM)	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Ensures the holistic development of the in-	3.78	WI	5.00	VWI	5.00	VWI	5.00	VWI
Establishes ex-convicts morning meeting in their respective community.	3.72	WI	5.00	VWI	5.00	VWI	5.00	VWI
Ensures the holistic development of the ex-convicts maximizing community as a venue for transformation.	3.71	WI	4.96	VWI	5.00	VWI	4.90	VWI
Provides activities for the renewal of attitudes, behaviors and personalities.	3.75	WI	4.02	WI	4.00	WI	4.25	VWI
Ensures continuous activities in the community to sustained reintegration.	3.74	WI	4.02	WI	4.00	WI	4.20	WI
Ensures sustained partnership with the community.	3.73	WI	4.02	WI	4.00	WI	4.15	WI
Mean	3.74	WI	4.50	VWI	4.50	VWI	4.58	VWI

AWV – Average Weighted Value, D – Descriptor, I – Influential, WI – Well Influential, VWI – Very Well Influential

Presented in Tables 8 and 9 are the data on the extent of reformation of the inmates and ex-convicts. Along this line, the respondents claimed that the reformation of inmates were very much extensive. This is because the inmates exhibited good conduct and respect to others. They also participated in community and religious activities. Moreover, they avoided trouble as they continued to stay away from prohibited drugs, and from committing crimes. Further, they participated in the after-care program given by the government and non-government agencies to divert their attention from committing another crime.

Prison reform is the attempt to improve conditions inside prisons, establish a more effective penal system, or implement alternatives to incarceration.

Table 8. Extent of reformation of Inmates

Items	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Observes good order and discipline.	4.87	VME	5.00	VME	5.00	VME	5.00	VME
Shows good conduct and respect to others.	4.86	VME	5.00	VME	5.00	VME	5.00	VME
Renders assistance to needy person especially co-inmates.	4.81	VME	5.00	VME	5.00	VME	5.00	VME
Participates in religious activities.	4.88	VME	5.00	VME	5.00	VME	5.00	VME
Possesses and reads book of good values and or contents.	4.68	VME	4.02	ME	4.00	ME	4.15	ME
Refrains from or non-use of prohibited drugs and intoxicating liquor inside the cells.	4.89	VME	5.00	VME	5.00	VME	5.00	VME
Mean	4.83	VME	4.84	VME	4.83	VME	4.86	VME

AWV – Average Weighted Value, D – Descriptor, ME – Much Extensive, VME – Very Much Extensive

Table 9. Extent of reformation of Ex-Convicts

Items	Inmates		Personnel		Warden		Ex-Convicts	
	AWV	D	AWV	D	AWV	D	AWV	D
Shows good conduct and respect to others.	4.88	VME	5.00	VME	5.00	VME	5.00	VME
Participates in community and religious activities.	4.85	VME	5.00	VME	5.00	VME	5.00	VME
Avoids or gets away from any form of fight or trouble.	4.87	VME	5.00	VME	5.00	VME	5.00	VME

Refrains from or non-use of prohibited drugs and intoxicating liquor.	4.88	VME	5.00	VME	5.00	VME	5.00	VME
Avoids from committing another crime	4.91	VME	4.02	ME	4.00	ME	4.60	VME
Participates in the after-care program given by the government and non-government agencies.	4.88	VME	5.00	VME	5.00	VME	5.00	VME
Mean	4.88	VME	4.84	VME	4.83	VME	4.93	VME

AWV – Average Weighted Value, D – Descriptor, ME – Much Extensive, VME – Very Much Extensive

Table 10. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Paralegal Assistance

Source	DF	SS	MS	F	P
Factor	3	6.613	2.204	8.51	0.001
Error	396	5.179	0.259		
Total	399	11.793			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Paralegal Assistance Services

Table 10 shows the analysis of variance on the respondents' ratings on the influence of pre-reintegration referral system on paralegal assistance. The result on the table shows a computed f-value of 8.01 with a p-value of 0.001. This means that there was a significant difference exists on the ratings of the respondents. The sources of error are the average weighted values given by the respondents. It could then be said that significant difference existed among the respondents' ratings. This implies that the respondents have differing views as to the extent of influence of paralegal assistance. There were varying perspectives coming from the different group of respondents. There were those who claimed of very well-influential while to others it was well influential or just influential. It could be seen on the previous table, that there were groups of respondents with very high ratings and there were also those with lower ratings which lead towards the difference.

Table 11. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Religious and Guidance Counseling

Source	DF	SS	MS	F	P
Factor	3	5.6570	1.8857	21.66	0.000
Error	396	1.7411	0.0871		
Total	399	7.3982			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Religious and Guidance Counselling

Presented in Table 11 are the results on the analysis of variance on the responses of the respondents on the influence of pre-reintegration referral system on religious and guidance and counseling. The data on the table show a computed f-value of 21.66 with a p-value of 0.00. This means that there is no percentage of acceptance of the null hypothesis. It is then safe to say that there is a significant variation on the responses of the respondents on the influence of pre-integration referral system on religious and guidance and counseling. The source of variation was mainly the means obtained from the different groups of respondents. This shows that the respondents' views are generally different and that they significantly vary at a certain level which leads to the very high f-value computed for this treatise.

This finding revealed the differing views of the law enforcers on the influence of the pre-integration program. They further revealed that the different views were brought about by the fact that what are being considered are perceptions and it is very subjective on the part of the respondents. In the end, it did not generally reflect what actually happened with the pre-reintegration referral system.

Table 12. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Livelihood and Income Generation

Source	DF	SS	MS	F	P
Factor	3	4.999	1.666	8.93	0.001
Error	396	3.732	0.187		
Total	399	8.731			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Livelihood and Income Generation

Table 12 presents the analysis of variance on the responses of the respondents on the influence of pre-reintegration referral system on livelihood and income generation. The table shows a computed f-value of 8.93 with a probability of acceptance (p) coefficient of 0.001. The p-value was too low to warrant acceptance of the null hypothesis. This result then leads to the idea that there is a significant variation on the ratings of the respondents on the influence of pre-integration referral system on livelihood and income generation. This shows that the respondents vary significantly in their views. The individual ratings on the items that relate to livelihood and income generation vary significantly.

Table 13. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Education and Vocational Skills

Source	DF	SS	MS	F	P
Factor	3	2.235	0.745	2.38	0.100
Error	396	6.250	0.312		
Total	399	8.48			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Education and Vocational Skills

Table 13 shows the analysis of variance on the responses of the respondents on the influence of pre-reintegration referral system on education and vocational skills. The result on the table shows a computed f-value of 2.38 which is less than the critical value of 3.10 at 0.05 level of significance with p-value of 0.10. The p-value leads to the understanding that there is 10 percent probability of acceptance of the hypothesis which further leads to its non-rejection. It is then safe to say that there is no significant variance on the influence of pre-integration referral system on education and vocational skills. This means that the respondents do not differ on their perceptions and their ratings. Their ratings may have fallen on a similar level because they all have seen on the exact level as to how the pre-integration referral system was influential. The ratings which have no significant variation showed that all the groups of respondents feel and see how this pre-integration system was being carried out by the personnel and the warden.

Table 14. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Advocacy and Networking on Adequate Basic Needs

Source	DF	SS	MS	F	P
Factor	3	4.275	1.425	4.12	0.020
Error	396	6.923	0.346		
Total	399	11.198			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Advocacy and Networking on Adequate Basic Needs

Presented in Table 14 are the results on the analysis of variance on the responses of the respondents on the influence of pre-reintegration referral system on advocacy and networking on adequate basic needs. The data on the table showed a computed f-value of 4.12 which is greater than the critical value of 3.10 at 0.05 level of significance. The computed value shows that there is a significant variation on the ratings of the respondents. This further shows that the means of the responses were the main source of the variation this means that generally, the respondents perception differ on their overall perception of the extent of influence of the pre-integration referral system.

Table 15. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System on Sports and Recreation

Source	DF	SS	MS	F	P
Factor	3	3.267	1.089	5.72	0.005
Error	396	3.807	0.190		
Total	399	7.074			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Sports and Recreation

Table 15 presents the analysis of variance on the responses of the respondents on the influence of pre-reintegration referral system on sports and recreation. The result of the analysis of variance shows a computed value of 5.72 with a p-value of .5 percent. The p-value indicates that there is a least possibility of acceptance of the null hypothesis. This also leads to the idea that there is a significant variance on the ratings of the respondents on the extent of influence of pre-integration referral system as to sports and recreation. The figure shows that there is a great deal of distance among the ratings of the respondents. There are ratings that are quite low and there are ratings that are also high enough which could be the main reason why there is a significant variation. The sources of variation were almost similar looking at the coefficients of variation, however the factor coefficient is quite higher compared to the error factor. This showed that the source of variance were the means of the different groups of respondents.

Table 16. Analysis of Variance on the Responses of the Respondents on the Influence of Pre-reintegration Referral System Enhancement Thru Therapeutic Community Modality (TCM)

Source	DF	SS	MS	F	P
Factor	3	2.839	0.946	4.98	0.010
Error	396	3.799	0.190		
Total	399	6.638			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Enhancement through Therapeutic Community Modality

Table 16 presents the analysis of variance on the responses of the respondents on the extent of influence of the pre-reintegration referral system in terms of enhancement through therapeutic community modality. The result on the table shows a computed f-value of 4.98 with a p-value of 1 percent which shows that the computed p-value which is too low to accept the hypothesis. It is then safe to say that there is a significant variance on the ratings of the respondents on the extent of influence of the pre-integration referral system in terms of enhancement through therapeutic community modality.

Table 17. Analysis of Variance on Extent of Reform of Inmates

Source	DF	SS	MS	F	P
Factor	3	0.003	0.001	0.01	0.999
Error	396	2.267	0.113		
Total	399	2.270			

Table 18. Analysis of Variance on Reformation of Ex-Convicts

Source	DF	SS	MS	F	P
Factor	3	0.0392	0.0131	0.15	0.930
Error	396	1.7689	0.0884		
Total	399	1.8081			

Significant Difference on the Extent Influence of Pre-reintegration Referral System on Inmates and Ex-convicts Reformation

Tables 17 and 18 reflect the extent of reformation of inmates and ex-convicts respectively. As shown on the table, the computed values were 0.01 and 0.15 with corresponding p-values of more than 90 percent. This leads to the acceptability of the null hypothesis. This means that there is no significant difference on the extent of reformation of inmates according to the four (4) groups of respondents. This was proven by the very high ratings for all of the groups. This means that all the four groups of respondents have similar views and perceptions on the extent of reformation of the inmates and the ex-convicts. The dominance of the evidences of the extent of reformation of inmates and ex-convicts were that significant that all of the groups of respondents have rated such extent of reformation on a similar level.

Table 19. Test of Significant Influence of Pre-Reintegration Referral System and Inmates' Reformation

Variables	Means	r-computed	t-computed	p-value	Decision
Extent of Implementation	4.28	0.27	5.60*	0.001	Reject H_O
Inmates' Reformation	4.84				

Table 19 shows the test of significant influence of pre-reintegration referral system and inmates' reformation. The result shows a computed r-value of 0.27 and when the r-value was subjected to t-test, it yielded a computed t-value of 5.60 which is greater than the critical value of 1.96 a t0.05 level of significance with 399 degrees of freedom. This leads to the rejection of the null hypothesis. There is therefore a significant influence of pre-reintegration referral system to inmates' reformation. This means that when pre-integration referral system is well influential, it leads to the reformation of inmates.

Rehabilitating criminals has become a debatable topic in the country especially if there are criminals who are habitual delinquent. The correctional institution may put as priority the matter on rehabilitation. It is costly considering the fact that rehabilitation really involves many dimensions. In the end, if the extent of reformation has short duration and the offender repeats the offense again, the effect of the pre-integration referral system is not at all significant. However, if the long-term effect has afforded the inmate to really renew his life, the pre-reintegration referral system is effective and is properly influential.

Table 20. Test of Significant Influence of Pre-Reintegration Referral System and Ex-Convicts' Reformation

Variables	Means	r-computed	t-computed	p-value	Decision
Extent of Influence	4.28	0.25	5.15*	0.001	Reject HO
Ex-convicts' Reformation	4.87				

Table 20 is the test of significant influence of the pre-reintegration referral system to the ex-convicts' reformation. The results on the table show a computed r-value of 0.25 and when subjected to t-test, the resulting value was 4.14 which is greater than the critical value of 1.96 at 0.05 level of significance with 399 degrees of freedom. This leads to the rejection of the null hypothesis.

There is therefore a significant influence of the pre-reintegration referral system to ex-convicts' reformation. The extent of influence of the referral system leads to the ex-convicts' reformation.

In reality, the referral system is made to shape the offenders who are incarcerated so when they go back to the community, they become a better person and they take better responsibilities than they did before. The pre-reintegration referral system when properly influential is always expected to do good to the inmates and when these inmates are released and reintegrated into the mainstream of the community, they will take with them what they learned during the correction period.

CONCLUSIONS

The researcher comes to the following conclusion based on the study's findings:

- Paralegal assistance, religious and guidance counseling, livelihood and income generating, advocacy and networking on adequate basic needs, and enhancement thru therapeutic community modality were very well-influential according to personnel, warden and the ex-convicts while the inmates said it was influential.
- Education and vocational skills and sports and recreation were well-influential according to the inmates, personnel and warden while the ex-convicts said it was very well-influential.
- The inmates and ex-convicts were found to be very much reformed.
- There were significant variations on the respondents' ratings on paralegal assistance, religious and guidance counseling, livelihood and income generation, advocacy on networking on adequate basic needs, sports and recreation, and enhancement thru therapeutic community modality while no significant variation existed on education and vocational skills.
- There were no significant variations on the ratings of the respondents on the extent of reformation of inmates and ex-convicts.
- There was a significant influence of pre-reintegration referral system to inmates and ex-convicts' reformation.
- Inmates and ex-convicts were still human being, so when given the chance to be reformed, it invariably turned out well.

RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are hereby offered:

1. Further implementation of the pre-integration referral system be sustained since it was found to be very well influential at present.
2. Inmates' activities/programs be closely monitored especially those inmates who are about to be reintegrated to the community for assurance purposes of their reformation.
3. Ex-convicts should be tap with the referral linkages to launch a job in order to generate income for their survival and to avoid recommission of an offense.

REFERENCES

Adler, Mueller and Laufer (2007). *Criminology*, Six Edition, Published by McGraw-Hill, USA.

BJMP (2015). *BJMP Comprehensive Operations Manual 2015 Edition*. Retrieved on January 10, 2017 from https://www.bjmp.gov.ph/images/files/Downloads/BJMP_OPERATIONAL_MANUAL_2015.pdf.

Broadhurst, R.G. (2006). Content cybercrime: Criminality and censorship in Asia. Indian Journal of Criminology, Vol 34 (1&2): 11-30. Retrieved on May 18, 2017 from https://www.researchgate.net/publication/255484485_Broadhurst_RG_2006_'Content_Cybercrimes_Criminality_and_Censorship_in_Asia'_Indian_Journal_of_Criminology_Vol_34_1211-30.

Conklin,J. E. (2007). *Criminology*, 9th Edition. Tufts University. Published by Macmillan Publishing Company, USA.

Cox, S. M. and Wade, J. E. (2000). *The criminal justice network, an introduction*. Third Edition, by McGraw-Hill Companies, Inc., USA.

Dakir, J., Ismail, Khaidzir, Tibek Siti and Omar, Niram (2012). The influence of religious guidance and counseling on Malaysian prisoners' self-confidence. *Research gate.* https://www.researchgate.net/publication/290188380_The_influence_of_religious_guidance_and_counseling_on_Malaysian_prisoners'_Selfconfidence.

De Leon, G. (2012). Therapeutic communities: Today and tomorrow. *Presentation to drugs and society seminar.* Columbia University.

Foronda, M. A. (2007). *Institutional Correction Administration*. Wiseman's Books Trading, Quezon City, Philippines.

Foronda, M. A. (2007). *Non-institutional Correction Administration*. Wiseman's Books Trading, Quezon City, Philippines.

Garcia, R. M. (2003), Comprehensive Reviewer in Correctional Institution, Wiseman's Books Trading, Quezon City, Philippines.

Jewkes, Y. and Johnston, H. (2006). Prison readings: A critical introduction to prisons and imprisonment. Portland, OR: Willan. Pp.305. Retrieved on April 8, 2017 from https://journals.sagepub.com/doi/abs/10.1177/1057567708316516.

Maciones, J. (2001) *Sociology*, Prentice Hall, New Jersey.

Mondido, E. A. (2015) *Variable Affecting the Effectiveness of the Bureau Jail Management and Penology Services*, Unpublished Master thesis JRMSU, Dapitan City.

Schaefer, R. T. (2005) *Sociology, A brief introduction*. Tenth Edition. McGraw-Hill, USA.

PREFERENCES OF TERTIARY GRADUATES TOWARDS GRADUATE SCHOOLS: A FOCUS ON MASTER IN BUSINESS ADMINISTRATION PROGRAM

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ABSTRACT

The study tried to bridge the services that educational institutions offer versus the factors and motives of students enrolling in the MBA program. By doing so, higher educational institutions can formulate an effective marketing plan to drive enrollees for better sustainability. The researcher used descriptive correlational design in the conduct of the study. The results established that the respondents highly considered the price, process, people, physical facilities, program, place, and considered promotion. More so, there is a positive correlation between the assessments on their level of consideration in selecting a graduate school and their gender, and net combined household monthly income, and the relationship is significant. However, there is a negative correlation between the assessments on their level of consideration in selecting a graduate school and their age, civil status, and the relationship is significant. The researcher recommends a comprehensive marketing plan that would enhance the current marketing style of educational institutions in Cavite. The marketing plan focuses on different strategies, and the point of concentration was in the seven marketing elements.

Keywords: higher educational institutions, institutional research, student preferences, marketing elements, cost, people, physical facilities, place, process, program, promotion

INTRODUCTION

The role of marketing in a business is indispensable (Moorman and Rust, 2019); in fact, a business without marketing will die on its own. A business may rise and succeed, but it may not sustain it without continuously communicating the right message about what the business can offer to the right people (Canada Business Network, 2019). Education, like any other commercial enterprise, is not an exemption. Marketing in higher education must be a continuous effort because students' needs evolve with time. (Tremblay, Lalancette, and Roseveare, 2018). Relevance and quality performance are needed for a higher educational institution to live on and sustain a competitive advantage. This competitive advantage is achievable through the creation and utilization of an effective marketing plan.

A large number of industry practitioners desire to pursue further studies by enrolling in an MBA program. Teachers in the higher institution as well are mandated to pursue graduate studies. They are good sources of prospective enrollees in the MBA program (Pont, Nusche, and Moorman, 2016). Moreover, students have different rational motives in enrolling in MBA. Some are for personal growth while others are for career advancement. This desire to obtain an MBA degree also gives birth to the question of their choice of school or academic institution where they will spend resources to obtain it (Puetz and Andreu, 2017).

The services that educational institutions offer should be concordant to preferences to enroll in an MBA program. By considering the seven elements comprising the cost, process, people, physical facilities, program, place, and promotion in marketing and finally coming up with a strong marketing plan, the school will be able to cater to the motives and factors of prospective students. This area is not often discussed or subjected to research because marketing efforts are frequently focused on undergraduate programs. A clear understanding of motives from prospective MBA students will enable educational institutions with a graduate program to formulate an effective marketing plan as their basis to drive in enrollees for better sustainability.

OBJECTIVES

Generally, the study aimed to determine the tertiary graduates' preferences in selecting a school where to enrol Master in Business Administration (MBA) in Cavite.

Specifically, the author attempted to:

1. determine the profile of the prospective students in terms of:
   a. age;
   b. sex;
   c. civil status, and
   d. net combined household monthly income;
2. determine the preferences of the college graduates in selecting a school where to enroll Master in Business Administration in terms of:
   a. program;
   b. place;
   c. cost;
   d. promotion;
   e. people;
   f. process; and
   g. physical facilities
3. determine the significant relationship between the respondents' profile and their preferences in selecting a school where to enroll Master in Business Administration Degree.
4. propose a marketing plan to enhance the current marketing style of higher educational institutions in Cavite.

LITERATURE REVIEW

Studies conducted locally and internationally have suggested that education has shifted from being a mere traditional activity to a commercialized and competitive activity. The quality of education is not anymore assessed and evaluated on the quality of teaching outcomes but business criteria (Mazzarol and Soutar, 2015). The change of approach in higher education was due to the increased competition and industry exposure to market forces. To promote programs of higher educational institutions, it has utilized the context of service marketing models. This model applies central marketing principles, such as the marketing mix. (Maringe and Forskett, 2002). The need for higher educations to adopt marketing strategies has become increasingly accepted and vital for survival (Rompho and Supmonchai, 2015). Adopting a strategic marketing approach will enable institutions to compete more effectively. (Anderson, Toom, Poli, Miller, & Sua, 2016).

Relevant student factor that influences the decision to pursue graduate programs is vital information needed for every higher educational institution (Bear and Skorton, 2020). To determine these factors, the marketing mix comprising of 7 known variables (1) program, (2) place, (3) cost, (4) promotion, (5) people, (6) process and (6) physical facilities with sub-elements described the level of consideration of a prospective student to enroll in a graduate program, particularly in Master of Business Administration (Ivy and Naude, 2015). Traditionally, the program is the core feature of the marketing mix. However, all other variables of the marketing mix were classified as equally important. The idea that marketers need to develop strategies specifically for marketing services is traditionally known and has prevailing studies both foreign and local.

Applying the concepts of service marketing to higher education, and the motives and factors on the part of students, as elaborately discussed in the aforementioned studies is important in developing a more effective service marketing plan. The service marketing plan shall target prospective MBA students within the area of Cavite. Understanding and identification of such marketing elements as applied in this geographical area will provide valuable information in the development of a specific and suitable marketing plan so as to maintain the volume of students or more aptly, to increase and drive in more enrollees in the MBA program thereby enhancing and sustaining competitiveness.

METHODOLOGY

Research Design

The study employed descriptive correlational research design. A descriptive designed was utilized to determine the profile of the prospective students. Moreover, the study utilized correlation analysis to identify the relationship between the profile and the preferences of the college graduates in their selection of school where to enroll Master in Business Administration in terms of (a) people, (b) physical facilities, (c) place, (d) cost, (e) process, (f) program, and (g) promotion.

Participants of the Study

The respondents of the study were the 100 teaching and non-teaching personnel purposively selected from Higher Educational Institution in the province of Cavite who desire to pursue further studies specifically in an MBA program. Survey questionnaires were disseminated to participants upon consent and approval of respective offices.

Statistical Treatment

Frequency Percentage was used to determine the profile of the college graduates in terms of (a) age, (b) gender, (c) civil status, (d) net combined household monthly income. Mean was used to measure the level of consideration of the prospective students in selecting a graduate school in terms of (a) people, (b) physical facilities, (c) place, (d) cost, (e) process, (f) program, and (g) promotion. Furthermore, the study utilized correlation analysis through the Pearson-r to identify the relationship between the profile and the preferences of the respondents in selection of school where to enroll Master in Business Administration.

FINDINGS

Table 1. Profile of the Respondents According to Age

Age	Frequency	Percentage
21 to 30 years old	49	49.00
31 to 40 years old	43	43.00
41 to 50 years old	8	8.00
Total	100	100.00

Table 1 describes the profile of the respondents according to age. The data show that out of 100 respondents, 49 participants or 49% belong to ages 21-30 years old, while 43 participants of 43% belonging to ages 31-40 years old. Meanwhile, the least represented age group belongs to 41-50 years which only accounts for 8% of the totality of participants.

The majority of the respondents comprise new graduates. The results indicate that since they are newly graduated, they lack the experience needed in their field of expertise, making them more attracted to seek graduate programs that will help them further enhance their knowledge and skills in management.

Table 2. Profile of the Respondents According to Sex

Gender	Frequency	Percentage
Male	42	42.00
Female	58	58.00
Total	100	100.00

Table 2 describes the profile of the respondents according to sex. The data show that 58% of the respondents are female, while 42% are male. This means that majority of the respondents are female.

The results indicate that more female respondents want to pursue graduate degrees nowadays. This is also true among the previous study of Bavel, Schwartz & Esteve, (2018). They asserted that though men tended to receive more education than women in the past, the gender gap in education has reversed in recent years.

Table 3. Profile of the Respondents According to Civil Status

Civil Status	Frequency	Percentage
Single	60	60.00
Married	40	40.00
Divorced	0	0.00
Separated	0	0.00
Widowed	0	0.00
Total	100	100.00

Table 3 describes the profile of the respondents according to civil status. The data show that 60% of the respondent are single, while 60% are married. The result means that majority of the respondents were single.

The results show single people tend to be more career-driven and are more active in career achievements. The results may be relative to the study of Feldman et. al (2017) on the effect of marriage upon the student role of men and women in American graduate education. He mentioned that married women are caught up between two conflicting prime roles as student and spouse, making them appear to be the least successful graduate students.

Table 4. Profile of the Respondents According to Net Combined Household Monthly Income

Net Combined Household Monthly Income	Frequency	Percentage
Php10, 000 to Php19,999	7	7.00
Php20, 000 to Php 29, 999	38	38.00
More than Php 30,000	55	55.00
Total	**100**	**100.00**

Table 4 describes the profile of the respondents according to net combined monthly income. The data show that 55% of the respondents have a combined net monthly income of more than Php 30,000, while 38% have a combined net monthly income that ranges from Php 20,000 - Php 29,999. The result means that majority of the respondent's combined net monthly income is more than Php 30,000.

Family income has a significant influence on a person's educational level (Tao and Lv, 2017) and is assumed to be uplifted with the increasing income. A financially well-off family is able to provide more educational resources than lower-income families who work hard for life and may put livelihood first before children's learning.

Table 5. Respondents Level of Consideration in Selecting a Graduate School in Terms of Program

Elements	Mean	Interpretation
The reputation of the school	4.37	Highly Considered
The program structure including the range of core and elective courses	4.42	Highly Considered
Admission requirements and work experience requirements	4.04	Considered
Flexibility in the mode of delivery including online, distant learning	4.13	Considered
Accreditation	4.24	Highly Considered
Grand Mean	**4.24**	**Highly Considered**

Table 5 shows the respondents' preferences in selecting a school in terms of the program. Generally, the findings revealed that the respondents have HIGHLY CONSIDERED (Mean = 4.24) the five (5) elements of a program in selecting a graduate school.

The school reputation and the availability of more achievable elective courses were highly considered by the respondents. This is true with the study of Aguado et. al, (2015). The study revealed that it is the personal choice of the students to enroll in the maritime program in Lyceum of the Philippines University-Batangas. Being known as the home of board topnotcher, and its known high standards on education are considered a huge factor for their decision. A carefully crafted and implemented program to increase students' satisfaction and school reputation would be an important tool for attracting future MBA students.

Table 6. Respondents Level of Consideration in Selecting a Graduate School in Terms of Place

Elements	Mean	Interpretation
Accessible location of the school	4.52	Highly Considered
Availability of transportation	4.34	Highly Considered
Availability of parking facilities	3.65	Considered
Grand Mean	**4.17**	**Highly Considered**

Table 6 summarizes the respondents' level of consideration in selecting a graduate school in terms of place. Overall, the results revealed that the respondents have HIGHLY CONSIDERED (4.17) the three (3) elements of place variable in selecting a graduate school.

The result shows that respondents are mostly commuters. Kallio (2009) similarly surveyed 2,834 graduate students and affirmed that several factors are associated with enrollment decisions, one of which is the geographical location of the higher educational institution.

To help students resolved issues regarding location and accessibility, various learning approaches may be developed and implemented by the Higher Educational Institutions. The provision of different learning approaches could mean better access to graduate studies. Integrating online to traditional education gives the student the opportunity to access learning at any time.

Table 7. Respondents Level of Consideration in Selecting a Graduate School in Terms of Cost

Elements	Mean	Interpretation
1. The cost (tuition fees) of the program	4.58	Highly Considered
2. Availability of academic scholarships	4.32	Highly Considered
3. Availability of payment plans and installment payment option	4.46	Highly Considered
Grand Mean	**4.45**	**Highly Considered**

Table 7 shows the respondents' level of consideration in selecting a graduate school in terms of cost. Overall, the respondents have HIGHLY CONSIDERED the three (3) fundamental elements in a graduate school in terms of costs.

Numerous studies have examined relationships between tuition costs and student behavior in higher education. Affordable tuition fees and the availability of flexible payment plans have always been a major factors for every Filipino student. With flexible payment options, education costs can be more manageable for students and families.

Table 8. Respondents Level of Consideration in Selecting a Graduate School in Terms of Promotion

Elements	Mean	Interpretation
Quality of information sources including printed marketing materials, tarpaulins, brochures, handbooks and the website	4.05	Considered
Effective marketing campaigns such as advertising, PR, online marketing and email campaigns	3.97	Considered
Grand Mean	**4.01**	**Considered**

Table 8 shows the respondents' level of consideration in selecting a graduate school in terms of promotion. Generally, the findings revealed that the respondents CONSIDERED promotion as a fundamental factor in choosing a graduate school.

Universities are spending a notable amount of time and money in their recruitment efforts, promoting not only academic programs but also University culture, values, and overall students experience (Chafee & Tierney, 1985)

Schools especially those in private sectors should market themselves if they are to compete in the educational marketplace. They have to embrace modern marketing strategies and realize their importance in the new trend.

Table 9. Respondents Level of Consideration in Selecting a Graduate School in Terms of People

Elements	Mean	Interpretation
1. The quality of interaction with academic staff	4.37	Highly Considered
2. The qualification and research reputation of the academic staff teaching on the program	4.48	Highly Considered
3. The friendliness and advising skills of admissions, marketing and other support staff members	4.29	Highly Considered
Grand Mean	**4.38**	**Highly Considered**

Table 9 indicates the respondents' level of consideration in selecting a graduate school in terms of people. Overall, the findings showed that the respondents have HIGHLY CONSIDERED the people element in choosing a graduate school.

This result reaffirms the findings of Fernandes, Ross, and Meraj, (2014) with regards to the importance of people within the Higher Educational Institution context specifically for MBA programs. The study demonstrated that Higher Educational Institutions within the UAE must recruit and develop high-quality academic faculty because teaching quality had the most significant impact on student satisfaction and loyalty.

Table 10. Respondents Level of Consideration in Selecting a Graduate School in Terms of Process

Elements	Mean	Interpretation
1. Clear, easily accessible and well-explained rules and regulation	4.38	Highly Considered
2. The ease and speed of the registration and enrolment processes	4.43	Highly Considered
Grand Mean	**4.41**	**Highly Considered**

Table 10 indicates the respondents' level of consideration in selecting a graduate school in terms of process. The respondents HIGHLY CONSIDERED it as a vital consideration in choosing a graduate school.

Admission to graduate school is not like undergraduate admissions. (Witte &Tutors, 2015) MBA schools should be vigilant to the needs of their students. Providing them a computerized system is most convenient than the manual registration and enrolment process. The use of applications using the web and other mobile applications can be helpful in the access of desired information and in going through certain processes with ease and utmost convenience.

Table 11. Respondents Level of Consideration in Selecting a Graduate School in Terms of Physical Facilities

Elements	Mean	Interpretation
1. The quality of the school's learning facility such as classrooms, library, etc.	4.48	Highly Considered
2. The quality of social and recreational facilities such as canteen, coffee shops, student's lounge etc.	4.23	Highly Considered
3. The 'look' of the school campus including its location, building exterior design, etc.	4.35	Highly Considered
Grand Mean	**4.35**	**Highly Considered**

Table 11 displays the respondents' level of consideration in selecting a graduate school in terms of physical facilities. In total, the findings showed that the respondents have HIGHLY CONSIDERED physical facilities in choosing a graduate school.

The quality of school facilities is necessary for creating an appropriate, attractive, and welcoming environment for teaching and learning. A survey of undergraduates has confirmed, to high levels of significance, that facilities had a significant influence on students' choice of institution. (Price, Matzdorf, Smith, & Agahi, 2018).

Table 12. Significant Relationship of the Respondents' Profile to their Preferences In the Selection of School where to Enroll Master in Business Administration

Variables	Computed r – Value	Interpretation
Age	-0.17 (negative small correlation)	Significant
Gender	0.24 (positive small correlation)	Significant
Civil Status	-0.20 (negative small correlation)	Significant
Net Combined Monthly Household Income	-0.05 (negative small correlation)	Significant

Degree of Freedom = 99 Level of Significance = 0.05

Table 12 displays the significant relationship of the respondents' profile to their preferences in the selection of schools where to enroll Master in Business Administration. Findings revealed that the participants' profiles - the age, sex, civil status, and net combined household monthly income have a significant relationship to their preference in selecting a graduate school. Considerably, the study rejected the null hypothesis considered in this undertaking upon satisfying the conditions of critical p-values.

The above findings are in line with the study of Koes, Astuti & Pratminingsih, (2011) indicating that elements in the marketing mix have a significant relationship with students' decision making for selecting a university.

Table 13. Matrix of the Proposed Marketing Plan

Areas of Concern	Objectives	Strategies	Activities	Office in Charge
Program	To promote image of the school in the community by ensuring quality education.	Apply for accreditation Foster community relationships	Conduct program review of the readiness to apply for accreditation Implement the necessary changes and preparation for accreditation Conduct outreach program, and or extension service	Dean, Graduate School / VP for Academics
Place	To provide equal opportunity among students living from diverse geographical location and access information easily and readily	Provision of online or off campus study	Offer modular, online, and blended teaching methodologies aside from the current traditional face to face class.	Dean, Graduate School / VP for Academics
Price	To develop pricing scheme that will attract market in significant number without compromising school's revenue.	Provision of flexible Payment Plan options Provision of Discount for Referral (5% discount from tuition fees for every referral). Provision of scholarships that are funded jointly by employers, industry associations and HEIs	Encourage current MBA students to promote MBA programs through referral Build linkages to private and public organization through mentoring.	Office of the President / VP for Administration
Promotion	To build program awareness	Improvement of school website Invest in consistent, meaningful Social Media Ads Consolidate Social Media Account	Update school related information Invest time and resources into a program awareness and re-marketing campaign Follow those who have visited the website, on social media since they are familiar with the school already, they will be more likely to engage with the content and take action Create a School Blog Make only one Facebook, Twitter and Instagram Account Collect all posts from all accounts into a single, streamlined feed on website	Office of the President / VP for Administration
People	To find right MBA professor and ensure to keep them	Hiring / maintaining of competent professor preferably with Doctorate Degree / Units and industry practitioner Provision of research related training to current professors	Recruit diverse candidates Create inclusive supportive environments to retain current MBA professor Provide professor with enough opportunities for professional development or access to professional learning systems that support teacher's continuous growth Provide new professor with substantive mentoring opportunities to build new skills critical to their roles.	Office of the President / VP for Administration
Process	To speed up registration process and increase student's data accuracy.	Development of system that would facilitate speedy enrolment and registration process	Implement online enrolment, cashless transaction, and easy payment via bank deposits, fund transfer or GCash	Office of the President / VP for Administration
Physical Facilities	Improve education delivery, boost student and teacher's morale	Improvement of MBA classrooms	Invest in rehabilitating and renovating the existing classroom Encourage better routine and planned classroom maintenance.	Office of the President / VP for Administration

Table 13 shows the matrix of the proposed marketing plan. The marketing plan focuses on the seven marketing elements considered as the area of concern of any higher educational institution. It also reflects the marketing objective, different strategies, detailed action plan, and offices in charge of the implementation.

CONCLUSION

Based on the findings, the following conclusions were drawn:

1. Majority of the respondents are neophytes and belong to the young-adulthood stage. Considering the young age of the respondents, the majority are single and belong to the entry-level workforce in the organization. The younger age group in an organization tends to be more aggressive in career achievement and progression. This makes the individual pursue further studies in graduate programs.
2. Conclusions for the Marketing for Services:
   a. **Program**: It is evident that the reputation of the school and the type of coursework being offered is highly considered by a prospective student in selecting a graduate school for Master of Business Administration. Prospective students who tend to enroll in graduate programs are looking at reputable institutions that are offering graduate programs. Furthermore, prospective students also look at the coursework being offered. MBA programs being offered at executive classes (Weekends) are highly preferred by the students because the majority are working during the weekdays.
   b. **Place**: the respondents prefer that their graduate school be located in an accessible location, mainly because the majority of them are commuters and prefer to go by the school via public transportation. Because of this, parking facilities were deemed considered but less priority of the respondents.
   c. **Price**: Tuition fees are highly considered by the respondents. It is one of the major concerns before enrolling in a graduate school. Furthermore, the availability of flexible payment plans is vital for the respondents who are who receive a fixed amount of monthly salary.
   d. **Promotion**: The ways and means of school promotions are considered by the respondents. Particularly, promotions that are delivered through available tarpaulins, brochures, handbooks, and school websites.
   e. **People**: high qualifications of the teaching and non-teaching staff of a graduate school and research reputation are important factors for the respondents in selecting a graduate school.
   f. **Process**: The speed, and enrollment process of a graduate school is highly considered by the respondents. Also, well-explained rules and regulations of the institution are highly important.

RECOMMENDATION

In view of the findings and conclusions, the following recommendations are made:

1. ***Program***: To increase the reputation of the school. Particularly, in MBA program offering. It is recommended that the MBA program be accredited by a third party organization such as the Philippines Accrediting Association of Schools, Colleges and Universities to ensure better quality of program implementation.
2. ***Place***: Considering situations such as a pandemic, it is recommended that distance learning be integrated in the delivery of the program. This ensures, limited face to face meetings reducing the risk for infection transmission. Also for enrolees outside of school location, this minimizes cost for transportation.
3. ***Price***: It is recommended that the scheme of tuition fees payment be distributed in equal amounts (5 Months) on a bi-monthly payment term. This is to ease tuition fees payment. Furthermore, student loans and other scholarship grants be offered.
4. ***Promotion***: It is highly recommended that school promotional for graduate programs be delivered through social media (Facebook, Instagram, YouTube).
5. ***People***: It is recommended that the Higher Educational Institution hire professor with Doctorate degree and an industry practitioner. Also they should invest in faculty development such as but not limited to: training, conferences & seminar to improve quality of faculty. Furthermore, research publications and international and national oral research presentation is recommended.

6. ***Process***: Online registration and submission of enrollment documents is recommended to increase efficiency and avoid long lines at school.
7. ***Physical Facilities***: It is recommended that the Higher Educational Institution adhere to the standards set by the CHED as minimum requirements for facilities to offer MBA program. Furthermore, improving classroom facilities such as executive lounge, audio-visual resources, executive chairs and tables, lighting and ventilation is recommended
8. A parallel study maybe conducted in other school with bigger sample to confirm or validate the findings of the present study.
9. Since the study was limited to prospective students of the Masters in Business Administration program, it is recommended that the same study be conducted in other graduate programs to confirm the result of the study.

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REFERENCES

Anderson, J., Toom, K., Poli, S., Miller, P., & Sua, J. (2016). The Graduate Program. In Research Management Europe and Beyond.

Bear, A., & Skorton, D. (2019). The Integration of the Business with Arts and Sciences: Branches from the Same Tree. National Academic Press - United States, 50-63.

Canada Business Network. (2019). The Challenges of Growing a Business - and How to Meet Them. Retrieved from Info Entrepreneurs: https://www.infoentrepreneurs.org/ en/guides/the-challenges-of-growing-a-business-and-how-to-meet-them/

Find University. (2019). Master of Business Administration in the Philippines. Retrieved from Academic Programs Library: https://www.finduniversity.ph/majors/ master-in-business-administration-philippines/

Ivy, J., & Naude, P. (2015). Succeeding in the MBA Marketplace: Identifying the Underlying Factors. Lancaster University, 401-407.

Kotler, P., & Keller, K. (2016). Marketing Management. Pearson.

Maringe, F., & Forskett, N. (2002). Marketing University Education: The Southern African Experience. Higher Education Review.

Mazzarol, T., & Soutar, G. N. (2015). Push-Pull Factors Influencing International Students Destination Choice. Center for Entrepreneurial Management and Innovation, 13-14.

Moorman, C., & Rust, R. T. (2019). The Role of Marketing. Journal of Marketing, 180-197.

Ng, I., & Forbes, J. (2019). Education as Service: The Understanding of University Experience Trrough the Service Logic. Journal of Marketing for Higher Education, 38-64.

Pont, B., Nusche, D., & Moorman. (2016). Improving School Leadership Volume 1. The Organization for Economic Cooperation and Development.

Puetz, A., & Andreu, L. (2017). Choosing Two Business Degrees Versus Choosing One: Whats Does it tell About Mutual Fund Managers' Investment Behavior? Journal of Business and Research.

Rompho, N., & Supmonchai, S. (2015). Evaluation Of The Success Of A Master Of Business Administration Program: A Case Study Of Thammasat Business School. Ameican Journal of Business Administration.

JOB ENABLING ENGLISH PROFICIENCY (JEEP) PROGRAM: ITS IMPLICATIONS TO STUDENTS' ACADEMIC PERFORMANCE AND EMPLOYABILITY SKILLS

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ABSTRACT

Anchored on the Systems Theory in Education by Paul Zwaenepoel (1985), the study made use of quantitative-qualitative descriptive research. It made use of survey questionnaires, a validated employability skills test, writing of a curriculum vitae, and a mock- job interview. Likewise, data were validated through focused-group discussions conducted with 127 student-respondents, gathering feedback from JEEP teachers and some employers. Descriptive statistics revealed that the youngest group performed better than the older groups in terms of English proficiency, communication skills, and academic performance; the male group outperformed the female in terms of analytical thinking skills, interpersonal skills, management skills, and computer skills; the female performed better than the male group in other variables. Simple Linear Regression analysis showed that there is a significant relationship between the JEEP program and students' employability skills and academic performance. This implies that the program is a valuable input and is instrumental in enhancing the English proficiency of students and in preparing them for future employment.

Keywords: JEEP, Computer-Assisted, Academic Performance, Employability

INTRODUCTION

Many studies have affirmed the significance of the English language as the premier language in today's highly competitive and technologically advanced world. Better proficiency in the language is believed to be crucial in obtaining better academic performance and in seeking employment in the future. Such claims have been supported by a number of studies that revealed the importance of the English language. According to Aina, A.K et.al (2013) and Fakeye, David (2009) English language aids in attaining higher academic performance through students' improved communication skills. Meanwhile, many studies revealed that English language skills have significant effects on employability. Wijewardene, L; Yong, D; Chinna, K.(2014) stressed that it is indispensable and highly significant in today's employment world. Rashid, M M et.al. (2013) expressed that English proficiency serves as a ticket, a gateway, and a stepping stone to the world of work and the possibility of acquiring a more secure and better job.'

The USTP Claveria (formerly MOSCAT) launched the Job Enabling English Proficiency (JEEP) Program in November 2009, the school, being one of the 27 recipients in Mindanao. The program was funded by the United States Agency for International Development (USAID) through the Growth with Equity in Mindanao (GEM) Program during the first two years of its implementation. The Job Enabling English Proficiency (JEEP) is an intensive two-year course envisioned to fast-track the acquisition of English proficiency that will make graduates globally competitive. JEEP Start 1 and 2, characterized as computer-assisted language learning highlighted with extension activities facilitated by the JEEP teacher, are offered as JEEP's first-year course.

The lack of study in the College concerning its effectiveness makes it quite difficult to claim whether the JEEP Program is truly effective. It is in this context that this study was undertaken to find out answers to this question " Is there really a significant effect or contribution of JEEP on the overall academic performance and employability skills of the students? Findings will provide both internal and external stakeholders relevant feedback about the program.

OBJECTIVES

This study generally aims to find out the relevance of Job Enabling English Proficiency towards respondents' academic performance and employability skills.

Specifically, the study seeks to answer the following questions:

1. Is there a significant difference in the respondents' English proficiency in terms of JEEP Ratings, level of employability skills and academic performance when grouped according to age and JEEP rating, gender, course enrolled in and JEEP Pathways.
2. What is the extent of JEEP contribution of the English proficiency on the respondents' employability skills and academic performance?

THEORETICAL AND CONCEPTUAL FRAMEWORK

The study is anchored on the Systems Theory in Education by Paul Zwaenepoel (1985).

This theory was first explored by biologist Ludwig von Bertalanffy (1968) who believed that all things, living and non-living, could be regarded as a system and have properties that are capable of being studied. And now, it has become an academic field and is popularly used in assessing or evaluating existing programs in organizations or institutions.

Systems Theory assumes that If feedback is positive, systems or subsystem's effectiveness is established and some changes may be initiated to further enhance it. However, if negative, major actions may be instituted to correct deficiencies in its operation which in turn will have an effect on the school's output. Positive feedback may also signal that what the organization is doing should be continued and if otherwise needs to be stopped. For this reason, educational development plans are subject to modifications, revision, or changes depending on the feedback after some time of operation.

Figure 1 depicts the basic systems theory of organizations which has five parts namely; inputs, a transformation process, outputs, feedback, and the environment.

As the figure shows, the organization is situated in an environment. Inputs are identified and are subjected to some processes in order to produce the desired output. However, on the process, some information through a feedback mechanism need to be gathered in order to inform the system how it is getting along. There is a sort of monitoring system that can provide signals whether what the organization is doing should be continued or not. As shown, the feedback loop goes back to the inputs.

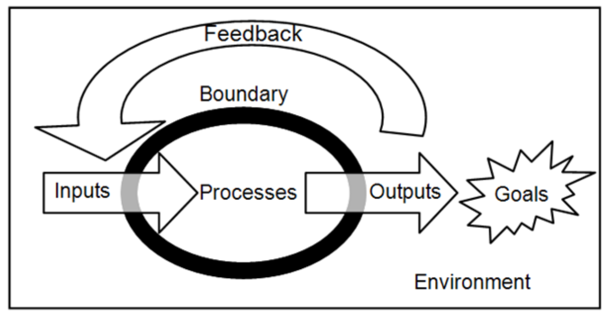

Figure 1. Basic Systems Model of Paul Zwaenepoel (1985)

As enumerated by Zwaenepoel, the study includes the following: 1) identification of the the goals and aims of the educational program; 2) gathering of quantitative and qualitative data on the economic, social, and cultural subsystem of the educational program. Economic subsystem includes financial resources, human resources, physical resources; while data on social subsystem includes administrators, teachers and students and data on cultural subsystem comprises the aims, curriculum in terms of relevance, methodology and instructional materials used; 3) construction of an evaluative instrument which can gauge the students' knowledge, skills, attitudes and values after the educational program had been implemented. Then, 4) administering the instrument to students in order to determine what the students have acquired in terms of knowledge, skills, attitudes, and values. 5) Analyzing and interpreting data gathered about the inputs and its processes (obtained under Step 2) and the outputs (obtained under Step 3) which is the level of knowledge and skills acquired and the attitude and values developed among the students vis-àvis the aims and objectives of the educational program being evaluated.

In this study, the researcher focused only on the study of JEEP program and its implications to students' academic performance and employability skills. Thus, gives emphasis on finding out the level of knowledge and skills as well as attitude and values developed by JEEP students. The above-mentioned steps guided the researcher in the analysis on the effects of the JEEP Program with some modifications in order to meet the objectives the study.

METHODOLOGY

Research Design

This study used both the quantitative-qualitative descriptive research design in order to find out the significant contributions of Job Enabling English Proficiency program towards students' academic performance and employability skills.

Sampling Procedure

Using the formula of Cochran (1997)

$$n = \frac{N\sigma^2}{[N-1]\left[\frac{E^2}{Z^2}\right] + \sigma^2}$$

a total of 127 respondents were sampled from 173 JEEP graduates/ finishers. Distribution of respondents were as follows: BEED, 39; BSED, 13; BSCM, 6; BSSW, 13; BSSW, 13; BSCpE, 12; BSEnE. 12; BSHM, 24; BSIT, 24.

The Research Instruments

The questionnaire for the JEEP graduate- respondents was composed of three parts: Part 1 was the Respondent's profile, a survey questionnaire on respondents' employability skills and evaluation on JEEP activities. Part 11 was a 70-item validated multiple choice employability skills test. The employability skills test includes questions covering English communication skills, creative and critical thinking skills, analytical thinking skills, interpersonal, management, negotiation, computer skills, CV writing skills and Job interview skills.

Part 111 was the actual writing of a curriculum vitae. Additional sheets were provided to the respondents for their CV. The mock interview was done on a separate schedule. All the questionnaires were intended to measure the students' level of employability skills after having undergone JEEP Start 1 & 2 and JEEP 3 & 4.

Another qualitative aspect upon which employability skills were gauged particularly on job application skills was a job mock interview with JEEP graduate respondents. A focused-group discussion was also conducted to selected respondents.

Validity and Reliability of the Proficiency Instrument

A reliability of the employability skills test was computed using KR 21(Yilmaz, 1998). The reliability value of the test was found to be r = .85 which confirmed that the test is reliable.

Data Gathering Procedures

The JEEP graduate- respondents were gathered at the JEEP Accelerate laboratory and were given a maximum of two hours to answer the questionnaires.

For the mock interview, the JEEP graduate-respondents were provided scheduled dates for mock job interview. The mock interview, using common interview questions from Job Hunting Book, was conducted by two JEEP teachers and were documented on video by requested students. A focus-group discussion was also conducted by the researcher to some selected respondents. Qualitative data were processed using some standard criteria used in JEEP class and were rated by English teachers.

Meanwhile, JEEP graduate-respondents' academic performance and JEEP Ratings were officially requested from the Office of the College registrar. Data gathered from the questionnaires were verified through focus- group discussion to determine authenticity and veracity of responses.

Statistical Treatment

To find out the significant difference in the respondents' level of employability skills when grouped according to their courses enrolled in, ages, gender and JEEP Pathways, the T and F-test were used. To find out the significant effect or contribution of JEEP Program on respondents' employability, simple linear regression was employed.

FINDINGS

Problem No. 1, Is there significant differences in the respondents' English proficiency in terms of JEEP Ratings, level of employability skills and academic performance when grouped according to age and JEEP rating, gender, course enrolled in and JEEP Pathways?

1.1 Majority of the respondents belong to the 19-21 age group,are enrolled in the Education course, with females outnumbering the males.

1.2 Majority of the respondents belong to English for International Employment (EFIE) and Business Process Outsourcing (BPO) JEEP Pathways.

1.3. Majority of the respondents rated JEEP as effective in developing their skills in communication, creative and critical thinking skills, analytical thinking skills, interpersonal and negotiation skills, leadership and management Skills, computer Skills and Job Application Skills.

2. Majority of the respondents got good to very good English Proficiency ratings.

3. Respondents' level of employability skills in terms of English communication skills was good. They were very good in spelling and in using adverbs; good in correct usage, good in analysing data on graph and in identifying correct subject-verb agreement. However, respondents were noted fair only in verb tenses.

   They were likewise good in creative and critical thinking skills, and job application skills.

   They got very good ratings in analytical thinking skills, interpersonal skills, management and leadership skill and computer skills. However, they got only fair rating in negotiation skills.

4. As to their academic performance, the respondents had a mean rating of 85 percent from their third year and fourth year level.

5. The youngest group comprising ages 19-21 performed best among the three age groups in terms of English proficiency and academic performance and communication skills.

6. The Education students obtained significantly higher mean in creative and critical thinking skills, on-the-spot CV writing and academic performance. Meanwhile, the Engineering and IT group are revealed with the highest mean in terms of analytical thinking skills, and other courseson interpersonal skills.

7. Gender affects the level of English proficiency among students. Findings revealed that females have better communication skills, creative and critical thinking skills, negotiation skills, mock interview, cv writing and academic performance. While, the male respondents performed better than the females in terms of analytical skills, interpersonal skills, management skills and computer skills.

8. As to age, the youngest group constituting the 19-21 age bracket performed best among the three age groups in terms of English proficiency. Respondents who belong to the BPO Pathway have significantly higher employability skills compared to the other groups. Respondents who rated JEEP effective have significantly higher employability skills.

9. Results showed that for every unit increase in the respondents' language proficiency, there is a corresponding increase of 0.30 in the respondents' employability skills. There is an expected increase in the employability skills as language proficiency increases which implies that the more students are exposed to JEEP activities alongside with their field of specialization and other subjects, the higher their employability skills will be.

10. Result showed that for every unit increase in the respondents' English proficiency, there is a corresponding increase of 0.44 in the respondents' academic performance. English language acquisition has positive effect and contribution towards enhancing academic performance.

Problem No.2 To what extent is the contribution of the English proficiency on the respondents' employability skills and academic performance?

Table 2.1 presents a test on the extent of contribution of English Proficiency towards employability skills through simple regression analysis. The coefficient is 0.30 This indicates that when respondents' English proficiency as indicated by JEEP ratings is 0, the predicted employability skills is 2.55.

Table 2.1 shows the extent of contribution of English Proficiency towards students' employability skills

Independent Variable	Dependent Variable	Regression Model	F Value	Significance
Job Enabling English Proficiency	Employability Skills	Coefficient: 0.30 Constant: 2.55 Adjusted R: 0.23 F-Value: 39.49* Sig. level: 5E-09	39.49**	5E-09

The adjusted r is 0.23 which means that 23 percent of the variation is due to the relationship between the respondents' employability skills and English proficiency while 77 percent of the variations is due to other unexplained factors. Results could be further interpreted that 23 percent of the variation is attributed to students' exposure with varied activities aimed at enhancing students' English language skills in JEEP activities. The77% could be attributed to the aggregate of language inputs that enrich students' schema with knowledge, skills, values and experiences. This could be attributed further to their exposures to language through their English classes, other subjects and their field of specialization and extra-curricular activities as well as their exposures to English language through the home, community, environment, society and likewise may have greatly contributed to the 77 percent.

It implies that more students are engaged in the acquisition of English language skills, the moreproficient they become, thus they become more highly employable. In this study, students' exposure to English language through the Job Enabling English Proficiency Program has significantly contributed to their employability skills.

Table 2.2 likewise presents a test on the extent of English Proficiency towards students' academic performance through a simple linear regression analysis. The coefficient is 0.44. This indicates that when the respondents' English proficiency as indicated by JEEP ratings is 0, the predicted academic performance is 1.93. This coefficient is highly significant as indicated by F= 60.87** which means that for every unit increase in English proficiency, students' academic performance likewise, increases.

Table 2.2 Test on the Extent of Contribution of English Proficiency towards Respondents' Academic Performance Through Simple Linear Regression

Independent Variable	Dependent Variable	Regression Model	F-value	Sig. Level
Job Enabling English Proficiency	Academic Performance	Coefficient: 0.44 Constant: 1.93 Adjusted R: 0.33 F-Value: 60.87** Sig. level: 2.08422E-12	60.87**	2.08422E-12

The null hypothesis which states that there is no significant relationship between language proficiency and academic performance is therefore rejected. The adjusted R is 0.33 It means that the 33 percent of the variation is due to the relationship between the respondents' English proficiency and academic performance and 61 percent of the variations is due to other unexplained factors. The 33 percent is attributed by students' exposure to Job Enabling English Proficiency program while 67 percent could be attributed to other factors such as respondents' schema with knowledge, skills, values and experiences acquired from their exposures to language through their English classes, other subjects and their field of specialization and extra-curricular activities as well as their exposures to English in the environment.

This finding corroborates with the study of Luyben, Hipworth and Pappas (2003) on the Effects of CAI on the Academic Performance and Attitudes of College Students which concluded that computer-assisted instruction (CAI) favourably affects academic performance and attitude towards instruction. Results further affirmthe finding of AbuSeilleek (2007)who investigated the effectiveness of two-mediated techniques – cooperative and collective learning . The survey conducted showed that students react positively to both the CALL approach and the cooperative computer-mediated technique.

CONCLUSION

Based on the findings of this study, the following are the researchers' conclusion:

- The Job Enabling English Proficiency as an institutionally mandated program is indeed a useful and effective program. It has a significant contribution towards enhancing students' second language proficiency and employability skills. Respondents affirmed that their exposures to varied JEEP activities were effective in developing in them a certain degree of competence and employability skills. Based from the findings, it could be inferred that JEEP program strongly complemented with other subjects as well as their major field of specialization in honing their employability skills.
- As revealed from the analysis of various elements involved in the system as guided by the Systems Theory in Education, positive feedbacks from teachers and employers on the employability skills of respondents strengthen the implications that JEEP is a helpful and effective program in enhancing students' employability skills in terms of communication skills, creative and critical thinking skills, interpersonal and negotiation skills, leadership and management skills, computer skills and job application skills such as CV writing skills and job interview skills.

- Job Enabling English Proficiency program using the computer-assisted language learning, supplemented by extension activities in JEEP Start 1 & 2 and classroom-based interventions with focus on English for Specific Purposes which includes internet-based study, group work, simulations on typical job situations and written exercises in JEEP Accelerate 3 & 4, is perceived instrumental in addressing the need to enhance English proficiency among college students, the need to help students access in an increasingly tight labor market and the need to improve the match between education and employment, and for students to access jobs requiring advance proficiency in English.
- Considering the positive feedback and findings of this study, the researcher concludes that using computer-assisted language alongside with using classroom-based interventions and multi-media resources have significant contribution on students' level of English proficiency and employability skills. Students' exposures to varied job related situations through listening to CDs, discussions, teacher and student-assessed interviews and other interview simulations enhance students' communication skills and enrichtheir employability and transferrable skills particularly on creative and critical thinking, analytical thinking, interpersonal skills, leadership and management skills, computer skills and job application skills.
- In relation to the system theory,the researcher concludes that feedback mechanism serves as helpful instrument in gauging the effectiveness and value of input in the system. Based from the findings of this study, the researcher postulates that constant and repetitive use of English language as implied by the use of computer assisted language learning and classroom-based interventions have significant effects on students' learning and eventually prepare them for future employment.

RECOMMENDATIONS

The following are the recommendations based on the findings:

1. To the JEEP teachers
   - Further strengthen and update the JEEP Program as it has a significant contribution on students' academic performance and employability skills.
   - Intensify students' linguistic knowledge with more applications on the use of verb tenses during extension activities particularly in JEEP Start 1 and 2.
   - Enrich students' skills in writing a curriculum vitae and students' knowledge on dealing negotiations with employers in JEEP Accelerate classes for them to be better prepared in its eventuality.
   - Plan, design and carry out more enriching activities that require students with relevant application of interview simulations done in class. This will give them more opportunities to think creatively, critically and analytically at same time provide them more exposure to develop their communication skills, interpersonal skills and job application skills.
   - Provide students an exposure with online communication, since computer-mediated communication is believed to promote speaking, increase student motivation, and self-esteem. (Compton 2004.)

2. To the JEEP students
   - Increase interest through active engagement in performing expected tasks both in JEEP Start and JEEP Accelerate.
   - Perform every session, specifically, the six basic language learning paths such as: previewing the lesson that calls for intensive listening, engaging in the language which requires speaking and self-monitoring, answering comprehension questions, reviewing which requires comprehension, practicing and repeating language, finally engaging in extension activities which requires class active interaction facilitated by the JEEP Start teacher
   - Develop more attentive listening skills to be more acquainted with various English speakers' accents around the world.
   - Have a more positive attitude towards JEEP program by religiously attending JEEP classes.
   - Find means for practical application of the language learned in JEEP classes(be it in various school activities, online communication or community activities in order to further enhance employability skills in terms of communication skills, creative and critical thinking skills, analytical thinking

skills, leadership and management skills, interpersonal skills, computer skills and job application skills.
- Continually provide feedback on the program to further improve its implementation.

3. To the JEEP Coordinator
   - Plan, initiate some in-service trainings and conferences to JEEP teachers for them to share significant experiences from their respective JEEP classes to find out what worked well in the program and what did not. This provides opportunity for teachers to give their authentic feedback of the program now and then;
   - Initiate JEEP program culmination activities to give students extra challenge to showcase their communication skills;
   - Closely monitor program implementation by initiating continual generation of feedbacks from various stakeholders: students, teachers, employers and community regarding the program.
   - Assess status of existing facilities and resources and facilitate necessary requisitions for repair or urchase of damaged computer units, gadgets and other needed facilities;
4. Administration
   - Continually upgrade JEEP facilities such as computers, soft wares, headsets and other equipment to keep students' motivation high since there is something new to look forward to in the program.
   - Facilitate provision of better internet connection.
   - Forge a closer relationship between HEIs and prospective employers in order to work together in promoting graduate's employability;
   - Optimize the use of JEEP facilities and gadgets in order to maximize students' basic language skills in as much as these tools are useful in the mastery and fluency of the students' language skills. Students should spend more time with their course wares.

Similar study may be replicated by other institutions with JEEP program.

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REFERENCES

Aina, Jacob Kola, et. al (2013) . "Students proficiency in English language relationship with performance in science and technical education. *American Journal of Educational Research* 1.9 (2013): 355- 358 DOI: 10.12691/ education-1-9-2

Farima Talebi & Nasrin Teimoury (2013 The Effect of Computer- assisted Language Learning on Improving EFL Learners' Pronunciation Ability. p.55

Kong, J., Powers, S., Starr, L. & Williams, N. (2012). " Connecting English language learning and academic performance: A prediction study."*American Educational Research Association*, 1-22.

Lance Knowles (2007) " Recursive Hierarchical Recognition: A Brain-based Theory of Language Learning"*DynEd International, Inc.* (www.dyned.com)

LishanthiWijewardene (2014) "English for Employability – the need of the hour for Sri

Lankan graduates"ISSN: 2046-9578, Vol.17 No.I (2014) ©*BritishJournal Publishing, I*nc. 2014 http://www.bjournal.co.uk/ BJASS.aspx137

Maning, K.(2014) "Analytical Thinking: Why You Need It and How to Get"Betterhttps:// www.udemy.com/blog/analytical-thinking/

Mastura, M. A., Imam, O.A., Osman,Shuki (2013)" Employability Skills and Task Performance of Employees in Government Sector' *International Journal of Humanities and Social Science* Vol. 3 No. 4 [Special Issue – February 2013] PP.150-162

Olanipekun, Shola Sunday (2013) The influence of english language on students' academic performance in physics in colleges of education. Physics Department College Of Education (T.), Lafiagi P.M.B 001 Kwara State, Nigeria ***General Studies Department College Of Education* (Tech.) Lafiagi P.M.B 001, Kwara State, Nigeria

Pardeep, Kumar (2014) Effect of Proficiency in English Language on Academic Performance-of Post Graduate Management Students of Marathwada Region (Maharashtra), India MGM Institute of Management, Aurangabad (Maharashtra), India -431003 IOSR *Journal of Business and Management* (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 16, Issue 5. Ver. III (May. 2014), PP 10-16 www.iosrjournals.org

Perez, Jovie S. P. (2013) - The English as a Second Language Proficiency AmongHigher Education Institution Students of Caraga Region in Computer-Assisted Language Learning in Job-Enabling English Proficiency-Start Program http://asianefl.com/breakout-session schedule/icalrepeat.detail/2014/11/28/234/-/ jovie-singidas-patalinghug-perez-

Rahmat, N et. Al (2015) English Language Proficiency Tests and Academic Achievement: A Study on the Malaysian University English Test as a Predictor of Technical Programme Undergraduates *Academic Achievement Advances in Language and literary Studies* ISSN: 2203-4714

Rosero, Earl Victor L. (2012) " Why many fresh college grads don't get hired, According to survey"ofmanagershttp:// www.gmanetwork.com/news/story/250239/ economy/business/ why- many-fresh-college-grads-don-t-ge

Roshid, M.M., Chowdhury, R.(2013) English language proficiency and employment: A case study of Bangladeshi graduates in Australian employment marketMevlana *International Journal of Education* (MIJE)Vol. 3(1), pp. 68-81 http://mije.mevlana.edu.tr/ par.7 p.78),

Tan, Lay Cheng and Ericka French-Arnold 2012 *Employability Skills in Asia Published by UNESCO Bangkok Asia and Pacific Regional Bureau for Education Thailan*d© UNESCO 2012ISBN: 978- 92-9223-395-2 (Electronic Version)par.2 p.4

Wijewardene, Lishanthi; Yong, David; Chinna-Karuthan (2014) English for Employability the need of the hour for Sri Lankan graduates Management and Science University, Malaysia Multimedia University, Malaysia University of Malaya British Journal of Arts and Social Sciences ISSN: 2046-9578, Vol.17 No.I (2014) © BritishJournal Publishing, Inc. 2014 http://www.bjournal.co.uk/BJASS.aspx par.1 p. 138

Zwaenepoel, Paul P. (2011) Systems Analysis in Education. *Manila: UST Press*. 1985.of Kevin Lowden, Stuart Hall,Dr Dely Elliot and Jon Lewinp,12

ENTREPRENEURIAL CAPABILITY AND ENGAGEMENT OF PERSONS WITH DISABILITIES TOWARD A FRAMEWORK FOR INCLUSIVE ENTREPRENEURSHIP

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ABSTRACT

The study was designed to determine the entrepreneurial capability and engagement of persons with disabilities towards a framework for inclusive entrepreneurship. The researcher used descriptive and correlational approaches through purposive random sampling. The sample came from the City of General Trias and the Municipality of Rosario, registered under their respective Persons With Disabilities Affairs Offices (PDAO). The findings indicated that the respondents are from the working class, are primarily female, are mostly single, have college degrees, live in a medium-sized home, and earn the bare minimum. Furthermore, PWDs' perceived capability level in entrepreneurship was somehow capable, and the majority of engagement level responses were somehow engaged. Considerably, age and civil status have significant relationships with most of the variables under study. Finally, the perceived challenges of PWDs' respondents noted the following: lack of financial capacity, access to credit and other financial institutions, absence of business information, absence of access to data, lack of competent business skills, lack of family support, and lack of personal motivation. As a result, the author proposed a framework that emphasizes interaction and cooperation between national and local government units in the formulation of policies promoting inclusive entrepreneurship for people with disabilities.

Keywords: entrepreneurial capability, entrepreneurial engagement, inclusive entrepreneurship, person with disability, Social Science

INTRODUCTION

Human productivity is very essential in nation building because it provides an avenue for society to grow economically and socially. Productivity is a widely held goal that society has attempted to strive for ages to achieve, and it is a determinant of wealth production (Lopez and Sy, 2014). Behaviorally speaking, personal productivity aids in the realization of an individual's self-worth or self-value. This transgresses through various types of working group because of the reward and remuneration factor that enables them to purchase or acquire (Flyndth, 2017). However, productivity and worth are sensitive issues when it comes to Persons with Disabilities (PWDs) because of certain constraints that limit their respective activities (Nicholas, 2012).

People with disabilities are people with long-term mental, sensory, and physical impairments who are constrained in their ability to perform activities and functions. PWDs were empowered in the Philippines through a variety of programs, activities, and legislative provisions ranging from social awareness, acceptance, and inclusivity (Guiterrez, 2013). However, PWDs are yet to be integrated into a sustainable economic platform that will enable them to provide for themselves, at least. PWDs are considered a marginalized sector that is continually submitted for continuous growth and developmental key identification. Entrepreneurship was recognized by the government as the primary strategy in poverty alleviation and mitigation as a powerful economic tool to foster a higher standard of living (Llanto, 2012).

Thus, the researchers attempted to understand and provide a focus on the entrepreneurial capability and engagement of PWDs to provide a pathway for possible sustainable livelihood for them, encourage policy makers and think-tanks to springboard entrepreneurial activities, and create inclusive programs and policies for the physically -challenged sector of our society.

OBJECTIVES

The study aimed to answer the entrepreneurial engagement of persons with physical disability in City of General Trias and Municipality of Rosario, Cavite.

Specifically, the study aimed to:

1. determine the socio-economic profile of the respondents in terms of:
   a. age;
   b. sex;
   c. civil Status;
   d. educational attainment;
   e. household size; and
   f. combined household income.
2. determine the perceived capability level of the participants in entrepreneurial activity in terms of:
   a. business planning;
   b. marketing;
   c. financial planning;
   d. operation management; and
   e. leadership.
3. determine the perceived entrepreneurial engagement level in terms of:
   a. business planning;
   b. marketing;
   c. financial planning;
   d. operation management; and
   e. leadership.
4. determine the significant relationship between socio-economic profile and perceived capability level in entrepreneurial activities.
5. determine the significant relationship between socio-economic profile and perceived entrepreneurial engagement level.
6. identify the perceived challenges of the participants in engaging entrepreneurship.
7. propose an entrepreneurial framework for inclusive entrepreneurship of persons with disabilities in the province of Cavite.

LITERATURE REVIEW

Persons with Disabilities (PWDs) belong to the marginalized sector of society. These people usually suffer from poor education and limited economic participation, resulting in a higher poverty rate compared to those without disabilities. Poverty issues for PWDs are a result of social exclusion and lack of opportunities in the mainstream population. It is true that everyone deserves to be treated fairly and respected, but in society, this situation is still a challenge for our brothers and sisters with disabilities. Limited access to education becomes a source of inequality for those who belong to marginalized groups, which consequently distresses their employability. Thus, this serves as a barrier for them to sustain their personal necessities and improve their social growth (World Health Organization, 2017), (Seyoum, 2017), and (Robertson and Bethea, 2018).

Awareness of different countries and private institutions arises regarding the exclusivity of PWDs. In the Philippines, one way of improving the welfare of PWDs is the passage of the Magna Carta for Persons with Disabilities. This promotes the anti-discrimination of PWDs by assuring their rights to employment, health, education, and auxiliary services. Part of the government's effort to promote inclusivity and equality among PWDs is the creation of an agency that can directly address the needs of disabled individuals. The Persons with Disability Affairs Office is an agency that implements services under the provisions of RA 7277. According to the studies of Mabaquiao (2018) and Macatangay (2018), different programs were being conducted in partnership with other government agencies and private institutions which mainly focused on health services and employment issues. This is also a prevalent scenario in the province of Cavite. PDAO in Cavite, together with local government units, strives to initiate sustainable programs for PWDs in Cavite, especially in the employment sector and other incentives.

Despite all the efforts of the government to uplift the social status of PWDs by providing opportunities related to employment, they still belong to the segment which requires relevant improvement. The study by Schelzig (2005) reveals that a small percentage of registered employable PWDs were employed. As a result, the majority of employed PWDs are employed in the agricultural sector (Mina, 2013), which significantly belongs to the country's marginalized group. Moreover, the occurrence of discrimination in the minds of Filipinos was not restrained. Proving this is the difficulty in searching for data on the impact of policies made for PWDs (Tabuga, 2013).

These ideas pushed the researcher to come up with this study. Since employment in the country is declining, this could give a pathway for a possible sustainable livelihood and enable strategies and policies to promote the welfare of PWDs. Thus, the researcher, based on the existing literature and studies, will give emphasis to understanding inclusive entrepreneurial activity, especially among PWDs, in General Trias City and the Municipality of Rosario, both in the province of Cavite. This research undertaking can springboard the opportunity for social inclusion of PWDs and can serve as a platform for sound, effective, and inclusive policies towards PWDs.

METHODOLOGY

Research Design

The researcher used descriptive and correlational approaches in the conduct of this study. Specifically, the researcher used descriptive design to describe the socio-economic profile of the respondents and likert-type measurements of capability level. Moreover, the study used a correlational-inferential design to determine the significant relationship between socio-economic profile and perceived level of entrepreneurship capabilities.

Sampling Design

The researcher used non-parametric purposive sampling. The sample came from the City of General Trias and the Municipality of Rosario, registered under their respective Persons With Disabilities Affairs Offices (PDAO). The researcher used mental-capable respondents under PWDs. Initially, the researcher targeted 100 respondents from each research locale. However, due to the limitations and constraints brought by the pandemic, the researcher only retrieved and utilized 79 respondents from General Trias City and 48 respondents from the Municipality of Rosario.

Research Instruments

The medium that was used in the study was a modified survey questionnaire form to gather the details of PWD participants, which was distributed in General Trias City and the Municipality of Rosario. The survey questionnaire was validated by experts composed of academicians and practitioners in business, entrepreneurship, and PWDs. Cronbach's alpha was calculated at 0.93 through SPSS, which verifies the reliability of the instrument-responses.

Data Gathering Procedure

Primary data was used in this study through a modified survey questionnaire form. The questionnaire was validated and pretesting was conducted to assure the viability, validity, reliability and usability of the instruments.

Before the conduct of the study, the necessary consent and permissions were obtained from the office of the respective Local Government Unit to consider ethical issues. After obtaining consent and permission, the questionnaires were coordinated with the respective heads of the Persons with Disability Affairs Offices to be distributed among the registered PWDs under their jurisdiction. However, due to the limitations brought by the pandemic, about 79 respondents from General Trias City and 48 respondents from the Municipality of Rosario were being retrieved.

The secondary data came from research of related literature such as books, newspapers, and other related literature with regards to PWDs and entrepreneurship. Furthermore, academic online references were utilized. The author processed the data into tables and figures for analysis and interpretation.

Statistical Treatment of Data

The researcher utilized the following statistical tests in this study:

1. descriptive designs were used in this study such as frequency, percentages, means and category counts.

   Formula: $P = \frac{f}{N} \times 100\%$

   Where:
   P = Percentage
   f = frequency
   n = sample size

2. Spearman Rank correlation was utilized through the use of Statistical Package for Social Science (SPSS) in determining the relationship of socio-economic profile and perceived capability level and engagement level of the respondents in entrepreneurial activities.

   $$p = 1 - \frac{6\sum d_t^2}{n(n^2-1)}$$

   Where:
   p = Spearman rank correlation
   d = the difference between the ranks

FINDINGS

Table 1. Profile of the Respondents According to Age

Age	Frequency	Percentage
15 to 20 yrs old	9	7.09
21 yrs old to 25 yrs old	44	34.65
26 yrs old to 30 yrs old	19	14.96
31 yrs old to 35 yrs old	20	15.75
36 yrs old to 40 yrs old	10	7.87
41 yrs old to 45 yrs old	12	9.45
46 yrs old to 50 yrs old	8	6.30
51 yrs old and above	5	3.94
Total	**127**	**100.00**

Table 1 shows the age group of the PWD respondents. The table shows that most of the respondents belong to the age group of 21 years old to 25 years old, composing 44 of the total sample size with 34.65 percent, while the lowest belongs to the age group of 51 years old and above, with 3.94 percent accounting for 5 out of 127 participants.The observed age profile conforms to the data of the Philippine Statistics Authority, which indicates that more than 50 percent of the total household population of PWDs belong to the working age group.

Table 2. Profile of the Respondents According to Sex

Sex	Frequency	Percentage
male	48	37.80
female	79	62.20
Total	**127**	**100.00**

Table 2 shows the sex of the respondents. The majority of the PWDs respondents are female, with 62.20 percent constituting 79 of the total sample size. This implies that more female responded to the questionnaires compare to male. According to the most recent Philippine Statistics Authority data, males made up 50.9 percent of all PWD, while females made up 49.1 percent. According to these figures, there are 104 handicapped men for every 100 disabled women. Considerably, males with disabilities outnumbered females in the 0 to 64 age groups.

Table 3. Profile of the Respondents According to Civil Status

Civil Status	Frequency	Percentage
Single	76	59.84
Married	23	18.11
Live-in	12	9.45
Widowed	1	0.79
Separated	15	11.81
Total	**127**	**100.00**

Table 3 shows the respondents' civil status. Out of 127 responses, 76 are single, accounting for 59.87 percent of the total sample; 23 are married, accounting for 18.11 percent; 15 are separated, accounting for 11.81 percent; and 1 is widowed, accounting for 0.79 percent. This means that the majority of the respondents are single.

Table 4 Profile of the Respondents According to Educational Attainment

Educational Attainment	Frequency	Percentage
Elementary undergraduate	6	4.72
Elementary graduate	3	2.36
High school undergraduate	20	15.75
High school graduate	29	22.83
College undergraduate	27	21.26
College graduate	40	31.50
Graduate Studies	2	1.57
TOTAL	**127**	**100.00**

Table 4 shows the educational attainment of the respondents. This reveals that out of 127 respondents, 2 respondents (1.57 percent) finished graduate studies, 40 respondents (31.50 percent) possessed a college degree, 27 respondents (21.26 percent) were college undergraduates, 29 respondents (22.83 percent) finished high school, and 29 respondents (22.83 percent) were not able to complete basic education. These findings significantly show that the majority of PWD respondents were able to complete basic education and graduate from college as far as this study is concerned.

Table 5 Profile of the Respondents According to Household Size

Household Size	Frequency	Percentage
1 to 3 members	49	38.58
4 to 6 members	75	59.06
7 and above members	3	2.36
Total	**127**	**100.00**

Table 5 shows the household size of the respondents. It reveals that the majority of the respondents belong to the group of four to six members, comprising 75 out of 127 with 59.06% of the total sample size, 49 of the respondents with 38.58 percent of the total sample belong to one to three members, and 3 respondents with 2.36 percent of the total sample belong to seven and above members. This suggests that the majority of the PWD respondents belong to an average household size.

Table 6 Profile of the Respondents According to Combined Household Income

Combined Household Income	Frequency	Percentage
less than Php 10,000.00	86	67.72
Php 10,001.00 to Php 20,000.00	22	17.32
Php 20,001.00 to Php 30,000.00	13	10.24
Php 30,001.00 to Php 40,000.00	6	4.72
Total	**127**	**100.00**

Table 6 shows the combined household income of the respondents. The majority of PWD respondents, 67.72 percent out of a total of 86, come from households with an income of less than Php 10,000.00. 17.32 percent of the total sample size (22 respondents) earn Php 10,001.00 to 20,000.00. Furthermore, 13 respondents, or 10.24 percent of the total sample size, earn Php 20,001.00 to Php 30,000.00, while 4.72 percent, or 6 respondents, earn Php 30,001.00 to 40,000.00.

Perceived Capability and Engagement Level of the respondents in Entrepreneurial Activities

Table 7 Summary of Perceived Capability Level

Category	Grand Mean	Descriptive Value
Business Planning	3.83	Somehow Capable
Marketing	3.81	Somehow Capable
Financial Planning	3.80	Somehow Capable
Operational Management	3.90	Somehow Capable
Leadership	3.91	Somehow Capable

Table 7 showcases the summary of the perceived capability level of the PWDs respondents. This explicitly shows that perceived capability in leadership is the most considerable activity among others with the grand mean of 3.91, while the least is capability in financial planning with grand mean of 3.80. Generally, most of the respondents appeared to be somehow capable of entrepreneurial activities. Disability, according to Norafandi, et. al. (2017)'s study on The Prospects of People with Disabilities Participating in Entrepreneurship, is a phenomena that occurs in the public view. Individuals with disabilities are frequently pushed to grasp ableism, to resemble those who are capable, in order to overcome their circumstances.

Table 8 Summary of Potential Entrepreneurial Engagement Level

Category	Grand Mean	Descriptive Value
Business Planning	3.85	Somehow Engaged
Marketing	3.81	Somehow Engaged
Financial Planning	3.83	Somehow Engaged
Operational Management	3.80	Somehow Engaged
Leadership	3.87	Somehow Engaged

Table 8 shows the summary of the entrepreneurial engagement level of PWD respondents. Among the entrepreneurial activities, leadership presents the highest nominal value with the grand mean of 3.87. This means that among engaging entrepreneurial activities, leadership is the most considerable aspect for PWD respondents, and apparently the least considerable is operational management with the grand mean of 3.80. Furthermore, this suggests that PWDs are somehow engaged in entrepreneurial activities. Considerably, these results are supported by the study of Norafandi, et.al. (2017) on social business which explains that engaging in business expanded PWDs' self-force and independence. Furthermore, investment in businesses reinforced their confidence, autonomy, and lessened the inclination that inabilities are signs of their lack.

Perceived Challenges of the respondents in Engaging Entrepreneurship

Table 9 Perceived Challenges in Doing Business

Challenges	Frequency	Percentage
Lack of financial capacity	58	38.41
Access to credit and other financial institution	25	16.56
Absence of business information	25	16.56
Absence of access to data	9	5.96
Not competent business skills	13	8.61
Lack of family support	4	2.65
Lack of personal motivation	5	3.31
Others	12	7.95
Total	**151**	**100.00**

Table 9 reveals the perceived challenges of PWD respondents in doing business. This shows that lack of financial capacity, with 38.41 percent, composing 58 of the total sample size, access to credit and other financial institutions, and absence of business information, both with 16.56 percent composing of 25 responses out of the total sample, are the primary perceived challenges of PWDs in venturing into business. Anyone attempting to start a new firm faces a significant risk of encountering obstacles. Such limits become increasingly defined and complicated for individuals with disabilities. The results affirm the study by Cooney (2008) in which starting up a business is normally difficult for both disabled and non-disabled people. Moreover, Dhar and Farzana (2017) explain that social perceptions and financial aspects are the factors that establish the boundaries for those people with incapacities toward entrepreneurship.

Relationship Between Socio - Economic Profile and Perceived Engagement and Capability Level of the Participants in Entrepreneurial Activity.

Table 10. Summary of Correlation

Category	General Significance (p-value, crit < 0.05)	Null Hypothesis
Age to perceived capability	Significant	Reject
Age to perceived engagement	Significant	Reject
Sex to perceived capability	Insignificant	Accept
Sex to perceived engagement	Insignificant	Accept
Civil Status to perceived capability	Significant	Reject
Civil Status to perceived engagement	Significant	Reject
Educational Attainment to perceived capability	Insignificant	Accept
Educational Attainment to perceived engagement	Insignificant	Accept
Household Size to perceived capability	Insignificant	Accept
Household Size to perceived engagement	Significant	Reject
Household Income to perceived capability	Insignificant	Accept
Household Income to perceived engagement	Insignificant	Accept

NB: general significance are calibrated by the greater composite value of the totality of coefficients and p-value of variables under study

Table 10 shows the summary of the correlation of the variables under study. Generally, the study reveals that sex, educational attainment, household size, and combined household income are insignificant, respectively. Thus, the null hypothesis is accepted. On the other hand, age and civil status have a significant relationship with perceived capability. Therefore, the null hypothesis is rejected. PWD individuals become more capable in business as they age, and their civil status has a major impact on this. Accepting the null hypothesis, sex, educational attainment, and household income are all insignificant predictors of entrepreneurial engagement.While age, civil status, and household size all have a significant impact on perceived entrepreneurial engagement, As a result, the null hypothesis is rejected. This suggests that PWD respondents are more likely to engage in business as they get older, and that, like perceived capability, civil status has a significant impact on entrepreneurial engagement, whereas the larger the respondents' household size, the less likely they are to engage in business activities.

CONCLUSION

Based from the findings, the following conclusions can be stated:

1. The respondents are from the working class, dominated by women, mostly single, have college degrees, belong to an average-sized house-hold, and belong to a minimum-earning household.
2. The perceived capability level of PWDs in business planning, marketing, financial planning, operation management, and leadership are somehow capable, which means PWD respondents are capable of entrepreneurship. Considerably, the potential engagement level of PWDs in entrepreneurship in terms of business planning, marketing, financial planning, operation management, and leadership is somehow engaged, which means that PWD respondents are engaged in entrepreneurship.
3. Generally, age and civil status have significant relationships with most of the variables under study. Considerably, household size and entrepreneurial engagement have a significant relationship with perceived capability, which has an insignificant relationship. Furthermore, the majority of the variables under study have insignificant relationships with sex, educational attainment, and combined household income.
4. The perceived challenges of PWDs respondents noted the following: lack of financial capacity, access to credit and other financial institutions, absence of business information, absence of access to data, lack of competent business skills, lack of family support, lack of personal motivation, and others (competition in the market and a diverse workforce).

RECOMMENDATION

Based on findings and conclusions of the study, the following recommendation are given:

1. To ensure certainty of access to financial assistance for starting a business, public policy must ensure that potential PWDs can obtain financial assistance for business creation.
2. Local government units should assist PWDs in obtaining equal rights and opportunities in obtaining financial resources from financial institutions for their business development, while banking institutions should also allow financing programs for PWDs that could be used in funding their viable businesses.

3. Under the supervision of the Local Government unit, the PDAO should give and facilitate information in an accessible format while also ensuring that these financial schemes do not discriminate against people with disabilities.
4. To raise awareness of the potential entrepreneurship for PWDs, Social Welfare Development should raise awareness of self-employment and small business ownership as a potential advantage for self-supporting activity and becoming self-reliant.
5. In order to bridge the experience gap among PWDs, the local government unit, in collaboration with the Department of Trade and Industry, may promote the acquisition of entrepreneurial skills.
6. To encourage participation of private business sectors, the Local Government Unit might speak with these groups and persuade them to allocate a portion of their business's production and distribution process.
7. The proposed framework for inclusive entrepreneurship may be considered in this study.

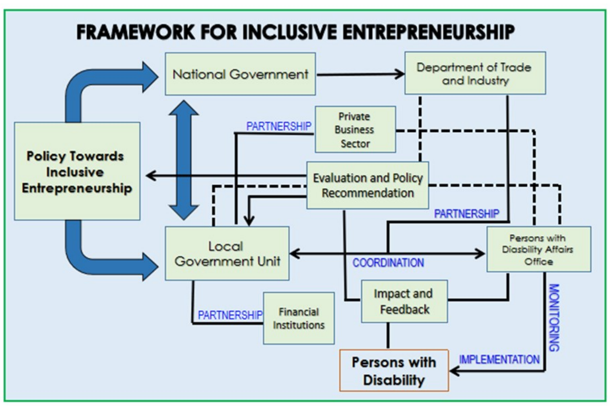

Figure 1. Proposed Framework of Inclusive Entrepreneurship for PWDs

This framework reveals that the National Government and Local Government Units should initiate the formulation of policy towards inclusive entrepreneurship for PWDs. Under the National Government, the Department of Trade and Industry may enter into partnership with the Local Government Unit and Persons with Disability Affairs Office in promoting and providing entrepreneurial skills development as well as business information to potential PWD entrepreneurs. Moreover, local government units may tap financial institutions within their jurisdictions to provide financing programs for developing businesses. At the same time, the private sector may be encouraged to include capable PWDs in business activities through the supervision of PDAO. The implementation and monitoring of such a policy will be under the PDAO since their office has direct engagement with persons with disabilities. Thus, the impact on PWDs of the adoption of entrepreneurial policies as well as feedback will be assessed and processed by PDAO, Local Government Unit, and Department of Trade and Industry for gap identification, which will be the basis for the continuous development of persons with disabilities in entrepreneurship.

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REFERENCES

Dhar, S. & Farzana, T. (2017). “Barriers to Entrepreneurship Confronted by Persons with Disabilities: An Exploratory Study on Entrepreneurs with Disabilities in Bangladesh. Management Development” Retrieved from https://www.researchgate.net/publication/324280299_Barriers_to_Entrepreneurship_Confronted_by_Persons_with_Disabilities_An_Exploratory_Study_on_Entrepreneurs_with_Disabilities_in_Bangladesh

Flyndth, G. (2017). Behavioral Workplace Systems: A Case of Kirmshire Company. Purdue University.

Guiterrez, P. (2013). “Understanding the Stigma: Persons with Disabilities”. The Mabini Sessions. Volume 10 pp 10-12..

Llanto, G. (2012). Transforming Philippine Economic Landscape: A Vision of ASEAN 2015. Philippine Institute of Developmental Studies.

Lopez, D. and Sy, G. (2014) Productivity in the Organizational Change: Key Points of Uninterrupted Growth. Ateneo De Manila University.

Mabaquiao, P. (2018). “PWDs Receive Support Services from Various Groups Retrieved from https://pia.gov.ph/news/articles/1008494

Macatangay, A. (2018). “Naga City PDAO preps up for PWD Congress” Retrieved from https://pia.gov.ph/news/articles/1010487

Mina, C. D. (2013). “Employment of persons with disabilities (PWDs) in the Philippines: The case of Metro Manila and Rosario, Batangas.” (No. 2013-13). PIDS Discussion Paper Series. Retrieved from https://www.econstor.eu/bitstream/10419/126933/1/pidsdps1313.pdf

Norafandi, M. & Diah, N. (2017). “The Prospects of People with Disabilities (PWDs) Participation in Entrepreneurship: The Perspective of University Students with Physical and Sensory Disabilities.” Retrieved from https://www.researchgate.net/publication/318921598

Philippine Statistics Authority (2020). “Persons with Disability in the Philippines.” Retrieved from https://psa.gov.ph/content/personsdisabilityphilippinesresults2010census?fbclid=IwAR2ZMPeW ouTj9i5jZyteQauthvKTVBh_-35N5E8FsRq4jDx7r9E7Et0F3-E

Robertson H. & Bethea J., (2018). “Career Challenges and Opportunities for Individuals with Physical Disabilities. Career Planning & Adult Development Journal . Winter 2018-2019, Vol. 34 Issue 4, p43-53. 11p. Retrieved from https://scholar.google.com/scholar?cluster=3199551620273461265&hl=en&as_sdt=0,5#d=gs_qabs&u=%23p%3DEdjsJj8XZywJ

Seyoum, Z. (2017). “Employment Opportunities and Challenges of People with Disabilities in Dire-Dawa, Ethiopia: Policy and Practice.” Retrieved from http://journaljesbs.com/index.php/JESBS/article/view/16108

World Health Organization (November 2017). “Facts on Disability” Retrieved from https://www.who.int/features/factfiles/disability/en/?fbclid=IwAR0GIIYgPSW5oKv8s87o6aogKRzT1h8ZPJKxj0T5eq7O5LU_x0X- 9_UFTc8

MULTI-VOLTAGE OUTPUT ELECTRONIC CIRCUIT TRAINER

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ABSTRACT

Ever since the government universities and private schools are suffering to the very expensive low quality substandard laboratory circuit trainers from the different suppliers. To address this problem, the researcher developed a very less expensive Multi-voltage Output Electronic Circuit Trainer (MOECT), we call it Experimental Group. The study will determine the regulated non-variable voltages output of +5V, +12V, -12V and Variable Voltages output in (Positive) 0-15V and (negative) 0-15V in five trials, the number of experiments to be performed, number of students can perform experiments, easy to use and operate, easy to maintain and troubleshoot, the acceptability of the device in terms of availability of materials, effectiveness of the product, economic value and usefulness and compare to Conventional Electronics Circuit Trainer (CECT) as Control Group. This study was conducted at CAPSU, Roxas City using the experimental method and the mean in analyzing the data. Data gathered were tabulated for analysis and interpretation. The result revealed that regulated non-variable voltages output was +5V, +12V, -12V and variable voltages output in (Positive) 0-15V and (negative) 0-15V. The results also revealed that the device is acceptable as electronic circuit trainer. It is recommended to use the laboratory manual of the device before conducting experiments.

Keywords: Electronic, Trainer, Laboratory, Voltage, Experimental Method, Roxas City

INTRODUCTION

Background of the Study

One of the problems of the universities are the purchasing of laboratory equipment and apparatuses due to the increased complexity and cost of electronic laboratory equipment and unavailability from the suppliers. Students from other government schools especially in the provinces lack of hands-on laboratory experiments because of insufficient facilities like electronic circuit trainer. Procurement of laboratory facilities in State Colleges and Universities (SUCs) follow the rules and regulation of Commission on Audit that if the amount to be procure is more than fifty thousand the procurement is subject for bidding procedure where the brand name of laboratory equipment to be purchased is not stated where the contractor has the option to choose a low-quality equipment which is resulted that the school will receive from the contractor a non-branded equipment. The non-branded laboratory equipment is considered as non-durable equipment and could not resist to a voltage fluctuation or even short circuit condition that caused of possible damaged of the unit and this affect to the student's learnings while conducting laboratory experiments.

Some of the schools can afford only to provide one unit of electronic circuit trainer for 50 students in one section which is not an ideal ratio in conducting laboratory experiments. According to the CMO 86, S-2017 the Policies Standards and Guidelines (PSG) of Commission on Higher Education (CHED) under the recommended laboratory requirements base on class size of 25 students with a maximum of 5 students per group. Almost 50% of the schools having an electronic and electrical laboratory subjects could not comply with the ratio requirements of the CHED due to the insufficient laboratory trainer. If this simple problem could not be given an appropriate solution, the rights of the students will be deprived as well as their interest to become a technical oriented in the field of invention and research will be affected.

The researcher was challenged and motivated to find an alternative solution not only to solve the problem of the students in performing electronics and electrical laboratory experiments but for the economy and efficiency of the school in purchasing a less expensive and affordable laboratory trainer kit.

According to Rahmadiyah, (2015), this trainer kit is a set of equipment in the laboratory that is used as an educational medium. The kit trainer will be developed due to absence from school. It is hoped that by using this kit trainer, students can apply knowledge material/concepts to practice so that the abstractness of knowledge and verbality can be reduced. Besides, it is also because trainers are media that can be seen and have a 3-dimensional form that is expected to attract attention and increase student motivation. To design and development of a simple but efficient controlled regulated power supply with variable voltage output ranging from 0v to 15v is significant to the electronics and electrical laboratory subjects. Carolina A. (2010) on his study that the process of this device is that converts AC to DC is known as full wave rectification, hence, these converters are also called rectifier. Among others applications, they are used in power supplies. The full-wave rectification can convert the whole of the input waveform to achieve the constant output signal. This MOECT were designed and assembled with advantages in performing experiments compare to the expensive conventional electronic trainer. Gutnik V. et. al., (1997), concluded on his study that another consideration that the goal of this variable supply system is to minimize power, it is best to start by considering what sets the power dissipation of a digital system. If both the technology and architecture are fixed, the determining factor in power dissipation is timing: at higher voltages, the circuits operate faster but use more energy. With this low cost, efficient and affordable as well as durable and quality Electronics Circuit Trainer the schools could provide 10 or more units to comply the ideal maximum ratio of 5 students per group as recommended by the CHED for 50 students in one section. It is recommended to use this MOECT to all school with electronics and electrical laboratory subjects.

OBJECTIVES OF THE STUDY

General Objectives

To develop a Multi-Voltage Output Electronic Circuit Trainer (MOECT) that can perform laboratory experiments in Basic Electronics, DC Circuit 1 and other related experiments.

Specifically it sought to attain the following:

1. To produce regulated Non-Variable voltages output of +5V, +12V, -12V and Variable Voltages output in (Positive) 0-15V and (negative) 0-15V of the MOECT as Experimental Group and compare to Conventional Electronics Circuit Trainer (CECT) voltages output as Control Group.
2. To determine the difference of the Multi-voltage Output Electronic Circuit Trainer (MOECT) as Experimental Group to the Conventional Electronic Circuit Trainer (CECT) as Control Group in terms of:
   a. number of experiments to be performed
   b. number of students can perform experiments
   c. easy to use and operate
   d. easy to maintain and trouble shoot
3. To determine the acceptability of the Multi-voltage Output Electronic Circuit Trainer (MOECT) as Experimental Group compare to Conventional Electronics Circuit Trainer (CECT) as Control Group in terms of:
   a. availability of materials
   b. effectiveness of the product
   c. economic value
   d. usefulness

METHODOLOGY

This research study used the experimental method using five number of trials to determine the Non-variable and Variable voltages output of the Multi-voltage Output Electronic Circuit Trainer (MOECT) as Experimental Group compare to voltages output of the Conventional Electronics Circuit Trainer (CECT) as Control Group. The difference and acceptability of the Experimental Group and Control Group was also determined to give a substantial result of comparison of the two circuit trainers. The method involves are collection of data, application of statistical tools, data analysis and actual test of voltages output and number experiments performed of the MOECT and CECT trainers. The description of the Experimental Group is an Electronic Circuit Trainer using Transformer, Diodes, Capacitors, Resistors, Voltage Regulator Transistors, Potentiometer, Pilot Light and Bread Board etc. The circuit trainer is unique in terms of DC voltage output it could supply regulated non-variable voltage output such as +5V, +12V, -12V and DC variable voltage output in (positive) 0-15V and (negative) 0-15V. This unit can also produce a voltage output of 15V A.C. volts. The designed MOECT has a replaceable fuse as a safety device in case of short circuit and overloaded problem. The Experimental Group can produce variety of voltages output that could supply to different experiments. For the design procedure, the researcher's gather all the materials and tools needed, make design and layout of the circuit diagram by following the correct procedure in constructing and connecting the circuit. The Experimental Group and Control Group were tested in five trials to measure the output voltages using the dc Voltmeter and to determine the average of voltage output mean were used. To determine the difference of the Experimental Group to Control Group in terms of number of experiments to be performed the participants used eight different types of experiments. There are six participants participated in performing the laboratory experiments. To determine on how to use and operate as well as to maintain and troubleshoot the Experimental Group and Control Group this were performed in actual by nine participants. To determine the acceptability of the Experimental Group compared to Control Group in terms of availability of materials, effectiveness of the product, economic value and usefulness the researcher used the evaluation form with 1, 2, 3, 4, and 5 choices of ratings where 1 is the lowest and 5 is the highest ratings, each rating has a corresponding verbal interpretation. This comparison were conducted by the seven license engineers such as three license Electronic Engineers and four license Electrical Engineers. After complying the evaluation form the data were computed to determine the mean and its verbal interpretation. The evaluators are professors from the different schools who are handling electronics and electrical laboratory subjects. The evaluation was done honestly by the evaluators.

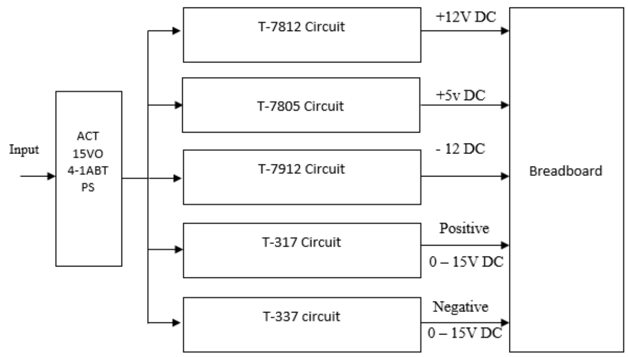

Figure 1 Block Diagram of the Electronic Circuit Trainer (ECT)

The MOECT (Experimental group) is shown in figure 1 and it is presented in block diagram instead of circuit diagram to protect the circuit design of the researcher. The MOECT produced multiple voltages output to supply the circuit combination of experiments to be performed.

The following are the measuring apparatuses used to measure on regulate physical quantity/ process variables such as Digital Voltmeter and Analog Voltmeter to measure the input and output voltage of the Experimental Group and Control Group. The factors that affect the effectiveness of this study are the accurateness of the measuring apparatus and the device sufficiency to produce enough input and output voltage.

The data gathered are the AC input and DC output voltage in volts of the Experimental Group and Control Group for comparison. Statistical tools utilization in the analysis of the data were the mean.

For mean:

$x=(\sum x)/n$

Where x is the arithmetic mean, $\sum x$ is the Sum of the score, and n is the no. of trials

FINDINGS

Analysis, Presentation and Interpretation of Data

The Non-Variable and Variable voltage output produced by the Multi-voltage Output Electronic Circuit Trainer (MOECT) as Experimental Group compare to Conventional Electronics Circuit Trainer (CECT) as Control Group.

The measured voltage output of Experimental Group and Control Group using voltmeter is indicated in table 1. The results shows that the Non-

Variable Voltage Output and Variable Voltage Output in both trial 1, 4 and 5 of Experimental Group and Control Group are the same value. For the Non-Variable Voltage Output of +12V, -12V and the Variable Voltage Output (positive) of 0-15V and (negative) 0-15V in both Experimental Group and Control Group in trial 2 and 3 is the same. While the Experimental Group in trial 2 and 3 produced a Non-Variable Voltage Output of 4.99V compare to the Non-Variable Voltage Output of +5V, this shows that there is a difference of 0.01V which is very small amount of voltage that can be considered as negligible value. The mean of the three non-variable voltage output and two variable voltage output of the Experimental group in five trials is the same. The mean of the three non-variable voltage output and two variable voltage output of the Control group in five trials is also the same. These results indicates that the Experimental Group can give the same number of mean of the three non-variable voltage output and two variable voltage output to the Control Group. The number of voltages produced by the experimental group is not affected in five trials of testing. This result shows that the produced voltage of Experimental Group is effective in attaining the objective of the study.

This is supported under the principles of Regulated Power Supply that the circuit indicating the use of 78XX as an adjustable voltage regulator. The output voltage is given by the equation;

$$V_{out} = V_{fixed} + \left[\frac{V_{fixed}}{R_1} + I_Q\right] R_2$$

The output voltage of IC 7805 regulator can be adjusted anywhere between 5V to 15V using external resistance R_1 and R_2.

This is related to the study of Shoewu1. O. et. al., (2011). entitled Design and Development of an Intelligent Variable Power Supply Device that according to the results of the study the percentage voltage regulations for both positive and negative voltage is plotted against load for both the positive and negative side of the power supply unit. For the terminal voltage error test, the output voltage is varied from 0V to 14.9V when on no-load condition. The percentage error in voltage was tabulated for a voltage of both the positive and the negative output voltage.

This implies that the performance of the devices used in designing the experimental group is excellent and there is no difference compare to control group in terms of producing voltage output in both non-variable and variable voltages. This also indicates that Multi-voltage output Electronics Circuit Trainer can be developed and design with the same functions of Conventional Trainer

Table 1 - Variable and Non-Variable voltage output of the Electronic Circuit Trainer (ECT) as Experimental Group compare to Conventional Electronics Circuit Trainer (CECT) as Control Group in five trials of test

	ECT as Experimental Group				
No. of Trials	Non-variable Voltage Output (DC)			Variable Voltage Output (DC)	
				Positive	Negative
1	+5V	+12V	-12V	0 – 15V	0 – 15V
2	4.99V	+12V	-12V	0 – 15V	0 – 15V
3	4.99V	+12V	-12V	0 – 15V	0 – 15V
4	5.01V	+12V	-12V	0 – 15V	0 – 15V
5	5.01V	+12V	-12V	0 – 15V	0 – 15V
Mean	+5.0V	+12V	-12V	0 – 15V	0 – 15V

	CECT as Control Group				
No. of Trials	Non-variable Voltage Output (DC)			Variable Voltage Output (DC)	
				Positive	Negative
1	+5V	+12V	-12V	0 – 15V	0 – 15V
2	+5V	+12V	-12V	0 – 15V	0 – 15V
3	+5V	+12V	-12V	0 – 15V	0 – 15V
4	+5V	+12V	-12V	0 – 15V	0 – 15V
5	+5V	+12V	-12V	0 – 15V	0 – 15V
Mean	+5V	+12V	-12V	0 – 15V	0 – 15V

The difference of the Multi-voltage Output Electronic Circuit Trainer (MOECT) as Experimental Group to the Conventional Electronic Circuit Trainer (CECT) as Control Group in terms of number of experiments to perform, number of students can perform experiments, easy to use, operate, easy to maintain and troubleshoot

The data in table 2 is based on the actual experiments it shows that the Experimental Group and Control Group can perform the same number of experiments, while the Experimental Group has 5 number of students can perform per experiment compare to Control Group that can perform only 1 student per experiment. They are the same only in easy to use and operate. The results also shows that Experimental Group has advantages compare to Control Group in terms of easy to construct the circuit, maintain and troubleshoot. This indicates that Experimental Group can perform the task and function of the Control Group but some of the task and function of Experimental Group could not perform by the Control Group. This are the difference of the Experimental Group to Control Group.

This is related to the study of Hamid. M., et. al., (2020), entitled Development of Cooperative Learning Based Electric Circuit Kit Trainer for Basic Electrical and Electronics Practice that the basic competencies developed in an electric circuit trainer are Ohm's law, Kirchhoff's Law, Series of circuit, Parallel circuit, AC circuit and Wheatstone Bridge. The results shows that the trainer kit can perform number of subject experiments.

This implies that not all conventional electronics trainer can be easy to construct and troubleshoot due to fact that mostly of the commercial type of electronic circuit trainer are substandard in design and disposable. One of the reasons that the control group is hard to troubleshoot that is because of the unrepairable design of the circuit. Meaning the circuit connections of the devices was constructed by an automatic control machine in the electronic factory.

Table 2 Summary of evaluation results on the difference of the Experimental Group to the Control Group

Specifically in terms of:	Experimental Group	Control Group
Number of experiments to perform	8	8
Number of students can perform per experiments	5	1
Easy to use and operate	√	√
Easy to construct the circuit	√	X
Easy to maintain and trouble shoot.	√	X

The acceptability of the Multi-voltage Output Electronic Circuit Trainer (MECT) as Experimental Group compare to Conventional Electronics Circuit Trainer (CECT) as Control Group in terms of availability of materials, effectiveness of the product, economic value and usefulness

The data in table 3 is based on the results from the evaluation conducted by seven participants. The findings shows that the materials used in constructing the Experimental Group is very available with mean of 3.8, while the materials used in Control Group is not available in the commercial market with mean of 1.6. The Experimental Group is very effective in performing the laboratory experiments with mean of 3.7, while the Control Group is only effective in performing the laboratory experiments with mean of 3.2. In terms of economic value and usefulness the Experimental Group is very economical with mean of 4.1 and very useful with mean of 3.8, while the Control Group is not economical with mean of 1.2, and useful with mean of 3.2 respectively. Base on the results of mean in the table indicates that the Experimental Group is acceptable as Multi-voltage Output Electronic Circuit Trainer than the Control Group.

This is related to the study of Jeffrey S. Franzone of University of Memphis entitled Laboratory Experiment in Linear Series Voltage Regulators that students construct a power supply using a linear voltage regulator IC, make a few measurements, and observe empirically the stability of the output voltage with line and load changes. With these laboratory experiments, students miss the opportunity to see what makes a regulator "tick" and how different elements of the regulator affect particular regulator characteristics. Students build a real regulator circuit from discrete transistors. Students actually see the major parts of the regulator and the interaction between each section. Students learn the real meaning of terms such as line and load regulation, % efficiency, and maximum and minimum differential voltage by observing what factors in the regulator actually influence these parameters.

This implies that experimental group has a satisfactory performance compare to the control group. This also shows that Experimental Group has more advantage in terms of acceptability compare to the Control Group.

Table 3 Summary of results of evaluation to the acceptability of the Experimental Group compare to Control Group.

	Experimental Group		Control Group	
Specifically in terms of:	**Mean**	**Verbal Interpretation**	**Mean**	**Verbal Interpretation**
Availability of Materials	3.8	Very Available	1.6	Not Available
Effectiveness of the product in performing the experiments	3.7	Very Effective	3.2	Effective
Economic Value	4.1	Very Economical	1.2	Not Economical
Usefulness	3.8	Very Useful	3.2	Useful

CONCLUSIONS

Based on the findings after the statistical analysis from the data gathered the following conclusions were drawn:

1. The Experimental Group in trial 2 and 3 produced a Non-Variable Voltage Output of 4.99V compare to the Non-Variable Voltage Output of +5V in control, this shows a difference of 0.01V which is very small amount of

voltage that can be considered as negligible value. For the other Non-Variable Voltage Output and the Variable Voltage Output in both Experimental Group and Control Group are the same. The mean of the three non-variable voltage output and two variable voltage output of the Experimental group are the same. Also, the mean of the three non-variable voltage output and two variable voltage output of the Control group are also the same. Therefore, it concludes that the number of voltages produced by the experimental group is not affected in five trials of testing.

2. The Experimental Group and Control Group can perform the same number of experiments, while the Experimental Group has 5 number of students can perform per experiment compare to Control Group. They are the same only in easy to use and operate. The experimental group has advantages compare to control group in terms of easy to construct the circuit, maintain and trouble shoot. The experimental group can perform the task and function of the control group but some of the task and function of experimental group could not perform by the control group. This are the difference of the experimental group to control group.
3. The materials used in constructing the experimental group is very available, while the materials used in control group is not available in the commercial market. The experimental group is very effective in performing the laboratory experiments, while the control group is only effective in performing the laboratory experiments. The economic value and usefulness the experimental group is very economical and very useful compare to the control group. Base on the results of mean in the table indicates that the experimental group is acceptable than the control group. It concludes that experimental group has a satisfactory performance compare to the control group. The experimental group has more advantage in terms of acceptability compare to the control group.

RECOMMENDATIONS

The following are the recommendations for the better performance of the product:

1. To operate effectively the Multi-voltage Electronic Circuit Trainer, it is recommended to put off the main AC source switch first before connecting to the loads and connect only to the appropriate load capacity of experiments to be conducted. For the safety of the device use the user's manual and follow the suggested guide on how to operate the trainer in conducting laboratory experiments.
2. The Researchers is highly recommended to make only five members per group in conducting experiments for every one unit of Multi-voltage Electronic Circuit Trainer. It is also recommended that students should be familiarize the design of the trainer. The laboratory professors should be knowledgeable on how to maintain and troubleshoot the Multi-voltage Electronic Circuit Trainer.
3. It is recommended to use a standard specification of materials in making the Multi-voltage Electronic Circuit Trainer. Use only the device base on its functions and uses to avoid unexpected damage of circuit. It is also suggested to recommend the Multi-voltage Electronic Circuit Trainer (MOECT) to the other schools to avail its economic cost, durability and number of students can perform experiments.

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REFERENCES

Carolina A. (2010). "Control Design for Electronic Power Converters. Automatic. Institut National Polytechnique de Grenoble - INPG; Universidad de Sevilla. English. <tel-00539077> Retrieved August 25, 2021 from https://tel.archives-ouvertes.fr/tel-00539077/document

CHED Memorandum Order No. 86, Series of 2017, Policies Standards and Guidelines (PSG) of Commission on Higher Education (CHED) under the recommended laboratory requirements.

Hamid. M., et. al., (2020). "Development of cooperative learning based electric circuit kit trainer for basic electrical and electronics practice. Retrieved August 25, 2021 from https://iopscience.iop.org https://iopscience.iop.org/article/10.1088/1742-6596/1456/1/012047/pdf

Jeffrey S. Franzone. (2001). "A Laboratory Experiment in Linear Series. University of Memphis Voltage Regulators. Retrieved August 25, 2021 from file:///E:/files/Downloads/a-laboratory- experiment-in-linear-series-voltage-regulators%20(1).pdf

Rahmadiyah, P. et. al., (2015) "Pengembangan Media Pembelajaran Trainer Elektronika Digital Untuk Mata Pelajaran Teknik Elektronika Dasar," J. Pendidik. Tek. Elektro, vol. 4, no. 1.

Regulated Power Supply. Retrieved August 25, 2021 from https://parthoduet.files.wordpress.com/2013/02/ch-56.pdf

Shoewu1. O. et. al., (2011). "Design and Development of an Intelligent Variable Power Supply Device. Retrieved August 18, 2021 http://repository.futminna.edu.ng:8080/jspui/bitstream/http://repository.futminna.edu.ng:8080/jspui/bitstream/123456789/8827/1/Olaniyi%20et%20al% 202011b.pdf.

Gutnik V. et. al.,. (1997). "Embedded Power Supply for Low-Power DSP. Retrieved August 18, 2021 from https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.58.9337&rep=rep1&type=pdf.


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