RESEARCH AND EDUCATION JOURNAL

3

EDITORIAL BOARD

ASIAN INTELLECT

PUBLICATION GUIDELINES

1. All articles must be authorized for publication by the author/s.

2. All the research papers published must have a high degree of scholarship.

3. All the research papers published must be approved by the editorial board.

4. All the research papers published must have undergone evaluation from our corps of referees thru double- blind referee process.

5. The articles may either be written in English or Filipino. All articles written in either languages must be accompanied by an Abstract which is written in English.

6. All contributions must be original.

TABLE OF CONTENTS

TABLE OF CONTENTS

MARITIME CADETS KNOWLEDGE AND UNDERSTANDING REGARDING COMMON COMMUNICABLE DISEASES: BASIS FOR AN INTERVENTION PROGRAM

ANA LIZA GRUSPE-TABERDO PhD, MNSA
PASUC Accredited Professor 2
College of Marine Transportation

VENUS PAMPO-NAVIO, RN
Academy Nurse/Instructor 1
Medical Unit

Philippine Merchant Marine Academy
San Narciso, Zambales, Philippines

ABSTRACT

The study aims to identify the communicable diseases endemic to the maritime cadets, describe the level of knowledge and understanding of the cadets regarding the communicable diseases in terms of: symptoms, contraction, availability of vaccine, prevention by hygiene, cause, transmission and seriousness. It also describes the practices the cadets conducted when diagnosed with the disease. An intervention program was designed to lessen or eradicate the incidence of common communicable diseases and consequently develop a healthier Corp of cadets. The research utilized the descriptive-quantitative design. Data were gathered using a survey-questionnaire administered to selected 4CL, 3CL and 1CL cadets enrolled in SY 2017-2018. Frequency and percentile were used to analyze the data. Data shows that most of the cadets have contracted chicken pox, influenza, coryza, diarrhea, and conjunctivitis. There are only a few who contracted mumps and measles. The respondents have a correct knowledge that the diseases always give symptoms. Most of the respondents have a correct knowledge on the contraction of the diseases, do not have a correct knowledge about the cause of the diseases, how it is transmitted, and seriousness of the disease, if vaccine is available and how it is prevented. In the light of the findings, it is recommended that immunization be part of admission requirement for the cadets and the proposed intervention program should be institutionalized. The Medical unit needs to collect and analyze adequate data regarding the diseases of the cadets to avoid community outbreak.

Keywords: communicable diseases, intervention program, descriptive, maritime, cadets, Zambales

INTRODUCTION

Communicable diseases are widely recognized as one of the world's most serious public health issues today. The rise of novel pathogenic organisms has been fueled by climate change, population growth, and antibiotic resistance. For disease prevention, intervention, and control, the capacity to monitor disease spread quickly is critical. Sims, N. & Kasprzyk-Hordern, B. (2020). Bloom, D. E., Black, S., & Rappuoli, R. (2017) concurred that infectious disease are now emerging almost every year. This trenf will continue because of increased global population, aging, travel, urbanization and climate change.

Infectious diseases are disorders caused by organisms — such as bacteria, viruses, fungi or parasites. Many organisms live in and on our bodies. Some infectious diseases can be passed from person to person. Some are transmitted by insects or other animals. Others are transmitted with contaminated food or water or being exposed to organisms in the environment. Signs and symptoms vary depending on the organism causing the infection, but often include fever and fatigue. Mild infections may respond to rest and home remedies, while some life-threatening infections may need hospitalization. Many infectious

diseases, such as measles and chickenpox, can be prevented by vaccines. Frequent and thorough hand-washing also helps protect you from most infectious diseases (Wang et al 2019).

Magurano et.al (2018) reveals that during recent years, various mumps outbreaks have occurred among populations worldwide. Excess morbidity and mortality from diarrhea, respiratory infection, malaria, and measles is on the rise in developing countries, according to World Health Organization (WHO) data. Uyeki,T et al (2019) stressed that seasonal influenza A and B virus epidemics are associated with significant morbidity and mortality each year in the United States and worldwide. During 2010 –2018, seasonal influenza epidemics were associated with an estimated 4.3–23 million medical visits, 140 000–960 000 hospitalizations, and 12,000–79 000 respiratory and circulatory deaths. Azari, A. A., & Arabi, A. (2020), Bhat, A.,& Jhanji, V. (2021) mentioned that conjunctivitis is a commonly encountered condition in ophthalmology clinics throughout the world. On the other hand, Horbatiuk, I., et al. (2021) states that chickenpox is a highly contagious acute viral disease that mainly affects children, one of the most common infections in the world. In terms of morbidity, it is second to SARS. Thomas M, & Bomar PA.(2022) affirm that coryza continues to be a large burden on society, economically and socially.

The disease control programs (prevention and treatment) aims to reduce excess morbidity and consequently mortality by limiting the spread of disease of epidemic potential. Proposed interventions usually include adequate quantities of safe water, sanitation, nutritional services, reproductive health, food aid/food security, shelter and basic clinical care. In addition, the over-all response as well as the culture and behavior of target maritime cadets are important to consider.

Once a person has contracted a communicable disease, they can then pass it on to others. Therefore, the prevention of these illnesses from being spread in a family or community is important because some of the illnesses can lead to serious illness and even death. The researchers embarked in this endeavor and attempted to identify the communicable diseases of the Maritime cadets which will be a basis in designing an intervention program for a healthier Academy.

OBJECTIVES OF THE STUDY

The growing awareness of the Academic community in health and disease states and the
Increasing interest in exploring the causes, signs and symptoms of diseases of the major body systems as well as the diagnostic procedures, usual treatment and prevention of diseases commonly diagnosed and treated in the medical office setting drove the researchers to study the control of communicable diseases of the cadets.

The study aims to:
1. Determine the communicable diseases endemic to the cadets.
2. Describe the level of knowledge and understanding of the cadets regarding the following communicable disease in terms of:
    2.1. symptoms and contraction
    2.2. availability of vaccine and prevention by hygiene
    2.3. cause, transmission and seriousness
3. Identify the practices conducted by the cadets when diagnosed with the disease
4. Propose an intervention program for a healthier Academic community

METHODOLOGY

The research focused on the common communicable diseases of Maritime cadets. The researchers believed that the existing medical phenomena on the communicable diseases of the cadets can be quantified, measured and expressed numerically. Thus, the quantitative research design was primarily utilized in gathering the needed responses that compose the study.

The research utilized the descriptive method to gather the needed responses concerning the existing phenomena. The research study involved a two-time interaction with cadets. It involved a survey-questionnaire administered to selected 4CL, 3CL and 1CL cadets enrolled in SY 2017-2018. The data were analyzed using frequency and percentile. The respondents of the study are cadets enrolled in the

PSY 2017-2018. Using Raosoft sample size calculator, two hundred seven two (272) cadets were asked to answer the survey questionnaire. The survey questionnaire consists of: Part I consists of questions on the level of knowledge of the respondents about the various aspects of the disease such as infectiousness, fatality, transmission route or preventive/control measures and Part II consists of the the preventive measure undertaken when respondents had the disease.

RESULTS AND DISCUSSION

Communicable diseases endemic to the cadets
    As shown in table 1, out of 272 respondents, 156 or 57.35% were already diagnosed with chicken pox, 120 or 44.18% had conjunctivitis, 129 or 47.43% had coryza, 128 or 47.06% were diagnosed with diarrhea, 123 or 45.22% had influenza. only 71 or 26.10% had measles, and only 67 or 24.63% had mumps.

Table 1. Distribution of the communicable disease endemic to the cadets

COMMUNICABLE DISEASE	FOURTH CLASS	THIRD CLASS	FIRST CLASS	TOTAL	PERCENTAGE FROM 272 RESPONDENTS
Chicken Pox	39	52	65	156	57.35%
Conjunctivitis	28	49	43	120	44.18%
Coryza	20	53	56	129	47.43%
Diarrhea	29	52	47	128	47.06%
Measles	12	27	32	71	26.10%
Mumps	7	24	36	67	24.63%
Influenza	40	41	42	123	45.22%
TOTAL CASES	**175**	**298**	**321**	**794**	

    This means that almost half of the cadet-respondents have not acquired chicken pox, conjunctivitis, coryza and influenza yet. On the other hand, three-fourths of the cadet-respondents did not have measles and mumps yet. From the medical records, the communicable diseases reported by cadets were: conjunctivitis, coryza, influenza and diarrhea. The findings are consistent with that of Magurano et.al, (2018), Uyeki,T et al (2019), Azari, A. A., & Arabi, A. (2020), Bhat, A.,& Jhanji, V. (2021), Horbatiuk, I., et al. (2021) which stressed that chicken pox, conjunctivitis, coryza and diarrhea are the most contiguous and continue to be health issues in the world.

On knowledge and understanding of symptoms and on the disease being contracted once
    Chicken pox, conjunctivitis, coryza, diarrhea, measles, mumps and influenza always give symptoms. Chicken pox and mumps are contracted only once in a lifetime. Conjunctivitis, diarrhea, and coryza can be contracted several times in a lifetime, while measles can re-occur in a lifetime.

Table 2. Distribution of Responses on knowledge and understanding of the communicable diseases as to: always give symptoms and contracted once in a lifetime

Disease	CORRECT		INCORRECT		UNKNOWN		TOTAL	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Always give symptoms								
Chicken Pox	205	75.37%	21	7.72%	46	16.91%	272	100.00%
Conjunctivitis	189	69.49%	28	10.29%	55	20.22%	272	100.00%
Coryza	213	78.31%	23	8.46%	36	13.23%	272	100.00%
Diarrhea	189	69.48%	33	12.13%	50	18.38%	272	100.00%
Measles	174	63.97%	30	11.00%	68	25.00%	272	100.00%
Mumps	158	58.09%	41	15.07%	73	26.83%	272	100.00%
Influenza	197	72.42%	23	8.46%	52	19.12%	272	100.00%
Contracted once in a lifetime								
Chicken Pox	201	73.89%	27	9.93%	44	16.18 %	272	100.00%
Conjunctivitis	112	41.17%	104	38.24%	56	20.59%	272	100.00%
Coryza	60	22.06%	173	63.60%	39	14.34%	272	100.00%
Diarrhea	74	27.21%	152	55.88%	46	16.91%	272	100.00%
Measles	90	33.09%	104	38.24%	78	28.68%	272	100.00%
Mumps	58	21.32%	136	50.00%	78	28.68%	272	100.00%
Influenza	40	14.71%	178	65.44%	54	19.85%	272	100.00%

    Table 2 shows that the respondents replied that chicken pox, conjunctivitis, coryza, diarrhea, measles, mumps and influenza always give symptoms with percentages ranging from 58.09-78.31%. This

implies that most of the cadet-respondents have a correct knowledge that the diseases always give symptoms. Moreover, data shows that chicken pox and conjunctivitis can be contracted once with 112 or 41.17%. and 201 or 73.89% respectively. While response of incorrect (diseases can be contracted more than once in a lifetime) for coryza is 173 or 63.60%, diarrhea 152 or 55.88%, measles 104 or 38.24%, mumps 136 or 50% and influenza 178 or 65% implies that most of the respondents have a correct knowledge on the contraction of the diseases.

The findings are consistent with the studies of Hizon, C. F., & Zamora, G. M. (2019) that residents of Tuguegarao City, Cagayan have enough knowledge on the symptoms, transmission and treatment of chicken pox and the study of Nayyef, H. J., Al-Obaidi, M. J., Hanoon, A. Y., Al-Malkey, M. K., Kalaf, N. A. H. F., Taqi, I. A., & Mesha, K. I. (2018).which demonstrated a knowledge and awareness of mumps among different age groups in educated Iraqi citizens. But disagree with the study of Alshammari, B. A., Moussa, S., & Zaid, A. W. (2018) which claims that Hail, Saudi Arabia mothers have low level of knowledge about diarrhea including its causes, clinical pictures, and treatment measures.

Knowledge and Understanding on the Disease having vaccine available and prevention by hygiene

Chicken pox, coryza, measles, mumps and influenza have a vaccine against it while conjunctivitis and diarrhea have no vaccine against it. Chicken pox, conjunctivitis, coryza, diarrhea, measles, mumps and influenza can be prevented by good hygiene.

Table 3. Distribution of Responses on knowledge and understanding of the communicable diseases as to having vaccine and prevention by hygiene

Disease	There is a vaccine available							
	CORRECT		INCORRECT		UNKNOWN		TOTAL	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage
Chicken Pox	168	61.76%	44	16.18%	60	22.06%	272	100.00%
Conjunctivitis	109	40.07%	87	31.99%	76	27.94%	272	100.00%
Coryza	137	50.37%	83	30.51%	52	19.12%	272	100.00%
Diarrhea	88	32.35%	115	42.28%	69	25.37%	272	100.00%
Measles	153	56.25%	40	14.71%	79	29.04%	272	100.00%
Mumps	108	39.70%	77	28.30%	87	31.99%	272	100.00%
Influenza	167	61.39%	47	17.28%	58	21.32%	272	100.00%
	Prevented by hygiene							
Chicken Pox	187	68.75%	45	16.54%	40	14.91 %	272	100.00%
Conjunctivitis	208	76.47%	15	5.51%	49	18.02 %	272	100.00%
Coryza	202	74.26%	39	14.34%	31	11.40 %	272	100.00%
Diarrhea	187	68.75%	38	13.97%	47	17.28 %	272	100.00%
Measles	162	59.56%	47	17.28%	63	23.16 %	272	100.00%
Mumps	153	56.25%	51	18.75%	68	25.00 %	272	100.00%
Influenza	185	68.01%	37	13.60%	50	18.38%	272	100.00%

Table 3 shows that most of the respondents know that there is a vaccine available for chicken pox (168 or 61.76%), coryza (137 or 50.37%), measles 153 (56.24%), mumps (108 or 39.70%) and influenza (167 or 61.39%). On the other hand, there are 109 or 40.07% response that there is a vaccine for conjunctivitis implies that most of the cadets does not have a correct knowledge about conjunctivitis. There are 115 or 42.28% response that there is no vaccine for diarrhea which implies that most of the cadets have a correct knowledge about diarrhea. Data also shows that "correct" response or disease can be prevented by hygiene ranges from 56.25-76.47% for the seven mentioned infectious diseases. This implies that most of the cadets have a correct knowledge that the communicable diseases can be prevented by hygiene. The findings is does not agree with the study of Mansalee Gallage, P., Fayaz Ahamed, W., & Silmy, M. (2020) which states that the awareness and vaccination status of chicken pox among students in Batticaloa Educational Zone were low. However, it affirms the study of Arif, N., & Qadir, M. I. (2019) which concluded that the respondents knew about chicken pox and its medication; Tuladhar, S., & Gurung, J. (2020) which shows that the majority of the high schools students in Nepal have adequate knowledge about prevention of conjunctivitis by practicing good hygiene; and Al-zoqari, F. A., Alyafei, A., Omar, S. R., Selim, N. A., & Singh, R. (2020) which states that amongst those foreign workers in Qatar knew that there is a vaccine for measles.

Knowledge and Understanding on the Cause and Transmission of the Disease

Chicken pox, coryza, influenza, measles and mumps are caused by virus while diarrhea and conjunctivitis is caused by both virus and bacteria. An easy way to catch most infectious diseases is by coming in contact with a person or animal who has the infection. Disease-causing organisms also can be passed by indirect contact. Many germs can linger on an inanimate object, such as a tabletop, doorknob or faucet handle.

Chicken pox can be transmitted through air. Conjunctivitis virus spreads through tears, eye discharge, contaminated fingers, fomites and aerosols. Coryza is transmitted through air, saliva and touching. Diarrhea, on the other hand, is transmitted by food. Measles is transmitted when a person with it coughs, sneezes, or breathes out tiny droplets. Mumps is transmitted through air, saliva and touching while influenza is transmitted through droplets created with coughing and sneezing by persons infected with the virus. Infection occurs when a person has contact with droplets in the air or touches contaminated surfaces then touches their mouth or nose.

Table 4. Distribution of Responses on knowledge and understanding on the Cause and Transmission of the Disease

Disease	Cause of the Disease									
	VIRUS		BACTERIA		FUNGAL		UNKNOWN		TOTAL	
	f	Percentage	f	Percentage	f	Percentage	f	Percentage		
Chicken Pox	135	49.63%	90	33.09%	26	9.56%	21	7.72%	272	100.00%
Conjunctivitis	70	25.74%	159	58.46%	9	3.31%	34	12.50%	272	100.00%
Coryza	122	44.85%	126	46.32%	7	2.57%	17	6.25%	272	100.00%
Diarrhea	16	5.88%	213	78.31%	14	5.15%	29	10.66%	272	100.00%
Measles	102	37.50%	90	33.09%	43	15.81%	37	13.60%	272	100.00%
Mumps	72	26.47%	129	47.43%	35	12.87%	36	13.24%	272	100.00%
Influenza	202	74.26%	35	12.87%	6	2.21%	29	10.67%	272	100.00%
	Transmission of the disease									
Chicken Pox	143	47.35%	14	4.64%	16	5.30%	129	42.72%	302	100.00%
Conjunctivitis	133	49.63%	4	1.49%	9	3.36%	122	45.52%	268	100.00%
Coryza	138	42.20%	54	16.51%	93	28.44%	42	12.84%	327	100.00%
Diarrhea	15	6.33%	200	84.39%	13	5.49%	9	3.80%	237	100.00%
Measles	116	44.96%	30	11.62%	23	8.91%	89	34.50%	258	100.00%
Mumps	86	36.44%	49	20.76%	57	24.15%	44	18.64%	236	100.00%
Influenza	188	54.02%	35	10.06%	82	23.56%	43	12.36%	348	100.00%

Table 4 on the knowledge and understanding on the cause of the Disease: Data shows that the response that chicken pox, coryza, measles, and mumps are caused by virus with 135 or 49.63%, 122 or 44.85%, 102 or 37.50% and mumps 72 or 26.47% respectively. This implies that most of the cadets do not have a correct knowledge about the cause of the disease. On the other hand, the response that conjunctivitis and diarrhea are caused by bacteria with 159 or 58.46% and 213 or 78.31% implies that most of the cadets have a correct knowledge about the cause of the disease. Lastly, with influenza, there are 202 or 74.25% of the respondents have a correct knowledge that it is caused by virus.

Table 4 on knowledge and understanding of transmission of the diseases: data shows that with chicken pox, there are 143 or 47.35% cadet-respondents who correctly know that the disease is transmitted through the air. However, 129 or 42.72% of the cadet-respondents do not know that it can be transmitted through touching. The cadet-respondents have correct knowledge and understanding on how conjunctivitis is transmitted as evident by 133 or 49.63% through air and 122 or 45.53% through touching. The cadet-respondents are knowledgeable with how coryza is transmitted as evident from their responses: air with 138 or 42.20%, saliva with 93 or 28.44% and touching 42 or 12.84%. Again, the cadet-respondents are well aware that food is the cause of diarrhea with 200 or 84.39% responses. On the transmission of measles, the respondents know that 116 or 44.96% is transmitted through air and 89 or 34.50% through touching. On the transmission of mumps, they know that it is transmitted through air with 86 or 36.44%, saliva with 57 or 24.15% and touching with 44 or 18.64%. There are 188 or 54.02% of the cadets answered that influenza is transmitted through air, 82 or 23.56% through saliva and 43 or 12.36% through touching. The findings imply that the cadets they have enough knowledge about how the disease is being transmitted. The findings confirms the study of Al-zoqari, F. A., Alyafei, A., Omar, S. R., Selim, N. A., & Singh, R. (2020) which shows that foreign workers know that measles patients could infect others through airborne transmission, proximity as in hugging and kissing, aerosol transmission, or indirect transmission by contacting contaminated surfaces. It also agrees with the study of

Bomar, M. (2022) influenza which states that the influenza virus transmission occurs when a susceptible individual comes into contact with aerosols or respiratory fomites from an infected individual, and the study of Khan, A., Iqbal, Q., Haider, S., Hassali, M. A., & Saleem, F. (2019).which shows that food borne infections are closely linked to bacteria-related acute diarrhea.. However, the findings is in contrast to that of Arif, N., & Qadir, M. I. (2019) which states that the students of selected schools in Batticaloa Educational Zone were unaware about the contagion of chicken pox that it can spread through touch.

Knowledge and Understanding on the seriousness of the Disease relative to medical/clinical seriousness and Psycho-Socio Consequence/seriousness

Generally, a serious health condition could include an illness, injury, impairment, or physical or mental condition that involves: inpatient care in a hospital, hospice, or residential medical care facility, including any period of incapacity; or continuing treatment by a healthcare provider.

Medical or clinical seriousness of the disease means that the condition cause significant pain or and death. The individual is unable to work, attend school or perform other regular daily activities Psychological or social seriousness, on the other hand means conditions associated with negative consequences such as loneliness, anxiety and depression.

Table 5 on medical and clinical category: indicates that most of the cadet-respondents consider chicken pox, conjunctivitis, coryza, diarrhea, measles and mumps as "slightly serious" with frequency and percentage 95 or 34.93%, 99 or 36.40% , 94 or 34.56% ,84 or 30.88%, 78 or 28.68% and 82 or 30.15% respectfively . Lastly, 90 or 33.09% cadet-respondents view influenza as a "serious disease". This implies that they perceive chicken pox, conjunctivitis, coryza, diarrhea , measles and mumps may not lead to death and extreme pain, However, cadet-respondents said that influenza is a "serious" disease. The finding is in contrast with the study of Bertoldo, G., et al (2019) which claims that only a few of the Italian adult considered influenza to be a serious illness. On the other hand, it affirms the study of Lee, W.J. (2019) which posit that medically, the mortality rate of coryza has been known to be zero, and Bonar, M (2022) that Influenza can primarily cause severe pneumonia that may lead to death.

Table 5. Distribution of Responses on Knowledge and Understanding on the seriousness of the Disease relative to medical/clinical seriousness and Psycho-Socio Consequence/seriousness

Cause of the Disease													
Disease	**VERY SERIOUS**		**SERIOUS**		**SLIGHTLY SERIOUS**		**NOT SERIOUS**		**NOT AT ALL SERIOUS**		**UNKNOWN**		**TOTAL**
	f	%	f	%	f	%	f	%	f	%	f	%	
Chicken Pox	24	8.82%	75	27.57%	95	34.93%	37	13.60%	20	7.35%	21	7.72%	
Conjunctivitis	12	4.41%	61	22.43%	99	36.40%	44	16.18%	22	8.08%	34	12.50%	
Coryza	11	4.04%	54	19.85%	94	34.56%	69	25.37%	27	9.93%	17	6.25%	272
Diarrhea	16	5.88%	81	29.78%	84	30.88%	43	15.81%	19	6.99%	29	10.66%	
Measles	38	13.98%	67	24.63%	78	28.68%	32	11.76%	20	7.35%	37	13.60%	100.00%
Mumps	20	7.35%	70	25.73%	82	30.15%	39	14.34%	25	9.19%	36	13.24%	
Influenza	39	14.34%	90	33.09%	66	24.26%	28	10.29%	20	7.35%	29	10.67%	
Psycho-social Seriousness													
Chicken Pox	33	12.13%	69	25.37%	80	29.14%	44	16.18%	25	9.19%	21	7.72%	
Conjunctivitis	31	11.40%	67	24.63%	62	22.79%	53	19.49%	25	9.19%	34	12.50%	
Coryza	8	2.94%	54	19.85%	105	38.60%	65	23.90%	23	8.46%	17	6.25%	272
Diarrhea	12	4.41%	58	21.32%	86	31.62%	63	23.16%	24	8.82%	29	10.66%	
Measles	24	8.82%	79	29.04%	69	25.37%	38	13.97%	25	9.19%	37	13.60%	100.00%
Mumps	36	13.24%	11	4.04%	58	21.32%	84	30.88%	54	19.85%	36	13.24%	
Influenza	31	11.40%	81	29.78%	68	25.00%	43	15.81%	20	7.35%	29	10.67%	

Table 5 on the psycho-social category: Over-all, most of the cadet-respondents consider chicken pox , coryza, diarrhea and mumps as "slightly serious" with frequency and percentage 80 or 29.41%, 105 or 38.60%, diarrhea 86 or 31.62%, and 84 or 30.88% respectively. On the other hand, most of the cadets consider conjunctivitis, measles and influence as "serious" with frequency and percentage 67 or 24.63%, 79 or 29.04% and 81 or 29.78 respectively. The findings affirms the study of Jordan, R. E., Adab, P., & Cheng, K. K. (2020) that people who are quarantined can face loneliness, anxiety and depression. It also agrees with the study of Wibawa, K. C. S., & Natalis, A. (2021) which testifies that, a pandemic of an infectious disease can disrupt livelihoods, disruption of family relationships and support,

and massive fear of infectious diseases that will result in abuse of the family's domestic space.

Practices conducted by the cadet-respondents when diagnosed with the disease

When individuals are diagnosed with a communicable disease, they perform or observe certain actions to facilitate fast recovery, avoid re-occurrence of the disease, minimize the burden of the diseases, and to prevent contagious diseases from being spread from a patient to other patients. Interventions are required not only to respond to the most immediate and acute threats to physical well-being, but also to prevent further complications and to initiate and sustain improvements in overall quality of life.

Table 6 describes the practices conducted by the cadet-respondents when diagnosed with the disease. The table indicates that when chicken pox is acquired, most of the cadet-respondents undergo isolation, immunization or do sanitation practices to facilitate fast recovery from the said disease.

Table 6. Distribution of Responses on Practices of cadet-respondents when diagnosed with the disease

Practice/ Disease	Chicken Pox		Conjunctivitis		Coryza		Diarrhea		Measles		Mumps		Influenza	
	f	Rank	f	Rank	f	Rank	f	Rank	f	Rank	f	Rank	f	Rank
IMMUNIZATION	128	2	48	10	69	8	39	10	84	6	55	8.5	93	7
HYGIENE	126	4	169	1	151	3	127	3	98	1	84	1.5	122	2
NUTRITION	113	6	77	7	155	1	152	1	79	7	81	4	133	1
ISOLATION	146	1	122	3	68	9	41	9	97	2	57	7	83	8
HEALTH EDUC	101	7	97	5	126	5	102	6	94	4	83	3	105	4
SANITATION	127	3	124	2	137	4	133	2	85	5	84	1.5	99	6
SELF -MEDICATION	89	8	105	4	153	2	114	4	62	9	58	6	104	5
INVESTIGATION	80	9	58	9	62	10	67	7	66	8	52	10	70	9
CULTURAL/ SOCIAL	75	10	73	8	71	7	57	8	55	10	55	8.5	68	10
DIAGNOSIS by HP	121	5	87	6	110	6	104	5	95	3	79	5	119	3

Cadet-respondents have undertaken proper hygiene, sanitation and isolation when diagnosed with conjunctivitis to minimize the burden of the said disease. When diagnosed with coryza, the cadet-respondents tend to seek proper nutrition, self-medicate themselves, and practices proper hygiene to lessen the possibility of the re-occurrence of the disease.

When diarrhea is acquired, most of the cadet-respondents practice proper nutrition; they also do sanitation and maintain proper hygiene to prevent accumulation of the virus and bacteria that causes the said disease. Most of the cadet-respondents tend to practice proper hygiene, isolate themselves and seek the help of the health professional when diagnosed with measles to prevent contagious disease from being spread from a patient to other patients.

When diagnosed with mumps, most of the cadet-respondents do sanitation practices, practice proper hygiene, and seek knowledge about the disease through health education for fast recovery of the said disease. When influenza is acquired, cadet-respondents practice proper nutrition and hygiene; and seek the help of the health professional for treatment and to minimize the possibility of the re-occurrence of the said disease.

Proposed Intervention Program

Rationale Beyond strengthening basic health services, the Academy needs to be more proactive toward communicable disease. The Academy is committed to create a stronger, healthier academic community by delivering comprehensive health care benefits and population health solutions.

Objectives The intervention program aims to:
   a. Provide information and enhance skills
   b. Modify access, barriers, exposures, and opportunities to reduce occurrence of communicable disease among the academic community
   c. Enhance services and support

INFORMATION DISSEMINATION

Activity:	**Seminar on the cause, transmission, control and prevention of communicable diseases**
Person involved:	Medical expert/ speaker, medical unit, faculty/staff and students
Time Frame:	July-August
Budgetary Allocation:	Speaker Honoraria Php 50,000.00
	Food and Accommodation for speaker: Php 10,000.00
	Participants' snacks: Php 50,000.00

Activity:	**Posters and leaflets distribution on communicable diseases**
Person Involved:	Medical Unit Staff
Time Frame:	all year round
Budgetary Allocation:	Purchase of poster and reproduction of leaflets Php 20,000.00

MONITORING AND KEEPING RECORDS OF EMPLOYEES AND CADETS

Activity:	**Prompt and efficient filing of medical records/charts**
Person Involved:	Medical Unit Staff
Time Frame:	year round
Budgetary Allocation:	purchase of filling cabinet, medical charts Php 80,000

Activity:	**Annual Physical and Medical Exam of Employees and cadets**
Person Involved:	Medical Unit Staff, Medical Exam provider
Time Frame:	July-August
Budgetary Allocation:	medical equipment and Examiner honoraria Php 600,00

SANITATION

Activity:	**Inspection of academy premises to identify potential sources of contamination**
Person Involved:	Academy Physician, Commandant of cadets, maintenance staff
Time Frame:	year round
Budgetary Allocation:	for disinfectants and cleaning gears Php1,000,000.00

Activity:	**Individual Sanitation Practice (practice of hand washing, proper hygiene)**
Person Involved:	faculty, staff and cadets
Time Frame:	year round
Budgetary Allocation:	individual purchase of hygiene kits

COMMUNICATION PROTOCOL

Activity:	**Sharing of Information inside and outside the Academy**
Person Involved:	Medical Staff, Local Government Unit, cadets, parents, boarding house owners
Time Frame:	year round
Budgetary Allocation:	Telephone cards for the Medical staff Php 60,000.00

CASE MANAGEMENT

Activity:	**-Mass vaccination and immunization,-provision of isolation rooms and provision of sufficient medicines**
Person Involved:	Medical staff
Time Frame:	as required or during admission
Budgetary Allocation:	None (Flu and pneumonia vaccine required from cadets upon admission employees to shoulder own vaccines or as provided by the Rural Health Unit)

DISEASE SURVEILLANCE

Activity:	**mapping infectious diseases** with recording of the incidence of outbreaks. To understand the lifecycle of pathogens, their vectors, hosts and reservoirs, how they are transmitted and the impact of factors like temperature, rainfall and human migration
Person Involved:	Medical staff
Time Frame:	as required
Budgetary Allocation:	for internet and incidental expenses Php 100,000

CONCLUSION

Most of the cadets have contracted chicken pox, influenza, coryza, diarrhea, and conjunctivitis. There are only a few who contracted mumps and measles. The respondents have a correct knowledge that the diseases always give symptoms, a correct knowledge on the contraction of the disease, have a correct knowledge that there is a vaccine for chicken pox coryza, measles, mumps and influenza, and have a correct knowledge that the communicable diseases can be prevented by hygiene.

Moreover, most of the cadets do not have a correct knowledge about the cause of the chicken pox, coryza, measles and mumps but correctly know about how the communicable diseases are transmitted. Most of the answer of the respondents regarding communicable diseases' medical/clinical seriousness and psycho-social seriousness is "slightly serious" which means that they perceive chicken pox, conjunctivitis, coryza, diarrhea, measles and mumps may not lead to death restriction and extreme pain. To prevent the disease, the cadet-respondents consider immunization for chicken pox; hygiene for conjunctivitis, coryza, diarrhea, measles, mumps and influenza; nutrition for coryza and diarrhea; isolation for chicken pox, conjunctivitis and measles; health education for mumps; sanitation for chicken pox, conjunctivitis, diarrhea and mump; self-medication for coryza; and diagnosis of health professional for measles and influenza.

RECOMMENDATION

In the light of the findings, it is recommended that immunization would be part of admission requirement for the cadets and that the proposed intervention program should be institutionalized or done on a regular basis. Medical unit should also collect and analyze adequate data regarding the diseases of the cadets so that whenever needed, data will be readily available without the need to conduct a research.

ACKNOWLEDGEMENT

LITERATURE CITED

Alshammari, B. A., Moussa, S., & Zaid, A. W. (2018). Knowledge and behavioral practice of mothers about diarrhea in hail region, Saudi Arabia. World Journal of Pharmaceutical Research, 7(3), 1661-1674.

Al-zoqari, F. A., Alyafei, A., Omar, S. R., Selim, N. A., & Singh, R. (2020). Knowledge & Awareness of Measles among Foreign Work-ers Screened for Employment in Qatar. J Community Med Public Health, 4(185), 2577-2228.

Arif, N., & Qadir, M. I. (2019). Survey about the awareness of chicken pox among biology students. Journal of Human virology and retrovirology, 7(1), 326-8.

Azari, A. A., & Arabi, A. (2020). Conjunctivitis: A Systematic Review. Journal of ophthalmic & vision research, 15(3), 372–395. https://doi.org/10.18502/jovr.v15i3.7456

Bertoldo, G., Pesce, A., Pepe, A., Pelullo, C. P., Di Giuseppe, G., & Collaborative Working Group. (2019). Seasonal influenza: Knowledge, attitude and vaccine uptake among adults with chronic conditions in Italy. PLoS One, 14(5), e0215978.

Bhat, A., Jhanji, V. (2021). Bacterial Conjunctivitis. In: Das, S., Jhanji, V. (eds) Infections of the Cornea and Conjunctiva. Springer, Singapore. https://doi.org/10.1007/978-981-15-8811-2_1

Bloom, D. E., Black, S., & Rappuoli, R. (2017). Emerging infectious diseases: a proactive approach. Proceedings of the National Academy of Sciences, 114(16), 4055-4059.

Bomar, M (2022) Upper Respiratory Tract Infection. [Updated 2021 Jun 30]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing PA https://www.ncbi.nlm.nih.gov/books/NBK532961/

Hizon, C. F., & Zamora, G. M. (2019). Knowledge and practices of the residents in larion alto, Tuguegarao city towards chicken pox. International Journal of Advanced Research in Management and Social Sciences, 8(4), 393-401.

Horbatiuk, I., Karpuk, L., Haletska, O., Melnyk, S., & Gorska, A. (2021). A typical forms of chickenpox and possible complications in childhood (literature. Modern trends in development science and practice, 6, 244

Jordan, R. E., Adab, P., & Cheng, K. K. (2020). Covid-19: Risk factors for severe disease and death. The BMJ, 368. https://doi.org/10.1136/bmj.

Khan, A., Iqbal, Q., Haider, S., Hassali, M. A., & Saleem, F. (2019). Acute diarrheal management in adults: a simulated client study at community pharmacies of Quetta City, Pakistan. Journal of Pharmacy Practice and Community Medicine, 5(1).

Lee, W. J. (2019). Common Cold and Flu. In Vitamin C in Human Health and Disease (pp. 89-100). Springer, Dordrecht.

Magurano, F., Baggieri M., et.al (2018, February 01). Mumps clinical diagnostic uncertainty. European Journal of Public Health, Volume 28. Retrieved from: https://academic.oup.com/eurpub/article-abstract/28/1/119/3867015

Mansalee Gallage, P., Fayaz Ahamed, W., & Silmy, M. (2020). Knowledge on chicken pox virus and its vaccination among students of selected schools in Batticaloa Educational Zone (Doctoral dissertation, FHCS, EUSL).

Nayyef, H. J., Al-Obaidi, M. J., Hanoon, A. Y., Al-Malkey, M. K., Kalaf, N. A. H. F., Taqi, I. A., & Mesha, K. I. (2018). Mumps Disease in Iraq: The General Knowledge and Public Awareness. Current Research in Microbiology and Biotechnology, 6(2), 1525-1529.

Sims, N & Kasprzyk-Hordern, B (2020) Future perspectives of wastewater-based epidemiology: Monitoring infectious disease spread and resistance to the community level,Environment International,Volume 139,2020,105689,ISSN 0160-4120,https://doi.org/10.1016/j.envint.2020.105689

Thomas M, and Bomar PA.(2022) Upper Respiratory Tract Infection. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing;-.https://www.ncbi.nlm.nih.gov/books/NBK532961/

Tuladhar, S., & Gurung, J. (2020). Knowledge of conjunctivitis among high school students in Pokhara valley of Western Nepal. Journal of Gandaki Medical College-Nepal, 13(1), 19–22. https://doi.org/10.3126/jgmcn.v13i1.28517

Uyeki, T. M., Bernstein, H. H., Bradley, J. S., Englund, J. A., File Jr, T. M., Fry, A. M., ... & Pavia, A. T. (2019). Clinical practice guidelines by the Infectious Diseases Society of America: 2018 update on diagnosis, treatment, chemoprophylaxis, and institutional outbreak management of seasonal influenza. Clinical Infectious Diseases, 68(6), e1-e47.

Wang P, Li Z, Jones A, Bodner ME, Dean E. (2019) Discordance between lifestyle-related health behaviors and beliefs of urban mainland Chinese: A questionnaire study with implications for targeting health education. AIMS Public Health.:49-66

Wibawa, K. C. S., & Natalis, A. (2021). Child-Centered social policy-based infectious disease control policy to ensure children welfare. Pak J Mediafind Health Sci, 15, 363-366

PHILIPPINE PROFESSIONAL STANDARDS FOR TEACHERS (PPST) ALIGNED ENGLISH CURRICULUM: ENGLISH TEACHERS' AWARENESS AND PRAXIS

ANTONIETA O. OCAÑA, PhD, EdD
Bohol Island State University Main Campus
Tagbilaran City, Bohol, Philippines

ABSTRACT

The study determined the status of Philippine Professional Standards for Teachers (PPST) implementation of BSEd English Program of Bohol Island State University (BISU) anchored on Biggs' Constructive Alignment Theory which posits that students construct meaning through aligned learning objectives and activities. This study answered the specific questions; 1.) What is the current state of the BSEd English curriculum implementation in terms of; teaching practices, behavioral competencies and curriculum enhancement?, 2.) How do the teachers perceived their regard to PPST domains?, 3.) How may a training program be designed and implemented to address the teachers' perception on their regard of the PPST? and 4.) What course of action maybe proposed based on the feedback of the training program?. It employed descriptive qualitative through in-depth interview, thematic and content analysis to unveil the responses and narratives of the ten (10) participants who were purposely chosen among the five (5) BISU Campuses. Thematic analysis was used to analyze qualitative data through interviews. On the other hand, the gathered data through questionnaire from the evaluation was analyzed through content analysis. Findings revealed three teaching standards with respective themes: 1.) teaching practices; demonstrate technologically- aided practices, use updated resources, provide student centered- activities and show support to policies, 2.) behavioral competencies; compassionate and liberal, sensitive and concerned, open and accountable and personally and professionally motivated, 3.) curriculum development; appropriate and relevant activities and suitable extension and remediation. Further, it revealed that the newly designed training program may be implemented and the training module may be used by all BSEd English teachers. Thus, the study concluded that the BSEd English Program of BISU had not fully implemented the aligned curriculum to the PPST. Therefore, it is recommended that teachers may continue applying their updated teaching practices, may be consistent for a conducive learning condition and may integrate collaborative curriculum enhancement. Moreover, teachers may familiarized the PPST domains through updated media and attendance to new normal learning activities. Lastly, a training program maybe conducted in the university to all BSEd English teachers and may utilize the researcher-made training module among the English teachers in BISU System.

Keywords: competencies, curriculum, PPST, teachers' praxis

INTRODUCTION

Curriculum is central to education. It is the basis for instruction, assessment, grading and academic reporting based from students' mastery of the knowledge and skills they are expected to learn as they progress through their education. It serves as guide for teachers and roadmap that establishes standards for student performance and teacher accountability. It is important in educational system as it helps one plan the education process or procedure for a given period of time.

Changes in education in countries around the globe seem to be leading to a global curriculum. Curriculum alignment is crucial in realizing learning objectives, but in higher education the alignment is often challenge by practical problems. Consistent with Education For All (EFA), Education 2030 Agenda of UNESCO and Sustainable Development Goals of United Nations, there is a need for curriculum alignment to ensure coherence and consistency between the intended outcome specified in the formal

curriculum and teaching methods, assessment tasks and learning activities in the classroom.

On the other hand, most of the Asian countries with national standard for teachers are generic. In the survey conducted by the SEAMEO INNOTECH in 2011, although there were eleven (11) member countries participated in the survey, the outcome of the survey covered teaching competency standards in only five (5) countries in the region; the Philippines, Indonesia, Cambodia, Thailand and Vietnam while the rest of the member countries are still in the process of developing teaching-competency standards.

Accordingly, Philippines has the national standard for teachers which were replicated against the newly designed PPST that call for the rethinking of the National Competency-Based Teacher Standards (NCBTS) to respond the changes brought about by various national and global frameworks like the K to 12 Reform, ASEAN Integration, globalization and the changing character of the 21st century learners necessitate for improvement and for the distinct need of the future English teachers after graduating Bachelor of Secondary Education (BSEd) major in English.

For this phenomenon, an aligned curriculum to the Philippine Professional Standard for Teachers (PPST) is geared towards providing relevant support to tertiary teachers in a quest to produce competent ready Bachelor of Secondary Education (BSEd) major in English graduates. Despite the Commission in Higher Education (CHED) designs a new curriculum under the K – 12 Program, still, it seemingly needs to be checked, monitored and assessed to make sure the BSEd English graduates are provided with the relevant and aligned competencies found in the newly designed curriculum for them to be ready in entering the real world of work.

Furthermore, the researcher being the designated Chairperson of the BEEd Program in Bohol Island State University Main Campus (BISU MC) at Tagbilaran City, Bohol whose handled program is a consistent Top Performing School in the country for eight (8) consecutive result of the Licensure Examination for Teachers under BEEd Program only. Hence, with the request of the College Dean to the researcher to have a research study that will escalate the LET Result of the Bachelor of Secondary Education (BSEd) Major in English, she is interested to help the BSEd English curriculum be aligned with the PPST competencies. Likewise, this will respond to the recommendation of the AACCUP (Association of Accrediting Agency of Chartered Colleges and Universities in the Philippines) evaluation of which the evaluator recommended for more researches to students' related cases for the augmentation of the BSEd program.

So, the researcher is interested to conduct this study to know the teachers' level of awareness on the teaching practices in the implementation of BSEd English curriculum as aligned to the PPST domains and understanding on the replacement of the national teachers' standard from the previous National Competency- Based Teacher Standard (NCBTS) to the new Philippine Professional Standard for Teachers (PPST) for future success in their teaching profession. Thereby, design a capacity building program to check the teachers' accounts in making and implementing of the PPST-aligned English curriculum for the teachers' practices be compromised with the PPST indicators. Thus, a contextualize English Language Teaching Framework will be made.

STATEMENT OF THE PROBLEM

The study explored the status of Philippine Professional Standards for Teachers (PPST) implementation of BSEd English Program of Bohol Island State University (BISU).
Specifically, it provided answer to the following:
1. What is the current state of the BSEd- English Curriculum implementation in terms of;
    1.1 teaching practices.
    1.2 behavioral competencies, and
    1.3 curriculum enhancement?
2. How do the teachers perceived their regard to PPST domains ?
3. How may a training program be designed and implemented to address the teachers' perception on their regard of the PPST?
4. What course of action maybe proposed based on the feedback of the training program?

REVIEW OF RELATED LITERATURE

The study was anchored on the Constructive Alignment Theory of John Biggs which summarizes that students construct meaning through relevant learning activities. Likewise, it starts with the notion that the learner constructs his or her own learning through relevant learning activities and the teacher's job is to create a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes which means that the key idea emphasized that all components in the teaching system- the curriculum and its intended outcomes, the teaching methods used, the assessment tasks- are aligned to each other. As a whole, all are tuned up to learning activities addressed in the desired learning outcomes for the learner to learn easily in an appropriate learning condition. (Biggs, 2003)

On the other hand, in the evolution of curriculum in the Philippines, it is imperative to produce quality teacher in order to meet the global competitiveness and demands for a well-equipped and well-prepared BSEd English graduates as stipulated in CMO 75 s. 2017, the curriculum must shift to learning competency-based standards or outcomes-based education in response to the 21st Century Philippine Teacher Education framework. Thus, it is anchored on the salient features of K to 12 Enhanced Curriculum.

Moreover, the approved policies, standards and guidelines for Bachelor of Secondary Education with eight program outcomes were also considered. Specifically, the threshold of R.A. No. 10533 s. 2013 or the Enhanced Basic Education Act of 2013 was in joined with the demand of producing high standard teachers. Furthermore, the law stipulated in Department Order No. 42, series 2017 that teachers and future teachers must be acquainted with the content and performance standards in the national implementation of the Philippine Professional Standards for Teachers (PPST) through the new K to 12 curriculum.

Notably, BSEd teachers as formators of the future English teachers must implement proper teaching practices, core behavioral competencies and curriculum development to align with the Philippine Professional Standards for Teachers (PPST) for them to be effective and relevant teachers among the 21st century learner integrating the seven (7) domains in the national teaching standards.

METHODOLOGY

This study used the descriptive qualitative method through an in-depth interview to the participants. Particularly, a descriptive method is a scientific method which involves description of a subject without influencing it in any way. Likewise, using the response of the participants, thematic analysis was used to find the participants' current teaching practices, behavioral competencies and curriculum development to align with the Philippine Professional Standards for Teachers (PPST) domains.

A qualitative content analysis. According to Schreier (2012) from the SAGE Publication stressed that qualitative content analysis is one of the several qualitative methods currently available for analyzing data and interpreting its meaning as it represents a systematic and objective means of describing and quantifying phenomena. Thus, the content analysis necessitates rules and gradual models without abrupt quantification.

As a whole, the data collated during the Training Program with the teachers' current state of the BSEd English curriculum implementation was content analyzed in order to arrive at coded meanings and themes. This was the onset in designing a proposed course of action based on the result of the investigation.

The study was conducted in Bohol Island State University (BISU). Particularly in the five (5) BISU campuses in Bilar, Calape, Candijay, Clarin and Main Campus that offer Bachelor in Secondary Education (BSEd) Major in English. The study focused only in the College of Teacher Education (CTE) among the other colleges that each campus offers. Hence, BSEd English teachers and teachers who took English as their specialized subject were included as they handled subjects of the above mentioned course.

The premise of the selected participants in the study was done through purposive sampling. Particularly, a purposive sampling could be used by the researcher when only individual judgment was applied in order to choose cases that facilitate in actualizing the research objectives of the inquiry. The model of selecting the participants were the following: first, the English teachers and teachers handling the BSEd

English students, and, second, had first hand experience with the general, professional and specialized subjects of the BSEd English students.

The composition of participants were two (2) from Bilar Campus, two (2) Calape Campus, one (1) Candijay Campus, one (1) Clarin Campus and four (4) Main Campus. To sum up, there were ten (10) experienced teachers as participants in the study.

This study utilized the researcher's made open-ended interview guide adopted from the Classroom Observation Tool (COT) for Teacher I-III and Teachers' Core Behavioral Competencies in the Philippine Professional Standards for Teachers (PPST)develop through the Philippine National Research Center for Teacher Quality (RCTQ) with support from the Australian Government through the Basic Education Sector Transformation (BEST) Program of the Department of Education as to relate the concrete BSEd – English teachers' teaching practices, core behavioral competencies and curriculum development align with the Philippine Professional Standards for Teachers (PPST). The second instrument was the researcher's made evaluation survey which was checked by her adviser before validation. Furthermore, both the interview guide and evaluation survey with the training design underwent validation from the chosen qualified education experts as decided by the panelists during the dissertation proposal oral defense. For the interview guide, it was validated by the three experts; adviser, human resource management officer and the research and extension coordinator. Likewise, the evaluation tool and training design was evaluated by another set of three experts like; the adviser, human resource management officer, the dean in the College of Teacher Education for the validity of data gathering process to achieve the valid result of the study.

Three phases of the data collection conducted in the study.

Phase I – Pre-data Gathering
The researcher submitted the filled out REC protocol research application form with the final edited copy of the manuscript to the Cebu Normal University- Research Ethics Committee evaluators for evaluation, approval and issuance of research ethical clearance. Then, a consent letter was given to the participants for their approval of their participation in the study. Upon agreement in the available time of the participants, an in-depth interview was conducted for each participant within forty-five (45) minutes to one (1) hour duration. Next, a thematic analysis was done based on the responses of the participants. After knowing the result, a training design was crafted to respond the need of the participants. Finally, letter transmittal was passed to the BISU concerned administrators for their approval of the training design before conducting it to the recommended participants of the study.

Phase II – Actual Data Gathering
The researcher conducted the seminar–workshop to the recommended experienced teachers as participants of the study. After the input of the seminar was given, a workshop for syllabi writing was done. Then, peer critiquing of the output was made in the presentation of their crafted syllabi within the duration of the seminar- workshop. Next, the presented syllabi was validated by the three experts like; the BISU director of instruction, BSEd program chairperson and the dean of the College of Teacher Education for confirmatory validation. Lastly, a seminar- workshop evaluation tool was distributed to the participants to get their feedback about the above mentioned activity.

Phase III – Post-data Gathering
The researcher collected the evaluation survey from the participants. A qualitative content analysis was done for the data analysis. After getting the result, a course of action was designed to respond the need of the participants. Hence, the course of action will be presented to the BISU administrators for their approval and implementation for the benefit of the BSEd English students and the BISU system as a whole.

Data Analysis
Two phases in the conduct of the study was implemented for data analysis in order to yield a proposed course of action for the BSEd major in English teachers and future teachers.

First, the thematic analysis of the participants' responses on their teaching practices, behavioral competencies and curriculum development to find the lacking areas of the above mentioned items as

basis in the formulation of the Training Design to conduct a seminar–workshop in order to align their teaching practices, behavioral competencies and curriculum development to the Philippine Professional Standards for Teachers (PPST).

Second, a qualitative deductive content analysis was employed to the output syllabi from the seminar-workshop with this seven (7) steps as follow: 1.) Research question relevant to the teaching practices, behavioral competencies and curriculum enhancement of the BSEd English teachers of the four identified BISU campuses; 2.) Definition of the category system as the warm up questions, followed by the main questions and the wrap up questions at the last part of the in-depth interview ; 3.) Coding guidelines in column for the teaching practices, behavioral competencies and curriculum enhancement ; 4.) Preliminary coding from the responses of the participants through mark / highlight text passage or note the category label ; 5.) Revision of the categories and coding guidelines if severe problems arise on the teaching practices, behavioral competencies and curriculum enhancement categories in respect to the research questions for validity in the result of the investigation; 6.) Find working through the material if there will be changes of the coding guidelines; and 7.) Analysis on the result of the frequencies of the assigned categories of their responses on the teachers practices, behavioral competencies and curriculum enhancement.

After the utilization of the output syllabi among the participants, a feedback sheet was given to add information in crafting the proposed course of action as the off shoot of the investigation.

Finally, the researcher followed the ethical consideration in the conduct of the study. Basically, an ethical clearance was secured from the CNU-Review Ethics Committee. It considered the conflict of interest which specifies the review of management of conflict arising from financial, familial or proprietary considerations of the PI, sponsor or the study site. Then, the privacy and confidentiality was ethically be considered as to review of measures or guarantees to protect privacy and confidentiality of participant information as indicated by data collection methods including data protection plans.

RESULTS AND DISCUSSION

Summary of Themes of the Teaching Standards Practiced by the BISU English Teachers

The BSEd English curriculum under CHED Memorandum No. 75 s. 2017, mandated the policies, standards and guidelines for the program such that the approach in delivering the contents to the students is learning competency-based or outcomes – based education to respond in the 21st Century Philippine Teacher Education Framework.

This study presents the summary of the respondents' answers in the in-depth interview about the current state of the BSEd English curriculum implementation of BISU in terms of teaching practices, behavioral competencies and curriculum development. The table below presents the summary of themes of the teaching standards practice by the BISU English teachers.

Table 1. Summary of Themes of the Teaching Standards Practiced by the BISU English Teachers

Teaching Standards	Themes
Teaching practices [a]	Demonstrate technologically-aided practices
	Use updated resources
	Provide student-centered activities
	Show support to policies
Behavioral competencies [b]	Challenged but confident
	Compassionate and liberal
	Sensitive and concerned
	Openness and accountability
	Personally and professionally motivated
Curriculum enhancement [c]	Appropriate and relevant activities
	Suitable extension and remediation

Table 1 shows the summary of themes practiced by the English teachers in the implementation of the BSEd English curriculum among BISU Campuses. It depicts that behavioral competencies got the

highest result with five (5) themes while curriculum enhancement got the least with two (2) themes. This implies that BSEd English teachers practiced most of the behavioral competencies in the implementation of the BSEd English curriculum for which must be sustained to constantly meet the teaching standards a but need more focus on the enhancement curriculum enhancement in the areas of teaching activities, fitted extension and remediation respectively for a balance implementation of the BSEd English curriculum of the said campuses.

The behavioral competencies of the BSEd English teachers in Bohol Island State University obtains result through an in-depth interview with the highest result , the data reveals five (5) frequently dominant behavioral competencies: *challenged but confident, compassionate and liberal, sensitive and concerned, open and accountable, and personally and professionally motivated*. These themes disclose that BSEd teachers strive harder to meet the demand of teaching in this very challenging and fast changing society in 21st century teaching beside of their confidence in delivering topics aligned in their fields of specialization. Moreover, teachers practice compassion and liberated teaching environment as democracy, friendliness and open communication exercise trademark to students' engagement and classroom management among their learners. Likewise, being sensitive and concerned teachers for their students' welfare and satisfaction entails unconditional love and care in their teaching profession . Additionally, English teachers are open and accountable towards their students and parents' needs through the following: their initiative to benchmark the best practices from other sources or institutions; concerned for their syllabi enhancement and their care for stakeholders' participation in the curriculum enhancement to augment their teaching and learning process. Finally, they are personally and professionally motivated to attend seminars, conferences, trainings and other related activities to fit their teaching skills in the 21st century teaching.

On the other hand, curriculum enhancement gets the lowest result using an in-depth interview, the gathered data reveal that two (2) dominantly teachers' practices in curriculum enhancement frequently implemented by the respondents as follows: appropriate *and relevant activities and suitable extension and remediation.* The phrases express that teachers handling BSEd English subjects consider the capacity and capability of their students to suit the planned activities in enhancing the curriculum. Likewise, teachers linkages from other universities and institutions in benchmarking best practices in carrying out for curriculum enhancement is very essential in the process of curriculum enhancement. This inquiry begin with the purpose to find out the teachers' curriculum enhancement practices. Since, curriculum is the heart of the program implementation, it is vital to know the condition of the program's implementation in the curriculum enhancement for a more relevant and realistic enhanced English curriculum in this21stcenturylearning.

Teachers' Perception on the Regard of the Philippine Professional Standards for Teachers (PPST) Domains

Teaching profession is considered as a noble profession. In this context, teachers need to be updated on the latest trends and issues on education. The Philippine Professional Standards for Teachers (PPST) is mentioned in DepEd Order No.42, s. 2017 which is built on National Competency-Based Teacher Standards (NCBTS). This came into birth because of the various national of global frameworks to mention: K to 12 Reform, ASEAN Integration, globalization and the changing character of the 21st Century learners.

PPST complements the reform initiation of a teacher quality for the future teachers that contributes teacher quality in the K to 12 Reform through well-defined domains, strands and indicators that provide measures of progressive learning, competent practices and effective engagement in the teaching-learning process.

An in-depth interview was conducted among the recommended ten (10) teachers from Bohol Island State University Campuses to determine their perception on the regard of the Philippine Professional Standards for Teachers (PPST) competencies in the teaching activities. The gathered data revealed that three (3) frequently dominant teachers' regard of the Philippine Professional Standards for Teachers (PPST) domains as follows: *unawareness of the PPST domains, lack of information about the PPST domains and insufficient professional development*.

The phrases disclosed that teachers of the BSEd English program are not fully aware of the domains in the Philippine Professional Standards for Teachers (PPST) as it is a new term for them unlike the previous National Competency- Based Teachers Standards (NCBTS) when they were yet in their under-

graduate schooling. However, though BSEd English teachers lack the latest information about the PPST domains as the recent term in the implementation of the new BSEd English curriculum, they still show positive attitude to learn the new term and very eager to attend seminar, training, conferences and any other related professional development activities in order to augment not only their professional aspect but also in their personal development.

Table 2 presents the result of the in-depth interview of the ten (10) respondents regarding their regard on the Philippine Professional Standards for Teachers (PPST). Respondents' utterances were categorized, crafted with codes after getting the pattern statements and underwent thematic analysis to formulate the different themes of the study.

This investigation came into birth with the aim to perceive the teachers' regard of the Philippine Professional Standards for Teachers (PPST) domains among the teachers handling the BSEd English students in Bohol Island State University. Thus, teachers' knowledge in the curriculum enhancement will be facilitated especially in the implementation of the new BSEd English curriculum in this 21st century era. The narration below shows the answers to the purpose of the investigation.

Table 2. Teachers' Perception on the Regard of the PPST Domains

Themes and codes	Example quote
Unawareness of the PPST domains [a]	
not familiar or aware of	Respondent 2: " I am usually exposed the PPST domains to NCBTS before but regarding PPST I am not so familiar of that stuff.
not fully aware of PPST update	Respondent 9: " Well, I know the PPST domain back in my undergraduate years but unfortunately I am pretty much aware but not fully aware of the latest update of PPST."
Lack of information of PPST domain [b]	
forgot the domain	Respondent 1: " So, I already forgot the Can you give me one Maam? He he…"
lack of information on PPST	Respondent 3: " Upon reading the PPST, there are times that I realized that I still lack information on the new term… I am still open for change and improvement and I guess it's not yet too late."
Insufficient professional development [c]	
need seminar to be refreshed on PPST	Respondent 5: " I think, I have to be refreshed the domain in the PPST. I had that in my college but I think I need to have another seminar for me to be refreshed especially especially in teaching English align to PPST."
heard only but unable to read about PPST	Respondent 8: " To be honest Maam, I only heard those terms, but I haven't been able to read the details about them. So, I can't give concrete example, I can't answer and I don't know how to answer to that question."

Unawareness of the Philippine Professional Standards for Teachers   (PPST) Domains

The BSEd English program is being taught integrating the set of standards for beginning teachers taken from the seven (7) domains of the Philippine Professional Standards for Teachers (PPST). This is based from DepEd Order No. 42 s. 2017 which is built on National Competency- Based Teacher Standards (NCBTS) that most of the respondents expressed their unawareness of the new term PPST from NCBTS.

This is the reason that majority of the respondents mentioned the following utterances:

"I am usually exposed to NCBTS before but regarding PPST I am not so familiar of that stuff." (Respondent 2)

"So, I already forgot the domain. Can you give me one Maam? He he… So far as I have remembered in PPST is to ensure quality teaching." (Respondent 1)

"Well, I know the PPST domain back in my undergrad years but unfortunately I am pretty much

aware but not fully aware of the latest update of PPST because I don't have time and resources of knowing this time." (Respondent 9)

Truly, the BSEd English teachers were not aware of the term PPST and not fully updated that it is built on National Competency- Based Teacher Standards (NCBTS). Hence, most of the respondents belong to the generation that NCBTS term was used during their undergraduate schooling not the PPST. Thus, there is still a need for them to be aware and be updated of the educational reform for the augmentation of the teaching- learning process as it explains about teacher quality in the K to 12 Reform through well-defined domains, strands and indicators that provide measures of progressive learning, competent practices and effective engagement.

Lack of information on PPST Domains

The lack of information of the BSEd English teachers on PPST domains as a newly introduced term to them together with the recently implemented BSEd English curriculum resulted to difficulty of the English teachers in crafting an English curriculum that will be aligned to the PPST domains.

This education reform is based on the guidelines, principles and standards in delivering the contents through the competency-based education in order to respond the 21st Century Teacher Education Framework among the 21st century learners.

As most of the respondents displayed their experiences in the following utterances:

"Kalimot na jud ko Maam about the domain in PPST (I really forgot Maam about the domain of PPST).Honestly, after I took up my LET, I went to another job like Spiritual Training which is not related to teaching. So, nakalimot najud ko (So, I truly forgot). I remember the NCBTS but not the domain. Di ba ang LET diha na gi base sa NCBTS now PPST? (Is it the LET being based from the NCBTS now PPST?). Sorry, nakalimot jd ko Maam (Sorry, I really forgot Maam). But as what I have remembered, it is all about "quality teaching". (Respondent 1)

"Upon reading the PPST, there are times that I realized that I lack still something. There are still things I need to pursue, refer and consider the other aspects and I am still in the process of change and improvement. I am still open for change and improvement and I guess it's not yet too late." (Respondent 3)

"I like to improve, enhance myself as I like most of the domain in the PPST is more on the "values" and I feel I lack on the knowledge of the content or in cognitive side." (Respondent 4)

Insufficient professional development

In the implementation of the new BSEd English curriculum, it signifies for enhancement of the curriculum. Since, most of the teachers had graduated under the old BSEd English curriculum, there is a need for them to professionally upgrade themselves to equip their capacity in crafting the new content and format of the new English curriculum.

Furthermore, there is a need for the BSEd English teachers to be exposed to seminars, conferences and trainings for them to be updated of the new trends in education especially in the implementation of PPST. Such scenario is supported by the utterances of the respondents when they expressed:

"I think, I have to be refreshed the domain in the PPST. I had that in my college but I think I need to have another seminar for me to be refreshed specially in teaching English align to PPST." (Respondent 5)

"To be honest Maam, I only heard those terms, but I haven't been able to read the details about them. So, I can't give concrete example, I can't answer and I don't know how to answer to that question." (Respondent 8)

"The domain in the PPST are all attainable, but as what I said lately, I will be refreshed for the improvement of my syllabus in English Curriculum. I think I need all the domain to be reviewed." (Respondent 6)

Such reality that majority of the BSEd English teachers need for personal and professional development to keep abreast of the latest educational issues and concerns in relation to PPST as competency-based curriculum. This is supported by the study of Borsoto et.al (2014) in the conclusion stated that Outcomes-Based Education (OBE) is useful in terms of academics, attitude and instruction. However, practice, seminars, intensive orientation of syllabus and assessment procedure and conducting field trips and trainings was prepared to enhance and improve the knowledge and skills of students to meet the requirements of the new learning system.

Training Design

Based from the result of the respondents' in-depth interview, most of them expressed that they were not aware about Philippine Professional Standards for Teachers (PPST) and its domains. Likewise, majority of them mentioned their great desire to attend seminar, conferences, training and other related activities for their personal and professional development.

Furthermore, the respondents' feedback after attending the seminar-workshop on PPST Towards the BSEd English curriculum recommended for another PPST seminar-workshop within five (5) days not only three (3) days to give enough time to deliberately tackle all of the activities well especially in the presentation and critiquing of the syllabi output. More so, they recommended that all BSEd English teachers among the five (5) BISU campuses will be included as participants and be considered as the core group in the implementation of the aligned BSEd English curriculum in the entire BISU System. Furthermore, the revised list of topics and duration of the said training was considered after the respondents had expressed their desired content and time frame for the next seminar-workshop based from the result of the evaluation given to the respondents after they had attended the training.

FINDINGS

Through careful analysis and interpretation of data results, the following findings were drawn:

1. After the participants' in-depth interview, the gathered data revealed that the current status of PPST for BSEd-English curriculum implementation of Bohol Island State University in terms of teaching practices, behavioral competencies and curriculum enhancement are as follows:
- The teaching practices of the BSEd English teachers revealed the following: demonstrate technologically-aided practices, use updated resources, provide student-centered activities and show support to policies.
- Analysis of the behavioral competencies of the BSEd English teachers revealed five themes: challenged but confident, compassionate and liberal, sensitive and concern, openness and accountability and personally and professionally motivated teachers.
- As to curriculum enhancement of the BSEd English teachers ,two dominant practices were identified: appropriateness and relevant activities, and suitable extension and remediation.

2. The participants' narratives on the perception of their regard of PPST domain revealed three themes: unawareness of the PPST domains but with positivity and enthusiasm to attend seminars, conferences, trainings and other related activities.

3. After the evaluation of the seminar-workshop, a training program was designed and be implemented to address the teachers' perception on their regard of the PPST integrating the following: firstly, a five (5) day training program instead of three (3) days, secondly, all BSEd English teachers will be listed as participants in the training not only to few recommended teachers and lastly, the recommended topics from the participants will be part of the additional topics in the training design.

4. Finally, a training module was crafted to address the participants' feedback.

CONCLUSION

With the current knowledge and understanding of PPST, full implementation and alignment of BSEd English curriculum to the language standards has to be taken as one of the priority areas in curriculum enhancement. Guided by Biggs' Constructive Alignment Theory and the contextualized needs of the education stakeholders, subject teachers will greatly benefit from various PPST-related trainings and webinars.

RECOMMENDATIONS

Based on the findings the following are recommended:

1. The BSEd English teachers may continue applying their updated student-centered technologically aided teaching practices, may be consistent in providing student friendly learning environmemt in their in their behavioral competence and may integrate collaborative school-community relations for a transformative and relevant enhanced BSEd English curriculum enhancement.
2. The BSEd English teachers may engage in curricular undertaking for them to be familiar with the domains of the PPST by obtaining information through updated print or nonprint media and attending webinars, teleconferencing, virtual press and other technologically-aided processes in the new normal for personal and professional development.
3. The training program design may be implemented to all BSEd English teachers so as to form a core group in the implementation of the enhanced BSEd English curriculum for the entire BISU System.
4. The training module may be used by the English teachers in other colleges of BISU System for their awareness and familiarity of the PPST domains aligned in the new BSEd English curriculum.

ACKNOWLEDGMENT

REFERENCES

Ager, M. (2019, March 6). *Senator sounds alarm on deteriorating competence of students, teacher* https://newsinfo.inquirer.net/

Almasa, R. (2019). *Teacher Quality Framework: An Alignment to PPST For ECE Pre-service Teachers* [Unpublished doctoral dissertation]. Cebu Normal University.

Antiojo, L. P. (2017). *Performance of Education Graduates Licensure Examination for Teachers (LET). people: International Journal of Social Sciences*, *3*(2).https://grdspublishing.org/index.php/people/article/view/

ASEAN. (2014). *ASEAN State of Education Reform 2013. Association of Southeast Asian Nation (ASEAN) 2013 Report.* .

Bersales, L. G. (2018). *Literature Abstract 2017 Philippine Standard Classification of Education (PSCED) Philippine Statistics Authority (2018) and the 2017 Philippine Standard Classification of Education Quezon City.*

Biggs, J. (2002). *Aligning the curriculum to promote good learning constructive alignment in action: imaginative curriculum symposium*. Queen's University Belfast: Shaping a Better World .https://www.qub.ac.uk/directorates/764,en.doc

Biggs, J. (2014). *Constructive alignment and learning outcomes*. Thompson Rivers University. https://www.tru.ca/__shared/assets/Constructive_Alignment36087.pdf

Bilbao, P. et.al. (2016). *The teaching profession.*. Lorimar Publishing Co.Inc.

Boylan, M. (2016, December 6). *PISA results: Four reasons why East Asia continues to top the leaderboard*. The Conversation https://theconversation.com/pisa-51

Care, E. et.al. (2018). *Education system alignment for 21st century skills Focus on assessment*. Retrieved from: https://www.brookings.educ.

Cees, P.M. van der Vieuuten. (2015, November 9). *Competency-based education is beneficial for professional development*. PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc//

Commission on Higher Education. (2012). *Policy-standard to enhance quality assurance (qa) in Philippine Higher Education through an Outcomes-based and typology –based qa*. CHED - The Official Website of Commission on Higher Education. https://ched.gov.ph/wp-content/uploads/-Based-QA.pdf

Commission on Higher Education. (2017). *Policies, standards and guidelines in Bachelor of Secondary Education (BSEd) Program*. CHED - The Official Website of Commission on Higher Education. https://ched.gov.ph/

Department of Education. (2017, August 11). *DO 42, S. 2017 – National adoption and implementation of the Philippine professional standards for teachers*. https://www.deped.gov.ph-/

Li, Q. (2018). *Theory and Practice in Language Studies* http://www.academypublication.com/df

Mayring, P. (2014). *Qualitative content analysis: theoretical foundation, basicprocedures and softwares solution*. Rhttps://www.ssoar.info/ssoar/handle/document/39517

Ocaña, A. (2014). *Self-efficacy, Behavior and Teaching Performance Among Student Teachers of Bohol Island State University Main Campus: Proposed Enhancement Program. Bohol Island State University Main Campus, Tagbilaran City, Bohol.* Asian Intellect for Academic Organization and Development Inc, Research and Education Journal , 4.

Ontario. (2016). *Towards defining 21st century competencies for 21st century competencies*. http://www.edugains.cas.pdf

Roberto, J., & Madrigal, D. (2018). *Teacher Quality in the Light of the Philippine Professional Standards for Teacher*s. *Philippine Social Science Journal,* https://www.philssj.org/index.php/main/article/view/

SEAMEO INNOTECH. (2010). Teaching competency standards in southeast asian countries: eleven countries audit. Regional education project series. https://www.seameo.org/SEAMEO

Sharma, Y. (2017, December 15). *The story of how Singapore became a research nation*. University World News. https://www.universityworldnews.com/

Squires, D. (2012). *Curriculum Alignment Research Suggests That Alignment Can Improve Student Achievement* https://www.tandfonline.com

K University rankings. (2018). *Why is Oxford the best University in the world?* SI-UK: Move Forward. Be Greathttps://www.studyin-uk.com//

Yaman, I. (2015, November 1). *(PDF) Some suggestions to enhance the quality of the English language teaching programmes in Turkey*. Research Gate https://www.researchgate.net/publication/

Zhao and Coniam. (2018). *Rethinking the College English Curriculum in China.* Asia TEFL. https://www.asiatefl.org/main/download

THE EFFECTIVENESS OF CLASSROOM MANAGEMENT STRATEGIES ON STUDENT BEHAVIOR AS THE BASE FOR AN INTERVENTION PLAN

ARCHIE P. URBIZTONDO
College of Teacher Education
Surigao State College of Technology
Surigao City, Philippines

ABSTRACT

This study investigated the effectiveness of classroom management strategies on the student behavior of the Grade 8 students in the Schools Division of Surigao del Norte. The researcher employed a descriptive correlational research design wherein it explored the level of effectiveness of the classroom management strategies employed by the teachers in terms of classroom design, rules, and instructional techniques and the student behavior in terms of respect, safety, reinforcement, and class participation. The study also ascertained the association between the classroom management strategies employed and the behavior of the students. A validated researcher-made questionnaire was used in the data gathering. The participants of the study were the select Grade 8 students whose sample size was determined using Yamane's formula. The findings suggested that classroom management measures were relatively effective, and students exhibited generally positive behavior. A significant relationship existed between the classroom management strategies employed and the behavior of the students. Hence, it implies that the classroom management strategies greatly affect the behavior of the students.

INTRODUCTION

Teachers manage their classes in various ways. There are no universal methods for ensuring that classroom management strategies are effectively implemented in the classroom. It involves imagination, adaptability, careful planning, and execution.

In any educational context, classroom management is critical. This is because meaningful learning occurs in a secure setting. The learning needs of students are satisfied through a combination of a good classroom atmosphere, effective preventive measures for behavior problems, implementation of fascinating and engaging curriculums, and actively involving all students in learning activities.(Darling-Hammond et al., 2020) The fundamental purpose of the classroom management strategy is to provide the best possible learning environment for all students. (Marzano et al., 2003a)(Beaty-O'Ferrall et al., 2010).

Teachers' knowledge and classroom actions must alter,(Farinde et al., 2016) according to Bigelow (2011). Teachers must progress beyond 20th-century talents and master 21st-century life skills and competencies if pupils are to be productive members of the workforce in the twenty-first century.(Schrum & Levin, 2009)(Trilling & Fadel, 2009)(Education & 2015, 2015)(Scardamalia et al., 2012) Because the focus is on generating students who are highly productive, excellent communicators, imaginative thinkers, and masters of technology, the qualities of the 21st Century classroom will be quite different from those in previous classrooms. A well-managed classroom allows students to comfortably communicate with one another, while the instructor facilitates meaningful debates and exchanges that lead to greater topic mastery (Mayer et al., 2018)(Marzano, 2005). As a result of group work and open debates, students become more involved in their study and learn from one another. These approaches will result in a more equal and democratic classroom, which will help students learn more effectively. It will be calm, patient, and fair to all students in order to gain their trust and establish a conducive learning environment in

which they can ask questions and participate in their education.

Effective classroom management is founded on the notion of creating a positive learning environment that includes strong teacher-student interactions.(Wubbels et al., n.d.)(Skiba et al., 2016)(Marzano et al., 2003b)(Martin et al., 2016),(Korpershoek et al., 2014) define classroom management as "the actions teachers take to create an environment that supports and facilitates both academic and social-emotional learning". This concept focuses on the teacher's role and connects the usage of classroom management tactics to different learning objectives for students.

Teachers in the twenty-first century have access to a wealth of cutting-edge research on the learning process. They should be knowledgeable about the research and willing to apply it in the classroom. They should be able to recognize and understand different learning styles in their students. Both within and outside of the classroom, students require mentors. This is perhaps more true today than ever before, as school violence, drug misuse, and other risks have become more common. Teachers must prioritize their job as a resource for students as well as a guide through life's challenges, and they must aim to build healthy connections with their pupils (Schiavo, 2013). Teachers should familiarize students with their surroundings and instill in them a belief in their own ability to affect change. They should instill in students a sense of their place in the greater world, and encourage them to be active participants in it, rather than simply transmitting knowledge. They will only be able to accomplish all of this if they apply appropriate and effective classroom management tactics. There are many studies already conducted exploring the different domains of an effective classroom management strategies (Sivri et al., 2015)(Sebastian et al., 2019)(Clarke et al., n.d.)like that of (Blazar et al., 2017) who explored the impact of classroom management styles to student achievement but the question remains unanswered: Which classroom management strategies effectively support and facilitate academic and behavioural outcomes to students? The gap presented has prompted the researcher to explore and assess the existing classroom management strategies of the teachers and which of these strategies have greater impacts to student performance and behaviour in the classroom.

This study assumed that classroom management strategies affect the behaviour of the students and that; there is a need to create a strong foundation of love, cooperation and unity to foster meaningful education to students.

STATEMENT OF PROBLEM

The effectiveness of classroom management strategies as well as the behavior of grade 8 students were investigated in this study. The specific questions to answer were as follows:

1. What is the level of effectiveness of classroom management strategies in terms of:
    1.1 classroom design;
    1.2 rules and
    1.3 instructional techniques?
2. What is the behaviour of grade 8 students in reference to:
    2.1 respect;
    2.2 safety;
    2.3 reinforcement and
    2.4 class participation?
3. Is there a significant relationship between the level of effectiveness of classroom management techniques and the behaviour of students?
4. What intervention program can be proposed based on the findings?

Hypothesis:

H01: There is no significant relationship between level of effectiveness of classroom management techniques and behaviour of students.

METHODOLOGY

Research Design

The correlational descriptive design was utilized by the researcher. The study's design was found appropriate because it looked into a contemporary situation, specifically the effectiveness of classroom management and student behavior. The study's findings were used to guide intervention. Furthermore, the study tries to explain whether or not there is a link between successful classroom management and student behavior.

Research Locale

This research was carried out in Surigao Norte National High School, Surigao del Norte Division. Surigao Norte National High School is one of the division's largest and most populous integrated secondary schools. It was founded on January 1, 1970, and has since stayed steadfast on the ground and produced excellent graduates. There are roughly 1,500 senior high school students and over 5,000 junior high school students. The growing number of students has benefited greatly from lecturers who are all specialists in their specialties. Surigao Norte National High School is presently known as the home of winners in all subjects, with students winning international prizes in various competitions and continuing to cultivate competent students. With its soaring performance, it is but fitting that the conduct of the study is held at this school. They have offered special science class that delved into the higher aspects of science far more advanced that from those who are in regular classes. The conduct of the study is within the school year 2018 – 2019.

Participants

Student evaluations of effectiveness in teaching and classroom management strategies employed by the teachers are commonly used to provide formative feedback to teachers for improving teaching, course content and structure, summary measure of teaching effectiveness for promotion and tenure decisions and Information to students for the selection of courses and teachers (Marsh & Roche, 1993) thus, student ratings are used as one of the primary measures of effectiveness in the teaching-learning process.

The literature stated has prompted the researcher to focus on the students as the primary participants of this study. The randomly selected students will assess the effectiveness of classroom management strategies employed by their teachers and to assess also the behavioural traits they possess in dealing with the daily life as students.

Sampling Technique

The participants in this study were the 281 out of 951 grade 8 students using Yamane's formula in calculating the sample size. Yamane's formula is used to calculate the sample size (n) given the population size (N) and a margin of error (e), a random sampling technique formula to estimate sampling size. It is computed as n = N / (1+Ne2).

Research Instrument

The researcher used a researcher-made questionnaire. The said questionnaire underwent series of face and content validation by identified experts at the Schools Division Office. After reconstructing and series of revisions, the questionnaires were then pilot tested. Pilot testing was done to select Grade 9 students of Surigao Norte National High School to get the reliability of the instrument. The test questionnaire was administered twice to the 80 students, the correlation between the two scores was measured using Pearson Product Moment Correlation Coefficient with an r-value of 0.76 which entails a high degree of correlation implying that the instrument provides consistent results, thus reliable. Internal consistency was measured using Cronbach's alpha, and the computed Cronbach alpha is 0.71. The questionnaires were then given to selected participants of the study.

The questionnaires are composed of two parts. The first part is on the effectiveness of employed classroom management strategies of the teachers. The second part is soliciting students views about their behavior towards respect, reinforcement, safety and class participation.

Data Gathering Procedure

The Schools Division Superintendent of the Surigao del Norte division granted formal approval. Following the Superintendent's consent, the researcher approached the Surigao Norte National High School Principal for permission to administer the questionnaires. Following approval, the researcher personally delivered the questionnaires to the student. One hour after the instruments were administered, the instruments were retrieved. The quantitative data was analyzed and conclusions were drawn. The quantitative analysis' findings were used to develop conclusions and suggestions.

Ethical Considerations

All information gathered from the respondents would be treated with utmost confidentiality and respected. No data or information would be unnecessarily divulged without the explicit permission of the higher authority. Consent form stating utmost confidentiality and secrecy of the responses was given to the participants.

FINDINGS

1. What is the level of effectiveness of classroom management strategies in terms of classroom design, rules and instructional techniques?

Studies show that high-quality classroom environments "make youngsters feel safe, secure, and respected,"(Bartlett et al., 2019)(Curby et al., 2013)(Howes et al., 2013) according to Dr. Sheryl Reinisch, Dean of the College of Education at Concordia University-Portland (2009). As a result, students' self-esteem rises and they are more motivated to participate in the learning process."(Behavior & 2014, n.d.)

Table 2 disclosed the level of effectiveness of classroom design as one of the classroom management strategies. As seen in the table, the participants rated "Moderately Effective" on classroom design with a computed mean of 2.59. This only shows that there is a need to restructure the classroom design to ensure a healthy and effective transfer of learning. There is a need to provide learning tools, instructional materials and concrete tools and manipulatives accessible and available in the classroom for students use. Proper ventilation and balance of light must be observed because these could hamper students from learning. Proper ventilation and balance of light must be observed because these could hamper students from learning.

Table 2. Level of effectiveness of Classroom Management Strategies In terms of Classroom Design

INDICATORS	Mean	Verbal Description
Classroom Design		
1. The classroom accommodates variety of learning activities with designated purpose with quiet space for reading and independent study.	2.62	Effective
2.The classroom space gives open, flexible spaces to come together to share, collaborate, and create	2.65	Effective
3.The classroom design accommodates students' natural need to move while providing proximal flexibility.	2.59	Moderately Effective
4.The classroom provides learning tools that students can grasp, manipulate and interact.	2.54	Moderately Effective
5.The classroom has a balance of light and bright colors that can positively impact learning, affects level of alertness, productivity and emotional state.	2.55	Moderately Effective
Over-all Mean	**2.59**	**Moderately Effective**

Table 2 shows that good classroom management practices in terms of classroom design include providing enough space for students to move around freely, providing opportunities for cooperative learning, and emphasizing the significance of sharing ideas. Thinking Skills and Creativity published a systematic literature analysis of 32 studies on the school environment in 2013 that revealed "reasonable evidence" that a creative school and classroom design can have various positive effects on student outcomes (Ogegbo & Ramnarain, 2021)(Fan & Cai, 2020)(Leonard et al., 2017). Furthermore, John Coe (2015), the Chair of the National Association for Primary Education, stated that the physical design of the classroom in which students spend such an essential time with their teacher has the most significant impact.

Table 3. Level of Effectiveness of Classroom Management Strategies in terms of Rules

INDICATORS	Mean	Verbal Description
Rules		
1. The teacher has established rules which will keep the class safe and fun.	2.40	Moderately Effective
2. The teacher has established rules that make easier for students to remember and guide the student's behavior in a variety of circumstances.	2.48	Moderately Effective
3. The teacher makes sure that students know the rules.	2.41	Moderately Effective
4. The teacher outline consequences in breaking the rules and the penalty or punishment in breaking the rules.	2.44	Moderately Effective
5. The teacher posted the rules and hang it the classroom for everybody to see.	2.53	Moderately Effective
Over-all Mean	**2.45**	**Moderately Effective**

The first line of defense against misconduct in the classroom is classroom rules. It should never be left to chance, developed as an afterthought, or copied from the next-door instructor; it should be intelligently created and relevant and important to children. Table 3 shows that enforcing rules in the classroom is judged "Moderately Effective" by the students, with a computed mean of 2.45. This only serves to highlight the need to examine the rules that teachers impose in the classroom, as well as the methods and strategies used to communicate these norms to students. All classes contain rules,(Pichancourt et al., 2012) according to Alberto and Troutman (2013), but whether they are made clear depends on the teacher.

Classroom management is built on the foundation of rules. The degree to which students understand and apply rules is linked to responsible behavior(Antes et al., 2014)(Bj€ Ork Gudmundsdottir et al., 2020). Routines, praise, consequences for disobedience, and involvement were also listed as "Big Five" techniques by(Buttner et al., 2015)(Piechurska-Kuciel, 2020). Teachers will be able to rethink, rewrite, and design effective strategies to appropriately foster classroom norms as a result of the findings. (Pichancourt et al., 2012)

Table 4.Level of Effectiveness of Classroom Management Strategies in terms of Instructional Techniques

INDICATORS	Mean	Verbal Description
Instructional techniques		
1. The teacher establishes the relevance of content, craft explanation that enables students to understand.	2.52	Moderately Effective
2. The teacher involves using variety of assessing techniques and allowing students to demonstrate their mastery in different way.	2.51	Moderately Effective
3. The teacher sets high standard for students and articulates clear goals and they will learn and what they will be expected to do with what they know.	2.49	Moderately Effective
4. The teacher fosters a sense of student control over learning and interest in the subject matter.	2.53	Moderately Effective
5. The teacher recognizes the uniqueness of individual learners.	2.49	Moderately Effective
Over-all Mean	**2.50**	**Moderately Effective**

Table 4 shows how the participants judged the efficiency of classroom management strategies in terms of instructional techniques. There is a need to revisit the instructional strategies used by the teachers, as shown in the table. In terms of level of efficacy, the instructional strategies used were "Moderately successful." Teachers should pay attention to the results and rectify any gaps right away. According to Marzano (2003), instructional methods influence students' progress and allow teachers to vary their teaching approaches. He went on to say that the most efficient way to improve instruction is to avoid the random or inexplicable occurrence of this process. The educational process should be developed, implemented, and assessed in a methodical, deliberate, and planned manner.   In   order   to ensure learning is meaningful, teachers should make amends on the different gaps presented by the results of the study. Hence, we can say that effective teachers choose from a variety of instructional strategies for students have successful learning experience cognitively and behaviorally (Marzano 2003; Lim, 2002).

Table 5.Summary of the Effectiveness of Classroom Management Strategies as rated by the Participants

Indicators	Mean	Verbal Description
Classroom Management Strategies		
Classroom design	2.59	Moderately Effective
Rules	2.45	Moderately Effective
Instructional techniques	2.50	Moderately Effective
Grand Mean	**2.51**	**Moderately Effective**

Table 5 shows how effective classroom management tactics are in terms of classroom design, rules, and instructional methodologies. The computed grand mean is 2.51, indicating that the effectiveness level is only "Moderately effective," according to the table. According to the findings, instructors' classroom management practices promote a wholesome and meaningful learning environment for their students. Poorly managed classrooms make it impossible to teach and learn effectively (Jones & Jones, 2012; Marzano, Marzano, & Pickering, 2003; Van de Grift, Van der Wal, &Torenbeek, 2011). The overall finding is concerning, given that the primary goal of education is to ensure successful transfer of

knowledge.

The degree to which schools are successful in achieving their educational goals is referred to as effective education. Numerous studies have revealed that teachers have a critical role in establishing good education (Hattie, 2009). Effective classroom management tactics should support and enable effective teaching and learning, and they should be founded on the general premise of creating a pleasant classroom environment that includes effective teacher-student relationships (Wubbels, Brekelmans, Van Tartwijk, &Admiraal, 1999).

2. What is behaviour of grade 8 students in reference to respect, safety, reinforcement and class participation?

Table 6. Behaviour of Grade 8 students in reference to Respect

INDICATORS	Mean	Verbal Description
Respect		
1. I am respectful to my teacher and to my classmates and friends.	2.49	Fair
2. I respond positively and appropriately to my classmates and teachers.	2.54	Fair
3. I am consistent in dealing with my classmates and teachers through the enforcement of rules fairly, without favouritism.	2.52	Fair
4. I speak and behave courteously and cooperate with others.	2.51	Fair
5. I develop positive and respectful relationships and think about the effect.	2.46	Fair
Over-all Mean	**2.50**	**Fair**

The level of respect demonstrated by students is revealed in Table 6. Students "Fairly" show respect to their teachers, as indicated in the table, with a computed over-all mean of 2.50. The outcome is rather imposing for the teachers because it just demonstrates that the pupils do not fully respect their teachers and peers. Professors and administrators across the country have long been concerned about students expressing their disdain for their teachers (e.g. De Lucia &Iasenza, 1995; Friedman, 1994; Tom, 1998). Similarly, Skinner and Belmont (1993) found that instructor behavior and student involvement are linked and influence each other. Students' obedience with teachers, paying attention to what teachers have to say, and being motivated to learn are all influenced by respect.

A good classroom is built on the basis of respect. When you create a respectful classroom culture, a place where children feel safe and respected, you will likely reduce disciplinary concerns while also increasing student motivation. Students will feel at ease speaking, participating, collaborating, and sharing. As a result, respect in the classroom should be fostered, strengthened, and maintained.

Table 7. Behaviour of Grade 8 Students in reference to Safety

INDICATORS	Mean	Verbal Description
Safety		
1. I make sure that classroom is clean, in order, and inviting; a place that is not distracting.	2.40	Fair
2. I help organize our classroom in a way that is danger-free and not prone to accidents.	2.48	Fair
3. I help my teachers and classmates arrange the chairs and tables in a way that it gives us enough	2.41	Fair
4. I help create an environment of good climate, respect and camaraderie.	2.44	Fair
5.I do not wait for others to tell me what to do for safety sake. I will voluntarily be an agent to ensure	2.53	Fair
Over-all Mean	**2.45**	**Fair**

Table 7 shows that the expression of behavioural traits that promote classroom safety is seen "Fairly" with an overall mean of 2.45. Students act responsibly in ensuring the safety and security of the learning environment. This simply requires student cooperation to attain the objectives. The impact of a safe learning environment on student's emotions of safety and ability to learn has been studied previously (Bucholz&Sheffler, 2009; Mayer, 2007; Parrett & Budge, 2012). Furthermore, research has shown that effective learning requires pupils to feel safe in the classroom (Doherty & Abernathy, 1998). According to the referenced literature, it is already overwhelming if students participate in environmental protection.

Hence, the results of the study will give an initial perception that these Grade 8 students fairly involve themselves in making sure that their classroom environment is conducive and healthy.

Table 8. Behaviour of Grade 8 Students in reference to Reinforcement

INDICATORS	Mean	Verbal Description
Reinforcement		
1.I positively react to constructive advises given by my teachers when I do something inappropriate.	2.62	Good
2.I comply the requirements without hesitations given to me by my teachers in order to cope up with my discrepancies in specific subjects.	2.65	Good
3.I voluntarily attend remedial classes initiated by my teacher to bridge my gaps on specific subjects.	2.59	Fair
4.I do not take it negatively if my teacher will scold me for my wrongdoings instead; I take it as a challenge to be better next time.	2.54	Fair
5.I will pay attentively every time my teacher will give lectures and will listen to all his advises and teachings	2.55	Fair
Over-all Mean	**2.59**	**Fair**

Table 8 shows how pupils react to positive reinforcement from their professors. Kids had a "Fairly" good opinion regarding teachers offering students reinforcements, as shown in the table. This just serves to highlight the necessity to reinforce this mindset. One of the most popular behavior control strategies used by teachers is reinforcement. As a result, reinforcement can be used to teach new abilities, replace an interfering behavior with a replacement behavior, raise suitable behaviors, or boost on-task behavior (AFIRM Team, 2015).

Table 9. Behaviour of Grade 8 Students in reference to Class Participation

INDICATORS	Mean	Verbal Description
Class Participation		
1. I am not afraid to stand in class and share my ideas on the subject matter.	2.52	Fair
2. I do not laugh, bully and criticize my classmates if their answers are wrong during oral recitation.	2.51	Fair
3. I always raise my hand every time my teacher will ask questions because I am always ready with answers.	2.49	Fair
4. I encourage my classmates to participate in any class discussions.	2.53	Fair
5. I always participate actively in classroom discussions	2.49	Fair
Over-all Mean	**2.50**	**Fair**

Table 9 shows how students feel about class engagement. Student participation in class is crucial to their learning. Students learn to communicate themselves in a way that others can understand when they speak out in class. Learning how to collect information to improve one's comprehension of a topic may occur when asking questions. It is also a useful teaching tool for teachers. Table 9 shows that the overall manifestation of favorable student behavior toward class involvement is "Fair." The students demonstrate that they respond to and participate in class discussions fairly. They still lack confidence and preparation with the lessons, and as a result, they do not perform well in class. Active classroom participation was critical to the future success of education and students' personal development (Tatar, 2005). Students who are actively involved report higher levels of satisfaction and persistence (Astin, 1999). As a result, it is necessary to encourage pupils to participate and to foster good attitudes toward participating in educational debates.

Table 10. Summary of Behaviour of Grade 8 students

Indicators	Mean	Verbal Description
Behaviour of grade 8 students		
Respect	2.50	Fair
Safety	2.45	Fair
Reinforcement	2.59	Fair
Class Participation	2.50	Fair
Over-all Mean	2.51	Fair
Over-all Mean	**2.50**	**Fair**

Table 10 is used to summarize the behavior of grade 8 students. The students' overall behavior is rated "Fair" with a grand mean of 2.51, as seen in the table.

Students consistently demonstrate positive behavior in terms of respect, safety, reinforcement, and class engagement, according to the findings. According to Ngaire Ashmore (2009), Principal of Tangaroa College, "students are less inclined to behave in ways that risk their opportunities to be a part of

that if they feel connected, if they know that people care." In this way, a happy attitude breeds positive behavior. Students will be immersed in the healthy environment and live the same life as they did in the classroom if the educational environment fosters respect, love, and collaboration.

3. Is there a significant relationship between the level of effectiveness of classroom management techniques and the behaviour of students?

Using the Pearson Coefficient Correlation at 0.05 level It was hypothesized that there is no significant relationship between classroom management techniques and the behaviour of students.

Table 11 Significant relationship between classroom management techniques and behaviour of students

Classroom management techniques	Behavior of students	c- Value	p-value	Significance	Decision
Classroom Design	Respect	.924	.000	p<a	Reject Ho
	Safety	.929	.000	p<a	Reject Ho
	Reinforcement	1.000	.000	p<a	Reject Ho
	Class Participation	.946	.000	p<a	Reject Ho
Rules	Respect	.951	.000	p<a	Reject Ho
	Safety	.921	.000	p<a	Reject Ho
	Reinforcement	1.000	.000	p<a	Reject Ho
	Class Participation	.929	.000	p<a	Reject Ho
Instructional techniques	Respect	.958	.000	p<a	Reject Ho
	Safety	.951	.000	p<a	Reject Ho
	Reinforcement	.946	.000	p<a	Reject Ho
	Class Participation	1.000	.000	p<a	Reject Ho

The substantial association is shown in Table 11. The null hypothesis is rejected since the p-value for classroom design and student behavior in terms of respect, safety, reinforcement, and class involvement is less than the alpha value at the 0.05 level, indicating that there is a meaningful association between the two variables.

It also covers the relationship between rules and student behavior in terms of respect, safety, reinforcement, and class participation on the same table. The null hypothesis is rejected since the computed p-value is smaller than the alpha value at the 0.05 level, indicating that there is a significant association between the two variables. The null hypothesis is rejected since the p-value for instructional strategies such as respect, safety, reinforcement, and class involvement is less than the alpha value at the 0.05 level, indicating that there is a meaningful association between the two variables.

As a result, classroom management practices and student behavior have a substantial link. Ineffective classroom management abilities waste instructional time, diminish time on task, and disrupt learning settings, according to Boynton & Boynton (2005). Disruptive behavior by a few students can have a detrimental influence on the teacher's instruction, which can lead to other students joining in and cause pupils to doubt their teacher's ability if adequate classroom management is not used (Braden & Smith, 2006; Rogers & Freiberg, 1994).

Furthermore, research shows that adopting antecedent classroom management strategies ignores the majority of incorrect classroom behavior while increasing students' attention on the experience and suitable academic pursuits (Hughes, 2014). Teachers must use appropriate and effective classroom management strategies to positively direct students' attitudes and behaviors. Teachers must take their role as both a resource for students and a guide through life's challenges seriously, and should strive to foster healthy relationships with their students (Grant, 2012).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results presented, the following conclusions were drawn:

1. Teachers must identify the gaps, revisit, upgrade, re-evaluate, re-assess, and improve their classroom management practices in terms of classroom design, regulations, and instructional techniques to provide quality and relevant education for all.
2. When it came to respect, safety, reinforcement, and class involvement, the pupils performed admirably. The findings are concerning, and immediate attention is required to address the gaps and misconceptions that have led to these manifestations in students' behavior. Teachers must respond as soon as possible to avoid the potential consequences of uncontrolled behavioural problems among children.
3. Students' behavior is influenced by teachers' classroom management tactics. As a result of the study's findings, teachers should make significant changes in their classroom management techniques. They should identify the flaws in their routines and build a solid foundation of love, respect, and cooperation with the students. It is necessary to strengthen their techniques in order to provide children with a healthy environment.

Recommendations

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

1. The findings should encourage DepEd officials to improve funding allocation for classroom management trainings and seminars.
2. Educators and curriculum developers must refine existing classroom management tactics based on empirical evidence.
3. Teachers' classroom management practices must be examined, and school administrators must determine where the majority of their supervisory and administrative functions should be directed.
4. Teachers should evaluate their current classroom management practices and make changes as needed.
5. Students should remember that respect breeds respect, and that having a positive attitude and demonstrating positive behavior is true education. As a result, people must be aware of the benefits of learning and learn to live with them.
6. Future research will focus on the influential factors, as well as the explanations and possible causes of student behavior, as well as teachers' impressions of classroom management through interviews and focus groups.

Rationale

The recommended intervention strategy is based on the findings of a study on classroom management tactics and student behavior. The intervention plan will address the need for enhancement and improvement of their current classroom management practices, as well as ways to influence student behavior. Teachers, as facilitators and crafters of learning, must be orientated and updated with the numerous efficient techniques of managing their classrooms due to the dynamic changes in the educational system and the expectations of quality education in general. Because the need to adapt to these changes is unavoidable, teachers should step outside of their comfort zones and embrace change now.

Objectives

With the study's worrisome and imposing findings, it is imperative that the gaps be filled and treatments devised. The intervention strategy will concentrate on various enhancing activities, programs, and interventions for teachers and students. Teachers and students should develop a deeper understanding of their classroom management methods at the end of the intervention plan's implementation, and students should recognize and reflect on the repercussions of not nurturing constructive behavior. A new perspective will be instilled as a result of this, geared toward developing healthy and meaningful teaching-learning interactions.

Proposed Intervention Plan for Teachers and Students

IMPLEMENTATION PLAN

ACTIVITIES	OBJECTIVES	PERSONS INVOLVED	TIME FRAME	MATERIALS/EQUIPMENT NEEDED
1. Trainings on Improving Classroom Management Strategies of the Teachers	• To equip teachers on how to manage their classes effectively. • To capacitate teachers on the Do's and Don'ts of managing students	Teachers, Facilitators, Speakers	October, 2019	Training Materials and equipment, LCD projector
2. Learning Action Cell	• To foster cooperative learning through sharing of best classroom management practices and discuss possible ways of how to manage classes effectively. • To have a concerted effort in making sure healthy atmosphere in classrooms through conceptualizing a unified action plan	School Heads Monitoring Supervisors LAC facilitators Teachers Coordinators	January 2019 – February 2020 Twice a month, Friday afternoon	Learning materials, LCD projector, ball pen, paper, bondpaper.
3. Benchmarking on the Best Practices of Classroom management practices from other schools/divisions	• To explore explicit and recognized practices of classroom management to have a clear overview of how it is being practiced and applied.	Focal persons School heads Teachers	January 2019	Bond paper, ball pen, learning materials, flyers, cameras
3. Conduct of	• To foster the values of	Students	January	Sports equipment,
Interest Day (every Friday)	sportsmanship, unity, camaraderie, respect, healthy competition and friendship among students and teachers	Teachers School Heads Coordinators	2019 – February 2020 Every Friday	learning materials
4. Conduct of Quarterly General PTA Meetings	• To monitor and give feedback of the performance of the students to their parents. • To tighten ties with stakeholders and parents in making sure that students are properly monitored in and out of the school	PTA officers School heads SSG Officers Students Teachers	Quarterly January 2019 – March 2020	Bond paper, ball pen, learning materials, flyers, cameras
5. Recollection	• To rekindle good manners and right conduct through reflective approach • To enhance spiritual aspects of the students, instilling God in their lives	Teachers Students Focal persons	February 2010	Materials, microphones, LCD projector

REFERENCES

Antes, A., Biology, J. D.-J. of M. &, & 2014, undefined. (2014). Aligning objectives and assessment in responsible conduct of research instruction. *Am Soc Microbiol*, *15*(2), 12.

Bartlett, J., community, S. S.-A. journal of, & 2019, undefined. (2019). The role of early care and education in addressing early childhood trauma. *Wiley Online Library*, *64*(3–4), 359–372.

Beaty-O'Ferrall, M. E., Green, A., & Hanna, F. (2010). Classroom Management Strategies for Difficult Students: Promoting Change through Relationships. *Middle School Journal*, *41*(4), 4–11.

Behavior, N. P.-C. in H., & 2014, undefined. (n.d.). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual.

Bj€ Ork Gudmundsdottir, G., Ector Hern. Andez Gass. O B, H., Carlos, J., Rubio, C., & Hatlevik, O. E. (2020). Student teachers' responsible use of ICT: Examining two samples in Spain and Norway. *Elsevier*.

Blazar, D., Braslow, D., Charalambous, C. Y., & Hill, H. C. (2017). Attending to General and Mathematics-Specific Dimensions of Teaching: Exploring Factors Across Two Observation Instruments. *Educational Assessment*

Buttner, S., Pijl, S. J., Bijstra, J., & van den Bosch, E. (2015). Personality traits of expert teachers of students with behavioural problems: a review and classification of the literature. *Australian Educational Researcher*,

Clarke, D., education, H. H.-T. and teacher, & 2002, undefined. (n.d.). Elaborating a model of teacher professional growth. *Elsevier*.

Curby, T. W., Brock, L. L., & Hamre, B. K. (2013). Teachers' Emotional Support Consistency Predicts Children's Achievement Gains and Social Skills. *Early Education and Development*,

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*

Education, C. K.-I. J. of H., & 2015, undefined. (2015). Unpacking the Information, Media, and Technology Skills Domain of the New Learning Paradigm. *ERIC*

Evertson, C., … C. W. classroom management, & 2006, undefined. (n.d.). Classroom management as a field of inquiry. *Books.Google.Com*.

Fan, M., & Cai, W. (2020). How does a creative learning environment foster student creativity? An examination on multiple explanatory mechanisms. *Current Psychology*.

Farinde, A. A., Allen, A., & Lewis, C. W. (2016). Retaining Black Teachers: An Examination of Black Female Teachers' Intentions to Remain in K-12 Classrooms. *Equity and Excellence in Education*

Howes, C., Fuligni, A. S., Hong, S. S., Huang, Y. D., & Lara-Cinisomo, S. (2013). The Preschool Instructional Context and Child-Teacher Relationships. *Early Education and Development*

Korpershoek, H., Harms, T., … H. de B.-G. G., & 2014, undefined. (2014). Effective classroom man-

agement strategies and classroom management programs for educational practice. *Researchgate.Net*.

Lane, K. L., & Menzies, H. M. (2014). Classroom management for inclusive settings. *Handbook of Classroom Management*, 205–219.

Leonard, J., … M. M.-J. of T., & 2018, undefined. (2017). Preparing teachers to engage rural students in computational thinking through robotics, game design, and culturally responsive teaching.

Martin, N., Schafer, N., McClowry, S., … E. E.-J. of C., & 2016, undefined. (2016). Expanding the definition of classroom management: Recurring themes and new conceptualizations. *JSTOR*, *51*, 31.

Marzano, R. (2005). *A handbook for classroom management that works*. https://books.google.com/books

Marzano, R., Marzano, J., & Pickering, D. (2003a). *Classroom management that works: Research-based strategies for every teacher*. https://books.google.com/books

Marzano, R., Marzano, J., & Pickering, D. (2003b). *Classroom management that works: Research-based strategies for every teacher*. https://books.google.com/books

Mayer, A., Lechasseur, K., & Donaldson, M. (2018). The structure of tracking: Instructional practices of teachers leading low- and high-track classes. *American Journal of Education*

Ogegbo, A. A., & Ramnarain, U. (2021). A systematic review of computational thinking in science classrooms. *Studies in Science Education*.

Pichancourt, J. B., Chadès, I., Firn, J., van Klinken, R. D., & Martin, T. G. (2012). Simple rules to contain an invasive species with a complex life cycle and high dispersal capacity. *Journal of Applied Ecology*

Piechurska-Kuciel, E. (2020). The big five traits and their ramifications. *Second Language Learning and Teaching*

Scardamalia, M., Bransford, J., Kozma, B., & Quellmalz, E. (2012). New assessments and environments for knowledge building. *Assessment and Teaching of 21st Century Skills*.

Schiavo, R. (2013). *Health communication: From theory to practice*. https://books.google.com/books

Schrum, L., & Levin, B. (2009). *Leading 21st-century schools: Harnessing technology for engagement and achievement*. https://books.google.com/books

Sebastian, J., Herman, K., psychology, W. R.-J. of school, & 2019, undefined. (2019). Do organizational conditions influence teacher implementation of effective classroom management practices: Findings from a randomized trial. *Elsevier*.

Sivri, H., Educational, E. B.-I. O. J. of, & 2015, undefined. (2015). Pre-service Teachers' Classroom Management Self-efficacy Beliefs. *Researchgate.Net*.

Skiba, R., Ormiston, H., Martinez, S., & Cummings, J. (2016). Teaching the Social Curriculum: Classroom Management as Behavioral Instruction. *Theory into Practice*.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*.

Wubbels, T. eo, Brekelmans, M., management, P. D. B.-…, & 2014, undefined. (n.d.). Teacher–student relationships and classroom management. *Taylorfrancis.Com*.

Alberto, P. E., & Troutman, A. C. (2009). Applied Behavior Analysis for Teachers (8th ed.). Upper Saddles River, New Jersey: Pearson Education, Inc.

Adelman, H.S., & Taylor, L. (2002). Building comprehensive, multifaceted, and integrated approaches to address barriers to student learning. Childhood.

AFIRM Team.(2015). Reinforcement. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorder, FPG Child Development Center, University of Carolina. Retrieved from http://afirm.fpg.unc.edu/Reinforcement

Bigelow, Mary 2011"A Teacher's responsibilities". www.classroommangenement.

Berg, W.K., Wacker, D.P., &Steege, M.W. (1995). Best practices in assessment with persons who have severe or profound handicaps. In A. Thomas &J.Grimes (Eds.), Best practices in school psychology-III (3rd ed.,pp.805-816). Washington, DC: National Association of School Psychologists.

Brophy, (1996); Brophy&McCaslin, (1992), The Key to Classroom Management. www.ascd.org/publications/educationalThe-Key-to-Classroom-Management

Dunn and Baker (2002).Classroom Management Theories. Retrieved from Classroom management theories.eduexcellence.org

Emmer, Sanford, Evertson, Clements, & Martin, (1981).www.ascd.org/ASCD/pdf/journals/ed_lead/el

Emmer, Evertson, &Worsham, (2003). The Key to Classroom Management www.ascd.org/publications/educational.../The-Key-to-Classroom-Management Glasser, 1969, 1990

Haysman, 2011https://explorecourses. stanford.edu/search.

Kerman, S., Kimball, T., & Martin, M. (1980). Teacher expectations and student achievement. Bloomingdale, IN: Phi Delta Kappa. Kohn New York: McGraw-Hill.

Key theorists on classroom management.report.weebly.comKizlik 2018.www.amazon.com

Linsin, Michael (2015). How to Create The Perfect Set Of Classroom Rules

Lynch, Matthew, (2018)Understanding Three Key Classroom Management.

Marzano, R.J. (2003). What works in schools: Translating research into action (pp. 104–105). Alexandria, VA: ASCD.

Marzano, 2003a https://www.researchgate.net

McCombs, B. L., &Whisler, J. S. (1997). The learner-centered classroom and school: Strategies for increasing student motivation and achievement.n.cu-portland.edu.classroom management strategies for highschool teachers.

Robyne Hanley-Dafoe (2016) Moving from Classroom Management to Student Engagement. Rohrer. www.classroommanagementplan.com Stage and Quiroz's meta-analysis (1997) https:// www.researchgate.net/.

TJ Landrum, JM Kauffman –(2006) Handbook of classroom management,

Wang, Haertel, and Walberg (1993) https://www.researchgate.net. The Key to Classroom Management

HYGIENE AND MOTIVATION FACTORS, ORGANIZATIONAL COMMITMENT, AND JOB SATISFACTION OF CapSU FACULTY

CARMELIE GRACE D. DAQUIN, EdD
Associate Professor V
College of Education, Arts & Sciences (COEAS)
Capiz State University (CapSU) -Pontevedra Campus
Bailan, Pontevedra, Capiz, Philippines

ABSTRACT

This study aimed to find out the relationship of hygiene and motivation factors, organizational commitment, and job satisfaction of CapSU Faculty. It also aimed to identify the levels of hygiene and motivation factors, organizational commitment, and job satisfaction of the respondents as an entire group and when classified according to their demographic profile , the significant differences in their hygiene and motivation factors and job satisfaction, and so with their organizational commitment; and the significant relationships among the variables of the study. The study utilized the descriptive-correlation design, and to acquire the quantitative data, three (3) standardized questionnaires were used such as the Motivation Questionnaire, the Organizational Commitment Questionnaire (OCQ) adopted from Meyer & Allen's (1997), and the Job Satisfaction Questionnaire (JSQ). Statistical tools used were frequency, percentages, mean, standard deviation, t-test, ANOVA, and Pearson's r, set at .05 alpha level . Results revealed that CapSU Faculty have "high" levels of hygiene and motivation factors, organizational commitment and job satisfaction. When classified as to age, sex, marital status, educational attainment, position/rank, length of service and salary, they have "high" levels of hygiene and motivation factors. They have a similar "high" level of organizational commitment when classified as to factors like age, sex, educational attainment, position/rank, length of service and salary. On the other hand, regardless of age, sex, marital status, educational attainment, position/rank, length of service and salary, they have a "high" level of job satisfaction. Significant differences were found between their hygiene and motivation factors and job satisfaction, and between their hygiene and motivation factors and organizational commitment; no significant relationships existed between their hygiene and motivation factors, and job satisfaction. However, a significant relationship existed between their organizational commitment and job satisfaction.

Keywords: Hygiene factors, motivation factors, organizational commitment, job satisfaction, human resources

INTRODUCTION

The Faculty are undoubtedly the most important resources in an organization. The very existence of an organization will be at stake without the efficient human resources, and its goal remains unattainable unless its human resources are motivated, satisfied and are committed to the organization. The root source of quality and productivity gains is the employees. It is very important then, for organizations to see employees as the fundamental source of improvement.

The need for ensuring the faculty's spirit of cooperation, sense of commitment and satisfaction within the organization's sphere of influence had never been such an impending necessity. It becomes very important for them to love what they do and enjoy what they do since the enjoyment factor not only motivates them but also increases their efficiency on the whole. At present times when organizations are facing to challenges in retaining their key employees, it has become imperative to add elements in the job that keeps employees attached to what they do and stick them to work where they work. This need has been not less important in third world countries like the Philippines where the popular term "brain

drain" is squeezing companies out of their skilled manpower, intelligent executives and visionary managers.

Do job satisfaction and organizational commitment have a great impact on the successful performance of an organization? Satisfied and committed teachers identify with the goals and values of the organization, and they put in that extra-effort that plays the crucial role in leading the competition. Thus, this study should be seen as a step towards making a positive contribution to the retention of faculty in the institution.

This study was anchored on the Two-factor theory of Herzberg (1959) who theorized that two elements are responsible for individuals' level of job satisfaction or dissatisfaction: hygiene factors and motivators. According to Herzberg (2015), hygiene factors are those factors which are not responsible for motivating employees but result in job dissatisfaction if they are not present at sufficient levels. In contrast, motivators are those factors which affect job satisfaction and levels of motivation by enriching the job experience. Herzberg (1966) viewed that people will strive to achieve 'hygiene' needs because they are unhappy without them, but once satisfied, the effect soon wears off - satisfaction is temporary.

This study was also anchored on Locke's (1976) Affect theory which asserts that job satisfaction is determined by a discrepancy between what an employee desires from the job and what he gets in the job. Further, the theory states that how much an employee values a given factor of job moderates how satisfied/dissatisfied he becomes when expectations are/are not met. The theory states also that people who are serious about their employment are more affected (positively or negatively) than those who have a casual approach to work.

This study attempted to determine the impact of hygiene and motivation factors and organizational commitment on the job satisfaction of CapSU Faculty. If the findings are promising, it is hoped that School managers would be able to use the information to adopt and implement policies and programs that would improve the faculty's motivation, commitment and satisfaction on their jobs.

STATEMENT OF THE PROBLEM

The primary aim of the study was to find out the impact of hygiene and motivation factors, and organizational commitment on the job satisfaction of CapSU Faculty.

Specifically, this study aimed to answer the following questions:

1. What is the level of hygiene and motivation factors of CapSU Faculty as an entire group and when classified according to their demographic profile?
2. What is their level of organizational commitment as an entire group and when classified according to their demographic profile?
3. What is the level of job satisfaction of the respondents as an entire group and when classified according to their demographic profile?
4. Is there a significant difference in the respondents' hygiene and motivation factors and job satisfaction?
5. Is there a significant difference in the respondents' hygiene and motivation factors and organizational commitment?
6. Are there significant relationships among the respondents' hygiene and motivation factors, organization commitment and job satisfaction?

METHODOLOGY

This survey correlation study was conducted among the 60 out of 70 Faculty members of Capiz State University (CapSU). Stratified Proportionate Random sampling was used in the identification and selection of the respondents which was done using the lottery technique. Slips of paper with corresponding numbers were placed in separate boxes and the required sample/s were picked from each box.

To acquire the quantitative data, the researcher used a questionnaire composed of four parts. Part 1 gathered the demographic profile of the respondents in terms of age, gender, marital status, education attainment, position/rank, length of service, and basic monthly salary. Part 2, the Motivation Questionnaire, gathered information on the Hygiene and Motivation factors of the respondents, Part 3, the Organ-

izational Commitment Questionnaire (OCQ) adopted from Meyer & Allen's (1997), was for the Organizational Commitment and Part 4, the Job Satisfaction Questionnaire (JSQ), was for their job satisfaction.

Descriptive statistics employed were frequency, percentages, mean and standard deviations. Inferential statistics used were the t-test for independent samples for two-category variables and One-way Analysis of Variance (ANOVA) for more than two categories. Pearson's r was also used to determine the relationship among the different variables. The .05 alpha level was used as the criterion for all inferential tests.

FINDINGS

1. As an entire group, Faculty members have "high" level of hygiene and motivation factors. Among the hygiene factors, those which were considered "very high" are university policy, relationship with peers and work security while love of money and pay satisfaction were considered "moderately high". On the other hand, among the motivation factors, "growth" was considered "very high" by the CapSU Faculty while the rest which were considered as "high" are achievement, advancement, work itself and recognition.

When classified as to age, sex, marital status, educational attainment, position/rank, length of service and salary, CapSU Faculty have "high" levels of hygiene and motivation factors.

3. CapSU Faculty have "high" level of organizational commitment. On the other hand, the widow-respondent turned out to have a "very high" level of organizational commitment in contrast to the single and married ones where they have "high" level of organizational commitment. When classified as to other factors like age, sex, educational attainment, position/rank, length of service and salary, the Faculty members have a similar "high" level of organizational commitment.

3. As an entire group, CapSU Faculty have "high" level of job satisfaction. It was also noted that regardless of age, sex, marital status, educational attainment, position/rank, length of service and salary, they have a "high" level of job satisfaction.

4. There is a significant difference between the respondents' hygiene and motivation factors and job satisfaction.

5. There is a significant difference between the respondents' hygiene and motivation factors and organizational commitment.

Table 3. t-test Results on the Paired Difference in the Job Satisfaction of the CapSU Faculty

Category	Mean	SD	Mean	t-diff.	df value	Sig.(2-tailed
Hygiene and Motivation						
Factors and	3.99	.45	0.14	2.93	*132	.004
Job Satisfaction	3.84	.32				
Hygiene and Motivation						
Factors and	3.99	.45	0.25	3.63	*132	.000
Organizational Commitment	3.74	.61				

$p < .05$ – significant at 5% level

6. There is no significant relationship between the respondents' hygiene and motivation factors, and job satisfaction. However, a significant relationship exists between their organizational commitment and job satisfaction.

Table 4. Results of Pearson r on the Relationships Among Hygiene and Motivation Factors, Organizational Commitment and Job Satisfaction

Variable	Hygiene and Motivation Factors		Organizational Commitment		Job Satisfaction	
	r-value	r-prob.	r-value	r-prob.	r-value	r-prob.
Hygiene and Motivation Factors	-	-	-.056	.524	-.051	.559
Organizational Commitment	-	-	-	-	.489	.000
Job Satisfaction	-	-	-	-	-	-

CONCLUSIONS

1. CapSU Faculty seem to have higher "hygiene" motivators and it does not induce positive orientation towards job rather reduce the extent of dissatisfaction level experienced by individuals. This implies that CapSU Faculty give more value on extrinsic factors of motivation such a company policy, relationship with peers and work security.
2. The high level of commitment indicates that CapSU Faculty are staying back with the organization maybe because of the cost of leaving the organization or it is too much trouble to go somewhere else. They perceive the high costs of losing organizational membership, including economic costs (such as pension accruals) and social costs (friendship ties with co-workers) that would be incurred. This implies that employees remain as members of the organization because they "have to".
3. CapSU Faculty have "high" level of job satisfaction regardless of their age, sex, marital status, educational attainment, position/rank, length of service and salary. This may be due to the fact that they are almost equally satisfied with their job. It might also be an indication that they are treated equally and given the fair opportunities of advancement in their work in the University.
4. CapSU Faculty are well-motivated and hence, are highly satisfied with their work here. Results of the study indicate that they have 'very high' hygiene factors with regard to "company policy", "relationship with peers" and "work security" compared to "love of money" and "pay satisfaction" as moderately high.
5. At CapSU, there exists a working environment that encourages people to stay such as fair pay, challenging and meaningful work tasks, and positive co-worker relationships. Furthermore, the administration provides feedback about the employees' performance and allowed employees to participate in decision-making. Thus, the employees' tendency to stay with the institution is more related to wanting to, rather than needing to or feeling they ought to.
6. The reason why hygiene and motivation factors and job satisfaction are not related may be due to the fact that job satisfaction is not dependent on whether the employees are motivated or not since employees seem to feel happy and satisfied with their jobs regardless of their motivation. This implies that hygiene and motivation factors are not the main predictors of job satisfaction.

CapSU Faculty are satisfied with their managers, co-workers, pay policies and future promotion that made them become committed to their organizations and satisfied with their jobs. This shows that the great commitment of employees with the institution has strong impact on their satisfaction and both these variables lead to their long and continuous stay at CapSU.

RECOMMENDATIONS

1. It is suggested that the Administration give attention to their salary and benefits, supervisory practices, and relationship with the authorities which, not only will prevent dissatisfaction and loss of their motivation, but it will also enhance their job satisfaction and motivation.
2. The administration and heads of the different units can increase the faculty' motivation by timely payment of wages and benefits, promoting them based on their performance and merit, providing job security in the school, supervision and developing appropriate relationships with and among the faculty in the organization.
3. As there is a high correlation among the dimensions of hygiene factor, it is suggested that administrators and heads consider all these factors together and try to provide all of them in order to motivate the faculty, since lack of attention to some of these factors can cause an adverse impact on other factors and can make some problems to the authorities in their efforts in other aspects.
4. Faculty members must readily re-invent themselves and take responsibility for managing their careers with support from employers. Satisfaction might be found in "sacrificial labor," otherwise referred to as labor of love. Uppermost in one's minds should be the quest for self-actualization.
5. To further build organizational commitment, the administrators must regularly communicate with the human resources; assess their capacity to engage in various initiatives; give honest feedback; develop their strengths; identify their 'blind-spots'; make decisions; and most of all, value each person's unique style and capabilities.
6. The administrators have to make more efforts to develop human resource policies that are in align-

ment to the needs and motivation of the employees to strengthen their motivation, commitment and job satisfaction.

7.   Further research to observe the relationship between motivation, organizational commitment, and job satisfaction could be implied on other generations of workforce especially to include senior level officers to gather findings that are more comprehensive on the subject matter.

SHORT ACKNOWLEDGMENT

REFERENCES

Abozed, Mohamad, Melaine, Yassine, Saci, Karima, (2010). The Influence Of Work Environmental Factors On Motivation To Transfer Management Training: Case Study Of The Libyan Oil Industry. Journal of Management Development, 13(7).

Abu-Bader, S. H. (2005). Gender, ethnicity, and job satisfaction among social workers in Israel. *Administration in Social Work* . Vol 29(3). (http://www.haworthpress.com/web/ASW)

Akintoye, I.R. (2000). The place of financial management in personnel psychology. A Paper Presented as Part of Personnel Psychology Guest Lecture Series. Department of Guidance and Counselling, University of Ibadan, Nigeria.

Al-Ajmi, R. (2006). The effect of gender on job satisfaction and organizational commitment in Kuwait. *International Journal of Management* . 23(4), 838-943

Andres, L. and Grayson, J. P (2002). Educational attainment, occupational status and job satisfaction. A ten- year portrait of Canadian young women and men. *Paper presented at the annual meeting of the American Educational Research Association, New Orleans ,*April 1-5,2002

Angle, H. and Perry, J. (1981). An empirical assessment of organizational commitment and organizational effectiveness. *Administrative Science Quarterly,*26, 1-14.

Armstrong, Michael, (2009). Human Resource Management (Translated by: Hussein Pahlavanian,JamshidSeyyed Mehdi HosseiniZavareh and JamshidKomayi), tenth edition, Yazd, NikouRavesh Publications.

Atif Anis et al (2011) Impact of organizational commitment on job satisfaction and employee retention in pharmaceutical industry. African Journal of Business Management Vol. 5(17), pp. 7316-7324. http://www.academicjournals.org/AJBM/, retrieved 07/17/12.

Ball, R. and Chik, R. (2001). Early employment outcomes of home and foreign educated graduates: The Malaysians experience. Journal of Higher Education. 42(2), 171-189

Bateman, T. & Strasser, S. (1984). "A longitudinal analysis of the antecedents of organizational commitment". Academy of Management Journal, 21, 95-112.

Bernal, J. G., Castel, A. G., Navarro, M. M. and Torres, P. R. (2005). Job satisfaction: empirical evidence of gender differences. Women in Management Review. 20(4), 279-288

Bolon, D.S. (1997). "Organizational Citizenship Behavior Among Hospital Employees: A Multidimen-

sional Analysis Involving job Satisfaction and Organizational Commitment". Hospital & Health Services Administration, 42, 2, 221-241.

Buchanan, B. (1974). Building organizational commitment: The socialization of managers in work organizations. *Administrative Science Quarterly*, 19, 533-546.

Carvajal, M.J. and Hardigan, P.C. (1999). Estimation of pharmacy students' expected job satisfaction functions: Inter-gender differences. *Am. J.Pharm. Educ* . Vol 63, 285-289

Cohen, A. (1996). On the discriminant validity of the Meyer and Allen measure of organizational commitment: How does it fit with the work commitment construct? Educational and Psychological Measurement, 56, 494-503.

Crossman, A. (2003). The relationships of age and length of service with job satisfaction: An examination of hotel employees in Thailand. Managerial Psychology, 18, 745–758.

Crossman A, Abou-Zaki B (2003). Job satisfaction and employee performance of Lebanese banking staff. J. Manage. Psychol., 18(4): 368-376

Dawson, B. (2005). Motivation leaders to better results. Journal of Rubber and Plastics, 37, 11–15.

Dissanayake D. R, An Empirical Study on the Impact of Hygiene and Motivation Factors on Job Satisfaction of Bank Executives in Western Province, Sri Lanka (http://www.kln.ac.lk/uokr/ICBI2011/HRM%20936.pdf, retrieved on 06/22/12)

Döckel, A., Basson, J.S. & Coetzee, M. (2006). 'The effect of retention factors on organizational commitment: An investigation of high technology employees', *South African Journal of Human Resource Management,* 4(2): 20–28.

Donohue, S. M. and Heywood, J. S. (2003). Job satisfaction and gender: an expanded specification from the NLSY. International Journal of Manpower. 25(2), 211-234

Falcone, S. (1991). Self assessments and job satisfaction in public and private organizations. *Public Productivity Review*. 14(4), 385-396

Fang, Y. (2001). Turnover propensity and its causes among Singapore nurses: an empirical study. International Journal of Human Resource Management, 12(5), 859-871.

Farrell, D. and Rusbult, C. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of rewards, costs, alternatives, and investments. *Organizational Behavior and Human Performance*, 27, 78-95.

Fischer, A. & M. Muller, (2000). Perception of nursing series managers in the South Africa Military Healthservice on their level of motivation, 23(4): 63-71.

Finn CP (2001). Autonomy: an important component for nurses' job Satisfaction. Int. J. Nurs. Stud., 38: 349–357.

Fowler, F. J. (1995). Improving survey questions: Design and evaluation. Thousand Oaks: Sage Publications

Furnham A., Eracleous A. (2009). Personality, motivation and job satisfaction: Herzberg meets the Big Five. Journal of Managerial Psychology, 24, 765-779.

Ghazzawi, I. (2008). 'Job satisfaction antecedents and consequences: A new conceptual framework and research agenda', *Business Review,* 11(2): 1–10.

Goodman et al (2007). *Management: Challenges for Tomorrow's Leaders.* International student edition. Thomson.

H*erzberg, F., Mausner, B., & Snyderman*, B. B. (1959). The Motivation to Work (2nd ed.). New York: John Wiley & Sons.

Herzberg, F. (1966). Work and the nature of man. Cleveland, OH: World Publishing Company

Howard, J. and Frink, D. (1996). The effects of organizational restructure on employee satisfaction. *Group& Organization Management*. 21(3), 278-303

Hrebiniak, L., and Alutto J. (1972). Personal and role-related factors in the development of organizational commitment. *Administrative Science Quarterly*, 17, 555-572.

Kafi, B., (2006). A Theory of Human Resources Management, Tehran: FarazAndishSabz Publications.

Kinicki, A. and Kreitner, R. (2003). Organizational behavior: Key concepts, skills and best practices (international ed.). New York: McGraw-Hill Companies, Inc.

Kinicki, A., McKee-Ryan, F. M., Schriesheim, C. A. and Carson, K. P. (2002). Assessing the construct validity of the Job Descriptive Index: A review and meta-analysis. Journal of Applied Psychology, 87(1), 14-32.

Klaus, T., LeRouge, C. & Blanton, J.E. (2003). An examination of the relationships between select na-

ture of work characteristics and organizational commitment of IT professionals, Special Interest Group on Computer Personnel Research Annual Conference, Session 3.2, 147–149.

Kochan, T. A. (2002). Addressing the crisis in confidence in corporations: root causes, victims, and strategies for reform. Academy of Management Executives, 16(3), 139–141.

Koch, J. and Steers, R. (1978). Job attachment, satisfaction, and turnover among public employees. *Journal of Vocational Behavior*, 12, 119-128.

Kotze, K. & Roodt, G. (2005). 'Factors that affect the retention of managerial and specialist staff: An exploratory study of an employee commitment model', *South African Journal of Human Resource Management,* 3(2): 48–55.

Lumley, E. (2010). Exploring the relationship between career anchors, job satisfaction and organisational commitment. Unpublished master's dissertation, Department of Industrial and Organisational Psychology, University of South Africa, Pretoria.

Lawler, E. E. (1973). Employee reactions to job characteristics. Journal of Applied Psychology, 55, 259–286.

Locke, E. (1976). 'The Nature and Causes of Job Satisfaction',In M.D. Dunnettee. 'Hand Book of Industrial and Organisational Psychology".

Mahmaud, Alhussami. (2008). A study of Nurses Job satisfaction: The relationship to Organizational commitment, Perceived organizational support, Transactional Leadership, Transformational leadership and the level of education. European Journal of Scientific research, 22(2), 286-295.

Marjolein, Deileman, Pham Viet Coung2, Le Vu Anh2 and Tim Martineau, (2003). Identifying Factors for Job Motivation of Rural Health Workers in North Viet Nam.

Martins, N. & Coetzee, M. (2007). 'Organisational culture, employee satisfaction, perceived leader emotional compentency and personality type: An exploratory study in a South African engineering company', *South African Journal of Human Resource Management*, 5(2): 20–32.

Maslow, A. (1954). Motivation and personality. New York: McGraw Hill.

McNeely, R. L. (1984). Occupation, gender and work satisfaction in a comprehensive human services department. *Administration in Social Work.* 8(2), 35-47

Metropolitan Life [MetLife]. (2001). The MetLife survey of the American teacher, 2001: Key elements of quality schools. New York: Author.

Meyer, J. P., Becker, T. E., & Vandenberghe, C. (2004). Employee commitment and motivation: A conceptual analysis and integrative model. Journal of Applied Psychology, 89, 991–1007. http://repository.christuniversity.in/1825/1/jasmine.pdf (ret 07/03/12)

Meyer, J.P., Stanley, D.J., Herscovitch, L. and L. Topolnytsky (2002), "Affective, Continuance, and Normative Commitment to the Organization: A Meta-analysis of Antecedents, Correlates, and Consequences", *Journal of Vocational Behavior*, 61,20-52.

Meyer, J.P. & Allen, N.J. (1991). A Three-component conceptualization of organizational commitment. Human Resource Management Review, 1, 61-89.

Meyer, J. P. Allen, N. J. Smith, C. A. (1993). "Commitment to Organizations and Occupations: Extension and Test of a Three-Component Conceptualization". Journal of Applied Psychology, 78, 4, 538-552.

Meyer, J.P. & Allen, N.J. (1997). Commitment in the Workplace: Theory, Research, and Application. Thousand Oaks, CA: Sage Publications.

Mickbeal, B., (2008). The implications of Herzberg's Motivation – Hygience theory for management in the Irish health sector. The Health Care Management Journal, 25(1): 4-11.

Morrison, R. (2008). 'Negative relationships in the workplace: Associations with organizational commitment, cohesion, job satisfaction and intention turnover', *Journal of Management and Organization*, 14: 330–344.

*Mosadeghrad, A.M.,Ferlie E., & Rosenberg, D.(*2008).A study of the relationship between Job satisfaction, Organizational commitment and Turnover intention among Hospital employees, Health service Management Resource, 21,211-227.

Mowday, R., Porter, L., and Steers, R. (1982). *Employee Organization Linkages*. New York: Academic Press.

Mowday, R., Steers, R., and Porter, L. (1997). The measurement of organizational commitment. Journal of Vocational Behavior, 14, 224-247.

Nigel Bassett-Jones, Geoffrey C. Lloyd, (2005). Does Herzberg's motivation theory have staying power?

Journal of Management Development, 24(10): 930.

Nwachukwu Prince Ololube (2007, *PROFESSIONALISM, DEMOGRAPHICS, AND MOTIVATION: PREDICTORS OF JOB SATISFACTION AMONG NIGERIAN TEACHERS,* International Journal of Education Policy & Leadership, August 28, 2007. Volume 2, Number 7 http://journals.sfu.ca/ijepl/ index.php/ijepl/article/view/67/28) retrieved on 07/20/12

Opdenakker, M. C., & Van Damme, J. (2006). Teacher characteristics and teaching styles as effectiveness enhancing factors of classroom practice. Teaching and Teacher Education, 22(1), 1-21.

Okpara, Squillace and Erondu (2005). Gender differences and job satisfaction: a study of university teachers in the United States. *Women in Management Review* . 20(3), 177-190

Oshagbemi, T. (2000). Gender differences in the job satisfaction of university teachers. Women in Management Review. 15(7), 331-343

Perie, M., & Baker, D. (1997). Job satisfaction among America's teachers: Effects of workplace conditions, background characteristics and teacher compensation. Washington, D.C.: National Center for Education Statistics.

Ramlall, S. (2004). A review of employee motivation theories and their implications for employee retention within organizations. American Academy of Business, 5, 52–63.

Rayton, B. A. (2006). Examining the interconnection of job satisfaction and organizational commitment: an application of the bivariate probit model. International Journal of Human Resource Management, 17(1), 139-154.

Rego A, Cunha MP (2008). Perceptions of authentizotic climates and employee happiness: pathways to individual performance? J. Bus. Res., 61(7): 739-752

Riggio, R.E. (2009). *Introduction to Industrial/Organisational Psychology*. London: Pearson.

Robbins, S. P. (2001). Organizational behavior, (9th ed.). New Jersey: Prentice Hall.

Robbins S.P., and Judge T.A. (2007). Organizational Behaviour. Twelfth Edition, Prentice Hall of India Private Limited, New Delhi

Robbins, S. P., (2010). Organizational Behavior, (translated by Mehdi Zare), Tehran: Nas Scientific and Cultural Institute.

Rogers, R. (1991). The effects of educational level on correctional officer job satisfaction. *Journal of Criminal Justice*. Vol. 19, 123-37

Rothmann, S. & Coetzer, E. (2002). 'The relationship between personality dimensions and job satisfaction', *Business Dynamics*, 11(1): 29–42.

Saari, L. & Judge, T. (2004). 'Employee attitudes and job satisfaction', *Human Resource Management*, 43(4): 395–407.

Santhapparaj, A. S and Syed Shah Alam (2005). Job satisfaction among academic staff in private universities in Malaysia. *Journal for Social Sciences 1*. 1(2), 72-76

Sararaks, S. and Jamaluddin, R. (1997). Job satisfaction of doctors in Negeri Sembilan. Medical Journal Malaysia. 52(3),257-263

Shahnawaz, M.G., & Juyal, Rakesh. (2006). Human Resource Management Practices and Organizational Commitment in Different Organizations. Journal of the Indian Academy of Applied Psychology, 32 (3), 171-178.

Shikdar, A. A., & Das, B. (2003). A strategy for improving worker satisfaction and job attitudes in a repetitive industrial task: application of production standards and performance feedback. Ergonomics, 46(5), 466–481

Sinclair, R.R., Tucker, J.S., Cullen, J.C., & Wright, C. (2005). Performance differences among four organizational commitment profiles. *Journal of Applied Psychology 90 (6)*, 1280-1287.

Sloan, A. (2002, June 24). The jury is in: greed isn't good, Newsweek, 37.

Soltani, Iraj., (2000). The role of human resource development in promoting productivity, Journal of Public Administration, No. 39.

Spears, M., Gould, K., & Lee, B. (2000). Who would be a teacher? A review of factors teacher retention unit: Teacher retention facts and statistics. CPS Human Resources.

Spector, P. 2008. *Industrial and Organizational Behaviour* (5th edition). New Jersey: John Wiley & Sons.

Tan Teck-Hong* and Amna Waheed, HERZBERG'S MOTIVATION-HYGIENE THEORY AND JOB SATISFACTION IN THE MALAYSIAN RETAIL SECTOR:THE MEDIATING EFFECT OF LOVE OF MONEY. Asian Academy of Management Journal, Vol. 16, No. 1, 73–94, January

2011© Asian Academy of Management and Penerbit Universiti Sains Malaysia, 2011 (http://web.usm.my/aamj/16.1.2011/AAMJ_16.1.4.pdf, retrieved on 07/23/12)

Tang, T. L. P., Luna-Arocas, R., Sutarso, T., & Tang, D. S. H. (2004). Does the love of money moderate and mediate the income-pay satisfaction relationship? Journal of Managerial Psychology, 2, 111–135.

Tett, R. P. and Meyer, J. P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analyses based on meta-analytic findings. Personnel Psychology, 46(2), 259-293.

Tye, B. B., & O'Brien, L. (2002). Why are experienced teachers leaving the profession? Phi Delta Kappan, 84(1), 24-32.

Williams, L. J. and Hazer, J. T. (1986). Antecedents and consequences of satisfaction and commitment in turnover models: A reanalysis using latent variable structural equation methods. *Journal of Applied Psychology*, 71 (2), 219-231.

Yang J (2009). Antecedents and consequences of job satisfaction in the hotel industry Jen-Te Int. J. Hosp. Management.

Yoon, J. and Thye, S. R. (2002). A dual process model of organizational commitment: Job satisfaction and organizational support. Work & Occupations, 29(1), 97.

Voke, H. (2002). Understanding the teacher shortage. ASCD InfroBrief, 29, 1-17.

Westlund, S. & Hannon, J. (2008). 'Retaining talent: assessing job satisfaction facets most significantly related to software developer turnover intentions', *Journal of Information*

Technology Management 19(4): 1–15.

Yang, H., et al (2008). 'The influence of a pay increase on job satisfaction: A study with the Chinese army', *Social Behaviour and Personality*,36(10): 1333–1340.

Zainuddin, R. and Mat Din (2009), A Study About Gender, Education Level, Salary And Job Satisfaction. http://www.scribd.com/doc/22108379/A-Study-About-Gender-Education-Level-Salary-And-Job-Satisfaction, retrieved on 07/26/12.

Electronic References:

http://userwww.sfsu.edu/~nschultz/documents/knowledge/organizational.commitment.pdf
http://www.scribd.com/doc/22108379/A-Study-About-Gender-Education-Level-Salary-And-Job-satisfaction
http://www.scribd.com/doc/21616918/job-satisfaction-
http://userwww.sfsu.edu/~nschultz/documents/knowledge/organizational.commitment.pdf
http://www.scribd.com/doc/59184261/Evaluation-of-Allen-and-Meyer%E2%80%99s-Organizational-Commitment-Scale-Abdullah
http://www.academicjournals.org/ajbm/PDF/pdf2011/4Sept/Anis%20et%20al.pdf

SANITATION MANAGEMENT PRACTICES OF THE FOOD ESTABLISHMENTS OF SURIGAO CITY PUBLIC MARKET: AN ASSESSMENT

GABRIEL P. LLASOS JR.
Faculty, College of Teacher Education,
Surigao State College of Technology
Surigao City, Philippines

ABSTRACT

This research assesses the sanitation management practices among food establishments in Surigao City Public Market. It discusses the sanitation practices of food establishment as to planning, organizing, structuring, directing, controlling and evaluating. Descriptive research method was utilized to determine the sanitation management practices involving 76 respondents who were determined using the purposive sampling. This research was analyzed through using frequency count, percentage distribution, and weighted mean. The findings of the study revealed that most of the respondents were female managers. Sanitation management practices were strictly observed and implemented in the Surigao City market. Sex or gender of the respondents was found not significant in the perceptions of the respondents on sanitation management. The variables on age, highest educational attainment along with the function of structuring, type of respondents, and numbers of years in the business with respect to directing has shown a significant difference in their perceptions on sanitation management practices except for organizing function. Thus, this study recommends that the health inspectors should visit regularly the market and educate workers on food safety laws and proper ways of handling foods. Employees need to show that they know how to handle food safely. Furthermore, regular sanitary inspection may recommend for business supervision in cases of irregularities of food safety practices.

Keywords: Sanitation, Food Service, Management Practices, Perceptions, Assessment

INTRODUCTION

The food industry plays an important role in meeting the food demands of the urban dwellers in developing countries. Food industries in forms of restaurants, eateries and other food inns feed millions of people daily with a wide variety of foods that are relatively cheap and accessible.

Cahigas (2008) stressed that fast foods have significant nutritional implications (nutritionally) balanced diet, sufficient in quantity and presenting options for variety and choice for customers, particularly from middle and low income sectors of the population who depend heavily on them. The same author asserts that foods in the Philippines provide a substantial amount of income for most fast-food owners, with most of them earning an income above the official minimum wage while some of them earn twice or more of this amount.

The hectic lifestyles of present items increasingly force people to dine out regularly which resulted to hundreds of new food establishments coming up every year. Although food is highly relevant, the totality of its safety for human consumption counts all the more. Poor hygiene and sanitation are major contributors of diseases, which may lead to malnutrition. Providing clean and safe environment must be a basic requirement of every food establishment to ensure that the consumer's health and well-being are maximized (Mwangi, 2002).

In order to minimize and eradicate the prevalence of food-borne diseases brought by sub-standard food houses, proper food sanitary management practice must be observed. Food sanitation management involves the methods of food storage and handling, identifying and inhibiting food-borne illnesses and preventing cross contamination between food items in the kitchen. Among its practices include sanitation and food protection, good manufacturing and management practices, and other environmental and

operating conditions necessary for the production of safe and wholesome food. (Talukder, 2002).

However, regardless of the type of food handling operation, the number one consideration in food sanitation is people, hence, ongoing personnel training of the appropriate sanitation principles, food handling practices, manufacturing controls, and personal hygiene practices is a must. (n.a.,2010).

Like any goal to attain, food sanitary management also involves series of management functions in order to realize its goals. It includes planning, organizing, structuring, directing, controlling and evaluating activities to ensure that food sanitation is well observed. Setting objectives of what needs to be achieved is vital as it helps to direct action plans. Organization and structuring, on the other hand, aid in allocating human and financial resources and designate assignments to employees. In the process of carrying out functions, managers must positively influence their inferiors and ensure that they are not deviating from standards. More so, assessment in the progress of the activities must be continuously done to determine which plan of actions needs to be revised or terminated (Carpenter, 2004).

In Surigao City Central Public Market, it is observed that many transient people are taking their meals in any of the side-walk eateries and food stalls nearby. Many of them prefer to dine in due to the number of transactions they have to attend to which is hampered when they prefer to eat at home. However, the congested area and poor environmental sanitation, the fact that it is a public market, are just few of the problems which must be given high regard.

OBJECTIVES

This study aimed to determine the sanitation management of food service establishments in Surigao city public market.

Specifically, this study sought to answer the following questions:
1. What is the profile of the respondents as to the following?
    1.1 age;
    1.2 sex;
    1.3 highest educational attainment;
    1.4 number of years in the business?
2. To what extent do the respondents perceive the sanitation management practices in their food establishment with regard to:
    2.1 planning;
    2.2 organizing;
    2.3 structuring;
    2.4 directing;
    2.5 controlling, and
    2.6 evaluating?
3. Is there a significant difference in the perceptions of respondents in problem 2 when they are grouped according to their profiled factors cited in problem 1?
4. Is there a significant difference among the perceptions of proprietors, managers, proprietor-managers, and workers toward sanitation management practices?
5. Based on the results of the study, what recommendations may be made for effective sanitation management practices?

METHODOLOGY

Research Design

The present study used the descriptive design adopting the differential and correlational methods. A descriptive survey design was used to answer the profile of the respondents and the extent concerning the sanitation management practices of food establishment in Surigao City Public Market.

In addition, the differential method was also employed in determining the significant difference in the perception of the respondents when they are grouped according to their profile variables and also determining the significant difference between the groups of respondents towards sanitation management aspects.
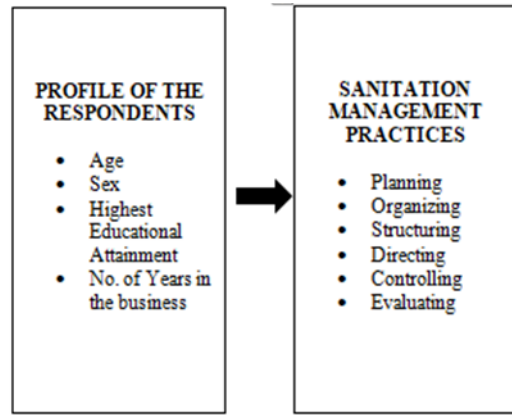
Figure 1. Research Paradigm

Research Environment

This study was conducted in Surigao City Public Market, the central public market in the city as well as in Surigao Del Norte which offers a big choice of goods like fish, rice, vegetables, meat and fruits. It is located along San Nicolas and Borromeo streets and is surrounded by many establishments to include the dry good establishments and food service establishments.

Respondents

The respondents of this study were proprietor, proprietor-manager, manager and workers of the different food establishments in the Surigao City public market. The total number of respondents of the study is presented in Table 1.

Research Instrument

A researcher-made survey instrument presented in Appendix A was utilized in gathering the needed data in the study. The questionnaire was made up of two parts. Part 1 ascertained the profile variables of the respondents as to sex, age, highest educational attainment and the number of years in the business. Part 2 assessed the sanitation management practices in terms of planning, organizing, structuring, directing, controlling and evaluating.

Since the survey instrument is researcher's made, the draft was presented to the panel for further suggestions. The revision was made to come up with a refined survey instrument. Furthermore, a run-rerun was conducted to the 5 non-participant establishments far distance from the central public market of Surigao city. This was purposely done to find out the validity as to the clarity of the items or statements being asked. The survey instrument was conducted twice with 15 days interval. Results showed that the computed coefficients of .789 and .822 described a high reliable result.

RESULTS AND DISCUSSIONS

Table 1. Distribution of the Respondents

Respondents	N	n	%
Proprietor-manager	22	22	27.50
Proprietor	8	8	10.00
Manager	30	29	36.25
Worker	30	21	26.25
Total	90	80	100

Table 1 shows that majority of the respondents are Manager with 29 or 36.25% of the total population. The lowest samples of respondents are Proprietor 8 (10.00%). A total of 80 exceeds the minimum sample size required to represent the more than 50% plus one of the total population.

Comparison of the Responses of the Four Groups of Respondents

<div align="center">

Table 2. Sanitation Management Practices

</div>

Type of Respondents	Planning		Organizing		Structuring		Directing		Controlling		Evaluating	
	M	QD	M	QD	M	QD	M	QD	M	QD	M	QD
Proprietor-Manager	3.46	Strongly Agree	3.38	Strongly Agree	3.38	Strongly Agree	3.49	Strongly Agree	3.52	Strongly Agree	3.58	Strongly Agree
Proprietor	3.43	Strongly Agree	3.51	Strongly Agree	3.60	Strongly Agree	3.68	Strongly Agree	3.57	Strongly Agree	3.53	Strongly Agree
Manager	3.60	Strongly Agree	3.74	Strongly Agree	3.68	Strongly Agree	3.73	Strongly Agree	3.70	Strongly Agree	3.66	Strongly Agree
Worker	3.66	Strongly Agree	3.62	Strongly Agree	3.72	Strongly Agree	3.75	Strongly Agree	3.76	Strongly Agree	3.65	Strongly Agree

Table 2 shows the summary of responses of the four groups of respondents along the managerial functions of Planning, Organizing, Structuring, Directing, Controlling, and Evaluating.

It can be seen that the sanitation management practices along the managerial functions on planning, organizing, structuring, directing, controlling, and evaluating are rated Strongly Agree. This implies that the sanitation management practices are strictly and effectively observed and implemented in the Surigao City central public market.

Food safety and sanitation is very important public concern. If this is not observed by a certain community, it would have serious and long term consequences and is life-threatening. It is then the role and responsibility of the Management to provide safe food to the consumers and maintain cleanliness in the surroundings. Mead (2008) recommended that the supervision of the food service establishments shall be designated to management or an individual who is in charge for the responsibility and duty of ensuring that personnel follow appropriate food safety and hygiene practices.

<div align="center">

Table 3. Differences on Sanitation Management Practices when grouped according to Profile

</div>

Profile	Aspects	SS	df	MS	SS	df	MS	F	FO.05	Decision	Interpretation
			EFFECT			ERROR					
AGE	Planning	6.96	4	1.74	12.55	75	0.17	10.4	2.49	Rejected	Significant
	Organizing	5.74	4	1.43	16.53	75	0.22	6.51	2.49	Rejected	Significant
	Structuring	5.52	4	1.38	16.79	75	0.22	6.17	2.49	Rejected	Significant
	Directing	3.14	4	0.78	15.76	75	0.21	3.73	2.49	Rejected	Significant
	Controlling	6.07	4	1.52	20.00	75	0.27	5.69	2.49	Rejected	Significant
	Evaluating	7.19	4	1.80	16.34	75	0.22	8.25	2.49	Rejected	Significant
SEX	Planning	0.03	1	0.03	19.48	78	0.25	0.10	3.96	Accepted	Not Significant
	Organizing	0.00	1	0.00	22.27	78	0.29	0.01	3.96	Accepted	Not Significant
	Structuring	0.04	1	0.04	22.28	78	0.29	0.14	3.96	Accepted	Not Significant
	Directing	0.02	1	0.02	18.88	78	0.24	0.09	3.96	Accepted	Not Significant
	Controlling	0.08	1	0.08	25.99	78	0.33	0.23	3.96	Accepted	Not Significant
	Evaluating	0.01	1	0.01	23.52	78	0.30	0.03	3.96	Accepted	Not Significant
NUMBER OF YEARS IN BUSINESS & WORK	Planning	4.50	3	1.50	15.01	76	0.20	7.60	2.72	Rejected	Significant
	Organizing	3.12	3	1.04	19.15	76	0.25	4.12	2.72	Rejected	Significant
	Structuring	3.16	3	1.05	19.15	76	0.25	4.18	2.72	Rejected	Significant
	Directing	1.36	3	0.45	17.54	76	0.23	1.97	2.72	Accepted	Not Significant
	Controlling	3.77	3	1.26	22.30	76	0.29	4.28	2.72	Rejected	Significant
	Evaluating	4.14	3	1.38	19.40	76	0.26	5.40	2.72	Rejected	Significant
HIGHEST EDUCATIONAL ATTAINMENT	Planning	1.14	3	0.38	18.37	76	0.24	1.57	2.72	Accepted	Not Significant
	Organizing	0.18	3	0.06	22.09	76	0.29	0.20	2.72	Accepted	Not Significant
	Structuring	1.60	3	0.53	20.72	76	0.27	1.95	2.72	Accepted	Not Significant
	Directing	1.70	3	0.57	17.20	76	0.23	2.51	2.72	Accepted	Not Significant
	Controlling	0.56	3	0.19	25.51	76	0.34	0.56	2.72	Rejected	Significant
	Evaluating	2.75	3	0.92	20.78	76	0.27	3.35	2.72	Rejected	Significant
TYPE OF RESPONDENTS	Planning	3.40	3	1.13	16.11	76	0.21	5.34	2.72	Rejected	Significant
	Organizing	2.01	3	0.67	20.26	76	0.27	2.51	2.72	Accepted	Not Significant
	Structuring	2.71	3	0.90	19.60	76	0.26	3.51	2.72	Rejected	Significant
	Directing	3.47	3	1.16	15.43	76	0.20	5.70	2.72	Rejected	Significant
	Controlling	2.71	3	0.90	23.36	76	0.31	2.94	2.72	Rejected	Significant
	Evaluating	3.86	3	1.29	19.68	76	0.26	4.97	2.72	Rejected	Significant

Presented in Table 3 is the significant difference of the respondents' sanitation management practices when grouped according to profile variable of the study. It revealed that the F-values on planning (10.40), organizing (6.51), structuring (6.17), directing (3.73), controlling (5.69), and evaluating (8.25) are all greater than the critical values when tested at 0.05 level of significance along the age variable. These indicate that the null hypothesis is rejected. This means that the significant difference on sanitation management practices was found when they were grouped according to age variable. The findings of the study are confirmed with Alberto's study (2006) when he considered age as a variable. He found out that the older the manager, the better is the perception on sanitation management practices due to this intensive exposure to trainings, seminars, and perhaps experiences.

As to the number of years in business/and working, a significant differences in found in all managerial functions except for directing. This goes to show that the older the respondents in business and in work, the more thorough and knowledgeable they are on how to work safely with food. It is understood that when an employee or a worker is equipped with knowledge and understanding of food safety procedures, the more that he/she needs not to be directed nor led on what to perform in the food service establishments. This is confirmed with the sanitary program certification of the United States of America where food service managers and other staff members are required to complete a course provided by the local health department to be certified as a "Food Handler".

As to the highest educational attainment, it is seen that no significant difference existed in all aspects of sanitation management except for evaluating. This indicates that the four groups of respondents despite their varied education earned, their perception on sanitary management does not necessary differ. Though, they vary in their perception on Evaluating. This might be due to the fact that evaluating is a task performed by those individual who are educationally equipped and qualified. In educational parlance, those who perform the task of evaluation are usually supervisors and administrators whose one of the requirements to become and be promoted as an administrator is their educational qualification.

The above insights are backed up by Moonhawk (2010) that employees are the most important resource in the organization. As managers/supervisors, it is their primary responsibility to ensure that employees are qualified to do the work they are hired and paid to perform. One key way to do this is through regular employee performance evaluations. Regular effective evaluation/ appraisal of employee performance is a key way of identifying strengths and weaknesses with the goal of improving individual performance.

As to the type of respondents, it revealed that a significant difference existed on the different managerial functions except for organizing. That indicates that proprietor, manager, worker, and proprietor-manager perceived sanitation management practices in different ways. Perception is a complex cognitive process and differs from one person to person. And this is true to the respondents of this study. Their viewpoints with regard to sanitation management vary. This finding is affirmed by the study of Varisco (20089) that black Americans perceived water and food sanitation differently depending on their setting whether rural or urban, the current availability and adequacy of water and sanitation, exposure to waste and cleanliness, and other environmental factors.

However, the four groups of respondents are of the same thinking when it comes to organizing functions. This is so because the arrangement of food items and other commodities in the food service establishments is a function of the employer where the employees will only have to follow on what the employer had said.

CONCLUSIONS AND RECOMMENDATIONS

Findings
Based from the gathered data in relation to the objectives of this study, the following are the significant findings:
1. It was revealed that the Sanitation Management Practices in Surigao City Central Public Market along the areas on Planning, Organizing, Structuring, Directing, Controlling and Evaluating are all qualitatively described as Strongly Agree.
2. It was found out that there is no significant difference in the perceptions of the respondents regarding the sanitation management practices when grouped according to sex. However, there is a significant difference exists in terms of age, number of years in the business and educational attainment.

3. Considering the four groups of respondents, the sanitation management practices is comparably similar with a qualitative description of strongly agree in all items along the six aspects considered in the study.

Conclusion

      Based on the findings from the gathered data, it was found out that the sanitation management practices are strictly observed and implemented in Surigao City central public market. This could be deduced that cleanliness and sanitation is maintained in the market since most of the workers are females and according to Fleming (2009), females are more organized and concerned of cleanliness while males are concerned of tedious works like carrying of heavy things.

RECOMMENDATIONS

      Premised from the foregoing conclusions, the following recommendations are given:

1. Though, sanitation management practices are observed, it is still recommended that health inspectors are encouraged to visit the market and food manufacturing facilities to enforce local food safety laws and educate workers on proper ways to handle food.
2. Management and staff are encouraged to be regularly trained for proper food safety practices. Employees need to show they know how to handle food safely. A health inspector can shut down a restaurant if he or she is unsatisfied with employees' level of knowledge on how to work safely with food.
3. Owners of food must understand local health codes to ensure public safely. One way to demonstrate this knowledge is also important because health inspectors will quiz managers and employees to ensure they have a thorough understanding of food safety procedures.
4. Food establishments should have a food safety management system. A program that comprised inter-related procedures, activities and recommended equipment used to ensure food does not harm human health. Furthermore, this must be designed to ensure that customers are kept safe from food borne illness and that facilities can pass required health inspection.

REFERENCES

Abrugar, S.Y. (2009). The Importance of Organizing your Business Organization. Retrieved from: http://www.businessaccent.com

Adams, G.S. (2001). The importance of honesty. Retrieved from: http://honesty is the best Policy

Alberto, T.W. (2006). Sanitation Management. Retrieved from: (http://www.fao.org/docrep/meeting/008/j295le.htm).

Belmer, A.O. (2010). The 2001 Food Code. Retrieved from: http//www.cfsan.fda.gov

Cahigas, L.O. (2008). Nutritional Guidelines for Filipinos Manila, Philippines: FNRI pp.78-84.

Calingap, J.L. (2007). The Choice of Health Status Indicators. Arlington, VA.,USA, pp.103-115.

Campbell, S.T (2010). The Importance of Business Location. Retrieved from: http://www.ezinearticles.com

Carpenter, Mazon (2004). Principles of Management. New York: Harper and Row

Chakroff, A.R. (2008). Food Management. Arlington, Virginia: Volunteers in Technical Assistance.

Delly, J.O. (2008). Strengthening Official Safety Control Services and Water Supply Sanitation. Second FAO/WHO global forum of food safety regulations, Bangkok, Thailand.

Delven, G.J. (2006). The Importance of Food Quality and Safety for Developing Countries. FAO, Rome.

Dencer, W.U. (2009). How to Control as a Management Function. Retrieved from: http://www.ehow.com.

Dharmadhikari, D.S. (2009). Importance of cleaning and Sanitation. Retrieved from: http://extension/iastate.htm.

Edwards, P.O. (2008). The Management and Treatment of Medical Waste. Retrieved from: http://www.tips-and-guides.com.

Elias, C.V. (2009). How to organize the kitchen. Retrieved from: http://www.kitchen.com

Ellis, S.O. (2010). Business Leadership and Control. The application of risk analysis in food control-challenges and benefits. FAO/WHO Regional Conference on Food Safety for Asia and Pacific, Sereban, Malaysia.

Erven S.E. (2009). Directing as a Managerial Function. Retrieved from http://southcenter.org./publications/researchpapers/Research Papers1.

Ervin, B. (2002). Directing: Removing Barriers. Ohio: Department of Agriculture Economics.

FAO. Agriculture Food and Nutrition for Africa. A resource book for Teachers of agriculture, FAO, Rome. 1997:123.

Felben, I.P. (2010). Necessary Inspection Session. Retrieved from: http://www.gardening.wsu.edu/library/vege011.htm.

Fleming, O.L. (2009). Females in Food Service Establishments. Conference in emerging Infectious disease. Atlanta, Georgia.

Folsie, K.D. (2006). Draft Revised Guidelines for the Design of Control Measures for Street vended Foods in Africa. FAO, Rome 1999:24-43.

Fromm, J.O. (2009). Controlling: From: http://www.cdc.gov/ncidod/eid Vol5no1/sterling.htm.

Gershoff SN. (2002). Environmental And Personal Hygiene: London: pp.114-164.

Guzman, IT. (2006). Basic Foods for Filipinos, Manila Philippines; Merriam and Webster, Inc. p.402.

Jeffress, H. (2010). The Importance of Experience and being respected. Retrieved from: http://www.theweatherprediction.com.

Hellriegell, J.P. (2009). The need of adequate goals and objectives. mngt.educ.

Kinton, H.I. (2001). Food Poisoning in Restaurant and other Service Establishments. Retrieved from: http://ucce.ucdavis.edu/files/datastore/234-503234-503.

Kowtaluk, (2000). Quality control of genetically modified foods of plant origin. Report of a Joint FAO/WHO Expert Consultation on Food Derived from Biotechnology. World Health Organization.

Kinton, R and Ceserani, V.; The Theory of Catering. Butler and Tanner Ltd, London. 2002; pp.440-476.

Lau, L.O. (2008). Surveillance of food-borne disease. MMWR: 49 (SS01): 1-15.

Leonard, J. (2002). Managing Hazardous Materials; United Nation: pp.156-168.

Marley, U.W. (2006). Directing as a function. Retrieved from http://directing.wsu.edu/Library/vege011/vege011.htm.

Mead, S.I. (2008). Food-related illness and death In the United States of America. Emergency Infect. Dis.Vol.5,No 5.

Miller, Justin C. (2008). Importance of your Business Education. Retrieved from: http://www.suit101.com

Mintzberg, G. (2004). The Nature of Managerial Work. New York: Harper & Row.

Moonhawk, K.I. (2010). How to do an employee Performance evaluation. Retrieved from http://www.ehow.com

Moorty, D.Y. (2010). Importance of Planning in Business Management. Retrieved from http://www.ehow.com

Mwangi, L.P. A Nutritional, Hygienic and Social Economic Dimensions of Street Foods in Urban Areas: The case of Nairobi. (Unpublished Doctoral Thesis): University of Wageningen, The Netherlands. 2002 pp.43,91 and 108. n.a. (2010). Food Safety and Environmental Services. Arizona: HIPAA.

Perkens, Noel (2007). A Strong Business Organization Stucture is Paramount to Business Success. Alabama: Business Plan Press.

Potter, S.I. (2009). Fruit Flies. University of Kentuchy, College of Agriculture.

Puteri KN. (2007). "A Sanitation Field Manual". Vol. 11 World Bank, Washington, D.C. pp.88-94.

Rao, R.K. (2002). A Sanitation Field Manual, Appropriate Technolgy for Garbage Disposal and Sanitation Series, Vol.11 (World Bank, Washington, D.C.) pp.256-260.

Ravenholt, A. (1999). "Malnutrition in the Philippines" Am University Field Staff Rep. Asia. Pp.3-12.

Ravenholt, A. (2004). Children and Street Foods. Foods, Nutrition and Agriculture. 17/18. FAO, Rome.2004:28.

Relly, A.O. (2008). Water Supply System. Retrieved from:http://www.water.contamination.

Schmidt, F.S. (2009). Food safety risk analysis. A Guide for National Food Safety Authorities. Procedural Manual of Codex Alimentarious Commission.

Strang, G.C. (2006). Manual of Career Choice. Palgrave McMillan. London. Routledge.

Talukder, (2002). http://www.WHO.Int/PEH/CEH/Bangkok/booklet par2 May2002.pdf. Foods in Africa. FAO, Rome.1999:24-23.

Timmes, M.J. (2005). Pediatric Nutrition Handbook. 4th ed. American Academy of Pediatrics.

Tyrone, A.R. (2010). Fight Bacteria. Retrieved from: http://www.fightbac.org/fourstep.

UNICEF. www.unicef.org/infobycountry/Philippines.html.

Varisco, A.Y. (2009). Sanitation in the Republic of Egypt. Washington, DC: Mathematics for U.S. USAID.

Visaya-Abano, (2006). Solid Waste Management, Manila, Philippines. Pp.54-60.

Voetch, D.C. (2009). Home delivered meals: Food quality, nutrient content and characteristics of recipient. Jam Diet Assoc. 88:55-65.

Walden, S.Y. (2009). Performance Monitoring Evaluation. Retrieved from: http://www.performance-evaluation.com

Willis, A.Y. (2006). Why is planning important? Retrieved from: http://ww.articleally.com

Zeitlin, D.P. and Beiser, L.J. (2002). Food Safety and Sanitation, General Principles. Where do fresh Fruits and Vegetables Fit?, University of California

FACTORS AFFECTING THE DROP-OUTS OF ISABELA STATE UNIVERSITY JONES CAMPUS AY 2016-2019: A BASIS FOR INTERVENTION PROGRAM

JESSICA B. CURIBANG
ROMEL R. BOSITO
VALERIE JANE D. FAUSTO
Isabela State University-Jones Campus
Isabela, Philippines

ABSTRACT

Dropping out is a serious problem because it denies individual students their fundamental human right to education (Cavalida 2017). The respondents of this study were the students who dropped out from Isabela State University Jones Campus. The researcher used frequency and percent in the profile of the respondents and weighted mean in the factors affecting the drop-outs. Four (4) point Likert scale was used in this study to avoid neutral option and to get a specific response. Multivariate Analysis of Covariance (MANCOVA) and Univariate Analysis of Covariance was used to test the difference between the respondent's profile and the factors affecting the drop-outs. Based on the findings of the study, according to the profile of the respondents, majority of them were nineteen years of age, male, single, first year students, under Bachelor of Science in Agriculture and in academic year 2018-2019. The results show that peer factor particularly the absenteeism was the main factor that affects the number of drop outs of Isabela State University-Jones Campus. Based on the test of significant difference it found out that female participants had significantly higher agreeableness to peer (M = 2.50, SE = 1.94) and family (M = 2.54, SE = 0.12) as drop-out factor compared to male participants (for peer: M = 2.10, SE = 0.08; for family: M = 2.54, SE = 0.12).

Keywords: drop-out, peer factor, absenteeism, family factor

INTRODUCTION

Education has an important part in the country's economic development since it boosts people's capacity and ability to be more productive. Education is the most effective means of overcoming all personal and social issues. Education imparts knowledge of the world and transforms it into something more beneficial. It evolves into a way of looking at life. Receiving a good education helps empower yourself, thus making people strong enough to look after themselves in difficult situations It helps people to avail their rights as a citizen and seek improvement in the structural functioning of governance and economic system (Manav Modi,2019).

School dropout has been defined as leaving education without obtaining a minimal credential, most often a higher secondary education diploma (De Witte et al., 2013). Estimates of dropout rates seem to be higher in South and West Asia (43%) and sub-Saharian Africa (36%), while other geopolitical areas such as East Asia, and Europe show similar lower dropout rates (between 4 and 12%) (United Nations Educational, Scientific and Cultural Organization, 2012; European Commission Education Training, 2013).

In Spain, where the present study is conducted, dropout rates are estimated as high as 22% (Andrei et al., 2012; Korhonen et al., 2014) with a greater incidence among males (26.6%). Although there is great diversity of standards by which school dropout and completion are measured across various studies (Cataldi et al., 2009), these figures illustrate the relevance of school dropout worldwide and ask for a close study of its causes and consequences.

Regarding school factors, truancy has been identified in several studies as a risk factor for school dropout (Tramontina et al., 2001; Kearney, 2008; Ekstrand, 2015). According to Wilkins and Bost

(2016), truancy might indicate that students are potentially disengaged from school and that a trajectory toward dropping out is likely. Truancy has been regarded as a resistance to the school culture (Zhang, 2007) which results in negative developmental outcomes such as deviant behaviors, crime and delinquency (Henry, 2007; Huck, 2011).

Wilson et al. (2011), who have found in total 167 experimental or quasi-experimental studies eligible for inclusion in their systematic review on school dropout and completion. There are two main reasons why high quality studies of dropout prevention measures or interventions are lacking. First, as various observed and unobserved factors influence the decision to leave school early, evaluations may fail to show program effectiveness. This would result in 'publication bias' (i.e., negative or insignificant results are not published). Second, there is a general lack of uniformity and transparency with respect to school attendance and enrollment registration. Many studies therefore have to rely on surveys/questionnaires or (costly) local experimental settings. Due to self-reported data on attendance behavior and sample selection, this may lead to difficult statistical inference.

Wilson et al. (2011), found out in his research that in total 167 experimental or quasi-experimental studies eligible for inclusion in their systematic review on school dropout and completion. There are two main reasons why high quality studies of dropout prevention measures or interventions are lacking. First, as various observed and unobserved factors influence the decision to leave school early, evaluations may fail to show program effectiveness. This would result in 'publication bias' (i.e., negative or insignificant results are not published). Second, there is a general lack of uniformity and transparency with respect to school attendance and enrollment registration. Many studies therefore have to rely on surveys/questionnaires or (costly) local experimental settings. Due to self-reported data on attendance behavior and sample selection, this may lead to difficult statistical inference. Duchesne et al. (2005), Ishitani and Snider (2006), and Koball (2007). Parental employment is also believed to be an adequate estimator of the students' likelihood of leaving education before graduating.

Duchesne et al. (2005), Ishitani and Snider (2006), and Koball (2007) observed that parental employment is also believed to be an adequate estimator of the students' likelihood of leaving education before graduating.

In the study conducted by Cavalida J. (2017), Dropping out is a serious problem because it denies individual students their fundamental human right to education. In her study, it revealed that financial resources were the major reason why students drop out of school

Ou and Reynolds (2006), as well as academic and social integration and the kind of courses available have noted that with respect to course taking, there is a clear effect for younger students, but not for older ones. This may be due to the fact that pupils who made it through the earliest grades, are better situated to make it to the final grades. Be that as it may, having available appropriately challenging courses in each case appears important as well as having plenty of opportunities for extracurricular activities, and after-school, summer or special programs. Moreover, teachers' experience/expectations and instruction quality are all aspects that influence the propensity to drop out. Crucial thereby seems to be students' perceptions of teacher (and teaching) quality, rather than that of school principals.

OBJECTIVES

The general objectives of this study is to determine the different factors affecting the drop-outs of the Isabela State University-Jones Campus.

Specifically, this study has the following objectives:
1. To identify the profile of the respondents in terms of;
    1.1 Age;
    1.2 Gender;
    1.3 Civil Status;
    1.4 Course;
    1.5 Year level and;
    1.6 Academic year.
2. To determine the extent of the factors affecting the drop-out of the Isabela State University-Jones Campus in terms of:

2.1. Instructor;

2.2. Family;

2.3. Peer and;

2.4. Academic Performance

3. Is there a significant difference in the extent of the factors affecting the drop-out of Isabela State University-Jones Campus across the profile of the respondents?

4. To develop programs to address the factors affecting the drop-out of Isabela State University-Jones Campus.

METHODOLOGY

Research Design. This study used descriptive research since it aims to measure the extent of factors affecting the drop-outs of the Isabela State University Jones Campus. The researchers used quota sampling in selecting the respondents of the study depending on their availability. The respondents of the study were the students who dropped out from Isabela State University Jones Campus. Moreover, the study used frequency and percent were used to analyze the profile variables and weighted mean in the factors affecting the drop-outs. Four (4) point Likert scales were used in this study to avoid neutral options and to get a specific response. Multivariate Analysis of Covariance (MANCOVA) and Univariate Analysis of Covariance were used to test the difference between the respondent's profile and the factors affecting the drop-outs of the Isabela State University-Jones Campus, Jones Isabela.

Research Instrument. In measuring the extent of factors affecting the drop-out of the Isabela State University-Jones Campus, the following scale will be utilized.

Scale	Range	Interpretation/Description
4	3.26-4.00	Strongly Agree
3	2.26-3.25	Agree
2	1.76-2.25	Disagree
1	1.00-1.75	Strongly Disagree

RESULTS AND DISCUSSION

1. Profile of the Respondents

Table 1.1 Frequency and Percentage Distribution of Respondents According to Age

Age	Frequency	Percent
15 years old	3	6.25
16 years old	10	20.83
17 years old	6	12.5
18 years old	3	6.25
19 years old	11	23
20 years old	8	16.66
21 years old and Above	7	14.58
TOTAL	**48**	**100**

Table 1.1 shows that eleven (11) or 23 percent of the responders were 19 years old, while three (3) or 6.25 percent were 15. According to the data, the majority of the study's participants were teenagers.

Table 1.2 Frequency and Percentage Distribution of the Respondents According to Gender

Age	Frequency	Percent
Male	31	64.58
Female	17	35.42
TOTAL	**48**	**100**

According to table 1.2, thirty-one (31) males made up 64.58 percent of the respondents, while seventeen (17) females made up 35.42 percent. As gleaned from the data, the majority of the respondents were male.

Table 1.3 Frequency and Percentage Distribution of the Respondents According to Civil Status

Civil Status	Frequency	Percent
Single	47	97.92
Married	1	2.08
TOTAL	48	100

As shown in Table 1.3, the majority of the respondents, 97.92 were single.

Table 1.4 Frequency and Percentage Distribution of the Respondents'
Course When They Drop out from School.

Course When They Drop-out from School	Frequency	Percent
Bachelor of Science in Agriculture	22	45.83
Bachelor of Science in Secondary Education	5	10.42
Bachelor of Science in Criminology	16	33.33
Bachelor of Science in Information Technology	5	10.42
TOTAL	48	100

As shown in table 1.4, twenty-two (22) or 45.83% were under Bachelor of Science in Agriculture and five (5) or 10.42 is under Bachelor of Science in Secondary Education and Bachelor of Science in Information technology. As gleaned from the data, the majority of the respondents is an agriculture student.

Table 1.5 Frequency and Percentage Distribution of the Respondent's
Year Level When They Dropped-out from School.

Year Level	Frequency	Percent
1st Year	27	56.25
2nd Year	14	29.17
3rd Year	6	12.5
4th Year	1	2.08
TOTAL	48	100

As shown in table 1.5, twenty-seven (27) or 56.25% were in the first year and one (1) or 2.08% were the fourth year. the data shows that majority of the respondents were in their freshman year.

Table 1.6 Frequency and Percentage Distribution of the Respondents'
Academic Year When They Dropped-out from School.

Academic Year	Frequency	Percent
2016-2017	14	29.17
2017-2018	10	20.83
2018-2019	24	50
TOTAL	48	100

As shown in table 1.6, twenty-four (24) or 50% of the respondents were in 2018-2019 and ten (10) or 20.83 were in 2017-2018. As gleaned from the data, half of the respondents were in the academic year 2018-2019.

2. Factors Affecting the Drop-outs of Isabela State University Jones Campus

Table 2.1 Instructor factor

Instructor's Factor	Weighted Mean	Interpretative Description	Rank
1. The teachers portray favouritism inside the classroom	1.92	Disagree	3
2. The teachers embarrassed the students who are unable to answer during recitation	2.06	Disagree	2
3. The teacher doesn't show enthusiasm while teaching	1.56	Strongly Disagree	5
4. The teacher uses traditional (copy and write) methods of teaching and rarely uses modern methods (projectors and the like)	2.47	Agree	1
5. The teacher doesn't explain well, thus fail to motivate students.	1.60	Strongly Disagree	4
Over-all Weighted Mean	**1.92**	**Disagree**	

As shown in Table 2.1, the respondents agree in the teacher uses traditional (copy and write) methods of teaching and rarely uses modern methods (projectors and the like) with a mean of 2.27 and strongly disagree in the teacher doesn't show enthusiasm while teaching with a mean of 1.56). An over-overall of 1.92, indicates that in general the respondents "disagree" with the Instructor factor.

Table 2.2 Family factor

Family Factor	Weighted Mean	Interpretative Description	Rank
1. Insufficient financial support	3.47	Strongly Agree	1
2. Broken families	1.63	Disagree	5
3. Lack of parental supervision due to distance (staying in boarding houses)	2.81	Agree	2
4. Lack of moral support (parents who are not supportive on the students chosen course)	1.64	Disagree	4
5. High demand in household chores	1.95	Disagree	3
Over-all Weighted Mean	**2.3**	**Agree**	

As shown in Table 2.2, the respondents strongly agree in insufficient financial support with a mean of 3.47 and disagree with broken families with a mean of 1.63. An overall mean of 2.3 indicates that in general, the respondents "agree" with the family factor.

Table 2.3 Peer factor

Peer Factor	Weighted Mean	Interpretative Description	Rank
1. Association to fraternity or gangs involves in juvenile acts	2.10	Disagree	3
2. Exposure to vices due to peer pressure	2.79	Agree	2
3. Existence of bullying	1.77	Disagree	5
4. Discrimination	1.93	Disagree	4
5. Peer influence (absenteeism)	3.27	Strongly Agree	1
Over-all Weighted Mean	**2.37**	**Agree**	

As shown in Table 2.3, the respondents strongly agree with peer influence (absenteeism) with a mean of 3.27 and disagree with the existence of bullying with a mean of 1.77. An overall mean of 2.37, indicates that in general the respondents "agree" in peer factor.

Table 2.4 Academic factor

Academic Performance	Weighted Mean	Interpretative Description	Rank
1. Failing grades	3.33	Strongly Agree	1
2. Involvement to extracurricular activities	2.20	Disagree	3
3. Insufficient instructional resources	1.77	Disagree	5
4. Different commitments. (Time Management)	2.25	Disagree	2
5. Lack of interest in the program enrolled.	2.08	Disagree	4
Over-all Weighted Mean	**2.33**	**Agree**	

As shown in Table 2.4, the respondents strongly agree with failing grades with a mean of 3.33 and disagree with insufficient instructional materials with a mean of 1.77. An overall mean of 2.33 indicates that in general the respondents "agree" in academic performance.

3. Summary of the factors affecting the drop-outs of Isabela State University-Jones Campus

Table 3.1 Factors affecting the Drop-outs of Isabela State University-Jones Campus

Factors Affecting the Drop-outs	Weighted Mean	Interpretative Description	Rank
1. Instructor's Factor	1.92	Disagree	4
2. Family Factor	2.3	Agree	3
3. Peer Factor	2.37	Agree	1
4. Academic Performance	2.33	Agree	2

In general, as shown in Table 3.1, the respondents agree that the number one factor affecting the dropouts in Isabela State University Jones Campus was the peer factor.

4. Testing of Significant Difference Between the Profile of the Respondents and the Factors Affecting the Drop-Outs.

In the analysis of data, the researcher utilized the **multivariate analysis of covariance** (MANCOVA) procedure to quantify the effect of profile variables (i.e., gender, course, age, and year level) on student drop-out factors (i.e., instructor, family, peer, and academic factors). Pillai-**Bartlett's trace** (V) was used to quantify these effects and the associated **F-statistic** to quantify the significance. To break down the effect of significant profile variable predictors on each of the drop-out factors, a **univariate analysis of variance** was used including follow-up comparisons on variable categories.

There was a significant effect of gender to the agreeableness of the participants on the drop-out factors enumerated in the questionnaire, $V = 0.29$, $F(4, 38) = 3.83$, $p = 0.010$, $p_{adj} = 0.040$ (see Table).However, there was no significant effect of course, $V = 0.35$, $F(12, 120) = 1.34$, $p = 0.206$, $p_{adj} = 0.824$, age, $V = 0.19$, $F(4, 38) = 2.21$, $p = 0.086$, $p_{adj} = 0.344$, and year level, $V = 0.14$, $F(4, 38) = 1.56$, $p = 0.206$, $p_{adj} = 0.824$, to the drop-out factors.

Table 4.1 Multivariate Statistics for the Effect of Profile Variables to Drop-out Factors

Profile	V	F		p
Gender	0.29	3.83*	(4,38)	.010
Course	0.35	1.34	(12,120)	.206
Age	0.19	2.21	(4, 38)	.086
Year level	0.14	1.56	(4,38)	.206

Note. V = Pillai-Bartlett's statistic. Enclosed in parentheses are hypothesis and error degrees of freedom, respectively.
*$p_{adj} < .05$.

For the next analyses, only the effect of gender to the four drop-out factors will be explored since the overall effect for the other profile variables were not statistically significant, and for reasons that any statistically significant results for succeeding analysis will be most likely due to Type I error.

Table 4.2 explores the effect of participants' gender to their agreeableness on the drop-out factors using univariate statistics. Gender has a statically significant effect to peer, $F(1, 41) = 9.77$, $p = .003$, and family, $F(1, 41) = 4.24$, $p = .046$, as drop-out factors but not statistically significant to instructor, $F(1, 41) = 1.30$, $p = .261$, and academic factors, $F(1, 41) = 1.77$, $p = .191$.

Table 4.2 Univariate Statistics and Parameter Estimates for the Effect of Gender to Drop-out Factors

	Univariate ANOVA		Marginal means comparison		
	F(1, 41)	*p*	Male	Female	*p*
Instructor factor	1.30	.261	2.15 (0.09)	1.99 (0.13)	.261
Family factor	4.24*	.046	2.27 (0.08)	2.54 (0.12)	.046
Peer factor	9.77**	.003	2.10 (0.08)	2.50 (1.94)	.003
Academic factor	1.77	.191	2.45 (0.11)	2.23 (0.15)	.191

Note. Marginal means were evaluated at the average values of the covariates year level and age. Enclosed in parentheses are standard errors for marginal means. ANOVA = analysis of variance.
*$p < .05$. **$p < .01$.

Further analysis showed that female participants had significantly higher agreeableness to peer (M = 2.50, SE = 1.94) and family (M = 2.54, SE = 0.12) as drop-out factor compared to male participants (for peer: M = 2.10, SE = 0.08; for family: M = 2.54, SE = 0.12).

CONCLUSION

Based on the findings of the study, according to the profile of the respondents, the majority of them was nineteen years of age, male, single, first-year students, under Bachelor of Science in Agriculture and in the academic year 2018-2019. The results show that the peer factor was the main factor that affects the number of dropouts of Isabela State University-Jones Campus. Based on the test of significant difference it found out that female participants had significantly higher agreeableness to peer (M = 2.50, SE = 1.94) and family (M = 2.54, SE = 0.12) as drop-out factor compared to male participants (for peer: M = 2.10, SE = 0.08; for family: M = 2.54, SE = 0.12).

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following intervention programs/ solution was offered:
1. The faculty members may use IT equipment as a mode of instruction;
2. Students with financial problems may be prioritized in the scholarship grants;
3. Scholarship coordinator may conduct an assessment regarding the financial issues of the students;
4. Each College/Department may strengthen the consultation hours and the students shall undergo regular seminars on the effects of the peer influences
5. Instructors/subject teachers may motivate the students to attend the class regularly

REFERENCES

Cavalida J. (2014). Factors Affecting Students' Decision To Drop Out Of School. SLONGAN Volume 2 (2014). http://www.cjc.edu.ph/wp-content/uploads/2017/02/slongan-v2-01.pdf.

De Witte, Kristof & Cabus, Sofie & Thyssen, Geert & Groot, Wim & Maassenvandenbrink, H.. (2013). A Critical Review of the Literature on School Dropout. Educational Research Review. 10.1016/ j.edurev.2013.05.002.

Fernández-Suárez, A., Herrero, J., Pérez, B., Juarros-Basterretxea, J., & Rodríguez-Díaz, F. J. (2016). Risk Factors for School Dropout in a Sample of Juvenile Offenders. *Frontiers in psychology*, *7*, 1993. https://doi.org/10.3389/fpsyg.2016.01993

Ou, S.-R., & Reynolds, A. J. (2008). Predictors of educational attainment in the Chicago Longitudinal Study. *School Psychology Quarterly, 23*(2), 199–229. https://doi.org/10.1037/1045-3830.23.2.199

Wilson S, Tanner-Smith E, Lipsey M, Steinka-Fry S. & Morission J. (2011). Dropout Prevention and Intervention Programs: Effects on School Completion and Dropout among School-aged Children and Youth. Campbell Systemaric Review. Volume 7, Issue 1, doi/full/10.4073/csr.2011.8

PHYTOCHEMICAL ANALYSIS OF *Trichantera Gigantea* PLANTED AT MARKADUKE RESEARCH AND DEVELOPMENT CENTER (MRDC) MARINDUQUE, PHILIPPINES

JOEAUNA O. LARGA-LOTO
Marinduque State College
Marinduque, Philippines

ABSTRACT

In the Philippines, the alternative swine feeds which are cheap and locally available are always sought. One of these locally grown and available in backyard is the trichantera.Trichantera gigantea is good source of nutrients for growth and development of livestock. The plantation of trichantera in Markaduke Research and Development Center in Marinduque Philippines was established year 2015 and able to sustain the needs of native pigs. Ten (10) kgs. leaves of trichantera was harvested and pass-through moisture reduction procedure .Five kgs. of the harvest was air dried and the other 5 kgs. was sun dried. The sample was packed into four containing 0.25 kg for both samples and submitted to the analytical services laboratory in University of the Philippines Los Baños, Laguna. The proximate analysis showed that the percentage of moisture, crude fiber and crude fat is high in air-dried while the percentage of ash and crude protein is higher in sun dried leaves. The mineral content of the leaves shows that the P, K, Ca, Fe, Zn, Cu, Co, and Mn are low level while Mg and Na are in high level air-dry samples. The high level of P, K, Ca, Na, Fe, Zn, Cu, Co and Mn are in high content while Mg is the only mineral with low content in sun dried leaves. Phytic Acid is not detected in both air dried and sun dried samples while 0.14g/100Gdm of Tannic acid is present in Air dried and 0.57g/100gDm of Tannic acid is present in sun dried samples. The high percentage of Non site specific scavenging activity was detected in both samples.

Keywords: Marinduque , Forage, Trichantera, Pigs, Nutrients, Minerals, Phytic acid, Tannic acid, phytochemical analysis

INTRODUCTION

Forage is considered as an essential component of the feed of pigs in all production environments (Kambashi et. al.,2014) . Forage is only one part of the various ingredients that smallholders usually feed to their pigs which include agricultural by-products from local food processing units ,weeds that grow naturally in the forests and along the banks of rivers, aquatic plants and plant of previous crops on fallow (Kumaresan et.al., 2009; Phengsavanh et al.,2010).

Trichantera gigantea, a fodder tree also known as Nacedero or Madre de Agua was introduced into the country some years ago from Latin America(Columbia and Venezuela) and adapts well in local tropical conditions. It can be planted to a wide range of soil types and elevations up to 1,800 meters above sea level. It can be planted at low density at 6,700 cuttings per hectare. It grows well easily between plantation crops and produces 40-60 tons per hectare. The leaves of *trichantera* is a potential source of protein varying from18-22 in dry matter and apparently most of this protein are true protein and has good amino acid balance(Rosales, et.al,1989)

A study led by M. Rosales in 1989 showed that the leaves of Madre de agua are a potential source of protein, varying from 18-22 percent in dry matter form, and apparently, most of this protein are true protein. The calcium content has been found to be particularly high compared to other fodder crops.

The *trichantera* planted at Markaduke research and development center was produced to sustain protein requirement of native pigs. Leaves can be offered to the pigs in fresh form. It can also be shred-

ded and combined with other forages. Moreover, trichantera leaves can replace about 20-30% of the commercial diet of growing-finishing pigs. Specifically, six (6) kilograms of fresh leaves consumed by pigs per day is equivalent to 1 kg of mixed feeds saved.

On the other hand, the propagation is done through cuttings. The cuttings measuring 6-8 inches with two nodes are best as planting materials. Cuttings are grown in a poly bags (2x4) and allowed to grow in one month before it can be transplanted to the field.

The present study was carried to determine the nutritional content of *Trichantera Gigantea*. Further, no similar study was found in the same local for the phytochemical analysis. This study will serve as a baseline information to further develop the forage production for the continuous low cost production of native pigs.

OBJECTIVES

The study aims to determine the nutrient content of *Trichantera Gigantea* specifically ,

1. Determine the phyto chemical components of trichantera
2. Determine the level of minerals in air dried and sun dried trichantera leaves
3. Determine the anti-nutrients factors in trichantera leaves
4. Determine the Anti-oxidant properties in air dried and sun dried trichantera leaves

METHODOLOGY

The method used for this study is the quantitative analysis of the different macronutrients in feed also known as proximate analysis. This is based on the Weende analysis that was developed in 1860 by Henneberg and Stohmann in Germany.

A. Collection of Trichantera Gigantea Leaves

Ten (10) kilograms of the mature leaves of trichantera were harvested and subjected to drying procedure (Air and sun drying). Five kilograms of the harvest was exposed to air-drying procedure which allocated ten days for the total moisture reduction. After ten days of exposure, 1.5 kilograms was accumulated. Partial part of the harvest were exposed to sun for 3 days three days until good quality of sun-dried leaves were produced. All leaves are harvested in established forage plantation of Markaduke Research and Development Center located in Marinduque State College School of Agriculture Poctoy, Torrijos, Marinduque Philippines.

B. Procedures Analysis

The Proximate Analysis methods used to determine the nutrient content of the trichantera are moisture content based on AOAC 925.45 (Modified 19th ed.) , ash content based on AOAC 923.03 (Modified) 19th ed. , crude fat-AOAC 2003.5(Modified)19th ed., crude fiber- based on AOAC 978.10 (Modified) 19th ed. and crude protein based AOAC 981.10(Modified) 19th ed. The mineral contents analyzed are Phosphorus (P) based on AOAC 931.01 (Modified) 19th ed., Potassium (K) based on AOAC 983.02 (Modified) 19th ed., Ca, Mg, Fe, Zn, Cu, Mn, Co using AOAC 965.09(Modified) 19th ed., Na- based on AOAC 983.04 (Modified) 19th ed., and Pb based on AOAC 972.25 (Modified) 19th ed.

The Tannic and Phytic acid contents were analalyzed using the Food and Agriculture Organization and International Atomic Energy Agency (FAO/IAEA, 2000) was used for Tannic and Wheeler, E.L. and Ferrel, R. E (1971) a method for phytic acid determination in wheat and wheat fractions. Cereal Chem.48,312-320 for phytic acid. .An average of two trials was done in triplicate. The anti-oxidant property of the dried leaves, Deoxyribose assay by Halliwell et. al. (1987) with minor modifications was use.The dried samples were analyze in National Institute of Molecular Biology and Biotechnology and Institute of Chemistry in University of the Philippines Los Banos Laguna.

RESULTS AND DISCUSSION

The chemical composition of the leaves undergo two kind of drying which air drying and sun drying is presented in Table 1.The results showed the level of phosporous, potassium, calcium, iron, copper, cobalt, manganese and zinc are higher in sun dried leaves. This indicates that the reduced amount of moisture affect the nutritional content of trichantera. Leaves yielded to air-dried method resulted a considerably lower nutritional content. The magnesium, sodium, and lead are the minerals found higher in air-drying procedure and are low in sun drying. The analysis shows that the sun dried trichantera leaves in pigs diet could be a good source of nutrients and mineral which is vital for the growth and development of native pigs.

Table 1. Mineral Composition of T. gigantean subjected to different drying

Sample	P ppm	K ppm	Ca ppm	Mg ppm	Na ppm	Fe ppm
Air Dried	1,282 ± 2	5,854 ± 296	4,008 ± 79	**5,862 ± 150**	**393 ± 19**	84.96 ± 5.31
Sun Dried	**1,826 ± 24**	**6,047 ± 24**	**4,011 ± 85**	4,025 ± 323	383 ± 16	**172.96 ± 6.83**
	Cu ppm	Pb ppm	Co ppm	Mn ppm	Zn ppm	
Air Dried	23.11 ± 0.03	**4.88 ± 0.11**	1.88 ± 0.13	32.73 ± 0.071	16.40 ± 2.29	
Sun Dried	**26.64 ± 0.22**	3.97 ± 0.01	**2.47 ± 0.07**	**56.64 ± 0.54**	**19.24 ± 1.08**	

Legend: P-Phosphorous,K –potassium,Ca-calcium,Mg-magnesium,Na-Sodium,Fe-iron, Cu-Cobalt,Pb-lead, Co-copper,Mn-Manganese,Zn-Zinc, ppm-parts per million

Further, Table 2 shows the results of proximate analysis of air-dried and sun dried leaves of Trichantera. The percentage of moisture (16.53 %) observed was higher in the air dried leaver as compared to the sundried leaves .According to several studies, high moisture content in the pigs diet affect the palatability. The crude fiber(14.56 %) found in this study was observed higher in the air dried leaves .Dietary fibre, usually defined as the indigestible portion of food derived from plants, forms a key component of many pig diets. .Dietary fibre altered the nature of the contents of the gastrointestinal tract, which in turn affects how other nutrients and chemicals are absorbed. Moreover, the dietary fibres can bind steroid hormones in the digestive tract, affecting entero-hepatic circulation and altering the balance between steroid excretions and circulating concentrations. The crude fat (6.67%) found on the air dried leaves will effect on energy level needed by the native pigs. The ash and crude protein content of the trichantera leaves in air dried are low and relatively higher in sun dried.

Table 2. Proximate Analysis of T.gigantea subjected to different drying

Sample	% Moisture (w/w)	Ash (w/w)	% Crude Protein (w/w)	%Crude Fiber (w/w)	%Crude Fat (w/w)
Air Dried	**16.53 ± 0.11**	13.72 ± 0.07	12.35 ± 0.09	**14.56 ± 0.12**	**6.67 ± 0.02**
Sun Dried	11.02 ± 0.04	**18.53 ± 0.03**	**13.90 ± 0.09**	13.29 ± 0.15	4.42 ± 0.03

An antioxidant can be broadly defined as any substance that delays or inhibits oxidative damage to a target molecule (Yamagishi et., al 2011).The main characteristic of an antioxidant is its ability to trap free radicals. Antioxidant compounds like phenolic acids, polyphenols and flavonoids scavenge free radicals such as peroxide, hydroperoxide or lipid peroxyl and thus inhibit the oxidative mechanisms that lead to degenerative diseases (Wu et al., 2011).The result of the study in Table 3 shows the anti-oxidant property of the trichantera leaves found higher in Non- Site Specific Scavenging Activity for both air-dried and sun dried leaves.

Table 3. Anti-oxidant Property of T. gigantean subjected to different drying

Sample	Non- Site Specific Scavenging Activity (%)	Site Specific Scavenging Activity(%)
Air Dried	84.30	54.11
Sun Dried	85.33	54.08
a-tocopherol (commercial anti-oxidant)	73.20	33.30

Anti-nutrients in pig diet reduced nutrient digestibility and nutrition al of feedstuff increase endogenous protein losses, such as through increased intestinal mucus secretion. In addition, it may also cause abortion in pregnant sows. The results of anti-nutrients analysis in tannin and phytic acid in Table 4 showed that there is no phytic acid content for both air-dried and sun dried trichantera while tannic acid is present in least percentage, where 0.14 g/100gDM of air dried and a little higher in sundried with 0.57 g/100g DM.

Table 4. Tannic and Phytic Acid Content of T.gigantea subjected to different drying

Sample	Tannic Acid (g/100g DM)	Phytic Acid (g/100g DM)
Air Dried	0.14	Not detected
Sun Dried	0.57	Not detected

CONCLUSION AND RECOMMENDATION

Trichantera gigantea is a good source of vital nutrients and minerals indispensable for growth and development of growing pigs. The air dried trichantera were rich in potassium, manganese, and calcium and phosphorous and high in moisture content and crude fiber. The sun dried leaves of trichantera. The sun dried trichantera on the other hand were highly rich in potassium, calcium, phosphorous, iron, copper, cobalt and zinc, crude protein and ash content.Tannic and phytic acid are not detected in both samples. Further analysis is necessary.

ACKNOWLEDGMENT

REFERENCES

E. Manaig. Effects of Trichantera leaf meal and fermented leaves on the growth performance and carcass characteristics of grower-finisher pigs. International Journal of Advanced Research (IJAR).

Kambashi B., Boundry C., Picron P.,Bindelle J.,Forage plants as an alternative feed resource for sustainable pig production in the tropics:a review. March 2014

Kumaresan A,Bujarbaruah KM, Pathak KA,Das A and Bardoloi RK 2009. Integrated resource-driven pig production system in mountainous area of Northeast India: production practices an pig performance. Tropical Animal Health and production,41,1187-1196

Rosales, M. ; Laredo, M. ; Cuesta, A. ; Anzola, A. ; Hernandez, L., 1989. Use of tree forages for the control of rumen protozoa. Livest. Res. Rural Dev., 1 (1): 79

Wu YY, Li W, Xu Y, Jin EH, Tu YY. Evaluation of the antioxidant effects of four main theaflavin derivatives through chemiluminescence and DNA damage analyses. J Zhejiang Univ Sci B. 2011;12:744–751

Yamagishi S, Matsui T. Nitric oxide, a Janus-faced therapeutic target for diabetic microangiopathy-Friend or foe? Pharmacol Res. 2011;64:187–194.

MARKADUKE BREEDERS MORPHOLOGICAL SEMEN ASSESSMENT

JOEAUNA O. LARGA –LOTO[1], GISELLE M. PERLAS[1]
[1]Science Research Analyst
Marinduque State College
Poctoy, Torrijos, Marinduque

ABSTRACT

Artificial insemination (AI) is a worldwide technique used by farms and centers to achieve sustainable livestock production and increase the reproductive performance of sows. Semen characterization is done by evaluating its morphology, progressiveness, and motility. This characterization is the main criterion for successful artificial insemination and the basis of keeping boars on the farm. Many studies have proved the efficacy of artificial insemination in the reproductive performance of sows. Mostly because of the increased number of litter size births. To achieve this, a Computer Assisted Sperm Analyzer (CASA) was used to characterize and assess the quality of the spermatozoa. The Markaduke Research and Development Center under the ongoing program of DOST-PCAARRD conducted an initial assessment of the morphological characteristics of male breeders. The semen evaluation is conducted to improve the reproductive performance of the sows. An average of 142.27±53.32ml of semen was collected from boars having an average age of 2.35±1.13 years old. The results indicate that physical characteristics of ejaculate and morphological characteristics of sperm cells are affected by ejaculate volume at different ages. There were differences in quantitative ejaculate traits and sperm morphology between ejaculates of different volumes. Relatedly, the initial characterization of boar semen showed an average litter size born increased to 10.20±2.23 from 07.92±2.43, correspondingly, with an average litter size born alive of 08.76±1.58 from 07.52±2.33, having a pre-weaning mortality of 11.04%. Improvements in average litter birth and weaning weight were also recorded at 08.66±2.12 from 05.80±1.74 and 27.48±6.68 from 23.14±8.70, respectively, having an average age at weaning of 35.04±0.20 days. Practicing artificial insemination has accelerated the genetic progress of superior sires to produce an increase in the number of offspring.

Keywords: Boars, CASA, Morphology, Reproductive Performance, Sows, Semen

INTRODUCTION

The benefits of AI in livestock production were realized in the 1950s. Artificial insemination (AI) is a technique that has rapidly evolved worldwide and is currently a reality for pig farms that employ this technology (Rodriguez, 2017). The success of artificial insemination (AI) mating system is attributable to increases in fertility, genetics, labor efficiency, and production (Reed, 1982). Despite considerable infrastructure constraints, AI has been used in many impoverished countries (Knox, 2015). Various factors that influence reproductive efficiency should be managed to avoid failures in the employment of this biotechnology, which could jeopardize the process's overall economic viability. One of these features (Oberlender, 2012) is the proportion of morphological alterations found in fresh ejaculate. The production of boar ejaculates having a high number of spermatozoa with a high fertilization capacity is the main criterion for retaining a boar at an insemination station. Numerous boar studies employ microscopic analysis of ejaculate motility and abnormalities, as well as microscopic or photometric analysis of sperm concentration. Other procedures have worked well for decades and are important for controlling the quality of ejaculate (Maes, 2011).

The invention of computer-assisted sperm analyzers has altered the manner in which many of the world's leading AI centers process and evaluate ejaculates (Didion, 2008; Fietsma, 2011). The machines can count hundreds of sperm in seconds to determine motility, concentration, and dilution rates. Techno-

logical advances have enabled computerized sperm morphology studies and flow cytometry to measure ejaculate fertility. These methods quickly find things in the ejaculate that are linked to reproductive problems, like a low rate of movement and a lot of abnormalities (Knox, 2015).

Sperm morphology and acrosome integrity are techniques for estimating sperm viability and can also provide more information about the ejaculate's quality than a motility examination does. Morphometrical features, such as spermatozoal dimensions and shape, may be important in determining the usefulness of sperm to AI. Sperm size and shapes can have an impact on the capacity of sperm to fertilize sperm. Sperm morphology and morphometry are crucial factors in fertility prediction. Identifying the shape of sperm is important because it could lead to fertilization. It also helps get rid of ejaculates and boars (Oberlender, 2012).

Normal sperm structure is needed for fertilization of the ovum. Abnormal sperm proportion and type reflect the degree of disruption in spermatogenesis (Waberski et al., 2006; Wolf, 2009). Sperm morphology allows for objective sperm quality assessment and is used to determine a boar's fertility (Kondracki et al. 2013). The ability of spermatozoa to penetrate the ovum is determined by their size and shape. Even within the same population, sperm dimensions vary greatly (Maroto-Morales et al. 2010; Thurston et al. 2001). Ka et al. (2016) discovered a link between size, shape, and ejaculate characteristics.

Although liquid sperm collection and preservation in pigs was successful, cryopreservation resulted in sperm damage, survival, and fertility issues. Therefore, swine AI focuses on sperm life extension and liquid use (Jonhson, 2000). Advances in liquid-extended sperm production sparked the 1990s AI revolution. It was recognized that, like other species, pigs' genetic progress could be accelerated by AI, even in liquid form (Knox, 2015).

STATEMENT OF PROBLEM AND OBJECTIVES

The Markaduke boars that were traditionally grown and reared at Marinduque State College's nucleus farm had established good reproduction performance in terms of increasing a number of production parameters such as litter size. However, there is little information on the morphological characterization of Markaduke boar semen and its influence on the reproductive performance of breeder stocks.

Thus, the primary goal of this study is to evaluate the morphological characteristics of Markaduke boars in order to increase the use of artificial insemination and to determine the effect of artificial insemination on Markaduke pig reproductive performance. This will eventually serve as baseline information towards the development of advanced technology, improved facilities and management requirements, and genetic improvement in native pigs.

METHODOLOGY

A. Training of boars
1. Age
The selected boars are trained for semen collection at 5 to 6 months of age, when the major sex organs are clearly visible and developed. The 7-month-old boars are ready to mount a dummy sow. Boars aged 8 to 12 months are used once a week, while boars aged 1 year and up are used twice a week.
2. Sheath hair trimming
Long hairs on the sheath are trimmed prior to semen collection because they interfere with collection and are a potential source of contamination. During feeding time, it was gently clipped with scissors.

B. Semen Collection
The semen was collected by hand, as is customary at the Markaduke Research and Development Center (MRDC). Clean, pre-warmed (38°C) collection containers with semen filters were used. It removed the gel portion of the sperm. Different boars ejaculate at different fractions. The first gel, which contained a clear fluid fraction, was discarded, while the grayish and milky-looking gel, which contained an 80-90 percent viable sperm fraction, was kept. The collected sperm is transported to the laboratory

for analysis and stored in a warm container with a temperature of 36°C maintained at a room temperature of 16–20°C. At +32°C to 38°C, the extender is dissolved in 1 liter of sterile, distilled water. Within 15 minutes of collection, the semen was extended using a commercial extender in a warm room with clean and sterile equipment. Before extending the semen, the pH is allowed to stabilize. It is also made sure that both the fresh boar sperm and the extender have the same temperature.

C. Semen Evaluation
1. Physical Evaluation
The physical evaluation of sperm was carried out using the standard evaluation parameters. The volume and weight of the sperm ranged from 150-250ml per ejaculate. The color ranges from grayish-white to creamy white (depending on the concentration of sperm). The reddish to brownish color, which indicates blood contamination, was also assessed.
2. Microscopic characteristic
A. Prior to analysis, the semen is diluted in a 1:4, 1:6, or 1:10 ratio using commercial extenders or based on physical examination of the semen. At +32°C to 38°C, the extender is dissolved in 1 liter of sterile, distilled water. Before extending the semen, the pH is allowed to stabilize. It was also made certain that the freshly collected boar semen and extender were both adjusted to the same temperature. The Computer Assisted Sperm Analyzer was used to analyze extended boar semen samples for microscopic evaluation.
B. Microscopic Evaluation
The concentration of sperm was proportional to the volume of ejaculates collected. The motility is determined by calculating the progressive proportion of sperms, which demonstrates the progressive forward portion. Sperm morphology was also performed.
C. The extended boar semen is kept at a constant temperature of 16-17°C.

D. CASA Standard Parameters
A. Summary of Operation
A sperm sample is placed in a fixed depth chamber, microscopically examined, and photographed with a digital camera. The Hamilton Thorne Computer Assisted Sperm Analyzer II (HT CASA II) software captured a series of images of the field (usually n=30-45) at a rate of 60 images per second. Sperm can move freely in the x-y direction, but z-motion along the optic axis is restricted by the chamber ceiling and floor.

Each sperm's concentration, motility, velocity motion, and morphometry parameters are calculated individually. The velocity and motion parameters of the sperm tracks are used to classify them.

The software settings were changed for the evaluation of boar semen to include a frame capture speed of 60 Hz and a camera exposure time of 4 ms. The CASA-based analysis of diluted sperm was performed immediately after dilution on % motility, motile sperm, % progressive sperm, and % morphology, coiled tail, % bent tail, and % normal morphology.

Data Organization
1. CASA Report
The semen report was collected from the HT CASA II software auto-generated report. The results were encoded in Excel software for summary and further analysis.
2. Reproduction performance data
The semen samples of 11 Markaduke boars were utilized in this study. The initial characterization on semen motility and morphology were considered. The reproduction performance was obtained from the native pig data base from the year 2018 to 2021. Data were encoded, evaluated and analyzed. The mean and standard deviation were instituted.

RESULTS

Table 1. Markaduke Breeders Morphological Semen Assessment

| Boar Id No.	Age	Volume of ejaculate (ml)	Total Count	Progressive	Motile	Bent Tail	Coiled Tail	Normal Fraction (%)
1	4.6	220	1173	316	1057	41	1	53.90
2	1.5	210	1148	924	1132	5	0	41.50
3	1.3	200	866	507	756	12	0	67.40
4	4.2	180	1210	761	1175	5	0	55.10
5	2.1	155	870	354	775	38	2	69.00
6	3.5	150	1102	592	1002	5	0	52.50
7	2.1	100	1196	582	1065	48	0	49.20
8	1.3	100	1270	879	1234	4	0	84.40
9	1.9	100	1144	594	1107	9	0	49.70
10	2.0	100	375	53	360	6	0	70.10
11	1.4	50	1685	933	1498	60	2	31.80
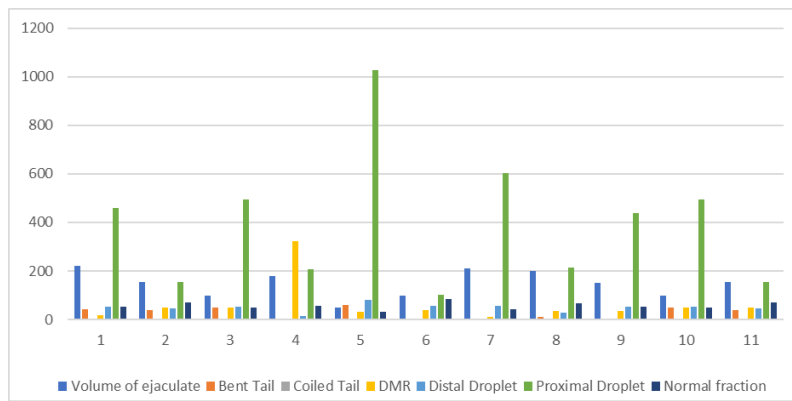
Figure 1. Markaduke semen morphology
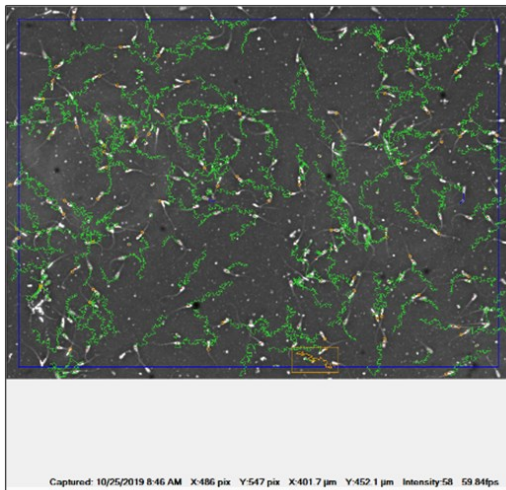
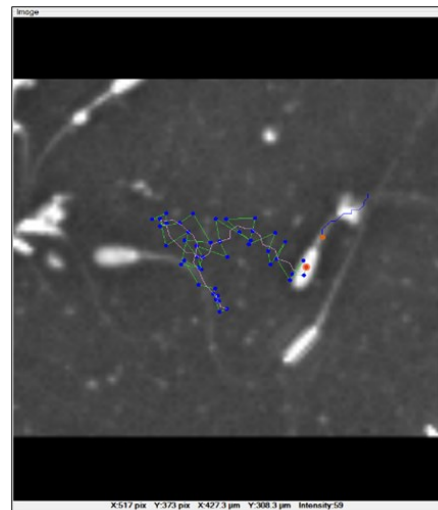**Figure 2. Motile sperms (Green Track) of boar semen**

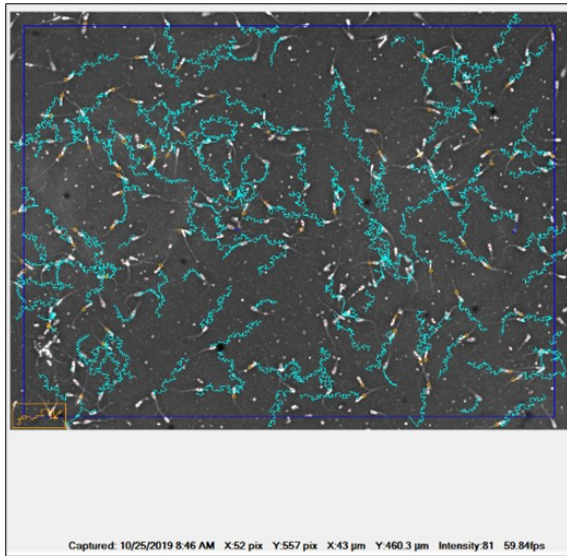**Figure 3. Motile sperm track of boar semen**
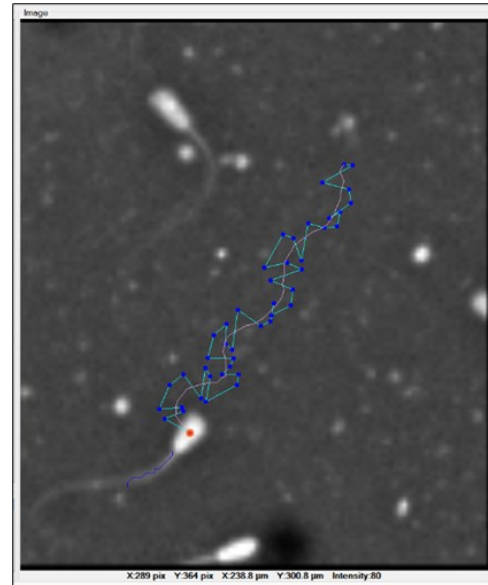
Figure 4. Progressive sperms (Cyan Track) of boar semen

Figure 5. Progressive track of boar semen

Table 2. Comparative reproductive performance of Markaduke pig

Parameters	Artificial Insemination (n=25)	Natural Insemination (n=25)
Litter size		
Average litter size born (hd)	10.20 ± 2.23	07.92 ± 2.43
Average litter size born alive (hd)	08.76 ± 1.58	07.52 ± 2.33
Average litter size at weaning (hd)	07.64 ± 1.38	06.56 ± 2.12
Weight record		
Average litter birth weight (kg)	08.66 ± 2.12	05.80 ± 1.74
Average litter weaning weight (kg)	27.48 ± 6.68	23.14 ± 8.70
Average age at weaning (days)	35.04 ± 0.20	39.44 ± 5.05
Pre-weaning mortality (%)	11.04	11.64

DISCUSSION

Artificial insemination as an alternative reproductive technique has accelerated genetic progress by increasing the number of offspring required for effective selection of the best genetics for continued and enhanced livestock production. The gradual genetic improvements in pigs currently are the results of years of persistent research that enabled constant improvement and advances in different technologies. Although different approaches were used, the overall goal of assisted reproductive technologies is to increase the number of desired characteristics in a population to produce a specific phenotype by utilizing genetically superior breeder stocks. This technology includes a comprehensive set of tools for managing male and female reproductive qualities. The overall goal is to increase efficiency and productivity while also increasing the use of superior genes, reducing disease transmission, and overcoming natural barriers to reproductive success (Schultz 2020).

Sperm morphology is an important semen parameter that is thought to be a reliable indicator of spermatogenesis quality and subsequent fertility. Sperm morphology influences fertility because sperm must be a specific shape in order to penetrate an egg. Sperm morphology and motility are evaluated before processing and AI. Using computer-assisted sperm analysis, the initial percent total sperm motility (progressive, slow, static) and percent total morphologically normal sperm of diluted semen were observed. The motility and morphological count and percentage of the analysed semen samples were recorded. The character of selected Markaduke boar semen was evaluated using a computer-assisted sperm analyzer (Figure 1). Relatedly, the effect of the boar age factor on ejaculate volume, sperm concentra-

tion, motility, and abnormalities has been studied by Wolf and Smital (2009). Furthermore, spermatozoa morphology has been used in male fertility evaluation (Waberski et al., 1990; Abu Hasan Abu et al., 2011), and it is recommended as part of the spermiogram for domestic animals (Rodriguez-Martinez, 2003). According to King and Macpherson (1973), the "gloved –hand or bare-hand" method provided adequate tactile stimulus to achieve optimum sperm output and was suitable for routine collection of boar sperm. In our study, this method was used successfully to collect sperm.

The physical characteristics of Markaduke boar ejaculates in relation to their age and volume are shown in Table 1. The results indicate that physical characteristics of ejaculate and morphological characteristics of sperm cells are affected by ejaculate volume at different ages. There were differences in quantitative ejaculate traits and sperm morphology between ejaculates of different volumes. The study shows that the number of bent tail spermatozoa is higher in the 50 ml ejaculates of young boars 485 days old, with a corresponding fraction of 31.80%, the lowest among the samples. The boar semen also contains two coiled-tail spermatozoa. The same boar had the best record for progressiveness and motility, swimming in mostly straight lines or large circles.

The 455-day-old boar with 100ml of ejaculate had the highest percentage of normal fraction.This shows that the semen of the boar is viable for insemination and capable of fertilizing a high number of eggs. The boar semen also contained the lowest number of bent tail spermatozoa and third in the rank with a high record of progressive motility. On the other hand, the 730-day-old boar with 100mL ejaculates had been recorded with the lowest total count and progressive motility.

The motility and morphological qualities of selected boars in this study are utilized for artificial insemination or assisted reproductive technology. The comparative reproductive performance of Markaduke breeders in terms of artificial insemination and natural insemination as reproductive techniques reveals an increase in litter size and weight record (Table 2). The average litter size born increases to 10.20 ± 2.23 from 07.92 ± 2.43, with an average litter size born alive of 08.76 ± 1.58 from 07.52 ± 2.33, with a pre weaning mortality of 11.04%. Improved in average litter birth and weaning weight were also recorded at 08.66 ± 2.12 from 05.80 ± 1.74 and 27.48 ± 6.68 from 23.14 ± 8.70, respectively, having an average age at weaning of 35.04 ± 0.20 days. This result was supported by the findings of Schultz 2020, which stated that practicing artificial insemination has accelerated the genetic progress of superior sires to produce an increase in the number of offspring compared to natural service of boar. In addition, artificial insemination offers potential advantages over natural service. Traditionally, the control of sexually transmitted diseases was the most significant reason for practicing artificial insemination. However, at the present time, this is advocated as a means of genetic improvement (Parkinson, 2019).

CONCLUSION

The volume of the ejaculate affects the physical characteristics of the ejaculate and the morphological characteristics of sperm cells at different ages. The maximum volume of ejaculate was observed on the 4.6-year-old boar, while the minimum volume was observed on the 1.4-year-old boar. The total count, progressive and motile, was higher on the younger boar. However, it was observed with a high number of bent tails and the lowest percentage of normal fraction. Artificial insemination increases the average litter size born, the average litter size born alive, the average litter size at weaning, the average litter birth weight, and the average weaning weight.

RECOMMENDATION

The Markaduke boar semen motility and morphological characteristics influence the reproductive performance of breeders as they improve the litter size and weight records of Markaduke pigs. The positive results of the semen analysis resulted in a progressive reproductive record. Additional parameters such as the effect of the environment, semen handling, and nutrients provided to the boar may be considered for a comprehensive analysis and discussion on its influence on the reproductive performance of Markaduke breeders. Considering the characteristics of boar semen and adapting the assisted reproductive technique will improve the quality, productivity, efficiency and reproductive performance of the native pigs.

REFERENCES

Abu Hassan Abu D., Franken D. R., Hoffman, B., Henkel, R. (2011). Accurate sperm morphology assessment predicts sperm function. Andrologia.

Didion BA. (2008). Computer-assisted semen analysis and its utility for profiling boar semen samples. Theriogenology; 70: 1374–6. [57].

Feitsma H, Broekhuijse M, Gadella BM. Do. (2011). CASA systems satisfy consumers demands? A critical analysis. Reprod Domest Anim; 46:49–51.

Kwon, W.S., Rahman, M.S., Lee, J.S., You, Y.A., Pang, M.G. (2015). Improving litter size by boar spermatozoa: application of combined H33258/CTC staining in field trial with artificial insemination. https://doi.org/10.1111/andr.12020.

Kondracki S., Iwanina M., Wysokińska A., Górski K. (2013). The use of sexual activity measurements to assess ejaculatory performance of boars. Arch Tierzucht., 56:1052–1059.

Łąka K., Kondracki S., Iwanina M., Wysokińska A. (2016). Assessment of stallion semen morphology using two different staining methods, microscopic techniques, and sample sizes. J Vet Res., 60:99–104.

Maes D, Lopez Rodriguez A, Rijsselaere T, Vyt P, Van Soom A. (2011). Artificial insemination in pigs. In: Manafi M, editor. Artificial insemination in farm animals. InTech;.

Maroto-Morales A., Ramon M., Garcia-Alvarez O., Soler A.J., Esteso M.C., Martinez-Pastor F., Perez-Guzman M.D., Garde J.J. (2010). Characterization of ram (*Ovis aries*) sperm head morphometry using the Sperm-Class Analyzer. Theriogenology, 73:437–448.

Oberlender G., LDS Murgas, MG Zangeronimo, AC Silva, LJ Pereira, RAL Muzzi. (2012). Comparison of two different methods for evaluating boar semen morphology. Arch Med Vet 44, 201-205.

Parkinson, Timothy J. and Morrel, Jane M. (2019). Artificial Insemination, Veterinary Reproduction and Obstetrics (Tenth Edition), Pages 746-777.

Reed HCB. Artificial insemination. In: Cole DJA, Foxcroft GR. (1982). Control of pig reproduction. London: Butterworth Scientific. p. 65–90.

Rodriguez A.L, Soom A. V., Arsenaki I., Maes D. (2017). Boar management and semen handling factors affect the quality of boar extended semen. Porcine Health Management volume 3, Article number: 15.

Rodriguez-Martinez H. (2003). Laboratory semen assessment and prediction of fertility: still utopia? Reprod Dom Anim 38:312–318.

Schultz, Blythe, Serao, Nick, Ross, Jason W. (2020). Genetic improvement of livestock, from conventional breeding to biotechnological approaches. Iowa State University, Ames, Iowa, United States. Animal Agriculture https://doi.org/10.1016/B978-0-12-817052-6.00023-9.

Thurston L.M., Watson P.F., Mileham A.J., Holt W.V. (2001). Morphologically distinct sperm subpopulations defined by Fourier Shape Descriptors in fresh ejaculates correlate with variation in boar semen quality following cryopreservation. J Androl, 22:382–394.

Wolf J., Smital, J. (2009). Effects in genetic evaluation for semen traits in Czech Large White and Czech Landrace boars. Czech J Anim Sci 54:349-358.

Waberski D., Dirksen G., Weitze K.F., Leiding C., Hahn R. (1990). Field studies of the effect of sperm motility and morphology on the fertility of boars used for insemination. Tierarztl Prax 18:591–594.

Waberski D., Magnus F., Ardon F., Petrunkina A.M., Weitzke K.F., Töpfer-Petersen E. (2006). Binding of boar spermatozoa to oviductal epithelium in vitro in relation to sperm morphology and storage time. Reproduction., 131:311–318.

Wolf, J. (2009). Genetic parameters for semen traits in AI boars estimated from data on individual ejaculates. Reprod Domest Anim. 44:338–344.

ASSESSMENT OF SCIENCE PROCESS SKILLS OF JUNIOR HIGH SCHOOL STUDENTS: BASIS OF AN ACTION PLAN

JULIETA B. GECAIN
Instructor 1, College of Arts and Sciences
Cebu Technological University – Tuburan Campus
Tuburan, Cebu, Philippines

ABSTRACT

This study determined the level of performance of the Grade 10 students formerly known as the fourth-year students in the science process skills, the profile of the respondents, how well the teachers in science handle the science class their appropriate seminars and training attended and the problems met by the respondents. Descriptive research was used in this study with questionnaires as the main instruments for gathering data. Likewise, weighted mean, Chi-square, Coefficient of Contingency, and t – test were used to calculate and interpret the data gathered. This was conducted at Tuburan National High School. The respondents were the 8 teachers handling the science subject and 192 students in the school. The findings revealed that the Science Instructors needed appropriate training and seminars with regard to Science (Tchkonia, N., & Vakhania, Z. 2018).From the administered test, the student-respondents revealed Needs Improvement levels in both Basic and Integrated Science Process Skills. It was also found out laboratory apparatus was the number one problem met by the respondents in the science classes. Thus, it is recommended by the researcher that the Science Process Skills' Module be implemented or used to the Physics class of Tuburan National High School, Tuburan, Cebu since it emphasized the provision and the use of improvised equipment or apparatus using local materials in science classes.

INTRODUCTION

In its most multi-faceted idea, Science and Technology is vested in ta delicate role in shaping a Science and Technology literate citizen.

The Science Teachers, playing a crucial role, must address the problem on the poor performance and as well as the interest of the students of the development level of the Science Process Skills. To bridge the increasingly distinct characteristic gap- need of Science Education, a scientifically literate person is attributed by his use of science concepts, Science Process Skills, and values in making responsible everyday decision. The essentiality of the Science Process Skills would determine the student's ability to cope with changes brought about by the dynamic Philippine society.

In most secondary schools, Science and Technology subjects have been considered as unpopular subjects even though how equipped the teachers are. It has been observed that the students regard experiment exercises as burden that complicate the subject. Investigatory activities are found out to be misinterpreted as obstacles for passing the Science and Technology subject. In laboratory outputs, it has been observed that errors lie so much on the student's failure to develop Science Process Skills.

The emphasis of the Science Process Skills in the pedagogical experiences enumerated the development of the intellectual skills that does not only rationalized the relevance of inquiry skills but as well as critical thinking skills, as described to assist to person in continuing to learn to think critically and logically.

With the researcher's commensurations philosophy that the teaching excellence in Science Education is still a journey and not yet a destination, in response to the preceding questions, this research study tried to assess the fourth year students' performance of the science process skills. When data are collect-

ed, a proposed action plan is made to improve the students' performance in the Science Process Skills. In return, improve quality in Science and Technology education is highly expected.

Statement of the Problem

The main purpose of this research study is to evaluate and assess the Science Process Skills as performed by the Fourth Year Students in Tuburan National High School, Tuburan, Cebu. S. Y. 2013-2014

1. What is the performance level of the students in Science Process Skills as to:
    1.1 Basic Science Process Skills
        1.1.1 Observing,
        1.1.2 Comparing,
        1.1.3 Classifying,
        1.1.4 Measuring,
        1.1.5 Inferring, and
        1.1.6. Predicting?
    1.2 Integrated Science Process Skills
        1.2.1 Hypothesizing,
        1.2.2 Interpreting data,
        1.2.3 Controlling variables, and
        1.2.4 Experimenting?
2. Is there a significant relationship between the performance level of the students of the Basic and Integrated Science Process Skills?
3. What are the problems meet by the respondents in the performance of Basic and Integrated Science Process Skills?
4. Based on the findings, what learning exercises can be proposed?

THE RESEARCH METHODOLOGY

The general mechanics to be used in this research study revolves around the principles of an action research. In as much as this research dealt with the upgrading of a very important science idea, it is to the best of the researcher's ability to make the scientific method functional in this endeavor.

This masteral work, as action research, priority operated by the underlying principles of the Science Process Skills in the Scientific Method. It is the method that provides ways of systematic thinking about the thematic concern of the Science Process Skills Performance of the Fourth Year Students in Tuburan National High School, Tuburan, Cebu. This research study will invest the Science Process Skills are performed through a questionnaire by the Fourth Year Students of Tuburan National High School.

The setting of this research study is limited only in Tuburan, Cebu. It is one of the most progressive towns in the third district. The town of Tuburan is found in the Northwestern part of Cebu Province; has 54 barangays; and approximately 97 kilometers away from Cebu City. It has fourteen (14) coastal barangays while the rest are evenly distributed on middle upland barangays. The municipality can be reached via three routes to Cebu City; via Danao City to the North, via Toledo, and via transcentral highway traversing the midland of the province. This research is conducted only in Tuburan National High School and is adjacent to the Tuburan District Hospital.

This study utilizes a researcher- made questionnaire used to gather relevant data needed for the study. The questions are made simple, specific, and easy to answer. This is use to collect the profile of the respondents and their level of performance of the Science Process Skills. The researcher intends the use of the Questionnaire in this research study. Questionnaire on the Science Process Skills Proficiency Test (SPSPT).This research activity is made possible in the Tuburan National High School in the Municipality of Tuburan upon the schedule time.

The permission to conduct the study will be seek by the researcher from the students of Tuburan National High School, Tuburan, Cebu. The fielding of the questionnaires are administered right after the permission is granted. Explanations on the intent of the study as well as the accomplishment of the questionnaires are given. Retrieval of the questionnaires are made right after the respondents have answered.

The researcher will use the following statistical tools; namely;

1. **Simple Percentage** - this is used to determine the profile of the respondents as to age and gender, combined family income and parents educational attainment. The formula is :

P= f / n x 100%

Where:
P= Percentage
f=   frequency of the student- respondents
n= number. of cases student- respondents

2. **Weighted Mean** - this is to determine the performance level in the Science Process Skills in terms of Basic and Integrated Skills. The formula is :

$$\bar{X} = \frac{TWP}{N}$$

Where:
$\bar{X}$ = weighted mean
TWP =   the total weighted points
N = number of cases

3. **Chi–Square** - This is used to determine the normality of the distribution of the Basic and Integrated Science Process Skills. The formula is:

$$x^2 = \frac{\sum (fo - fe)2}{Fe}$$

Where:

x^2 = Chi-Square
fo = observed frequency
fe = expected frequency

4. **Coefficient of Contingency**- This is used to determine the relationship of the variables. The formula is

$$C = \frac{\sqrt{X^2}}{N + X^2}$$

Where:
C = is the Coefficient of Contingency
x^2 = Chi- Square
N = number of cases

5. **Computation of the correction value** (r_S)
The formula is :

$$r_S = \frac{C}{K}$$

Where:

r_s = is the correction value
C = is the coefficient of contingency
K = is the correction constant

6. **Computation for t-test**
The formula is:

$$t = rs\frac{\sqrt{N-1}}{\sqrt{1-rs^2}}$$

Where :
    t = is the t- Test
    rs= is the correction value
    N = is the number of cases

Scoring Procedure
    Results of the above formula will be interpreted using the 3-point scale level of performance;

    The level of understanding of student respondents of the Basic and Integrated Science Process Skills:
    5 - When the skills needed were acquired completely.
    4 - When the skills needed were acquired fairly.
    3 - When the skills needed were acquired limitedly.
    2 - When the skills needed were not properly acquired/understood.
    1 - When the skills needed were really not acquired/understood

Numerical Rating	Descriptive Rating
4.21 - 5.00	Outstanding (O)
3.41 - 4.20	Above Average (AA)
2.61 - 3.40	Average (A)
1.81 - 2.60	Below Average (BA)
1.00 - 1.80	Needs Improvement (NI)

FINDINGS

    From the administered test, the student- respondents in Tuburan National High School, Tuburan, Cebu, S.Y 2013-2014 revealed the following achievements:
    In Observing Skill (Basic Science Process Skill), the fourth year students performed Needs Improvement (NI) level. In Comparing Skill (Basic Science Process Skill), the fourth year students registered Below Average (BA) level. In Classifying Skill (Basic Science Process Skill), the fourth year students performed Below Average (BA) level. In Measuring Skill (Basic Science Process Skill), the fourth year students achieved a performance of Average (A) level. In Inferring Skill (Basic Science Process Skill), revealed a very poor performance on Needs Improvement (NI) level. In Predicting Skill (Basic Science Process Skill) recorded a performance of Average (A) level.
    However, the Hypothesizing Skill (Integrated Science Process Skill), the fourth year students revealed a performance on Average (A) level. The Interpreting Data Skill (Integrated Science Process Skill), the fourth year students registered a poor achievement on the level of Needs Improvement (NI). Student- respondents had a very serious problem in Interpreting Data Skill. The Controlling Variable Skill (Integrated Science Process Skill) pointed out a Needs Improvement (NI) level.
    The last in the list of skills tested is the Experimenting Skill (Integrated Science Process Skill),from here, the students performed on Needs Improvement (NI) level. The student respondents indicated a poor achievement that requires much attention. In terms of Hypothesis, on the significant relationship of the performance level, it is rejected in the research study. There is a significant relationship in the performance level of the Basic and Integrated Science Process Skills.

Table 10.1 Observing Skill Performance of the Fourth Year Students of Tuburan National High School, Tuburan, Cebu, S.Y 2013-2014.

n= 192

Item number on Observing Skill	Frequency of Respondents with Correct Answers	Percent (%)	Rank
One (1)	36	18.75	3
Thirteen (13)	47	24.48	2
Twenty two (22)	56	29.17	1
Thirty two (32)	26	13.54	4
Forty one (41)	12	6.25	5
	177		

Score Mean ($\bar{x}$) = 0.98
Description: Needs Improvement (NI)

Legend:
Numerical Rating	Descriptive Rating
4.21 - 5.00	Outstanding (O)
3.41 - 4.20	Above Average (AA)
2.61 - 3.40	Average (A)
1.81 - 2.60	Below Average (BA)
1.00 - 1.80	Needs Improvement (NI)

Based on the Table 10.1, the observing skills of the fourth year students of Tuburan National High School, Tuburan, Cebu, S.Y 2013 – 2014,reveals that the highest frequency is on the item number 22 (the description of the property of light waves) with 56 students getting the correct answer (29.17%). Item number 13 follows (i.e reaction of compound) with 47 students getting the correct answer (24.48%). Item numbers 1, 32, 41 rank third, fourth, and fifth with 36 (18.75%), 26 (13.54%) and 12 (6.25%) students attaining the correct answers, respectively.

The nature of the observing skills for item number 1 is identifying the magnetic poles; number 32 is on observing on hot days when the road seems to be covered with water; The observing on how the word PEN appears in front of a plane mirror (i.e item number 41) is the lowest with the frequency of 12 (6.25) students obtaining the correct answer.

The computed mean score is 0.98 with the description of Needs Improvement (NI) in the 5 point scale level of performance of the fourth year students of Tuburan National High School, Tuburan, Cebu, S.Y 2013 -2014.

Table 10.2 Comparing Skill Performance

Item Number of Comparing Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Two (2)	127	66.15	1
Fourteen (14)	72	37.5	3
Twenty three (23)	54	28.13	4
Thirty three (33)	89	46.35	2
Forty two (42)	49	25.52	5
Total number of respondents having the correct answer	391		

Shown in table 10.2 is the comparing skills of the fourth year students of Tuburan National High School, Tuburan, Cebu, and S.Y 2013-2014.

Among the five specific comparing skills tested, item number 2 (connection of the voltmeter and the ammeter) ranks highest in the frequency (127) with 66.15 % of students answering correctly. Item number 33, 14 and 23 with frequencies and corresponding percentages, 89 (46.35%), 72 (37.5%) and 54 (28.13%) rank second, third and fourth relating to the order given. Item number 33 is on the specific comparing skill of identifying which area has the greater pressure, item number 14 on comparing the strength of magnetic field with different sizes and number 23 on the comparing the force of the car on the bug. The fourth year student's respondents are low in identifying which has greater kinetic energy (i.e item number 42) with 49 (25.52%) of the students answering correctly.

The mean score is 2.04 with the descriptive of Below Average (BA) in the 5 point scale level of performance used in this research study, with this, it is revealed that the degree of Comparing Skill (Basic

Science Process Skill) performance of the fourth year students of Tuburan National High School respondents are Below Average.

Table 10.3 Classifying Skill Performance

Item Number of Classifying Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Three (3)	161	83.85	1
Fifteen (15)	43	23.96	4
Twenty Four (24)	39	20.31	5
Thirty-four (34)	81	42.19	2
Forty-three (43)	47	24.48	3
Total number of respondents having the correct answer	374		

The table 10.3 shows the Classifying Skills performance of the fourth year students of Tuburan National High School, Tuburan, Cebu, S.Y 2013-2014. With the 5 specific skills, namely item number 3 (classifying electricity), number 15 (identifying the vector quantity), number 24 (identifying electromagnetic waves), number 34 (identifying the property of light waves) and number 43 (classifying primary colors), the student respondents obtained the highest frequency of 161 (83.85 %) on item number 3. Item number 34 with 81 (42.19%) students answering correctly the questions ranks second. Item number 43 with 47 (24.48%) ranks third and item number 15 with the frequency of 46 (23.96%) ranks fourth. Item number 24 is the lowest in the frequency with 39 (20.31%) students getting the correct answer.

The score mean of 1.94 entails the description of Below Average (BA). Thus, the overall assessment of Classifying Skills (Basic Science Process Skills) Performance of the fourth year students of Tuburan National High School is below average.

Table 10.4 Measuring Skill Performance

Item Number of Measuring Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Four (4)	123	64.06	4
Sixteen (16)	157	81.77	2
Twenty-five (25)	166	86.46	1
Thirty-five (35)	142	73.96	3
Forty-four (44)	20	10.2	5
Total number of respondents having the correct answer	608		

The Table 10.4 shows the Measuring Skills performance of the fourth year students of Tuburan National High School, Tuburan, Cebu, S.Y 2013-2014.

In reference to table 10.4 the measuring skills performance of the fourth year students of Tuburan National High School within the municipality of Tuburan, shows a score mean of 3.17. The results reveals that the student's respondents have an average degree of performance based on the computed mean.

Item number 25 (computing for the resistance of the given problem) rank first among the measuring skill with 166 (86.46%) students getting the correct answer. Item number 16, 35, 4 rank second, third, and fourth. Relating to the order given, item number 16 with 157 (81.77), 35 with 142 (73.96%), and 4 with 123 (64.06%) note the performance of the respondents. It is item number 44 (computing for the distance covered) with 20 (10.42%) considered the lowest among the skills of measuring

With the computed score mean, the measuring skills (Basic Science Process Skills) degree of performance in the fourth year students of Tuburan National High School, Tuburan, Cebu satisfies the average level on the part of its degree of performance.

Table 10.5 Inferring Skill Performance

Item Number of Inferring Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Five (5)	52	27.08	2
Seventeen (17)	35	18.23	3
Twenty-Six (26)	64	33.33	1
Thirty-six (36)	30	15.63	5
Forty five (45)	31	16.15	4
Total number of respondents having the correct answer	212		

Based on table number 10.5 Inferring Skills, item number 26 (inferring the amount of energy possessed by the object); item number 5, 17, 45, and number 36.

The fourth year students respondents obtained the highest frequency of 64 (33.33%) in test item number 26. Next from the highest frequency is the number 5 with 52 (27.08%) students getting the correct answer. Item number 45 and number 36 rank fourth and fifth relating to the order given.

The score mean of 1.10 on the inferring skills (Basic Science Process Skills), its degree of performance entails the need to be improved.

Table 10.6 Predicting Skill Performance

Item Number of Predicting Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Six (6)	154	80.21	1
Eighteen (18)	109	56.77	3
Twenty-seven (27)	127	66.15	2
Thirty-seven (37)	52	27.08	5
Forty-six (46)	69	35.94	4
Total number of respondents having the correct answer	511		

Table 10.6 shows predicting skills performance. The test items numbered 6,18,27,37 and 46 implied specific predicting skills. Item number 6 ranks first with 154 (80.21%) students answering correctly. The second, third, fourth ranks are item number 27 with 127 (66.15%); 18 with 109 (56.77%); 46 with 69 (35.94%). The lowest is item number 37 with the frequency of 52 (27.08%)

The computed mean score of 2.66 on predicting skill denotes the degree of performance which is average of the 5-point scale level of performance.

Table 10.7 Hypothesizing Skill Performance

Item Number of Hypothesizing Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Seven (7)	142	73.96	1
Nineteen (19)	68	35.42	5
Twenty-eight (28)	70	36.46	4
Thirty-eight (38)	125	65.10	3
Forty-seven (47)	139	72.40	2
Total number of respondents having the correct answer	544		

Based on Table 10.7 hypothesizing skills of the fourth-year students of Tuburan National High School, Tuburan, Cebu: tested item number 7, 19, 28, 38, and 47.

Test item number 7 has the highest frequency of 142 (73.96%) of students getting the correct answer. Item number 47 with the frequency of 139 (72.40%) ranks second; item number 38 with the frequency of 125 (65.10%) and item number 28 with the frequency of 70 (36.46%) rank third and fourth. Item number 19 is the lowest in the frequency of which 68 (35.42%) of the students responding answered correctly.

The mean score of 2.83 in the hypothesizing skill (Integrated Science Process Skill) degree of performance is described to be average.

Table 10.8 Interpreting Data Performance

Item Number of Interpreting Data Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Eight (8)	42	21.88	3
Twenty (20)	40	20.83	4
Twenty nine (29)	54	28.13	2
Thirty (30)	78	40.63	1
Forty eight (48)	8	4.17	5
Total number of respondents having the correct answer	222		

Table 10.8 shows interpreting data skills performance of the fourth year students of Tuburan National High School, Tuburan, Cebu.

Test item number 30 (identifying how fast does sound travels in water than to air) has the highest frequency of 78 (40.63%). Item number 29,8,20 with 54 (28.13%); 42 (21.88%; and 40 (20.83) rank second, third, and fourth respectively.

Item number 48(interpreting data in the table)with frequency is 8 (4.17%) ranks fifth.

The score mean of 1. 16 on the interpreting data skills (Integrated Science Process Skills) entail the need to be improved.

Table 10.9 Controlling Variable Performance

Item Number of Controlling Variable Data Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Nine (9)	16	8.33	5
Ten (10)	105	54.69	1
Eleven (11)	29	15.10	4
Thirty nine (39)	69	35.94	3
Forty nine (49)	92	47.92	2
Total number of respondents having the correct answer	311		

As shown in Table10.9, the skills performance on controlling variables has a score mean of 1.62 that implies a description of Needs Improvement (NI).

The controlling variable skill is an Integrated Science Process Skill. The test item number are designated as specific controlling variable skills of item nnumbers10, 49, 39, 11 and 9. As a result, test item number 10 has the highest frequency of 105 (54.69%) followed by the test item number 49 with 92 (47.92%) number 39 with 69 (35.94 %), item number 11 with 29 (15.10 %) and lastly, item number 9of 16 (8.33%) of students obtaining the correct answer.

Table 10.10 Experimenting Performance

Item Number of Experimenting Skill	Frequency of Respondents with Correct Answer (f)	Percent (%)	Rank
Twelve (12)	66	34.38	3
Twenty one (21)	44	22.92	4
Thirty one (31)	115	59.90	1
Forty (40)	68	35.42	2
Fifty (50)	29	15.10	5
Total number of respondents having the correct answer	322		

Based on table 10.10 on the experimenting skill performance of the fourth year students of Tuburan National High School, Tuburan,Cebu: tested item number 12, 21, 31, 40 and 50.

Test item number 31 has the highest frequency of 115 (59.90%) of students getting the correct answers. Item number 40 with the frequency of 68 (35.42 %) ranks second. Item number 12 and 21 rank third and fourth. And Item number 50 is the lowest in frequency of 29 (15.10%) of the students responding answer correctly.

The mean score of 1.68 in the experimenting skill (Integrated Science Process Skill) degree of performance entails strong emphasis due to its Needs Improvement (NI) status.

CONCLUSIONS

In the light of the findings of the research study, the following inclusions were drawn:

The Science Process Skills performance level of the ten skills performed by the fourth year students enrolled in Tuburan National High Shool, Tuburan, Cebu, S.Y 2013- 2014 revealed.

Observing Skill. The fourth year students in Tuburan National High School performed Needs Improvement (NI) level. Comparing Skill. The fourth year students in Tuburan National High School, Tuburan, Cebu, S.Y 2013-2014 obtained Below Average (BA) level. Classifying Skill. The performance level of Below Average (BA) level is achieved by the fourth year students of Tuburan National High School, S.Y 2013-2014. Measuring Skill. The fourth year students in Tuburan National High Shool, Tuburan,Cebu,S.Y. 2013-2014 registered Average (A) level. Inferring Skill. The fourth year students in Tuburan National High School, manifested a Needs Improvement (NI) level of performance. Predicting Skill. The fourth year students, achieved the Average (A) level. Hypothesizing Skill. The fourth year students, attained the Average (A) level. Interpreting Skill. However, the fourth year students on Tuburan National High Shool, Tuburan, Cebu, S.Y. 2013-2014 performed poor achievement with the level of Needs Improvement (NI). Controlling Variable Skill. The performance level of Needs (NI) is achieved by the fourth year students in Tuburan National High School, Tuburan, Cebu. Experimenting Skill. The fourth year students of Tuburan National High School showed a performance of Needs Improvement (NI) level.

Hypothesis # 1. There is a significant relationship between the Basic and Integrated Science Process Skills of the fourth year students of Tuburan National High School, Tuburan, Cebu, S.Y 2013- 2014.

RECOMMENDATIONS

On the basis of the findings of this research study the following recommendations are offered to bring about improve quality in the performance of the Science Process Skill for the fourth year students of Tuburan National High School, Tuburan, Cebu;

1. Materials, apparatus, and equipment should be provided where in students can practice and concretize the skills directly, or indirectly. The adequacy of these laboratory facilities will also give the chance to exercise and master the Science Process Skill.

2. Textbook and laboratory manuals should be able to present theconcept- based activities with proper emphasis on the Science Process skills in logical and systematic approaching starting from the most basic to the most complex. The degree of relativeness with the lessons should be regarded as vital in teaching- learning experience.

3. Time of the exposure for Science Process Skills should be explorized in every laboratory activity. As reflected in the textbook or laboratory manual. If textbook and laboratory are not available, the teacher should capitalize what specific skill or skills is or are included in the laboratory activity.

4. The students should be given enough time to concentrate on a lesser subject load per day. The MWF / TTh with a maximum of 3 hours (180 min.) per meeting recited in either laboratory or lecture session. The Science and Technology subject will be of 2.5 units equivalent in a total of 9 hours (540 min.) per week. During the MWF, the students will incur 3 hours (180 min) for this Science and Technology 4 hours and 50 mins. for the TTh schedule.

5. Science and Technology teachers should be given a amximum of units with 2.5 units per Science and Technology subject recited in a double session (laboratory and lecture) or either lab or lecture. A 3 hours (180 mins.) for MWF to 4 hours and 50 mins.(270 min) for the TTh will be given to the Science and technolgy Teachers per class or actual teaching load. The rest of the teachers official time will be used for the preparation for the lessons for the next day.

6. Modular lessons should be considered as substitute to the traditional lesson plans (the teacher centered activities). Both lab and lec oriented modules should be produced by the Science and technology Teacher himself. The objectives stipulated in the modules should be accorded to the Desired Learning Competencies (DLCs) of the said subject.

ACKNOWLEGDEMENT

This study would not be having possible without the guidance and support several individuals who in one way or another contributed and extended their valuable assistance in the preparation an completion of this study.

With all humility, the researcher wishes to express her heartfelt thanks and profound gratitude to the ALMIGHTY FATHER for the blessings and graces showered on her and her family.

Sincere thanks and deep appreciation to those who shared their precious time and effort to make this undertakings a reality.

To Dr. Victor D. Villaganas, The University President and Chairman of Thesis Advisory Committee, for giving us the opportunity and access to graduate education.

To Dr. Helen C. Brigoli, the researcher's adviser and the University statistician for her valuable expertise, never – ending guidance, patience and encouragement greatly contributed to the realization of the study.

To Dr. Perla N. Tenerife , panel member for editing and refinement and other important task to enhance her work.

To Mr. Raul A. Dura , School Head of Tuburan National High School, for his patience and for letting the researcher field her questionnaire.

To the Fourth Year Students, Batch 2013-2014 of Tuburan National High School for honestly answering the questions.

To her daughter Jolian Faith B. Gecain who is her constant joy and inspiration.

Most of all, to her loving husband – Rey, for his unending support and constant encouragement for the prodding presence when times get rough.

REFERENCES

Tchkonia, N., & Vakhania, Z. (2018). Active Readiness Method for Trainings and Seminars. *UKRAINE –EU. INNOVATIONS IN EDUCATION, TECHNOLOGY, BUSINESS AND LAW*, 210.

Colvill, M., & Patti, I. (2002).Science skills - the building blocks for scientific literacy. *Investigating: Australian Primary & Junior Science Journal, 18*(3), 20.

Diola, Elena Q,(2014) " Science and Technology School, Paper delivered at the First Visayas Education" Congress, Lapu-lapu City.

Gagne, R.M." (2012)The Learning Requirements for Inquiry," Journal of Research for Science Teaching, Vol. 1963, 144-153.

Harlen, W. (1997). Primary teachers' understanding in science and its impact in the classroom. *Research in Science Education, 27*, 323-337.

Lynch, P.P., (2013) Laboratory Book in Schools and Linguistics and Strategies Skill Largely Unexpected, "Journal of Science and Math Ed, Vol.9, No.2, 51- 60.

Minner, D.D., Levy, A.J., & Century, J. (2010). Inquiry-based science instruction-What it and does it matter?

Wilson, C.D., Taylor, J.A., Kowalski, S.M., & Carlson, J. (2010). The relative effects and equity of inquiry-based and commonplace science teaching on students' knowledge, reasoning, and argumentation. *Journal of Research in Science Teaching, 47,* 276-301. doi: 10.1002/tea.20329

Mehalik, M. M., Doppelt, Y., &Schunn C.D. (2008). Middle-school science through designated learning versus scripted inquiry: Better overall science concept learning and equity gap reduction. *Journal of Engineering Education, 97*(1), 71-85.

Estanioso, S. (1996) "A Science Process Skills Performance Assessment of the Private and Public Secondary Students of Tanjay, Negros Oriental.Masteral Thesis, Cebu State College, Cebu City.

Fuentes, A.A(1998)"The Relationship between Elementary Process and Readiness and Academic Performance in Integrated Science and Biology of the SophomoreSecondary Students of Southern Agro - Industrial, Argao, Cebu, Masteral Thesis, Cebu State College, Cebu City.

Cruz, Pofenciana C., and Archibald Peterson C. Sia, Modernizing (2002). Science Instruction in the Elementary Education, Manila Rex Printing Company   Inc.

Driscoll, Marcy P. (1998) Psychology and Learning for Instruction. Boston Allysa and.Bacon.

Navarro, Rosalita L., Amelita A. Cruz, David G. Tavera and Paez I. Lucido (1998).Principles of Teaching and Instructions Technology,Quezon City: Katha PublishCo.,Inc.

Religioso, Teresita T. Science and Process (1995) A Source book for Science Teachers, Quezon City: Phoenix Publishing House, Inc.

SOLID WASTE MANAGEMENT IN RIO TUBA, BATARAZA, PALAWAN: CHARACTERIZATION, PRACTICES AND CAUSAL EFFECTS

LORILEE O. RAFAEL
Western Philippines University
Palawan, Philippines

ABSTRACT

This study was conducted to determine solid waste management in Rio Tuba, Bataraza, Palawan, its characterization, practices and causal effects. Primarily, to find out the volume of waste generated by the community, determine the different solid waste management practices conducted in the locality and describe the causal effects of solid waste management practices towards the community as a whole. The study was conducted from November 2021 to April 2022. Descriptive research method was employed in the study. Random sampling using Slovin's formula 5% of error was used with a total of 412 respondents. A SWMP questionnaire was developed by the researcher patterned from books and existing solid waste management studies which comprises of open ended questions. A pre-test survey was conducted to assess the items for modification and improvement. Data was collected upon the approval of the barangay captain of the locality. The use of secondary data through document search was also employed. Qualitative statistics was used to present the waste management practices and its causal effects in the area. Result shows the volume of waste generated was 60.7 m³ with an average of 0.73 m³ per household, most of the community folks do not employ waste segregation. Common solid waste management practices includes waste collection, recycling, waste monitoring and sanitary landfill maintenance. Yet, there is no barangay ordinance on solid waste imposed in the barangay. The waste disposed to final site are unsegregated. Thus, it has a potential to pose health risks among the segregators and workers at the mine site which may resulted to the conversion of economic and other daily expenses to health expenditures, may lower life expectancy or even resulted to death. With this, it is recommended that the Barangay Council may consider to create an ordinances pertaining to solid waste management program. Conduction of IEC and seminars on waste management and its impact should be employed among the community folks particularly the waste segregators to enhance their knowledge on waste disposal and handling respectively.

Keywords: solid waste, waste segregation, practices, causal loop, impact, health risk

INTRODUCTION

Most human activities generates waste. Although the waste generation has remained a major problem since prehistoric times. In the recent years, the rate and amount of waste generation increased. As the amount of garbage increases, so does the type of garbage (Amasuomo, 2016).

Waste is an evitable by product of most human activities. It is produced by homes, offices, shops, schools and other institutions. The main components are food waste, paper, plastics, rags, metal and glass, but the collected waste usually includes demolition and construction waste, as well as small amounts of hazardous wastes such as light bulbs, batteries, auto parts and discarded medicines and chemicals (United Nation Economic and Social Commission for Asia and the Pacific (2018).

The growing affluence of the world has led to greater greed, and with it the desire for the new and the abandonment of the old. Abandoned societies have spread from wealthy countries of the first world to the third world, where people are exposed to Western culture through mass media striving to live like Americans and Europeans, whose fast-paced lifestyles prefer disposable products to more eco-friendly alternative. This way, if left unmanaged, waste is created and become a problem.

The Environmental Management Bureau (2018) pointed out that characterizing the solid waste in Philippines involves understanding the composition and sources of solid waste, generation rates, and waste forecast. They further stressed that municipal solid waste (MSW) comes from residential, commercial, institutional and industrial sources. Residential waste makes up (57%) the bulk of MSW and this includes kitchen waste, yard waste, paper, cardboards, glass, bottles, plastic containers, sandbags, foil paper, towels, diapers and special waste such as household cleaning agents, batteries, electrical waste and electronic equipment. Commercial sources, including commercial establishment, the private and public markets, accounted for 27.1% of this, and in some regions, two-thirds of commercial waste comes from the latter. Institutional sources such as government offices, educational and medical institutions accounted to 12.1%, while the remaining 4.1% were waste from industry or manufacturing. With this, waste management is necessary.

Bacinschi et. al (2010) cited that waste management is the collection, transport, processing, recycling or disposal, and monitoring of waste materials. The term is generally associated with material produced by human activity, often to reduce their impact on health, the environment and the aesthetics. Waste management is also carried out to recover resources from it. Waste management may involve liquid, gaseous or radioactive substances, each with different approaches and areas of expertise. Waste management practices differ between developing and under developing countries, urban and rural areas and residential and industrial producers. The management of hazardous residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management of non-hazardous commercial and industrial waste is the responsibility of the generator.

The residents of Rio Tuba like other parts of the country, conducted practices concerning solid waste management. Whether it is a responsibility or an obligation to do what is proper, residents dispose their waste in a common way. Thus, the study was conducted to determine the solid waste management in Rio Tuba, its characterization, practices and causal effects.

OBJECTIVES OF THE STUDY

This study entitled "Solid Waste Management in Rio Tuba, Bataraza, Palawan: Characterization, Practices and Causal Effects" was conducted to;
1. find out the volume of waste generated by the community folks;
2. to determine the different solid waste management practices conducted at Rio Tuba and;   3. describe the causal effect of solid waste management practices towards the community and environment as a whole.

METHODOLOGY

The study was conducted in Rio Tuba, Bataraza, Palawan from November 2021 to April 2022. Descriptive research method was employed in the study. Random sampling using Slovin's formula 5% of error was used with a total of 412 respondents. A Solid Waste Management Practices (SWMP) questionnaire was developed by the researcher patterned from books and existing solid waste management studies which comprises of open ended questions. A pre-test survey was conducted to assess the items for modification and improvement prior to data gathering process. Data was collected upon the approval of the barangay captain of the locality. The use of secondary data through document search was also employed. Qualitative statistics was used to present the waste management practices and its causal effects in the area.

RESULT AND DISCUSSION

Among the 22 barangays of Bataraza, Rio Tuba was the most populated barangay. And this is due to the discovery of nickel on 1967. People from different parts of the country flock to seek for job opportunity. As of January 2021, the total population of Rio Tuba was 32,949 comprising 8,241 households.

Volume of Waste Generated

The rapid economic development of the community brought corresponding growth of solid waste generated during the previous decade. A volume of 60.7 m³ with an average of 0.73 m³ per household (Figure 1) was generated every day. According to Senate Economic Planning Office (2017) in their report in Philippine Solid Waste at Glance that the estimated average waste generation per capita is 0.40 kilograms per day for both urban and rural.

The solid waste generated from household waste accounts about 40 %, commercial establishments of 20%, school and hospitals 10%, industries 10% and public market 10% (Rio Tuba, 2021)

On the waste composition, about 50% were biodegradables, almost 40% are recyclables and 10% for special waste (Figure 2). The waste generated were thrown directly to the trash bins by which people do not employ waste segregation method. Some, burn their waste in their backyards while others thrown it to the sea particularly those living in the coastal area.

Although, the Barangay Council encourages people to used differentiated waste container, however most of the household disposed their waste unsegregated.

Alam and Ahmade (2013) pointed out that improper solid waste management practices can have many environmental and health impacts. People who live near or within the dump areas are susceptible to various diseases. Leachate from solid waste can contaminate ground and surface water. Methane gas from landfills affects the health of exposed people and can contribute to global warming. Coastal and marine litters affects aesthetics and causes pollution and harm the marine life. Improper managed of solid waste can increased flooding that may result to destruction of infrastructures due to clogging of water ways.
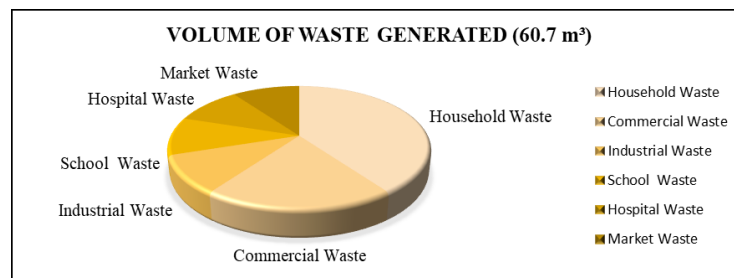

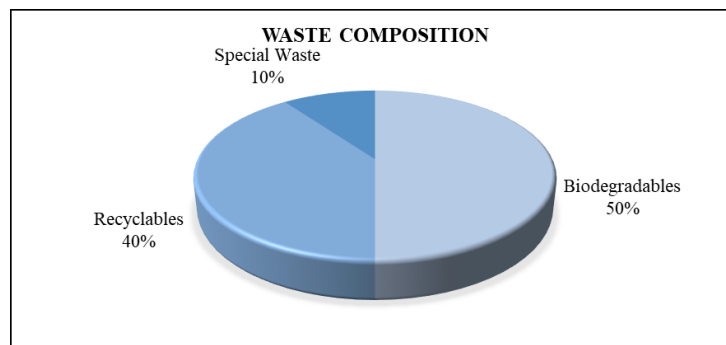**Figure 1 volume of waste generated by the community**

Figure 2. Waste composition generated by the community

Solid Waste Management Practices

Solid waste management systems are designed to protect the environment and improve conditions in cities and different regions around the world (Environmental Protection Agency, (2020).

Paghasian (2017) mentioned that solid waste management is the collection, transport or disposal of waste materials. It deals with the materials produced by human activity and the process often taken to withstand their effects on health, the environment and the aesthetics. It reduces or eliminates adverse

impacts on the environment and human health, support economic development and improves quality of life. In today's polluted world, learning the right way to dispose of the waste generated has been essential.

Thus, in pursuant to RA 9003, Rio Tuba Council also took their part to control and implement various strategies on Solid Management practices in the locality. These are;

Waste Collection

Waste collection in the Townsite Area was performed by the company as part of their responsibility towards their employees. Collection of waste was done in a daily basis with four times a day. This usually starts from 8:00 o'clock to 11:00 o'clock in the morning and 1:00 o'clock to 4:00 o'clock in the afternoon. During the process, MSW are separated from the hospital waste. The hospital waste is given much special attention and were confined in a trash bags prior to collection and transportation.

However, collection of waste in other areas of community was shouldered by LGU Rio Tuba. Collection was done in a scheduled basis.

Waste Segregation

Waste segregation happens only in the landfill area. All waste collected are transported to the sanitary landfill. The waste separators or scavengers usually composed of Palaw'an group collected the recyclable materials and separate it from the MSW. Special waste such as hospital, electrical and chemical waste were confine separately in its respective vault for disposal. Upon segregation, the MSW are covered with soil to avoid attracting host carrier diseases such as vermin.

This confirm with Chaerul et.al.(2007) that improper waste management of waste mixed with general waste can result in potentially infectious throughout the bulk of the waste.

Waste Processing and Recycling

All waste that has been recovered were segregated according to its types. These waste with economic value are confined in Material Recovery Facility (MRF) which usually composed of plastics, metals, wood and other recover materials. It has been sold to the contact buyer of the company in behalf of the Palaw'an group.

According to Bell (2019) Material Recovery Facilities is where the residual waste, receives, separate and prepare recyclables for sale to an end buyers.

Waste Monitoring

The Local Government Unit of Rio Tuba under the committee on Health and Sanitation monitored the waste generated by the residents particularly on disposal process. They define the areas that needs a special attention on collection, distribution of trash bins. Likewise, the Municipal Solid Waste Management of Bataraza extend an assistance in the collection of waste as part of their monitoring activity.

On the contrary, the General Affairs Office of the company serves as the monitoring team along RTN Townsite areas. The office define areas that needs for additional trashcans, uncleansed sites and even issued notices to the concern employees concerning waste disposal and sanitation.

At the sanitary landfill, the concerned companies monitor the volume of waste generated by the community and conduct necessary action for its handling and management.

Sanitary Landfill Maintenance

The sanitary landfill of the community was located in the heart of the mine site. It is an old mine pit far from the community where MSW are disposed after collection was done in the locality. It is managed by the company and is permitted and recognized by LGU Rio Tuba for security purposes of the community. The sanitary landfill can be considered as controlled landfill for its maintenance is regularly conducted by some employees assigned by the company. The maintenance activities includes segregation, processing and recycling where salvage materials are temporarily stored at MRF near the area. After segregation, the unwanted MSW where covered with soil and is usually done twice a week to avoid attraction of host carrier disease. On the other hand, electrical and medical waste were disposed separately from MSW where it is confined in a cemented vault.

RA 9003 known as Ecological Solid Waste Management Act of 2000 declared a systematic, comprehensive and ecological solid waste management program as the national policy, and recognized Local

Government Units (LGUs) as the main implementer. Additionally, the bill also prohibits the use of open landfills and recommended LGUs to convert them into sanitary landfill. In addition, the LGUs shall be primarily responsible for the implementation and enforcement of the provisions of this Act within their respective jurisdictions.

Implementation of Barangay Ordinance

Rio Tuba Barangay Council emphasizing a combat against diseases such as typhoid, malaria and the like. Thus, requiring the community to intensively participate in a massive environmental cleaning such as 6:00 o'clock habit, linis estero, tapat ko, linis ko and other related activities. This activity was done through the implementation of Barangay Ordinance No. 09-14 "Ordinance Institutionalizing Dengue Prevention and Control Program Requiring All Residents of Rio Tuba to Strengthen Campaign against Dengue".

However, there is no barangay ordinance regarding solid waste management program that has been imposed in the barangay. According to Leonard (2018) implementing and following regulations help people to understand what is expected of them and what happens if they break the rule.

The Causal Effect of Solid Waste Management Practices

The solid waste management practices in Rio Tuba shows that population as the primary component of the ecosystem could influence the environment, its health and aesthetics as a whole. Since the population is higher, the waste generated also rises. The result somewhat agree with Gascon et.al (2004) that if the population is higher, so does the waste generated.

Result shows that most of the community folks disposed their waste unsegregated because there is no existing waste regulation imposed in the locality (Figure 3). The unsegregated and untreated waste were disposed to the final site has a potential to pose health risks among the workers and scavengers at the mine site. Also, a regular exposure to sanitary landfill may implicate higher health risks which somehow affects economic and daily expenses which may converted to health expenses. If the situation continues, the health expenses may increase including hospital coverage which result to lower life expectancy or even resulted to death. The dynamics of the model are determined by the feedback loops in the causal diagram shows that each arrow indicate an influence of one element to another.

This findings agreed with Silpa et.al. (2018) that expensive and waste disposal must compete for funding with other priorities such as clean water and other utilities, education and healthcare.

According to report of rubbish removals (2018) proper waste management can help improve air and water quality, reduce greenhouse emissions. It helps to minimize resource extraction and reducing pollution and energy consumption. However, one of the most significant benefits of waste management is protecting environment and people's health.

Alam and Ahmade (2016) reported that the US Public Health Service has identified 22 human diseases associated with poor MSW. Waste workers and scavengers in the developing countries are rarely protected from direct exposure and injury, and the co- disposal of hazardous and medical waste with municipal solid waste poses a serious threat to health.

In addition, Environmental Protection Agency (2020) also cited that inadequate solid waste management affects cities, regions and their inhabitants in a number of ways. These effects can generally be group into three categories: Human health. Improper waste disposal can affect human health. The decomposing organic waste attracts rodents, insects, and stray animals as well as disease-transmitting bacteria. Mosquitos also a concern when they breed in a solid waste. Mosquitos can be spread of diseases such as malaria, dengue, and Zika virus. Poorly managed solid waste and open dumps can lead to environmental contamination of surface and ground water, a common source of drinking water. Uncontrolled burning of waste can emit air pollutants including dioxins, furans, black carbons and other particulate matter, many of which are harmful to human health. These health effects can be severe for people living in direct contact with or near waste disposal sites.

Further, improper leachate control can affect the environment. Water filtered through waste and pumped out chemicals at disposal sites can lead to environmental pollution of soils and water bodies, affecting local ecosystems. Poorly managed water also poses a threat to stray animals and wildlife as they try to consume waste that contains food scraps and scraps. Open burning of waste emits black carbon, a particulate matter component that has a significant impact on regional air quality. Inadequate solid waste management contributes to the global marine litter challenge. In fact, studies suggest that as

much as 80 percent of marine litter comes from land-based sources.

Finally, inadequate solid waste management can be costly both direct and indirect. A poorly managed solid waste system is a missed opportunity for economic growth, including increase in property values, tourism benefits from cleaning streets and beaches. If implemented properly, waste reduction program can solve on transportation and fuel costs as well as cost recovery. Improved solid waste management could particularly benefit highly vulnerable populations on saving on bar costs.
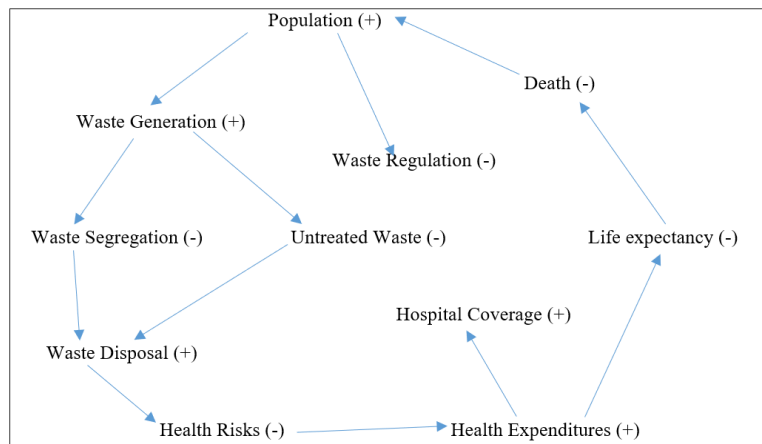

Figure 3 Causal loop diagram showing the effect of solid waste management practices

CONCLUSIONS

Based on the significant findings of the study, the following conclusions were drawn: the volume of waste generated was 60.7 m³ with an average of 0.73 m³ per household where most of the community folks do not employ waste segregation. Rio Tuba Council also took their part to control and implement various strategies on solid management in the locality. These includes waste collection, waste segregation and recycling, waste monitoring, sanitary landfill maintenance and implementation of barangay ordinance No. 09-14 "Ordinance Institutionalizing Dengue Prevention and Control Program Requiring All Residents of Rio Tuba to Strengthen Campaign against Dengue".

However, there is no barangay ordinance pertaining to solid waste management. Further, unsegregated and untreated waste were disposed to the final site has a potential to pose health risks among the workers and scavengers at the mine site. Thus, it has a potential to pose health risks among the scavengers or waste segregators which somehow affects their household expenditures. Also, a regular exposure to sanitary landfill may implicate higher health risks which somehow affects economic and daily expenses which may converted to health expenses. Further, if the situation continues, health expenses may increase including hospital coverage including hospital coverage which result to lower life expectancy or even resulted to death.

RECOMMENDATIONS

After a comprehensive assessment of the results of the study, it was recommended that the Barangay Council may consider to create an ordinances pertaining to solid waste management program. Conduction of IEC among the community folks of Rio Tuba will be done to enhance their knowledge on the effects of mismanaged solid waste disposal. Furthermore, attending seminars on health sanitation programs should be employed to those who are working as scavengers or waste segregators for them to be fully aware of the consequences of their daily exposure to waste.

ACKNOWLEDGMENT

REFERENCES

Alam, P. and Ahmade, K. (2013). *Impact of Solid Waste On Health And The Environment*. Special Issue of International Journal of Sustainable Development and Green Economics (IJSDGE), ISSN No.: 2315-4721, V-2, I-1, 2, 2013

Amasuomo, E. (2016). *The Concept of Waste and Waste Management*. Journal of Management and Sustainability. 6(4):88 DOI:10.5539/jms.v6n4p88

Bell, S. (2019). "What is a Material Recovery Facility?". Waste Watchers Blog Runner/Road Runner. Available at https://www.roadrunnerwm.com

Bacinschi, Z. Rizescu, C.Z and Valentina, S.E. (2010). "*Home Environmental Engineering and Engineering Waste Management*. Conference Paper. Valahia University of Târgoviste

Chaerul, M., Tanaka, M, and Ashok, S. (2007). A system Dynamic Approach for Hospital Waste Management

Environmental Management Bureau. (2018).

Environmental Protection Agency. (2020). Best Practices for Solid Waste Management: A Guide for Decision-Makers in Developing Countries. United State Environmental Protection Agency, Office of Resource Conservation and Recovery. Available at PDFDrive.com

Gascon, C., Tayo, V., Malambayan, V., Novicio, L. and Viril, V. (2004). Fundamentals of Environmental Science. Trinitas Publishing Books Inc. Pantoc, Meycauayan, Bulacan

Leonard, K. (2018). "*The Importance of Obeying rules and Regulations in the Workplace*" CHRON. Newsletter. Available at https://smallbusiness.chron.com

Paghasian, Margarita C. (2017). "*Awareness and Practices on Solid Waste Management among College Students in Mindanao State University Maigo School of Arts and Trades*". Advances in Social Science, Education and Humanities Research, Volume 128. 3rd International Conference on Education and Training (ICET 2017).

Senate Economic Planning Office (2017)."*Philippine Solid Waste at Glance*" available at https://www.jstage.jst.go.jp

Silpa, Y., Lisa T., Perinaz, B and Woerden, F.V. (2018). What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. 2018 International Bank for Reconstruction and Development / The World Bank. 1818 H Street NW, Washington DC

RA 9003 Ecological Solid Waste Management Act of 2000. Available on https://emb.gov.ph

Rio Tuba Barangay Profile. (2021).

Right Away Rubbish Removals. (2018). "*What are the Environmental Benefits of Proper Waste Disposal?*" Available at https://www.rightawayrubbishremovals.com

United Nation Economic for Asia and the Pacific. (2018)

FRANCISCO SIONIL JOSE'S *THE GOD STEALER*: POST-COLONIAL ILLUMINATION

MAYETH S. ELLORAN
Faculty, Languages, Literature, and Communication
Cebu Technological University-Tuburan Campus
Tuburan, Cebu, Philippines

ABSTRACT

The literary inquiry uses the qualitative-descriptive research method using the discourse content analysis. The short story is analyzed to find out its postcolonial features. The formalistic elements serve as the archways in extracting the postcolonial elements of the short story. The expressivist aspect is the illumination of the writer in some features of his work. Philip's exhibition of hybridity and cultural polyvalency upon embracing another culture with his own culture is the facet of postcolonialism. The postcolonial creative reader-response entitled Ang Englisherang Pinoy implies the spirit of colonialism has been perennially recurring in the hearts of the Filipinos, signifying jeopardy in Philippine culture. The study concludes that Francisco Sionil Jose's *The God Stealer* is a postcolonial text. It is recommended that the characters, plot, conflict, and theme of the short story be delved into in determining the postcolonial features of the text, the background of the author be considered a source for identifying postcolonialism in a literary text, postcolonial features are dissected in a literary text and creative postcolonial reader-response be an evaluative output for the study.

Keywords: postcolonialism; Francisco Sionil Jose; The God Stealer; formalism; expressivism

INTRODUCTION

The accumulated works of literature of a nation comprise the human thoughts and dreams of the people. They foster a glimpse into the soul and aspirations of a nation. Furthermore, they become the venue for many sensitive people who desire to keep their emotions and observations on the world they are living in. Indeed, literature is an archway for telling the world and other generations about how they live, feel, and dream for their world to show the most profound aspect of human life (Tendero et al, 2014).

Literature is a mimesis of life. It is the textual repository of indispensable lessons, knowledge, and entertainment. Thus, it has the affective potential that relates to the reader's vicarious experiences through the perspectives of other human beings. It is a quest inscribed in pages and powered by the imaginative mind. It emancipates the enmeshed man from getting caught in a dead-end and dauntlessly finds the crossroad back home.

Writers encode texts for many purposes, and through their faculties, they affect readers. For instance, the Bible and the Indian epics like Ramayana and Mahabharata give society the guiding principles of life. The magnificent works of William Shakespeare, J.K Rowling, Ernest Hemingway, Charles Dickens, Stephen King, James Joyce, and Virginia Woolf are genuinely fascinating in innumerable ways. These eminent literary artists have created an enormous impact on people's lives. Their ingenuity in writing has propelled the people to diverse imaginary situations that equip them in facing possible tribulations besetting their future endeavors. Furthermore, it teaches them to empathize with people's indifference. Their various stories about people from different walks of life illuminate man's uniqueness in confronting the adversities in life.

Literary works have played essential roles in people's lives, like short stories. Short stories have captured the hearts of many reading enthusiasts. Others even consider them their hobby after embattling themselves for stressors in life. Medical practitioners are using short stories as mental therapy for pa-

tients. Moreover, they do embed not only the affective domain but also the formalistic and expressive features. These are elements fortifying the essence of literature. Reading short stories becomes more intellectually exciting and thriving when there is an accentuation of the form. Delving into the characters, plot, conflict, and theme of the short story adheres to its content.

Furthermore, the expressive features are avenues in determining the author's presence in the literary text. They spotlighted the artist's background with the social and cultural elements when the piece was written. Distinguishing the postcolonial features is the essential element giving the indispensability of the text to the societal impact.

Numerous writers have been distinctively lauded for producing commendable works which have gargantuanly inspired and influenced readers. Some of their works have captivated many short story lovers. Francisco Sionil Jose is an eminent Filipino writer who has a magnificent affective impact on the Filipinos, especially in his nimbleness manifesting the value of nationalism in his works.

This study theorizes that Francisco Sionil Jose's *The God Stealer* is a postcolonial text. This argument is anchored by the literary critical theories of postcolonialism, formalism, expressivism, and reader-response theory.

Postcolonialism emphasizes the issues of cultural differences in literary texts, gender, class, and sexual orientation. It disregards the claims of universalism, scrutinizes the representation of other cultures in literature, and manifests the evasiveness of literature concerning imperialism and colonization. Moreover, there is foregrounding cultural difference and diversity and a celebration of hybridity and cultural polyvalency (Barry, 2002).

Formalism or Russian Formalism is the 20th-century Russian school of literary criticism. There were two groups. Viktor Shklovsky led the OPOYAZ (Society for the Study of Poetic Language) in 1916 in St. Petersburg, and another group founded the Moscow Linguistic Circle in 1915. The formalists sought to make their critical discourse more objective and scientific than Symbolist criticism. They stressed the vitality of form and technique over the content and looked for the specificity of literature as an autonomous verbal art (Britannica, 2016).

Formalism accentuates the structural purposes of a particular text without taking into account any outside influence. It abandons or brackets notions of authorship, content, culture, or societal impact and centralizes on the modes, discourses, genres, and forms. It is also called New Criticism. The proponents of formal analysis connote that universal statements or laws about the work under observation can be measured by analyzing the language and internal structures. The form, tone, language, characterization, figures of speech, point of view, setting, and theme of a text constitute a universe of ideas within an internal order. The formalists scrutinize the tone and syntax of poetic language, rhyme, stanza forms, and repetitive imagery or word pictures. Formalists are conscientious of the text or art object as a construction used to evoke particular responses even if reader-response is beyond the control of any artist. They prioritize the medium over the content (Mambrol, 2020).

Considering the formalist view, the main concern of formalism is the work, or the text itself has its distinct piece, free from its environment, period, and even its author. According to Adams, it considers any literary work as an object with an internal purpose (Di Yanni, 2000, p.382).

Expressive Theory or Expressivism considers text in terms of what its author expressed, stressing the writer's presence in the text. Hence, the literary text describes the author's inner being. Thus, it delves into the ideas of preference for feeling over rationality, the individual and particular over the general, creative spontaneity, the psychology of the author emerging as a subject for study, and the inquiry into the merger between the nature of textuality and the nature of its writer (Pesirla, 1998, p.4).

Expressivism sees a literary text as a reflection of the writer's life and times on the character's life and times in the work. The interpretive textual processing in expressivism focuses on delving into the author's race, moment, milieu, relating to the author's religion, family background, political meaning, and even the writer's sickness.

The Reader-response Theory or Affective Theory of Stanley Fish, David Bleich, and Wolfgang Iser is famous in both the United States and Germany. It gained prominence in the late 1960s that focused on the reader or audience's reaction to a particular text, perhaps more than the text itself. This is connected to the emphasis of poststructuralism on the reader's role in vibrantly constructing texts. The reader's reactions to literature are essential in text interpretation. A critic deploying this theory applies a feminist, psychoanalytic, or even structuralist lens (Poetry Foundation, 2022).

Reader-response theory recognizes the reader as the active agent who imparts actual existence to

work and complements the meaning through interpretation. It argues that literature ought to be viewed as a performing art in which every reader composes their own possibly unique, text-related performance. Furthermore, it rejects the idea that every literary work has a single, fixed meaning. It accentuates the individual creating his purpose through a transaction with the text based on personal associations. Thus, the interpretation is subjective and unique.

The four literary theories are arches leading the study in the designated direction. Postcolonialism, formalism, expressivism, and reader-response criticism help determine the literary text's postcolonial features.

STATEMENT OF THE PROBLEM

This study delves into postcolonialism in the short story of Francisco Sionil Jose entitled *The God Stealer*.

Specifically, it focuses on the following:
1. formalistic elements of the short story;
2. expressivist aspects of the short story;
3. postcolonial features of the short story;
4. creative reader-response to Francisco Sionil Jose's short story as the research output.

METHODOLOGY

This literary inquiry uses the qualitative-descriptive method of research using discourse content analysis. The short story is analyzed, encompassing the formalistic, expressivist, postcolonial, and affective aspects.

The analytical data are generated in four phases: Phase 1: Formalistic elements; Phase 2: Expressivist aspects; Phase 3: Postcolonial features; Phase 4: Creative reader-response.

Phase 1: Formalistic Elements. The structural elements of the short story are identified using the formalistic theory. These elements are the characters, plot, conflict, and theme. The main characters are the foci. The plot comprises the capsulized parts. The conflict refers to the opposing forces in the short story, and the theme centralizes the main idea of the short story.

Phase 2: Expressivist Aspects. These aspects relate the texts to the life and background of the author. These can fortify one's knowledge about the writer of the short story and how he greatly influenced his masterpieces, considering his experiences. The author's presence in the short story is manifested through the template.

Phase 3: Postcolonial Features. The postcolonial aspects are determined based on the formalistic and expressivist aspects. The postcolonial illumination is dissected from the main characters, plot, conflict and theme of the short story. Moreover, the expressivist aspects fortify the evincing of the postcolonial lens.

Phase 4: Creative Reader-Response. As the output of the study, a creative reader-response (a poem) is written vis-à-vis the short story of Francisco Sionil Jose as envisioned by the researcher. The poem consists of 10 stanzas. It centralizes on the colonial influences.

The four phases serve as the archways in determining the postcolonialism in Francisco Sionil Jose's short story *The God Stealer*.

FINDINGS

Formalistic Elements

The structural elements of the short story are the characters, plot, conflict, and theme. They accentuate the structural purposes of the text without considering any outside influence. These abandon the notions of authorship, content, societal influence, and culture. Indeed, these scrutinize the form or structure of the poem (Safikhani, 2018). Smolova (2004) posits that formalism emphasizes what the text says and how it says it. Interpretations comprise the properties inherent in texts.

The four important characters in the short story are Philip Latak, whose nickname is Ip-pig in his

hometown. He is a transformed Ifugao. He works and lives in Manila. The civilized life influences him in the city. Thus, he has forgotten a lot of the customary practices in his province. His workmate and close friend is Sam Christie, an American. Philip has a grandfather. He is so attached to their customs. He does not want Ip-pig to work in Manila. He loves his grandson so much that he is willing to give a lot of things to him for him to stay home. Ip-pig's brother is Sadek.

The plot of the story tells about Philip Latak going back home with an American friend who is also his boss. He has influenced Ip-pig so much from his way of talking up to his manner of clothing. Ip-pig does not like Sam to be with him because he may be surprised about the beliefs in their province. Despite that, Sam is still determined to go with him.

The arrival of Ip-pig means so much to his grandfather. Thus, a celebration is made for him. Sam's desire to collect items from the places he visits coerces Philip to steal the god of his grandfather, that is dearest to him. On the verge of the celebration, he steals the object, which leads to his grandfather's sudden death.

The death of his grandfather has made him realize how valuable the item is to his grandfather, which signifies his true identity too. Hence, he prefers to stay home and be back to being an Ifugao as wished by his grandfather.

The conflict of the story is man versus society since it shows the struggles of the man to fight against what he customarily believes in. For many years, he denies his true identity as an Ifugao, which worsens the situation and fosters the sudden loss of someone.

The theme of the story is embracing one's true identity since Ip-pig denies his genuine self by welcoming the western culture. Donning a western-style of clothing is an indication of colonization.

Expressivist Aspects

The elements of the short story evince the presence of the poet. Washington (2011) states that the expressive approach to studying the literary text is essential in retaining the inevitable connection between the creator and the creation. Furthermore, he fortifies Abram's brilliant recognition of relating the work to consciousness. The expressive theory remains beneficial within the present milieu of literary theory and criticism.

The grandfather's personality reflects Sionil Jose's nationalism by preserving and fighting for what he possesses. Philip symbolizes the Filipinos who are influenced by the colonial mentality. Sam Christie represents the colonizers who obsessively desire to gain possessions. The plot is the manifestation of drastic changes brought by colonization during the American colonization period. The conflict illuminates the struggles of Filipinos during foreign colonization. The theme recalls the immense issue in the past until the modern era.

Postcolonial Features

Philip and Sam Christie mirror the two cultural differences. "Sam Christie was twenty-eight, and his Filipino assistant, Philip Latak, was twenty-six and was-just as Sam was in the Agency before he assumed his post-intelligent and industrious." These ambivalences are the impetus for the conflicts in the short story. Philip's denial of his true identity propels the hefty impact of colonialism in Filipino society. "But it's true," Philip Latak said with a nervous laugh. "My brother dislikes me. All of them here dislike me. They think that I have forgotten what it is to be an Ifugao by living in Manila for a few years. I can't help it, Sam. I like it down there. Hell, they will never understand. My grandfather-do you know that on the day I left, he followed me to the town, to the bus, pleading with me and at the same time scolding me. He said I'd get all his terraces. But I like it down there, Sam," he threw his chest out and yawned." Philip's acquaintance with Sam has influenced him to modify the Ifugao's lifestyles. Albeit his reason for leaving their abode is poverty, it has created a significant impact on his identity.

Bhambra (2014) posits the argument of Lugones about the invention of the colonized and the societal disruption made by colonization. The concoction of western ways brought by his American friend, Sam Christie, leads to vicissitude. "Philip Latak watched them, and above the happy sounds, the squeals of children, Sadek said, "You see now that even your relatives do not know you, lp-pig. You speak our tongue, you have our blood-but you are a stranger nevertheless." The lines from the short story attest to the changes of Philip after leaving his place, venturing in Manila, and meeting Sam.

Philip denies his root of being an Ifugao. He devalues their traditions to the extent of sacrificing the precious possession of his grandfather. "After a while Philip Latak spoke again: "We will be luckier to-

morrow, I know. You'll have your god, Sam. There's a way. I can steal one for you." Sam stood up and waved his lean hands. "You can't do that," he said with great solemnity. "That is not fair. And what will happen to you or to the man whose god you will steal?" "Lots-if you believe all that trash:' Philip said lightly. "I'll be afflicted with pain, same with the owner. But he can always make another. It's not so difficult to carve a new one. I tried it when I was young, before I went to the Mission." "You cannot steal a god, not even for me:' Sam said. Philip laughed. "Let's not be bullheaded about this. It's the least I can do for you. You made this vacation possible-and that raise. Do you know that I have been with the Agency for four years and I never got a raise until you came?" "You had it coming. It's that simple." "You'll have your god:' Philip Latak said gravely. " Philip is the emblem of the Filipinos who willingly welcome the colonizers in their land, disregarding the enormous effect it brings to their culture.The god is a significant symbol of the Ifugaos, yet Philip forsakes for his American friend. Thus, Philip exhibits hybridity and cultural polyvalency upon embracing another culture with his own culture.

Creative Reader-response

The poem Ang Englisherang Pinoy is an evaluative output that serves as creative postcolonial reader response. Trisnawati (2016) states that learning literature becomes more effective when a reader responds to the text. It accentuates the enormous impact of colonialism in the lives of the Filipinos, just like Philip. The colonial mentality overpowers one's genuine affinity toward his country. Thus, the spirit of nationalism must be awakened from its deep and perennial sleep. The Philippines is for Filipinos, and let not foreigners dominate the nation that the Filipinos have dauntlessly fought in the past until the millennial era.

Ang Englisherang Pinoy
by: Mayeth S. Elloran

Juan is his Filipino name
Yet John is a blazing flame
"Hey Jo!" sounds great
But "Hoy Juan!" beckons a devastating fate.

"Kumusta?" is a monotonous cliched greeting
Whose effect may mean nothing
Yet a simple hello from a friend
Brings a classy mood which they think is better; I pretend

Ang Englisherang Pinoy is drowned by the colonial empowerment
Patriotism is eaten up by the language embellishment
Why is Juan not proud of being one?
Should he be called John to sound American?

Rouse from your long sleep
Take what is yours, and don't deny it too deep
Love one's land "Englisherang Pinoy"
Speaking the foreign language is the colonizers' coy!

CONCLUSION

Francisco Sionil Jose's The God Stealer illuminates postcolonialism. Philip, the short story's main character, manifests hybridity and cultural polyvalency upon embracing another culture with his own culture. The stealing of the god signifies a sacrificial decision. Hence, it shatters one's beliefs and culture.

RECOMMENDATIONS

Based on the findings, it is concluded that the short story The God Stealer by Francisco Sionil Jose is a postcolonial text. The study recommends that formalistic elements of the short story be used in determining the postcolonial features of the literary text, the works of Francisco Sionil Jose be used in studying colonialism as a reflection of the lives of the Filipinos during the foreign colonization, postcolonial features be considered essential aspects in studying the literary text, and a creative reader-response be used as an evaluative output in analyzing the postcolonialism of literary texts.

ACKNOWLEDGMENT

REFERENCES

Barry, P. (2002). *Beginning Theory. An Introduction to Literary and Cultural Theory.* Manchester Press.

Bhambra, G. K. (2014). Postcolonial and decolonial dialogues. *Postcolonial studies*, *17*(2), 115-121.

Britannica, T. Editors of Encyclopaedia (2016, February 25). *Formalism. Encyclopedia Britannica.* https://www.britannica.com/art/Formalism-literary-criticism

Candilas, K. (2017). *Indecisiveness in "The Road Not Taken" by Robert Frost: An Expressive Critical Analysis*".*Asia Pacific Journal of Education, Arts and Sciences*.

Di Yanni, R. (2000). *Literature: Reading Fiction, Poetry, and Drama*. United States of America: The McGraw Hill Companies, Inc.

Kashikar, Y. (2018). *A Celebration of "The Death of the Author" in Roland Barthes's Essay*. *Research Journal of English* 3.4.

Iskhak, I. (2016*). "The application of reader-response theory in enhancing student teachers' affective and linguistic growth: A classroom action research in EFL teacher education in Indonesia*." *The English Teacher* 2.

Mambrol, N. (2020). *Russian Formalism*. https://literariness.org/2020/10/19/russian-formalism/.

Pesirla, A.(1998). *The Literature of the World*. Villarino, T.V.P. Ed. Veritas et Pulchritudo.

Poetry Foundation. (2022, April 16).*Reader-response theory*. https://www.poetryfoundation.org/learn/glossary-terms/reader-response-theory.

Salirickandres (2016, July 12) *Reader-response criticism.* <https://salirickandres.altervista.org/reader-response- criticism/?doing_wp_cron=1535167900.8065319061279296875000

Safikhani, R. (2018). LANGUAGE FORMALISM ANALYSIS OF BIJAN NAJDI'S STORIES. *European Journal of Literature, Language and Linguistics Studies*, *2*(4).

Smolova, A. (2004). Using Literary Criticism as a Strategy of Rhetorical Invention: A Practical Guide to Writing About Literature. ERIC ID: ED490768.

Tendero, Edwin et al. (2014). The World Masterpieces in Literature. Mutya Publishing House, Inc, 1.

Trisnawati, R. K. (2009). Implementing reader-response theory: An alternative way of teaching literature research report on the reading of booker T Washington's up from slavery. *JEE, Journal of English and Education*, *3*(1), 1-14.

Washington, C. L. (2011). *Revisiting expressive theory in 21 st century critical discourse.* Morgan State University.

VALUE CHAIN ANALYSIS OF DAIRY INDUSTRY IN BULACAN

MELLANIE BRIONES PASCUA, MBA (PhD Candidate)
RICHARD V. SIMANGAN, PhD
Bulacan Agricultural State College
Pinaod, San Ildefonso Bulacan, Philippines

ABSTRACT

The dairy value chain was examined in terms of input provision, production, processing, and marketing. The strengths, limitations, opportunities, and challenges of the dairy industry in Bulacan were identified and discussed, and a strategic action plan was developed. Information was gathered at the Bulacan Dairy Industry and various chain levels through discussions with individual experts from various chain actors. A personal and online survey interview with representatives of value chain actors was also done. Six dairy farms in Bulacan were surveyed, as well as 16 processors and 16 marketers/distributors. The varied facets of the dairy sector as well as the demographic characteristics of dairy producers were explored. Dairy farmers were found to produce an average milk yield of 12.50 liters per day, of which 40% was used for pastillas de leche processing, 15% for kesong puti processing, 25% for flavored milk, 10% for yoghurt pasteurization, and 10% for home consumption.

Keywords: dairy, swot, marketers, strategic action plan, inputs provision

INTRODUCTION

Dairying has provided livelihood to millions of people in our country (Thakur et al., 2020). Dairying is focusing on milk production and processing of raw milk for human consumption. Dairy products are evidence as still growing commodity in the food industry. Milk is a vital nutrient in the diets of vulnerable groups such as newborns, children, and adults. According to nutritionists, milk and other dairy products should be consumed on a daily basis as part of a well-balanced diet. The Philippine carabao (Bubalus bubalis) is a good source of milk for family consumption as well as indigenous items such white cheese (kesong puti) and pastillas de leche. The Philippine Carabao Center (PCC), an attached agency of the Department of Agriculture (DA), is in charge of the carabao industry's development. It aids dairy cooperatives in increasing their capacity to become more effective and self-sufficient carabao-based enterprises (Preciados et al., 2020).

While the dairy business is unquestionably an important aspect of traditional milk nations such as New Zealand and Australia, it is also a big market holder in non-traditional milk nations such as China (Von den Bos, 2015). As a result of the progressive introduction of milk in non-traditional milk nations, a new milk generation has emerged. Meanwhile, whether it's the raw milk and other dairy products have made a big impact in nourishment of most people diets. In the Philippines, for the first quarter of 2020, Central Luzon has one of the biggest populations in terms of livestock populations according to Philippine Statistics Office (PSA, 2020). The volume of carabao production was 3,045 metric tons. It was said during the early days of the Spanish government that tamed carabaos from China were imported to the Philippines for milking purposes. When the locals created dairying as a business, they began making fresh cheese from carabao's milk. Despite its poor quality, the cheese became popular in a number of regions, most notably Laguna (Mendoza, 1917; Barraquio, 2006). The kesong puti industry is located in several municipalities throughout Luzon, notably Laguna, Cavite, and Bulacan, as well as Cebu, Leyte, and Samar in the Visayas (Aquino et al., 2011).

Milk is a complete food in terms of nutrition. All nutritional benefits from milk is higher in calcium

and energy but lower in cholesterol. Today, the Philippines heavily imports almost 98% of milk and other dairy products available from other countries. The Philippine Carabao Center is the major milk supplier for the country (escolar et al.,). Thirty six percent (36%) of the national milk production was from carabaos. Opportunities for carabao's dairy farming are dependent on the buffalo breeds and climate suitability. According to Von den Bos (2015), the Philippines are one of the eight key players in the market that had a big role in the dairy industry in the world in the next five (5) years. If is met the global average consumption will be then an increase of 50% of the current revenue that may be added to the Philippines. The livestock is too sensitive in terms of temperature and humidity that climate change has a lot of effects on the production of milk (Mauger, 2015). Livestock production brings a lot of chances for landless indigent people for their daily needs and engages in value addition and marketing. Technological intervention and other strategy to build up the dairy production they demand special concentration to fully understand the farmer condition at work (Ravi et al., 2016). Farm households derive triple benefits from the dairy sector in the forms of nutritive food, a supplementary income, and productive employment for family labor, or the herd part-time employee is a member of the family (Nahid, M. &. Eltayeb, 2015).

By 2020, a viable, competitive, and sustainable dairy industry based on economically sustainable business performance throughout the value chain, offering a good quality of life for farmers and ensuring consumers safe and high-quality milk and milk products (NDA Vision). Dairying has become indispensable for gaining momentum in the growth of rural areas (Thakur et al., 2020).

Carabao milk is very popular, and it can also be processed into kesong puti (Filipino white cheese), Pastillas de leche (sweet milk candy), yogurt, raw milk, and flavored fresh milk. Bulacan dairy production is mostly concentrated in the municipality of Sta. Maria. Other towns that are engaged in dairy products include the towns of San Miguel and San Ildefonso.

Value chain analysis is one of the processes that create a product from the concept to different stages of production, processing, release to consumers, and succeeding disposal after use (Kaplinsky & Morris, 2002). Milk, being one of the superfoods become one of the priority products for distribution by the Department of Education and the Department of Agriculture through a partnership and a program that is set to provide and promote the right nutrition for every young generation.

The National Dairy Authority (NDA) promotes the "Nutrition for All, Livelihood for the Dairy Farmers" campaign and believes that this ongoing endeavor irrevocably hits two birds with one stone (NDA, 2020). First, the top benefit of this program is that undernourished children can receive the right nutrition essential for their healthy development and active learning. Second, the program has offered the most needed livelihood opportunity for dairy farmers, especially during this time of the pandemic. In partnership with the Department of Education, the undernourished children were identified to receive the ration of milk for the improvement of their health; it was also a great move for the small local dairy farmer to sell their products right after the processing.

Every step of dairy production needs to be studied in a standard process to identify every single issue and problem within the industry from inputs provision, production, and processing until the marketing phase. Through a value chain analysis, an actual perspective of the dairy industry in Bulacan may be determined.

The study is timely, significant, and relevant in this, it would serve as a great help to empower the local dairy industry and with an end view of proposing a strategic action plan to help the local dairy industry in Bulacan to help elevate the dairy industry's competitiveness.

STATEMENT OF THE PROBLEMS

This study sought to analyze the dairy industry in Bulacan using the value chain analysis. Specifically, the researcher attempted to gather the following data:
1. What is the profile of dairy farmers that are into?
   1.1 Inputs Provider and Producers:
      1.1.1 Number of Years in the Business;
      1.1.2 Type of Ownership;
      1.1.3 Type of Registration; and;
      1.1.4 Area of Pasteur Land

1.2 Processor
    1.2.1 Number of Years in Operation
    1.2.2 Type of Ownership;
    1.2.3 Type of Registration; and;
    1.2.4 Facilities
1.3 Distributors/Marketers
    1.3.1 Number of Years in Operation;
    1.3.2 Type of Ownership;
    1.3.3 Type of Registration;
    1.3.4 Market Channel; and;
    1.3.5 Mode of Payment
2. How may the value chain of the dairy industry be described in terms of?
    2.1 Inputs Provision;
    2.2 Production;
    2.3 Processing;
    2.4 Marketing; and
    2.5 Cost and return analysis.
3. What are the strengths, weaknesses, opportunities, and threats in terms of dairy industry in terms of?
    3.1 Inputs Provision;
    3.2 Production;
    3.3 Processing; and,
    3.4 Marketing.
4. What strategic action plan may be proposed to improve the dairy industry?

REVIEW OF RELATED LITERATURE

Milk is a primary source of nutrients not only for young animals but also for humans. For the continuous focus on milk dairy products, they celebrated every first day of June as World Milk Day (Kim, 2009). To date, there are 32.75M swamp buffaloes and represent 20.51% of the world's buffalo population (Food and Agriculture Organization, 2012).

Swamp buffalo is one of the land-based agriculture that played a major role mainly in the production of major crops, such as rice and corn. Dairy milk production is unusual as an agricultural commodity in that milk is produced on a daily basis for 280 days of the year. The advent of new technologies, such as mechanized milking parlors, has resulted in a global industry trend of growing farm sizes (Douphrate et al., 2013). The United States has the largest farm sizes; nevertheless, the European Union produces the most milk when compared to other global producers. Dairy production is critical for rural economic growth and community sustainability. However, the requisite capital expenditure, as well as the availability of local markets and personnel, remain difficult.

The dairy industry in the Philippines started as early as the 15th century when fresh milk was collected early in the morning and was sold immediately in the neighborhood without pasteurization. Soft cheese, also known as kesong puti, from carabao's milk also became one of the popular treats of many Filipinos.

Value chain analysis from the time the concept of "value chain" was introduced by Porter in 1985 and applied in different fields in business. Several frameworks have arisen and are being used to investigate individual enterprises, entire industries, industry clusters, and global production networks. The value chain analysis is based on the chain process and target vision of organizations, the goal of the organization as a system, made up of subsystems each with inputs, transformation processes and outputs. Inputs provision, production, processes, and Marketing outputs involve the acquisition and consumption of resources-money, labor, materials, equipment, buildings, land, administration and management.

Value chain activities are determining the costs and affects profits. There are frameworks that have been used to study individual firms, entire industries, as well as global production networks. Value chain analysis is an effective and useful strategy to determine every interaction of different chain actors in a given industry. (Zamora, 2016). The study of value chains has increased our insight into the process,

interconnections, distributional benefits, and institutional arrangements of developing-country production and marketing networks. However, the study remains qualitative and case-specific, with limited ability to evaluate or assess the impact of alternative treatments or to adequately understand the complex market dynamics and feedback found in livestock systems (Rich et al., 2011).A value chain map was created to encourage and visualize the links and resources of diverse small-scale dairy value chain actors (H. Rahman et al.,2019). A value chain analysis is critical for understanding markets, their relationships, the participation of various actors, and the critical constraints that limit the growth of livestock production and, as a result, the competitiveness of smallholder farmers. Even though, in theory, risk and reward should be shared down the chain, these farmers currently receive only a small portion of the ultimate value of their output (Achchuthan & Kajananthan 2012).

METHODOLOGY

Research Design

The study employed the descriptive method of research. Descriptive type of research is used to obtain information concerning the current status of conditions in a situation. According to Mugenda, 2019, the descriptive survey method helped the researcher gather, summarize, present, and interpret information. Moreover, it is significant to provide essential knowledge about the data and concepts in the study.

The study described the dairy industry using value chain analysis focusing on inputs provision, production, and processing, marketing, and cost and return analysis. Strength, weaknesses, opportunities, and threats in the dairy industry were also included. The results of the analysis would be then the bases for proposing a strategic action plan for the dairy industry in Bulacan.

Research Locale

The study was conducted in the three dairy-producing municipalities in the province of Bulacan namely: Santa Maria, San Miguel, and San Ildefonso.

Santa Maria, Bulacan is the best place to put up dairy projects not only because of the availability of pasture grasses but also because of the presence of the Bulacan Dairy Multi-Purpose Cooperative in Bulacan which processes the milk and produces different products. Sta. Maria Dairy Farmers Multi-Purpose Cooperative was established in 1970 and renewed its registration with the Cooperative Development Authority on February 23, 2010 (DTI, 2020). San Miguel and San Ildefonso, Bulacan originated the pastillas de leche. This sweet candy is a carabao's milk-based confectionaries that are usually served as dessert. This was originally made at home by carabao-raring farmers as a small-scale industry, and the pastillas de Leche continued to spread all over the country.

Sampling Procedure

The study involved the chain of actors' players in four groups of respondents in the Municipality of Santa Maria, San Ildefonso, and San Miguel in the province of Bulacan, namely: dairy farmers cooperatives/producers, processors, and marketers from the local government concerned. Respondent was total enumeration.

A total of six dairy farms including three (3) dairy farm cooperatives and one (1) privately own dairy farm from Sta. Maria Bulacan, one (1) dairy farm cooperative and one (1) privately owned dairy farm from San Ildefonso Bulacan, and 4 Processors and distributors from the municipalities of Sta. Maria, 4 Processors, and distributors from San Ildefonso and 16 Processors from San Miguel Bulacan. A total enumeration of four dairy farm cooperatives and two dairy farmers was drawn from the local government unit of Sta. Maria and San Ildefonso Bulacan. The number of dairy farmer's cooperatives, dairy farmers, processors and distributors was from each municipality and was identified using total enumeration and conveniently chosen techniques. All four dairy farm cooperatives and two privately owned dairy farmers and 16 processors and distributors from San Miguel Bulacan were included as respondents in the study.

Research Instruments

The study used four sets of questionnaires, one each for every chain actor of groups of respondents, in gathering the data. An unstructured interview was also conducted to elicit additional information and to check the consistency of responses.

Data Gathering Procedure

Before the administration of the questionnaires, coordination was made with the Municipal Agriculturist's Offices (MAO) of San Ildefonso, San Miguel, and Santa Maria regarding the distribution of the instruments following the health protocols of Inter-agency Task Force (IATF) in three municipalities. From the list of dairy farmers identified by the MAO, the respondents were chosen through total enumeration. The researcher personally administered the questionnaire.

The study was carried out by using primary and secondary data. The primary data were collected from respondents through distribution of questionnaires and interviewed personally. Telephone interviews were also conducted. The secondary data was collected from the Municipal Agriculture Offices (MAO) of San Miguel, Santa Marias and San Ildefonso, Bulacan as well as other concerned agencies and through published studies and literature.

FINDINGS

Table 1 Profile of Dairy Farmers that are into Inputs Providers and Producer, Processor and Distributor

	Inputs Provider/Producer		Processors		Distributors/ Marketer	
Number of Years in Business	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
5 years below	-	-	1	4.16	1	4.17
6-10 years	-	-	3	12.50	3	12.50
11-20 years	3	50.00	9	37.50	9	37.50
21 - 30 years	3	50.00	7	29.17	7	29.17
31 years above	-	-	4	16.67	4	16.67
Total	**6**	**100**	**24**	**100**	**24**	**100**
Form of Ownership	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Single Proprietorship	2	33.33	20	83.33	20	83.33
Cooperatives	4	66.67	4	16.67	4	16.67
Total	**6**	**100**	**24**	**100**	**24**	**100**

Table 1 shows that 3 or 50% of the respondents that are into the Inputs provision and producers possessed 11-20 years of experience in the dairy industry including two privately own farms and one cooperative while the remaining 3 dairy farms cooperatives or the remaining 50% had their businesses for almost 21-30 years in the dairy industry as inputs providers and producer respectively. The type of ownership of dairy farmers as to inputs providers was four (4) or 66.67 % cooperatives and two (2) or 33.33 % was single proprietorship. The backyard raisers preferred and voluntarily join the cooperatives in order for them to secure their income and be one of the beneficiaries of the government subsidy in terms of inputs like the health care of the herd. Continuous extension of the National Dairy Authority (NDA), that NDA was the primary agency of the Department of Agriculture (DA) that oversees and manages the development of the dairy sector in the Philippines. It was truly a big help for the dairy farmers / cooperatives the subsidy of the government.

The two (2) or the 33.33 % of the dairy farm as put into input providers were single proprietorships they started with their own money as disclosed by the respondents at first the dairy farm was established exclusive only for families but then they realize that dairy farming and producing fresh milk was benefited the demand of the customers not only in Bulacan but also in the nearby localities.

Table 2. Forage Materials per head per kilo

Year	Corn Stalk	Napier Grass	Legumes	Soya/Molasses	Darak	Rice Stalk
2016	2520	14400	7200	360	720	3600
2017	2520	14400	7200	360	720	3600
2018	2520	14400	7200	360	720	3600
2019	-	14400	7200	360	720	6120
2020	-	14400	7200	360	720	6120

The dairy farmers of the chosen municipalities have a little difference in their preference on the forage materials they use. In 2016 up to 2018, seven kilos (7) of corn stalk, forty (40) kilos Nappier grass, twenty (20) kilos of legumes, 1 kilo of soya / molasses and ten (10) kilos of rice stalk and two (2) kilos of darak. Table 1 show a total of eighty (80) kilos of forage materials a day for the standard feed and fooder they preferred per head for the year. But for the year 2019 up to the present they preferred to increase the number of kilos of rice stalk from 10 kilos to 17 kilos for the displaced in shortage of the cornstalk.

The heifers can produce a maximum of 10-15 liters a day or an average of 12.5 liters a day, the respondent disclosed that in the morning harvesting schedule and another in the afternoon. A healthy carabaos lactation duration was 280 days per year.

Table 3 Breeding Practices

Breeding Practices	Frequency	Percentage
Natural Breed	6	100%
Artificial Insemination	6	100%

*Multiple responses

The dairy farmers of two municipalities producing milk had two kinds of breeding practices identified as to how they preferred to obtain the high rate of pregnancy of the carabaos. They are using both breeding practices up to the present.

The natural breed is one way of getting the carabao's pregnant. As claimed by the respondents as early as two years or two months the calves are ready to get pregnant as long as they reach three hundred kilos (300 kls) and the mucus is seen in their vulva. In this case, they used to place the heifers and bull in one stall assisted by the caretaker and the genetic make-up will then do. The other one is the carabao's upgrading using artificial insemination (AI). Respondents disclosed that in their experience in the breeding practices they choose to have a natural mating or natural breeding practices, for them the success rate of natural mating was 90-100%. In the other hand using artificial insemination (AI), as they experience it's only a 40-50% success rate. After the day of the natural mate or artificial insemination, they will now count ninety days (90) for them to schedule a pregnancy diagnosis.

Table 4. Plowing Cost per Hectare

Year	No. of Laborers	Contract Amount/hectare
2016	1	Php4,000.00
2017	1	4,000.00
2018	1	4,000.00
2019	1	5,000.00
2020	1	5,000.00

Data showed that the total cost of plowing was five thousand pesos (5,000.00) from 2019–2020 it was slightly high compared to the past year. Way back three years ago the cost of plowing was only four thousand pesos (4,000.00) for three consecutive years 2016-2018. The difference in the amount depends on the demand and demographics as disclosed by the respondents. It can be noted that pricing can be higher in San Ildefonso Bulacan compared to Sta. Maria Bulacan because the location of the Pasteur land in San Ildefonso Bulacan was much sticky and massive compared to the land in Sta. Maria they are also aggregated in smaller sizes, hence rental is still based on a per hectare basis.

Table 5 Source of dairy Farm Laborers

	Frequency	Percentage
Within the area or municipality	4	4/6
Outside the municipality	6	6/6

*Multiple responses

A bigger number of hired laborers came from outside the area or the municipality and sometimes came from other provinces. Upon the interview by the researcher, it was observed that the laborers found in the dairy farming were from other provinces and live on the farm for a stay in. the system "stay in" laborer can live inside the dairy farm with his /her family free of lodging and other utilities except for foods and other basic needs of the family. However, the availability of manpower in the community is not sufficient especially nowadays when the millennials don't want to engage in farming. This is why farmers hired laborers from nearby barrios or towns to meet their need.

Table 6 Strategic Action Plan for the Dairy Industry in Bulacan

Focus Area	Objectives	Strategies	Activities	Responsible Person/Unit	Timeline	Resources	Success Indicators
Inputs Provisions and Production							
Shortage of Forage Materials	To maximize the yielding capacity of carabaos	Additional Pasteur land, Government to subsidize some forage materials and Implementation of proper forage development and management	Provide land area and silage room	Cooperatives, National Dairy Authority	Continuing	Funds of National Dairy Authority, Local Government Units	Sufficient land area and silage room were provided
Processing							
Perishability	To decrease the perishability of harvested milk	Conduct refresher course on food safety & hygiene, application of food safety and hygiene practices	Providing Training on Food safety and hygiene practices	National Dairy Authority, Department of Health, SUC	Continuing	Training Funds from NDA, Department of Health	Training on Food Safety and Hygiene Practices was imparted
Marketing							
Presence of Imported products	To increase the share market of local dairy products to Imported one.	Presence of government support in Product Development Decrease in the importation of dairy products Government endorsement of local milk products	Providing New and different dairy Products	Dairy Cooperatives, National Dairy Authority, DTI	Continuing	Training fund from National Dairy Authority and LGU, BOC	Government intervention was proffered in Product Development Decrease in the importation of dairy products Local milk products were endorsed by the government

CONCLUSIONS

According to the survey, dairy farmers have been in the business for nearly 15 to 27 years, indicating that the owner and dairy farmers began dairy farming when they were young.. Fifty percent (50%) of dairy producers are sole proprietorships, while the other half (50%) are cooperatives. The nappier grass was used by the bulk of the dairy farmers' grass-fed system. In a single day, all of the respondents were utilized to feed nappier grass forty (40) kilos of nappier grass. Nappier grass was grown by the farmers on their own Pasteur property. Dairy farmers have used and experimented with both breeding strategies. The natural breeds were the Bull and the Heifers, who were placed in one stall with the help of dairy producers, who ensured that the heifer was in heat for a higher possibility of getting pregnant. Artificial insemination involves the veterinarian identifying a heifer that is ready for insemination, injecting the artificial insemination. It can be done one to three times for a high possibility of pregnancy. Each dairy farmer's farm maintenance was extremely difficult and amazing. Maintaining the farm's sanitation and the stall's cleanliness took a lot of time and effort. Hand tractors/rotavators are the machines used in Pas-

teur land preparation to plough the soil in preparation for planting the napier, and grass cutters are used to cut the napier grass when harvesting. A greater percentage of the farmer-respondents have they're owed the farm machines and equipment used in land preparation. In the dairy farms that are registered as cooperatives, the machinery and other equipment are granted by the local government (LGU) or from the Department of Agriculture in partnership with the National Dairy Authority (NDA). The production of milk in the dairy farm is dependent on carabaos nourishment, weather conditions, grass-fed, and the number of carabaos on the milk line. They had an average of 12.5 liters per carabao for 280 days of lactation period in one year.

RECOMMENDATIONS

Based on the findings of the study, the researcher recommends the following;
1. Develop/create additional proper forage conservation and management and investment in dairy research and give more emphasis on dairy security.
2. Develop/create a unified and strategic production and marketing blueprint for the dairy industry. This will include technical support and marketing facilities.
3. Greater intervention of the government in adopting new technology for quality improvement of dairy products for it to be globally competitive.
4. Monitoring the cooperative's performances by the authorized agencies. Extend additional support for other dairy farmers (by way of a regular subsidy). Encourage other farmers to engage in dairy farming especially those with large own land in the province.
5. A greater and stronger participation of the dairy farmers/ processors in the Negosyo fairs of the Department of Trade and Industry (DTI and other technopreneur ship offering wild idea in dairy production and other registration in the local trade fair.
6. Training for the laborers, support and recognize them in terms of their performance. There should be strong coordination among the dairy inputs service delivery actors and the lead farm service delivery system should focus on the existing gap in dairy inputs service delivery.

ACKNOWLEDGEMENT

REFERENCES

Achchuthan, M. S., & Kajananthan, R. (2012). A Study on Value Chain Analysis in Dairy Sector Kilinochchi District, Srilanka. *Global journal of management and business research*, *12*(21).

Barkema, H. W., von Keyserlingk, M. A., Kastelic, J. P., Lam, T. J. G. M., Luby, C., Roy, J. P., ... & Kelton, D. F. (2015). Invited review: Changes in the dairy industry affecting dairy cattle health and welfare. *Journal of dairy science*, *98*(11), 7426-7445.

Fao & IDF (2011). *Guide to good dairy farming practice.* Animal Production and Health Guidelines. No. 8. http://rsso03.psa.gov.ph/article/livestock-and- poultry-production-central-luzon-january-june-2020-preliminary-results

Mugera, A. W., & Bitsch, V. (2005). Managing labor on dairy farms: A resource-based perspective with evidence from case studies. *International Food and Agribusiness Management Review*, *8*(1030-2016 -82605), 79-98.

Nahid, M. T. Fawi and B. E. A. Eltayeb (2015). Small Scale Dairy Farms Integration in Competitive Value Chains in Khartoum- Sudan. P 156.

Philippine Statistics Authority(2020.January-June).Livestock and Poultry Production in Central Luzon January to June 2020 Preliminary Results.

Preciados, L. S., & Catchero, F. C. (2020). Factors Influencing Consumption Behavior of Choco-Carabao Milk in Visayas State University (VSU), Baybay City, Leyte,Philippines. *Journal of Economics,Management & Agricultural Development*, *6*(2390-2021-427), 71-83.

Thakur, A., Dixit, A. K., Kumar, S., & Bhandari, G. (2020). Value chain analysis of Informal dairy processing units in Haryana (India): A system dynamic approach. *Agricultural Research.doi*:10.1007/s40003-020-00502-2

Von Keyserlingk, M. A. G., Martin, N. P., Kebreab, E., Knowlton, K. F., Grant, R.J.,Stephenson, M., & Smith, S. I. (2013). Invited review: Sustainability of the US dairy industry. *Journal of dairy science 96*(9), 5405-5425.

LEARNER'S ASSESSMENT OF THE ALTERNATIVE LEARNING SYSTEM IMPLEMENTATION AND THEIR CHALLENGES

OFELIA A. LUAREZ
ARLYN B. CELESTIAL
College of Education
Western Philippines University
San Juan, Aborlan, Palawan, Philippines

AIREEN U. CALAMAYA
Imulnod Elementary School
Imulnod, Brooke's Point, Palawan, Philippines

ABSTRACT

An alternative way of learning was formulated by the Philippine Department of Education to respond to the increasing problem of the out-of-school youth and adults. The Alternative Learning System (ALS) aims to decrease the mounting number of youths and adults that leave the formal school system. This study investigates the current status of the implementation and challenges encountered by the students and ALS implementers in nine barangays of South Brooke's Point District, Palawan. The researchers administered survey questionnaires to 235 ALS learners. Descriptive and inferential statistics were used to describe the level of implementation of the ALS components (delivery systems, learning support system, curriculum content, instructional materials, teaching strategies, assessment, and ALS implementers), and the challenges encountered by the ALS implementers. The results revealed that ALS components such as delivery system, learning support system, curriculum content, instructional materials, assessment of learning, and ALS implementer were implemented excellently in South Brooke's Point District. The level of implementation of the teaching strategies component was rated Good by the respondents. Problems such as lack of facilities, instructional materials, teaching strategies, on-the-job trainings, livelihood programs, sponsorship, partnership, and linkages are barely non-existent. For future researchers, it is recommended to include other ALS stakeholders to monitor and assess ALS implementation. It further recommends to include the demographic profile of the respondents such as income, location, gender, and grade level to further understand the effectiveness of ALS program.

Keywords: Alternative Learning System (ALS), implementation, challenges, delivery system, learning support system, curriculum content, instructional materials, and assessment of learning

INTRODUCTION

The Alternative Learning System (ALS) is a community-based learning system in the Philippines that provides education to Filipinos who cannot attend and finish formal education. Primarily, it reaches out to those who are OSYs and adults who are considered over age in the formal school, those who have been previously trained but who are unemployed, people who have their employment limited to service industry jobs like drivers, housewives, factory workers, cultural minorities, persons with disabilities, prisoners, and insurgents (Igarashi et al., 2019; UNICEF Philippines, 2020). ALS could be a potent force and avenue and reach out to the unemployed adults and out-of-school-youth to inform them of the various programs being undertaken by the government as well as the non-government sectors, not only to make them aware of their roles in preserving national identity and prosperity. The program supports these students in becoming more self-reliant through continuing education

and functional education as part of the general curriculum, employment, improving and integrating them in the socio-economic arena. (Dayuta, 2013)

In 2019, with assistance from the World Bank, it developed a new strategic roadmap for the reform program. Known as "ALS 2.0" or the 2019 ALS K to 12 BEC, it's an opportunity to fix long-standing issues, as well as a chance to ensure that these reforms receive adequate resources and support. A new ALS K to 12 Curriculum was developed to provide the blueprint for the enhanced ALS. The curriculum is benchmarked on the DepEd K to 12 Formal School Curriculum, and focuses on the 21st Century Skills of Information, Media and Technology Skills, Learning and Innovation Skills, Communication Skills, and Life and Career Skills. The curriculum features alignment of its competencies to the K to 12 Curriculum but does not resemble the formal school curriculum, covers ICT and Life and Career skills and competencies not in the formal school curricula, contents include applications in everyday life, relevant and responsive learning materials and assessment tools, and provides opportunities for learners to acquire vocational and technical skills to enhance their employability.

The coronavirus Covid-19 has infected 219 countries and territories (Worldometer, 2021).   This global health crisis has led to an economic crisis and a negative impact on the education sector around the world. Mandatory lockdowns, stringent health protocols, and tight restrictions to better prevent the transmission of the virus were placed in effect by governments and health authorities (Kummitha et al., 2020).   As of the beginning of March 2020, several educational institutions have closed and shifted to a new normal of education, going from face-to-face interaction in the classroom towards distance learning that impacted billions of learners worldwide. Around the globe, different countries have implemented various measures to assist in the continuing education process during the pandemic (Cahyadi, 2020). The Alternative Learning System is also being impacted as well by COVID-19 (UNICEF Philippines, 2020).

It is necessary to investigate the implementation of the ALS Program and the achievement of its goals. This will assure the alignment, accountability and the action in ALS Program (World Bank, 2016). Furthermore, issues and problems surrounding the implementation specially this time of pandemic will also be investigated in the view of the learners to enable the researchers formulate recommendations for program improvements.

OBJECTIVES

This study aimed to determine the level of implementation of the ALS components as perceived by the learners in terms of: a) delivery system; b) learning support system; c) curriculum content; d) instructional materials; e) teaching strategies; f) assessment of learning; and g) ALS implementer. It further aimed to determine the challenges encountered by the ALS learners in the implementation of the ALS program.

METHODOLOGY

The respondents of the study were the learners enrolled in the program in 2019 – 2020 in the nine (9) ALS Community Learning Centers in South Brooke's Point District. After determining the sample size, the researchers used stratified random sampling. Descriptive Research Design was used to determine the level of implementation and challenges encountered by the ALS learners.

A survey questionnaire was used to gather relevant information. It consisted of two parts: Part 1 of the instrument measured the level of implementation of ALS Program components that involved the delivery system, learning support system, curriculum content, instructional materials, teaching strategies, assessments and ALS implementers while Part 2 identified the challengers encountered in the implementation.

The data were gathered using survey questionnaire after asking permission from authorities and the participants as well. It was administered face to face to the participants or through the use of Google form. Descriptive statistics such as frequency counts, means, and percentages were used to analyze the data gathered. The respondents' responses were treated with utmost confidentiality and the gathered data were used only for the purpose of this research.

FINDINGS OF THE STUDY

Implementation of Delivery System of the Alternative Learning System

Table 1a shows the respondents' perceived level of implementation on the Delivery System of ALS. As seen in Table 1a, four out of five statements were rated "Excellent". The respondents believed that the *implementers provided learning materials (4.89), offer flexible learning (4.91), regular learning assessment (4.77), and offer online learning (4.21).*

Overall, the respondents believed that the ALS Delivery System is Excellent (4.21). The result implies that the means and resources used by the ALS implementers to structure the learning experiences in the ALS program were properly realized. It can be said that the ALS implementers used various delivery systems to fulfill the goal do the ALS program. Thus, the delivery system of ALS demonstrates a very high degree of success in the implementation of ALS Program in South Brooke's Point District.

Table 1a. Implementation of Delivery System of the Alternative Learning System

Statement	Mean Score	SD	Description
1. There is a community learning center in my barangay	1.91	1.67	Poor
2. The teachers provide us with learning modules.	4.89	0.32	Excellent
3. The ALS program allows learning to take place at any place, depending on the convenience and availability of the learners.	4.91	0.31	Excellent
4. The teacher gives us weekly test or quarterly test.	4.77	0.45	Excellent
5. The ALS offers online learning for students with gadgets and access to the internet.	4.55	0.73	Excellent
OVERALL	**4.21**	**0.36**	**Excellent**

Mean Score   Description
4.2 – 5.0   Excellent
3.4 – 4.1   Good
2.6 – 3.3   Fair
1.8 – 2.5   Poor
1.0 – 1.7   Very Poor

Implementation of Learning Support System of the Alternative Learning System

Table 1b shows the level of implementation of the ALS Learning Support System in South Brooke's Point District. As seen in Table 1b, four out of five statements were rated Excellent. The respondents believed that that ALS program offers excellent learning support system through flexible schedules (4.36), guidance and counseling (4.62), review for A&E Test (4.66), and giving of relevant information (4.74). However, the respondents believed that online support program such as online chat, instant message, or virtual learning classroom is not available to some respondents (3.97).

Overall, the respondents rated the implementation of Learning Support System of ALS as Excellent (4.47). The results imply that the Learning Support System manifest a very high degree of success in the implementation of the ALS program. The respondents believed that the structure used by the ALS Program to provide assistance to the learners were properly realized in South Brooke's Point District.

Table 1b. Implementation of Learning Support System of the Alternative Learning System

Statement	Mean Score	SD	Description
1. My class has online support program such as online chat, instant message or virtual learning classrooms.	3.97	0.60	Good
2. My class considers my situation in offering the learning programs and schedules.	4.36	0.60	Excellent
3. They provide guidance and counseling for our coursework and future career.	4.62	0.56	Excellent
4. Review classes is conducted by our teacher to prepare us for the ALS Accreditation and Equivalency (A&E) Test.	4.66	0.52	Excellent
5. Our teachers give us information about registration and schedule of ALS A&E Test.	4.74	0.49	Excellent
OVERALL	4.47	0.36	Excellent

Mean Score   Description
4.2 – 5.0   Excellent
3.4 – 4.1   Good
2.6 – 3.3   Fair
1.8 – 2.5   Poor
1.0 – 1.7   Very Poor

Implementation of Curriculum Content of the Alternative Learning System

Table 1c shows the perceived implementation of the respondents on the curriculum content of ALS. It can glean on the table that the respondents believed that the ALS curriculum content were implemented excellently through a learner-centered content (4.63), emphasis in writing and communication skills (4.70), inclusion of problem-solving skills (4.66), provision for real-life examples (4.76), and inclusion of vocational and technical skills (4.71).

Overall, the respondents be rated that the ALS Curriculum Content is Excellent (4.47). This implies that the educational content imposed by the ALS program to attain the functional literacy of its learners were properly implemented. According to Pablo (2021) that the translation and implementation of curriculum content is very essential in the success of the ALS program in the Philippines. ALS implementers translate those curriculum contents prescribed in the ALS Program into learning activities that are relevant to learners and based on the principles of effective teaching and learning. However, Mattos and Buffum (2014) argues that curriculum content should give emphasis that the education of the out-of-school youth and adults must not only resembles the formal education curriculum but rather the transition from school to work environment. Mattos et al. (2014) added in the ALS settings, implementers not only teach mandatory curriculum but also offers college coursework for students who are accelerating.

Table 1c. Implementation of Curriculum Content of the Alternative Learning System

Statement	Mean Score	SD	Description
1. The content of the lessons in ALS is appropriate to the learner's needs.	4.63	0.57	Excellent
2. Writing and communication skills were given emphasis by the teachers.	4.70	0.50	Excellent
3. The lessons improve our problem-solving skills and not only memorization.	4.66	0.61	Excellent
4. The teachers give real-life examples and application in daily of the lessons learned in the class.	4.76	0.46	Excellent
5. The teacher provides opportunities for us to learn vocational and technical skills needed to prepare us for work.	4.71	0.60	Excellent
OVERALL	4.47	0.41	Excellent

Mean Score   Description
4.2 – 5.0   Excellent
3.4 – 4.1   Good
2.6 – 3.3   Fair
1.8 – 2.5   Poor
1.0 – 1.7   Very Poor

Instructional Materials of the Alternative Learning System

Table 1d shows the learner's assessment on the implementation of the Instructional Materials of the ALS in South Brooke's Point District. The table shows that the respondents assessed that the implementation of the ALS instructional materials were excellent through the utilization the modules (4.71), inclusion of clear objectives and instructions (4.77), appropriateness of the content to learner's level (4.77), provision of interactive and interesting modules (4.78), and alignment of learning assessment to the topic (4.75).

The respondents rated the implementation of Instructional Materials of ALS as Excellent (4.75). The results implies that the respondents believed that the instructional materials used which contains the lesson details and specific for ALS Program relevant and appropriate to the level of the learners. Thus, there is a high degree of success in the implementation of the ALS program in South Brooke's Point District. However, the results disagree with the findings of Cucio and Roldan (2020) which state that ALS in the Philippines lacks instructional materials. They also claimed that limited teaching ang learning materials were provided to the Indigenous Peoples. The lack of materials can adversely affect the learning experience of the ALS students.

Table 1d. Instructional Materials of the Alternative Learning System

Statement	Mean Score	SD	Description
1. The modules they provided helps us to learn the lessons.	4.71	0.49	Excellent
2. Objectives and instructions are clear in the modules.	4.77	0.42	Excellent
3. The content of the module fits my level.	4.77	0.48	Excellent
4. The modules are very interactive and interesting.	4.78	0.47	Excellent
5. The tests or quizzes given to us is aligned to the topic.	4.73	0.62	Excellent
OVERALL	4.75	0.37	Excellent

Mean Score   Description
4.2 – 5.0   Excellent
3.4 – 4.1   Good
2.6 – 3.3   Fair
1.8 – 2.5   Poor
1.0 – 1.7   Very Poor

Teaching Strategies of the Alternative Learning System

Table 1e shows the perceived implementation of the respondents on the Teaching Strategies of ALS Program. As seen in Table 1e, only two out of 10 statements were rated Excellent. The respondents perceived that the review of previous lessons (4.30) and the utilization of ALS modules (4.31) were the only teaching strategies being used in the ALS program frequently.

On the other hand, eight out of 10 statements were rated "Good" by the respondents. Teaching strategies such as group interactions and collaborations (4.12), experiential learning (4.11), debate (4.01), peer learning (3.98), printed materials (4.08), audio-visual presentation (3.91), games (3.84), and role-playing (3.63) were rated Good by the respondents. Overall, the respondents believed that the implementation of ALS Teaching Strategies is Good (4.03). The results implies that the structure, methods, techniques, and processes that the ALS implementers employs during the instruction to assist students learning were very useful to the learners.

The result of the study was expected since most of the respondents have individualized learning mode. According to Baccal, et al. (2021), the prevalent mode of learning during the pandemic in the far-flung barangay is modular learning. This modular distance learning is conducted individually, at home, when face-to-face learning is not yet permitted. Thus, teaching strategies that requires group interaction and collaboration were not present in some ALS programs. Only the respondents who were able to attend in the Community Learning Centers or have internet access were able to experience group activities provided by the ALS teachers.

Table 1e. Teaching Strategies of the Alternative Learning System

Statement	Mean Score	SD	Description
1. There is a review of previous lessons.	4.30	0.60	Excellent
2. The modules were used in teaching.	4.31	0.62	Excellent
3. There is a group interaction and collaboration.	4.12	0.70	Good
4. The class sessions involve learning by doing.	4.11	0.75	Good
5. The teacher used debate in class session.	4.01	0.76	Good
6. The students learn with their classmates.	3.98	0.77	Good
7. The printed materials (magazines, etc.) was used.	4.08	0.74	Good
8. Audio-visual presentation was used during class sessions.	3.91	0.75	Good
9. Games are used in class activities.	3.84	0.80	Good
10. The learners experienced role-playing during class sessions.	3.63	0.98	Good
OVERALL	**4.03**	**0.48**	**Good**

Mean Score	Description
4.2 – 5.0	Excellent
3.4 – 4.1	Good
2.6 – 3.3	Fair
1.8 – 2.5	Poor
1.0 – 1.7	Very Poor

Learning Assessment of the Alternative Learning System

Table 1f shows the level of implementation of the ALS Learning Assessment in South Brooke's Point District. As seen in Table 1f, four out of 5 statements were rated "Excellent". The respondents believed that the ALS program highly utilized learner's portfolio (4.26), weekly tests (4.19), reading, writing, and speaking test (4.21), and posttest (4.19). On the other hand, the use of projects (4.14) was rated Good by the respondents. Furthermore, the respondents rated the implementation of Learning Assessment of ALS as Excellent (4.20). This implies that the formative and summative assessment practiced by the ALS teachers to provide feedback on teaching-and-learning process in the ALS program were highly utilized while giving project as an assessment in the ALS program were not that often use as compared to other assessment.

The result of the study is consistent with the study of Labarrete (2021) which claimed that assessment format such as portfolio, test in the modules, performance, and formative assessments were commonly used in the ALS Programs. These assessments will also help the students to prepare for the National Exams.

Table 1f. Learning Assessment of the Alternative Learning System

Statement	Mean Score	SD	Description
1. Learner's portfolio	4.26	0.97	Excellent
2. Weekly tests	4.19	1.02	Excellent
3. Projects	4.14	1.05	Good
4. Reading, writing, and speaking tests	4.21	1.02	Excellent
5. Posttest in the module	4.19	1.03	Excellent
OVERALL	4.20	0.94	Excellent

Mean Score	Description
4.2 – 5.0	Excellent
3.4 – 4.1	Good
2.6 – 3.3	Fair
1.8 – 2.5	Poor
1.0 – 1.7	Very Poor

ALS Implementer in the Alternative Learning System

Table 1g shows the respondents' perception on the ALS Implementer. All of the 10 statements in Table 1g were rated "Excellent" (4.54) by the respondents. They believed that the ALS implementer conducts assessments (4.15), gathers and analyzes learners' profile (4.34), responsive to learners' needs (4.40), gives opportunity to the learners (4.36), encourages learners (4.63), strictly imposes regulations (4.63), understands individual difference (4.70), respects learners' right, safety, and security (4.72), prepares all the materials (4.74), and works closely to the local officials (4.73). The results implies that the ALS Implementers demonstrate a very high level of success in fulfilling the duties and responsibilities expected of them to realize the goals of the ALS Program. The result further implies that the respondents perceived ALS implementers assigned in South Brooke's Point District are able to deliver the appropriate services and the implement the ALS program excellently.

Table 1g. ALS Implementer in the Alternative Learning System

Statement	Mean Score	SD	Description
1. Conducts pre- and post-tests to the learners	4.15	1.02	Excellent
2. Gather and analyze learner's profile	4.34	1.00	Excellent
3. Responsive to the needs of the learners.	4.40	1.03	Excellent
4. Give opportunity to the learners to develop their capacity and capability.	4.36	1.07	Excellent
5. Encouraged learners to participate in active learning methods.	4.63	0.56	Excellent
6. Strictly imposed regulation.	4.63	0.62	Excellent
7. Understand individual difference.	4.70	0.49	Excellent
8. Respect learner's right, safety and security.	4.72	0.51	Excellent
9. Prepare all the teaching-learning materials.	4.74	0.53	Excellent
10. Work closely with the local officials.	4.73	0.52	Excellent
OVERALL	4.54	0.49	Excellent

Mean Score	Description
4.2 – 5.0	Excellent
3.4 – 4.1	Good
2.6 – 3.3	Fair
1.8 – 2.5	Poor
1.0 – 1.7	Very Poor

Challenges in the Implementation of Alternative Learning System as Perceived by the Learners

Table 2 shows the perceived challenges in the implementation of ALS program in South Brooke's Point District. As seen in Table 2, majority of the respondents disagreed or strongly disagreed that the lack facilities (93.2%), lack of instructional materials (96.6%), lack of appropriate teaching strategies (95.7%), lack of on-the-job training (93.6%), lack of livelihood program (95.3%), and lack of sponsors, partnership, and linkages (94.0%) were the challenges encountered in the implementation of the ALS program in South Brookes Point Palawan.

The result implies that only few were able to experience these challenges. The result disagrees with the study of Arzadon, et al., (2015) that such challenges were common to other programs implementation of ALS which was not evident in the South Brooke's Point District.

Table 2. Challenges in the Implementation of Alternative Learning System as Perceived by the Learners

Statement	Disagree		Agree	
	f	%	f	%
1. Lack of facilities to implement the learning experience.	219	93.2	8	3.4
2. Lack of modules/instructional materials.	227	96.6	8	3.4
3. Lack of teaching strategies that fits the learning needs.	225	95.7	8	3.4
4. Lack of on-the-job training for the learners.	220	93.6	4	1.7
5. Lack of livelihood program.	224	95.3	7	3.0
6. Lack of sponsors, partnership and linkages	221	94.0	10	4.3

*Disagree = Disagree or Strongly Disagree   *Agree = Agree or Strongly Agree

SUMMARY AND CONCLUSION

This study investigated the implementation of the ALS Program in South Brooke's Point District. Survey was conducted to 235 ALS learners from nine different barangays in the said District using stratified random sampling. The following findings were yielded from the results of this study.

The respondents' perceived that the level of implementation of ALS Delivery System is "Excellent" (4.21); the ALS Learning Support System is "Excellent" (4.47); the ALS Curriculum Content is "Excellent" (4.47); the ALS Instructional Materials is "Excellent" (4.75); the ALS Learning Assessment is "Excellent" (4.20); and the ALS Implementers were "Excellent" (4.54).

On the other hand, one out of seven ALS components was rated Good by the respondents. The respondents believed that the level of implementation of ALS Teaching Strategies is "Good" (4.03). Most of the teaching strategies in the ALS programs focused more on the individualized learning mode instead of collaborative learning.

Problems such as lack of facilities, instructional materials, teaching strategies, on-the-job trainings, livelihood programs, sponsorship, partnership, and linkages that exist in other ALS Program in the Philippines were barely non-existent in the South Brooke's Point District.

As per results yielded by this study, it is concluded that the perceived level of implementation of the ALS components such as delivery system, learning support system, curriculum content, instructional materials, assessment of learning, and ALS implementer were Excellent. On the other hand, ALS teaching strategies component was rated Good by the respondents. Thus, implementation of the ALS program in South Brooke's Point District is said to be in a high degree of success.

ACKNOWLEDGEMENT

REFERENCES

Arzadon, M. M., & Nato, R. (2015, December 9). *The Philippine Alternative Learning System: Expanding the Educational Future of the Deprived, Depressed, and Underserved.* https://bit.ly/3eghW7j

Baccal, V. S., & Ormilla, R. C. G. (2021). The implementation of Alternative Learning System in public schools in Isabela, Philippines. *EDUCATUM Journal of Social Sciences*, *7*(1), 19–29.

Cahyadi, A. (2020). Covid-19 Outbreak and New Normal Teaching in Higher Education: Empirical Resolve from Islamic Universities in Indonesia. *Dinamika Ilmu*, *20*(2), 255–266.

Cucio, M. R. R., & Roldan, M. D. G. Z. (2020). Inclusive Education for Ethnic Minorities in the Developing World: The Case of Alternative Learning System for Indigenous Peoples in the Philippines. *European Journal of Sustainable Development*, *9*(4), 409–409.

Dayuta, B. (2013). *Socio-demographic Profile, Competencies, and Effectiveness of Alternative Learning System (ALS): Relevant Implications to Innovate Educational Policies.* Pamantasan ng Lungsod ng Maynila.

DepEd. (2019). *Policy Guidelines on the Implementation of Enhanched Alternative Learning System 2.0.* https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=epEd.+%282019%29.+Policy+Guidelines+on+the+Implementation+of+Enhanched+Alternative+Learning+System+2.0.&btnG

Igarashi, T., Tenazas, N. M., & Acosta, P. A. (2019). *Unlocking the Potential of the Bangsamoro People through the Alternative Learning System: Overview* (No. 143332).

Kummitha, H. R., Kolloju, N., Chittoor, P., & Madepalli, V. (2020). Coronavirus Disease 2019 and Its Effect on Teaching and Learning Process in the Higher Educational Institutions. *Higher Education for the Future*, 2347631120983650.

Labarrete, R. (2021). Facilitating instruction in the alternative learning system (ALS). *International Journal of Education Humanities and Social Science,* ISSN, 2582-0745.

Mattos, M., & Buffum, A. (2014). *It's About Time [Secondary]: Planning Interventions and Extensions in Secondary School.* Solution Tree Press. 1936763052 (ISBN13: 9781936763054)

Pablo, J. C. (2021). Competencies of Alternative Learning System Mobile Teachers in Schools Division of Nueva Ecija. *International Journal of Advanced Multidisciplinary Studies* eISSNl2799-0664. IJAMS-OCTOBER-79-119.pdf (ijams-bbp.net)

UNICEF Philippines. (2020, August). *Providing youth a second chance to complete their education amid COVID-19: A case study on education in emergencies in the Philippines*. UNICEF Philippines. https://www.unicef.org/philippines/stories/providing-youth-second-chance-complete-their-education-amid-covid-19

World Bank. (2016). *Assessing basic education service delivery in the Philippines: Public education expenditure tracking and quantitative service delivery study*. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=World+Bank.+%282019%29.+Unlocking+the+Potential+of+the+Bangsamoro+People+through+the+Alternative+Learning+System1+%28Overview%29+2.&btnG

Worldometer. (2021, February 17). *Live statistics and coronavirus news*. Worldometer. https://www.worldometers.info/coronavirus/https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Worldometer.+%282021%2C+February+17%29.+Live+statistics+and+coronavirus+news.+Worldometer.+https%3A%2F%2Fwww.worldometers.info%2Fcoronavirus%2F&btnG

AT ODDS WITH THE TIDE: GENDER MAINSTREAMING IN A QUASI-MILITARY MARITIME HIGHER EDUCATION INSTITUTION

RONALYN C. ACUAVERA
LEAH R. VILLAVICENCIO
MA. JANDA IRA FELINA BENEDICTOS
Philippine Merchant Marine Academy
PMMA Complex, Bgry. Natividad,
San Narciso, Zambales, Philippines

ABSTRACT

Gender equality is considered as a critical element in advancing social justice and human rights in order to effect social and institutional change that leads to sustainable development with equity and growth (ILO, 2019). In the case of the Philippine Merchant Marine Academy in terms of the implementation of GAD, the Academy is still struggling as it is operating in a male dominated industry. Using the Gender Mainstreaming Management Framework, the level of Gender Mainstreaming in the Academy was analyzed in the paper, in addition, key informant interviews were conducted in order to validate the results of the Gender Mainstreaming Evaluation Framework. It was found out the Gender Mainstreaming Level of the Academy is at Level 2: Installation of Strategic Mechanisms. A number of challenges is faced by the Academy that needs immediate measures in order to ensure that it will be strong in its commitment in creating an environment where gender equality is evident.

INTRODUCTION

Gender, as defined by the World Health Organization (2018) pertains to the "socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men". It can be changed and varies between societies. Gender equality is considered as a critical element in advancing social justice and human rights in order to effect social and institutional change that leads to sustainable development with equity and growth (ILO, 2019).

On December 1979, the United Nations General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women, which is a culmination of years of work done by the UN Commission on the Status of Women which monitors the situation of women and promotes women's rights. The Convention openly recognizes that "extensive discrimination against women continues to exist", and highlights that such discrimination "violates the principles of equality of rights and respect for human dignity" (UN CEDAW Preamble). Discrimination was defined as "any distinction, exclusion or restriction made o.1 the basis of sex...in the political, economic, social, cultural, civil or any other field" (Article 1). To ensure the full development and advancement of women, the Convention requires all state parties to take all appropriate measures including legislation so that women are guaranteed the "exercise and enjoyment of human rights and fundamental freedoms on a basis of equality with men" (Article 3). These rights include: right to vote, hold public office and participate in civil society (Article 7); right to participate and represent their governments at the international level (Article 8); right to acquire, change or retain their nationality (Article 9); right to education, including equal access to schools, vocational training, curricula and educational resources (Article 10); right to employment, promotion, training, equal remuneration, social security and safe working conditions (Article 11); right to access to health care services, including reproductive health services (Article 12); right to family benefits, bank loans and other forms of financial credit (Article 13); right to participate in and benefit from

health care, education, social security, development planning etc. in rural areas (Article 14); right to enter contracts, own property and choose their place of residence (Article 15); and rights in relation to marriage and as parents, as well as in respect of other aspects of family life (Article 16).

In 1995, the Fourth World Conference on Women was held which produced the Beijing Declaration and Platform for Action which is acknowledged as the "most comprehensive global policy framework and blueprint for action, and is a current source of guidance and inspiration to realize gender equality and the human rights of women and girls, everywhere" (UN Women, 2014). It covers twelve (12) critical areas of concern for the advancement of the status of women and girls (UP University Center for Women's Studies, 2015): (1) Women and the Environment; (2) Women in Power and Decision-making; (3) The Girl Child; (4) Women and the Economy; (5) Human rights; (6) Women and Poverty; (7) Violence against women; (8) Education and training of women; (9) Institutional mechanisms for the advancement of women; (10) Women and health; (11) Women and the media; and (12) Women and armed conflict.

However, to date, gender inequality still persists. Thus, there is a need to transform the economic, political, and social structures, institutions, and norms in order to achieve the goals stated therein. Implementation of programs, projects and activities that will contribute to the achievement of women's empowerment and gender equality is required from the Philippines as one of the State parties to the United Nations (UN) Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), which it signed and ratified on July 15, 1980 and August 5, 1981, respectively.

According to the Global Gender Gap Report of the World Economic Forum, the Philippines has a good run-in closing gender gap from 2016 to 2021 although it's ranking significantly dropped from 8th place in 2018 to 16th place in 2020 then to 16th place in 2021. The country also boasts as the "sole Asian country that made it to the top 20 tier" and still remains the top performing country in Asia.

Table 1. Global Gender Gap Index – Philippines (2016 – 2021)

Key Indicators	2016		2017		2018		2020		2021	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Economic Participation and Opportunity	0.780	21st	0.764	25th	0.801	14th	0.792	14th	0.795	18th
Educational Attainment	1.000	1st	1.000	1st	1.000	1st	0.999	37th	0.999	39th
Health & Survival	0.980	1st	0.979	36th	0.979	42nd	0.979	41st	0.979	34th
Political Empowerment	0.386	17th	0.416	13th	0.416	13th	0.353	29th	0.362	33rd
OVER-ALL	**0.786**	**7th**	**0.790**	**10th**	**0.799**	**8th**	**0.781**	**16th**	**0.784**	**17th**

Source: Global Gender Gap Report 2016 – 2021, World Economic Forum

The Philippine government also recognizes gender equality and supports gender mainstreaming as shown in its enactment of the Magna Carta of Women (MCW) or Republic Act No. 9710 in September 2009. The MCW espouses the provisions of CEDAW, specifically in "defining gender discrimination, state obligations, substantive equality, and temporary measures" (CHED Memorandum Order No. 01 s-2015). It also resulted in the strengthening of the Philippine Commission on Women (PCW) including its mandate to monitor and institutionalize gender mainstreaming in local and national levels, as well as facilitating access to the Gender and Development (GAD) budget (UP University Center for Women's Studies, 2015)

However, as seen in Table 1, although the country has almost closed the gaps in Educational Attainment and Health and Survival, it is still lagging on the political empowerment indicator which measures the gap between men and women at the highest level of political decision-making. This is in consonance to the study conducted by David, Albert, and Vizmanos (2017) which showed that women's share of positions in the Philippine Congress is only at 27%. On the other hand, in 2013, only 11% of elected local officials were female. According to their study, the small number of women in elective office may be due to the restricted involvement of women in electoral politics as well as the general public's low inclination to vote for them.

With the issuance of CHED Memorandum Order No. 01 s-2015, all public and private HEIs are instructed to institutionalize gender equality, and gender responsiveness and sensitivity through establishing a GAD Focal Point System, and integration of the principles of gender equality in the trilogical functions of higher education: (1) curriculum development, (2) gender-responsive research programs, and (3) gender-responsive extension programs.

As an HEI, the Philippine Merchant Marine Academy must adhere to the abovementioned guidelines. The PMMA is the pioneer institution in maritime education. Although the PMMA has already initiated efforts to institutionalize gender mainstreaming as a strategy through enactment of implementing rules on the GAD guidelines, it is still struggling since the maritime sector including maritime education and training is seen as a male dominion. The entrance of midshipwomen in PMMA was brought about by the implementation of a Board Resolution in 1993. The 1997 Batch of graduates gave way to the first batch of graduates with two cadettes on its line of merchant marine officers. This is largely connected in the perceived shortages of officers in the world fleet, thus, since the late 1990s there has been a growing interest in training and recruiting women seafarers (Magramo & Eler, 2012). The successful implementation welcomes the opportunity for midshipwoman to slowly penetrate the maritime education and training of the Academy, and despite of the quasi-military approach life in the academy, midshipwoman in their own unique way shows significant performance and manifests virtuous characteristic of a true merchant marine" (Paraggua, et.al., 2015).

Several studies have investigated gender mainstreaming in higher education institutions. For instance, Valencia (2017) examined the gender mainstreaming efforts of a teacher education institution in the country. Her study revealed that the university is at the forefront of gender mainstreaming in the country. It has done advanced works especially in policies and enabling mechanism. Moreover, its management has been supportive of the gender mainstreaming particularly its provision of a GAD budget to conduct all the proposed activities. However, implementation of GAD PAPs is not without challenges. For instance, the university's GAD focal person and focal point system has been burdened with multiple responsibilities on top of their role as gender advocates.

In addition, Esteban-Pulamano (2016) assessed the implementation of GAD program of state universities and colleges in Region III. The study found out that most of the GAD units of SUCs in Region III do not have a vision and were formed under different offices, thus, were not provided with the necessary personnel and facilities. Further, the mandated 5% GAD budget was not utilized on mostly organization-focused projects and activities. Thus, it was recommended that GAD units be positioned directly under the president's office as well as given the necessary human and material resources to assist the mainstreaming process.

Finally, Ilagan (2019) which assessed the implementation of gender mainstreaming in government owned higher education institution found out that faculty members and administrators were moderately aware of the gender mainstreaming activities of the university. In terms of implementation, gender mainstreaming was less implemented in the area of research, while it was moderately implemented in aspects of instruction, extension and production. Although CHED has already formally institutionalized gender mainstreaming in the agency and in different HEIs, efforts must still be done according to Dayo and Illo (2015).

In summary, gender equality has been recognized as a goal towards social justice and human rights. Efforts has been done both internationally and locally to mainstream gender in all levels to achieve the goal of gender equality which is seen as a contributory factor in economic, social, and political development. There have been studies and reports related to gender mainstreaming both in the national and international levels. This study aimed to adopt the strategies that have been formulated to evaluate gender mainstreaming efforts in a government institution. Although there are already assessments conducted in different government agencies, evaluation of gender efforts in a male-dominated, quasi-military institution has not been conducted yet.

Theoretical Framework

This study was premised on the Theory of Change which sets out the component parts of gender mainstreaming, their relationship with one another, and how they mutually contribute to the achievement of a wider goal of gender equality and women's rights as proposed by Derbyshire, Dolata, and Ahluwalia (2012).

Their gender mainstreaming theory of change has three (3) related parts: 1) vision and results; 2) technical processes; and 3) organizational commitment.
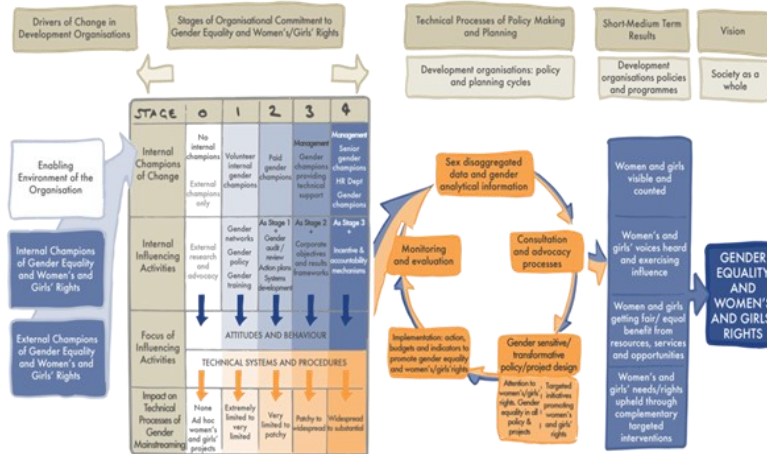
Figure 1. Gender Mainstreaming: Theory of Change

As to vision and results, it is argued that gender mainstreaming is only a means to achieve the ultimate vision of realizing women's and girl's rights, and equal power relationships between men and women in society as a whole. On the other hand, technical processes must be gender sensitive and transformative in order to achieve the results. Further, it should be systematically incorporated into the organization's policy, program, project, and departmental planning cycles on gender mainstreaming. Efforts that may be done include: collection of sex and age disaggregated data to understand how a specific process may affect women and men differently; gender analysis to find out and describe gender differences and inequalities relative to a particular process; formulation of gender sensitive/transformative policy, project and process that promotes gender equality and supports women's rights in policy/project/program interventions and internal processes; and implementation of plans of action designed to promote gender equality and uphold women's rights to include appropriation of budget for implementation.

Finally, organizational commitment ensures that promotion and sustainability of practices in promoting gender equality and women's rights will be done. It is ideal that the senior management must be champions of promoting gender equality and women's rights as well as continuous raising of awareness of staff, skills development, and monitoring and accountability processes.

This theory is relevant to this study as it sought to establish the connection between different drivers of change in an organization towards the achievement of gender equality and upholding of women's rights in an organization. Thus, this theory helped in looking at the bigger picture of how these three (3) interrelated parts work hand-in-hand in realizing the ultimate goals of gender equality and promotion of women's rights in the society as a whole.

In addition, the stages of organizational commitment to gender equality and women's/girl's rights can be aligned to the levels of gender mainstreaming of the Gender Mainstreaming Evaluation Framework (GMEF) such as the following:

Level 1: Foundation Formation – this is the initial stage wherein the institution's level of gender awareness is increased through building people's awareness and breeding support for gender mainstreaming.

Level 2: Installation of Strategic Mechanisms – During this level, transition towards gender mainstreaming is conducted through formulating enabling conditions that support GAD.

Level 3: GAD Application – Institutionalization of GAD-related activities are already done in this level. GAD-related activities are based on GAD agenda which guides the implementation of GAD planning and budgeting. Gender analysis is also applied in formulating the GAD Plan and Budget which results to either an augmented attribution of the GAD budget and/or more gender-responsive activities, projects, and programs.

Level 4: Commitment Enhancement and Institutionalization – Sustaining efforts of gender mainstreaming is done at this level. Although the organization has already institutionalized gender mainstreaming, it also sees to it that continuous evaluation and improvement of gender mainstreaming efforts are conducted. At this level, it is necessary that the organization examines the intended

outcome of gender mainstreaming in comparison with the organization's status before interventions are made.

Level 5: Replication and Innovation – At this level, GAD has been completely mainstreamed into the mandate of the organization and is recognized by others as a model wherein Gender Focal Point System members are invited as providers of GAD technical assistance. In addition, noteworthy accomplishments may be cited in GAD-related publications as examples of good practice in gender mainstreaming implementation.

Conceptual Framework

In relation to the Gender Mainstreaming Theory of Change, this study used the Input-Process-Output-Outcome framework illustrated below:
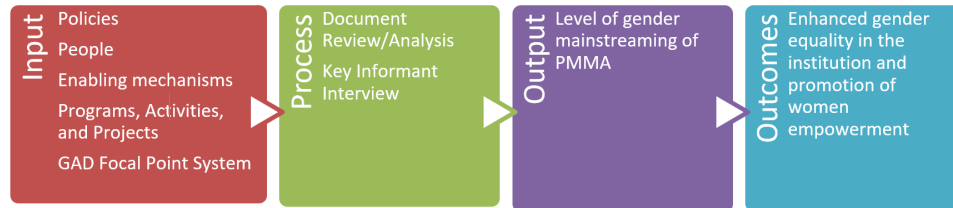

Figure 2 Conceptual Framework

Gender mainstreaming in a government organization like the PMMA is measured in terms of the four key points: Policies, People, Enabling Mechanisms, and Programs/Projects/Activities which are planned, implemented and monitored by the GAD Focal Point System. These shall be contributory to the progress of gender mainstreaming efforts of the PMMA as attested by different means of verifications such as policies, programs, monitoring and accomplishment reports as well as key informant interviews which will then determine the level of gender mainstreaming of the PMMA. Ultimately, these gender mainstreaming efforts are towards the enhanced gender equality in the institution and promotion of women empowerment.

STATEMENT OF THE PROBLEM

This study aimed to assess the level of gender mainstreaming in the Philippine Merchant Marine Academy in terms of the following entry points: policy, people, enabling mechanisms, and programs, projects and activities (PPAs). Specifically, it seeks to:
1. To discuss gender mainstreaming efforts implemented by the PMMA and determine the level of gender mainstreaming of PMMA in terms of policies, people, enabling mechanisms, and programs, projects, and activities (PPAs);
2. To determine the challenges experienced by PMMA in implementing gender mainstreaming; and
3. To propose/recommend policies, programs, projects and activities that may improve the implementation of gender mainstreaming in the institution.

METHODOLOGY

Research Design

The study used a mixed method of research approach, specifically the explanatory sequential design (see diagram below). This design aims to use qualitative approach to clarify the results of the quantitative data collection and analysis such as those that are significant, non-significant, outliers, or surprising results (Bian, n.d.).
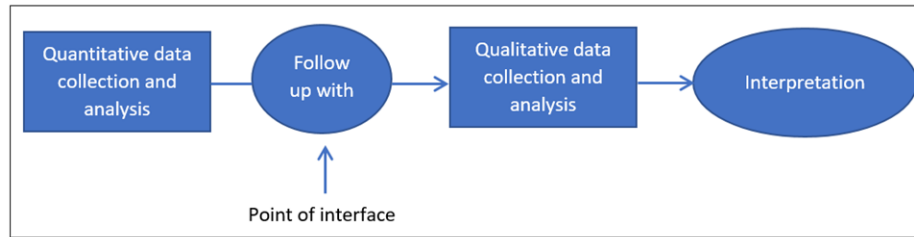
Figure 3. Explanatory Sequential Design

Participants

The researchers of this study conducted content analysis of related literature, studies, and reports, etc. In addition, the participants of this study were seven (7) members of the GAD Focal Point System of the PMMA. Six (6) are female while only one (1) is male.

Since the study conducted key informant interview to solidify the results of the GMEF scoring, purposive sampling was used. This method occurs when "elements selected for the sample are chosen by the judgment of the researcher. Researchers often believe that they can obtain a representative sample by using a sound judgment, which will result in saving time and money" (Black, 2010 cited in Business Research Methodology, n.d.).

Instrument

The study examined the state of gender and development in the Philippines through secondary materials such as related literature, studies, and reports, among others thru content analysis. To answer the main research objective on the analysis of the level of gender mainstreaming of the Philippine Merchant Marine Academy, the Enhanced Gender Mainstreaming Framework toolkit formulated by the Philippine Commission on Women was used. GMEF is an organizational assessment questionnaire on the following entry points: policies, people, enabling mechanisms, programs, projects, and activities.

The Policy questionnaire has 13 descriptors that track the progress of an organization's efforts in integrating GAD in its plans and policy issuances. On the other hand, the questionnaire on People contains of 27 indicators that evaluates the development of an organization's efforts in ensuring that its people, whether top management, GAD Focal Point System (GFPS) members or employees are gender-responsive and supportive of the organization's gender mainstreaming efforts.

Further, the Enabling Mechanisms questionnaire contains 23 questions that measure the efforts of the organization in guaranteeing that the mechanisms to mainstream the GAD are established and fully functional.

Finally, the questionnaire on Programs, Projects, and Activities has 30 questions that "assess the organization's progress in mainstreaming GAD in all of its programs, activities and projects, whether through policy and/or plan formulation and issuances, capacitating the GFPS members, generating top-level management support on GAD and the establishment of enabling GAD mechanisms" (Philippine Commission on Women, 2016).

Procedure

Scores were given per indicator/descriptor in the GMEF toolkit. Content analysis of GAD accomplishments were also done as a means of verification in scoring. The final score was computed by adding all the scores per entry point. Permission to conduct the evaluation as well as review the accomplishment report were conducted as ethical consideration.

Key informant interviews were conducted with identified interviewees such as the former GAD Focal Person and selected members of the GAD Focal Point System to provide additional explanation on the results of the GMEF scores. By doing so, informed consent was obtained. Results of the key informant interviews included the challenges experienced by PMMA in implementing gender mainstreaming as well as recommendations on how to improve gender mainstreaming implementation in the institution.

FINDINGS

This study investigated the level of gender mainstreaming in the Philippine Merchant Marine Academy in terms of the following entry points: policy, people, enabling mechanisms, and programs, projects and activities (PPAs).

Gender Mainstreaming Efforts of PMMA in Different Entry Points

a. Policy

Table 2. PMMA GMEF Scoresheet – Policy Key Areas

Key Areas	Score	Level Description
Issuance of initial policies on GAD	3.33	1: Foundation Formation
Issuance of policies to mainstream GAD in the organization	1.66	1: Foundation Formation
Integration of GAD in the organization's policies	2.50	1: Foundation Formation
Updating and continuous enhancement of GAD policies	2.49	1: Foundation Formation
Model GAD policy	0	-
Total Score	**9.98**	**2: Installation of Strategic Mechanisms**

In terms of Policy, issuance of initial policies on GAD scored 3.33, the highest among the five key areas. PMMA has already issued initial policies on GAD such as the Quality Operations Manual where GAD forms part of Other Interconnected Operational Procedures, Policies, and Requirements. The latest issuances were the OOS Special Order No. 60 s-2020 re PMMA GAD Focal Person and the revision of the implementing rules on the Gender and Development (GAD) guidelines.

The implementing rules set forth the guidelines and procedures for the establishment, strengthening, and institutionalization of the GAD Focal Point System of the Academy. This was aimed to "institutionalize gender mainstreaming as a strategy and promote and develop Gender-Responsive Curricular Programs (GRCPs) that prevent all forms of all gender-based discrimination in instruction, research, and extension and likewise ensures the promotion of gender equality, and women's empowerment through 'provision, availability, accessibility of opportunities, services, and observance of human rights, which enable women to actively participate and contribute to the political, economic, social and cultural development of the nation."

In addition, PMMA has also issued memorandum for the organization to participate in Women's Month activities during March of every year as well as the on-going 18-day campaign to end violence against women.

Further, the organization has integrated GAD in its organizational plan. Capacity building activities for both students and employees such as Gender Sensitivity Training, orientation seminar on Harmonized Gender and Development Guidelines, Gender Mainstreaming Training, Anti-Sexual Harassment seminar, and Gender Audit seminar.

Conversely, PMMA has scored zero on the Model GAD policy as it does not have a GAD policy that has been used as a model/standard by other organizations.

Over-all, PMMA is Level 2 for Policy which implies that it is at the Installation of Strategic Mechanisms level wherein it progresses to the issuance of policies to address gender issues using gender-fair language and images among its internal and external clients.

This has been validated by the interview conducted by members of the GAD Focal Point System. They have reiterated that PMMA has already undertaken initiatives to mainstream gender in the organization such as clear-cut policies, indicators, and activities. However, further strengthening of these policies must take place in order to fully mainstream gender in the organization.

b. People

Table 3. PMMA GMEF Scoresheet – People Key Areas

Key Areas	Score	Level Description
For establishing GFPS and GAD champions/advocates	4.14	1: Foundation Formation
For GAD initiatives and capacity development activities	2.47	1: Foundation Formation
For GAD sponsorship and related programs	3.30	1: Foundation Formation
GAD champions as program implementers	1.64	1: Foundation Formation
GAD experts	0.83	1: Foundation Formation
Total Score	**12.38**	**2: Installation of Strategic Mechanisms**

The highest score for People is on the establishment of the GFPS with 4.14. The GFPS is composed of the Executive Committee which consists of the two (2) Assistant Superintendents (one for academics, training, research and extension, and the other for administration and finance), and the Technical Working Group. However, not all the top management officials have attended Basic GAD Orientation on GST. There were efforts by the current TWG to conduct a crash course on GAD with the top management officials, however, due to conflicts of schedule, it has not been realized.

For the top management officials, championing GAD has been limited to approving the GAD plan and budget and giving the blessing for personnel to participate in GAD activities. A firm grasp on basic GAD concepts is necessary to enable management to make critical decisions on issues and concerns from a gender perspective.

On the other hand, the TWG has been strengthened through conduct of different capacity building activities for them to become more aware and conscious of GAD-related policies and mandates. Gender analysis, collection of sex-disaggregated data, and gender mainstreaming, among others have been done so that the capacity of the concerned personnel is enhanced. However, the top management officials were not visible during the setting of GAD agenda and strategic planning on GAD although some have been visible during the implementation of GAD Plan and Budget such as attendance to the 18-day campaign to end VAW parade. Male employees have also actively participated in GAD activities and trainings. The current composition of the GFPS also include male members who have initiated GAD PAPs such as the conduct of livelihood trainings for employees to boost their economic capacity.

In addition, there were efforts to orient both internal and external clients on the GAD efforts of the organization. GAD TWG has established a GAD corner which includes a GAD bulletin board wherein upcoming and accomplished were indicated and a space for journals and books related to GAD.

Last July 2019, the PMMA GAD-TWG, in coordination with the GAD Maritime Sector TWG has conducted a Gender Profiling Survey aimed to determine the level of participation of women and men in the maritime sector; and introduce interventions or actions that will promote equitable representation of women and men in the maritime sector. Results of the survey were then analyzed during the HGDG workshop conducted last October 2019.

In terms of GAD Sponsorship and Related Programs with a score of 3.30, there was no initial discussion among top management officials on the integration of GAD perspective in the organization's PAPs and performance indicators. Only the members of the GFPS participated during GAD Plan and Budgeting. It is good to note, however, that among the TWG members, there is a growing knowledge of GAD and of how to mainstream GAD into their respective organic PAPs as demonstrated in the submitted GPB 2020.

Although a male-dominated organization, qualified women have been appointed in leadership positions such as heads of the Data Privacy Office, Acting Chief Administrative Office, Financial Management Office, Department of Research, Development and Extension, Cashier Unit, Guidance and Counselling Unit, Graduate School, Budget Unit, Library Unit, Supply Unit, Business Management Office and Internal Audit Services Unit. However, this only pertains to 31% of the total top management positions. Further, the three highest officials (Superintendent, Assistant Superintendent for Academics, Training, Research and Extension, and Assistant Superintendent for Administration and Finance) remain to be males. Only alumni of PMMA are qualified to be appointed to the highest position. PMMA allowed the entrance of women in the Academy only in 1993 with the virtue of certain Board Resolution. Thus, the first alumnae have graduated in 1994. Currently, the Superintendent is a graduate of PMMA Class 1990.

For GAD Champions as Program Implementers, PMMA scored only 1.64 since instead of 50% or more of the GFPS members serve as GAD resource person within the organization, only the former GAD Focal Person does this. She has been a resource person during the conduct of GAD-related seminars for students.

In addition, there were no concerned staff members able to adjust GAD PAPs to address emerging gender issues nor developed Knowledge Products (KPs) on GAD. Conversely, internal partners have participated during the development planning cycle, especially on the implementation of the organization's PAPs.

In terms of having GAD experts within the organization, PMMA scored 0.83 as the top management has not been able to raise GAD concerns during high-level meetings as well as staff members were still not recognized as GAD experts tapped by other organizations.

Overall, PMMA is Level 2: Installation of Strategic Mechanisms on entry point People. This implies that the organization moves from the conduct of GAD orientation sessions towards ensuring that its program implementers are trained to do gender analysis, and clients are given opportunities to articulate gender issues as per direction of its top management.

c. Enabling Mechanisms

Table 4. PMMA GMEF Scoresheet – Enabling Mechanisms Key Areas

Key Areas	Score	Level Description
Setting up essential GAD mechanisms	4.17	1: Foundation Formation
Functional GAD mechanisms	2.50	1: Foundation Formation
Integration of GAD in the organization's mechanisms	1.00	1: Foundation Formation
Advanced GAD structures and systems	1.50	1: Foundation Formation
Model GAD structure and systems	0.00	-
Total Score	**9.17**	**2: Installation of Strategic Mechanisms**

Having the lowest score (9.17), the organization's enabling mechanisms need to be improved. PMMA has already set up essential GAD mechanisms such as: creation of GFPS in accordance with Magna Carta of Women Implementing Rules and Regulations (MCW IRR) Sec. 37-C and other pertinent policies issued by oversight agencies; initiated exploratory activity/activities with PCW, Department of Transportation, and consultants regarding identification of necessary capacity development activities for GFPS and staff members, and collection of sex-disaggregated data on employees through the Gender Profiling Survey. This key area scored 4.17.

PMMA also has functional GAD mechanisms (2.50). The GFPS performs limited functions based on CHED Memorandum Order No. 01 s-2015 and PCW Memorandum Circular No. 2011-01 such as:

a. Lead in mainstreaming gender perspective in agency/department policies, plans and programs. In the process, they shall ensure the assessment of the gender-responsiveness of systems, structures, policies, programs, processes, and procedures of the agency based on the priority needs and concerns of constituencies and employees and the formulation of recommendations including their implementation;

b. Assist in the formulation of new policies such as the GAD Code in advancing women's status, such as in the case of LGUs;

c. Lead in setting up appropriate systems and mechanisms to ensure the generation, processing, review and updating of sex-disaggregated data or GAD database to serve as basis in performance-based gender responsive planning;

d. Coordinate efforts of different divisions, offices, units of the agency and advocate for the integration of GAD perspectives in all their systems and processes;

e. Spearhead the preparation of the agency annual performance-based GAD Plans, Programs and Budget in response to gender issues of their constituencies and clients and in the context of their agency mandate and consolidate the same following the format and procedure prescribed by the PCW, DBM and NEDA in the Joint Circular 2012-1. The GFPS shall likewise be responsible for submitting the consolidated GAD Plans and Budgets of the department/agency, and as needed, in responding to PCW's comments or requests for additional information.

f. Lead in monitoring the effective implementation of GAD-related policies and the annual GAD Plans, Programs and Budget;

g. Lead the preparation and consolidation of the annual agency GAD Accomplishment Report and other GAD Reports that maybe required under the MCW; and

h. Strengthen the external link with other agencies or organizations working on women's rights and gender and development to harmonize and synchronize GAD efforts at various levels of governance.

However, it has yet to perform the following functions as mandated:

a. Promote and actively pursue the participation of women and gender advocates, other civil society groups and private organizations in the various stages of the development planning cycle, giving special attention to the marginalized sectors; and

b. Ensure that all personnel of the agency including the finance officers (e.g. accountant, budget officer, auditors) are capacitated on GAD. Along this line, the GFPS will recommend and plan an appropriate capacity development program on gender and development for its employees as part of and implemented under its regular human resource development program.

In addition to the GFPS, PMMA has also established a Committee on Decorum and Investigation (CODI). However, the organization has been struggling with the utilization of the mandated at least 5% of its budget to implement GAD PAPs. In recent years (2016-2020), the highest utilization has been recorded in 2019 with 4.45% while the lowest was in 2020 with a mere 0.59%. For the year 2019, several GAD activities were conducted including gender sensitivity training and anti-sexual harassment for cadets, advocacy campaign to end VAW, information campaign among senior high school students, faculty members, and guidance counselors, Gender Fair Language seminar, research study on employability of PMMA alumnae, seminar on Harmonized Gender and Development Guidelines, annual assessment and planning for GAD implementation, seminar-workshop in crafting GAD agenda, livelihood seminars for PMMA employees anchored on women's economic empowerment, Gender Sensitivity Training for selected employees, and seminar on Gender Mainstreaming. But, the bulk of the attribution (Php 14.67M) were due to the infrastructure-related projects conducted: construction of female billeting, water station chemicals and repair of submersible pump, LED floodlights, streetlights, and security lights, and renovation of Mess Hall. On the other hand, FY 2020 witnessed the lowest GAD expenditure mainly due to the ongoing COVID-19 pandemic wherein activities were not accomplished/conducted given the health and safety protocols implemented by local and national authorities. Because of this, based on the interview conducted, there is an Audit Observation Memorandum from the Commission on Audit to monitor the compliance of PMMA in the utilization of the GAD budget.

It can be noted that the organization has established although sporadically, engagements with agencies such as the Maritime Sector GAD TWG, and GAD experts such as conduct of capacity building developments for PMMA employees and students as well as external clients. However, due to the current COVID-19 pandemic, these were not continued to date. Further, the organization has already collected gender statistics/sex-disaggregated data, however, this was not yet utilized to craft GAD-related activities nor generate KPs on GAD. Accordingly, the SDD needs to be updated since there were changes in the current roster of employees in the Academy.

The organization has yet to establish a monitoring and evaluation system to track desired gender-related impacts of GAD PAPs on either internal or external clients as well as a Knowledge Management System integrated with GAD. Further, the organization's GAD mechanisms have not been recognized as models by other agencies.

In terms of Model Gad Structures and Systems, the Academy's GFPS has not yet been recognized by reputable organizations on gender mainstreaming, thus, it scored zero.

In view of the foregoing, the organization's enabling mechanisms is at Level 2: Installation of Strategic Mechanisms wherein other GAD mechanisms that will address the needs of the organization's internal and external clients are established, and there is a marked increase in the utilization of the GAD budget.

d. Programs, Activities, and Projects (PAPs)

Table 5. PMMA GMEF Scoresheet – Programs, Activities, and Projects Key Areas

Key Areas	Score	Level Description
Initial activities to facilitate GAD mainstreaming	2.89	1: Foundation Formation
Establishing commitment towards GAD mainstreaming	2.48	1: Foundation Formation
GAD Application	2.45	1: Foundation Formation
GAD commitment and institutionalization	2.50	1: Foundation Formation
Model PAPs	0.00	-
Total Score	**10.32**	**2: Installation of Strategic Mechanisms**

Every year, PMMA participates in the observance of the National Women's month as well as the Campaign to End VAW. It has also conducted a number of trainings and seminars both for students and employees such as: Gender Sensitivity Training, Gender Analysis Training, Gender Mainstreaming

Seminar, Anti-Sexual Harassment Seminar, Anti-VAW Forum, Gender Fair Language Seminar, and GAD Plan and Budgeting Workshop.

Further, it has participated in the DOTr-MSTWG in enhancing gender profiling survey tool to be used for the establishment of a GAD database in 2019. In terms of Information/Education/ Communication (IEC) materials, the organization has prepared tarpaulins, balloons, and t-shirts during GAD-related activities.

For the establishment of commitment towards gender mainstreaming, with a 2.48 score, PMMA has already drafted the GAD Agenda 2020-2025. The GPB is also based on the GAD agenda of the organization as well as national mandates and results of gender analysis conducted by GFPS members.

Conversely, the organization has no GAD orientation module with gender sensitivity as a core competency developed, no review of existing IEC materials and KPs conducted, no facilities and services addressing gender issues and concerns of the organization's clients, no GAD orientation module with gender sensitivity as a core competency developed, no new GAD IEC materials developed, and no GAD section in the agency website (www.pmma.edu.ph).

On the other hand, GAD PAPs have been monitored and reported through the Gender Mainstreaming Monitoring System (GMMS) of the PCW. It is an online system "for automating the GAD Plan and Budget (GPB) and GAD Accomplishment Report (GAD AR) submission of the agencies, GOCCs, SUCs and other government instrumentalities" (PCW, 2019).

It is good to note, however, that the organization has not yet conducted a gender impact assessment to evaluate the effects of GAD PAPs to internal and external clients as well as not yet recognized as a learning hub for a notable GAD PAP.

In total, PMMA is Level 2: Installation of Strategic Mechanisms wherein it already has a GAD agenda or strategic framework to guide its gender mainstreaming efforts through the implementation of its GAD Plan and Budget.

Level of Gender Mainstreaming of PMMA

Among the four (4) key areas: Policy, People, Enabling Mechanisms, and Programs, Activities, and Projects (PAPs), People rated the highest with 12.38. Several factors contribute to this rating such as the establishing GFPS and GAD champions advocate obtaining the highest score of 4.14 and GAD sponsorship and related programs with 3.30. Majority of members of the GFPS occupy strategic positions in the organization; GFPS members attended all three basic GAD training; majority of top management officials have attended Basic GAD orientation or GST and top management allows all key officials, GFPS members and staff members to participate in GAD-related activities; top management issued directive/s to integrate GAD perspective in the organization's PAPs and performance indicators; and top management appoints women to leadership position and provides full support.

On the other hand, Enabling Mechanisms rated the lowest with only 9.17. It was found out that PMMA has no other GAD mechanism established; the Academy utilized less than 5% of total budget to implement GAD PAPs; has no partnered with other organizations towards the strategic implementation of GAD PAPs; KM system does not have GAD-related KPs; and GFPS not yet recognized as model GAD mechanism by reputable organizations on gender mainstreaming.

In general, with a total of 41.85 points, PMMA is Level 2: Installation of Strategic Mechanisms. According to the GMEF Handbook, "this level marks the transition of the organization toward gender mainstreaming by creating enabling conditions supportive of GAD, such as:

Putting key people, necessary policies, support structures, systems and mechanisms in place to facilitate and sustain gender mainstreaming; and

Initial application of GAD concepts and tools.

Table 6. Summary of PMMA GMEF Scoresheet in All Four Entry-Points

Entry-Points	Score	Level Description
Policy	9.98	2: Installation of Strategic Mechanisms
People	12.38	2: Installation of Strategic Mechanisms
Enabling Mechanisms	9.17	2: Installation of Strategic Mechanisms
Programs, Activities, and Projects (PAPs)	10.32	2: Installation of Strategic Mechanisms
Over-all Score	**41.85**	**2: Installation of Strategic Mechanisms**

Among the four (4) key areas: Policy, People, Enabling Mechanisms, and Programs, Activities, and Projects (PAPs), People rated the highest with 12.38. Several factors contribute to this rating such as the establishment of the GFPS, conduct of different capacity building activities for the GFPS members, orientation of both the internal and external clients on the GAD efforts of the Academy, and appointment of qualified women in leadership positions in the Academy's organizational structure.

On the other hand, Enabling Mechanisms got the lowest rating of 9.17. It was found out that PMMA is weak on the achievement of the mandatory 5% GAD attribution, utilization of the gender statistics/sex disaggregated data to craft GAD-related activities nor generate KPs on GAD, and establishment of a monitoring and evaluation system to track gender-related impact.

In general, with a total of 41.56 points, PMMA is Level 2: Installation of Strategic Mechanisms. In this level, GAD activities move away from compliance and commitment to women's empowerment and gender equality but actually beginning to address the gender issues of its internal and external clients. For PMMA, it has established GAD mechanisms such as a functional GFPS, existence of a Committee on Decorum and Investigation (CODI), conduct of several capacity building developments on GAD, and allocation of budget for GAD-related activities.

Challenges Encountered in Implementing Gender Mainstreaming
The respondents have identified challenges that the Academy encountered in implementing gender mainstreaming such as the following:

Insufficient GAD Awareness
Although the Academy conducts activities related to Gender and Development, not everyone has a deep understanding and awareness of GAD. Thus, stakeholders do not take GAD seriously and take it for granted and for compliance only. This implies that GAD is not embedded in the PMMA culture.

Unable to Meet the Minimum 5% of GAA
Years and years have passed but still PMMA struggles to meet the mandatory at least 5% of GAA to be attributed to GAD. The dilemma lies in the procedures and processes in the Academy as well as the lack of gender analysis and gender issue through the Harmonized Gender and Development Guidelines which is needed to be able to determine how much of the project cost can be attributed to GAD.

Time Availability of Stakeholders to Attend GAD Activities
PMMA employees, especially those who are in top management positions, cannot fully commit to participate and attend GAD activities due to urgent and other matters that need immediate action. In addition, employees who are in-charge of reportorial requirements are also unable to get involved and attend GAD activities, especially seminars that require full and complete attention.

Absence of GAD Expert/Consultant
The Academy lacks the presence of a GAD expert or consultant who could guide the GAD Focal Point System in mainstreaming gender in the institution. Thus, it does not have technical know-how on how to effectively craft gender-responsive projects and activities that would result to attainment of the mandatory minimum 5% GAD attribution.

Absence of Internal Formulation of GAD Information, Education and Communication (IEC) materials
Since the Academy has yet to have employees who are well versed with GAD who can serve as resource people for seminars and trainings, it also lacks the capacity to produce internal Information, Education and Communication (IEC) materials and just relies on what the PCW could provide. It is imperative that the GAD Focal Point System look into this so that the right people will be trained and utilized in terms of this area.

No measurement of GAD outcomes
Although the PMMA conducts GAD PAPs, it fails to measure the outcomes of these activities. No established monitoring and evaluation is existing that would help refine facilitation and conduct of GAD PAPs.

Nonexistence of GAD Multi-purpose Building

For FY 2022, PMMA has proposed the establishment of a GAD Center with transient capacity and training hall that aims to serve as the support structure for the efficient and effective mainstreaming of gender plans, programs, and activities into the areas of instruction, research, and extension for the local community as well as for the advancement of RA 9710. Based on the findings from the Technical Budget Hearing last 16 April 2021, it was Priority Rank 1. Observations and recommendations were given. That, based on the submitted detailed program of works, out of the proposed amount of P100M, its component is broken down for building and equipment. Hence, the Technical Budget requests a complete list of equipment and their corresponding costs, properly/duly accomplished BP 202.

CONCLUSION

The challenges facing the implementation of gender mainstreaming call for a serious concern, especially in PMMA.

Based on the findings of this study, the following are concluded:

1. The PMMA's gender mainstreaming is at Level 2: Installation of Strategic Mechanisms.
2. Significant findings have been noted on the four entry points. In terms of Policy, internal policies have been issued that are in accordance with national and international mandates such as the Magna Carta of Women, PCW directives, CHED Memo Order No. 01 s-2015, Sustainable Development Goals, and Beijing Platform for Action among others.
3. In the area of People, the institution has created a focal point system that would plan, implement, monitor, and report the organization's GAD PAPs. In addition, women are provided with opportunities to have leadership positions as well as participate in GAD-related activities. However, the support of the top management in mainstreaming gender is still lacking due to their non-attendance to GAD-related training that would boost their awareness on GAD concepts.
4. For Enabling Mechanisms, several mechanisms have already been established. However, several mechanisms must still be created and established such as a sex-disaggregated database, monitoring and evaluation system, and knowledge management system. These would ensure that PAPs would appropriately address the gender needs of the clients.
5. Finally, PMMA has conducted GAD-related PAPs although limited. Additional training must be conducted especially for top and middle-level management officials. IEC materials must also be formulated to help disseminate the efforts being made by the institution not just internally but most importantly to the general public.
6. The PMMA, specifically the GAD Focal Point System, has encountered several challenges in implementing gender mainstreaming in the Academy. These include insufficient GAD awareness of all stakeholders, unable to meet the minimum 5% of GAA attributed to GAD, time availability of stakeholders to attend GAD activities, absence of GAD expert/consultant who could guide the GAD Focal Point System in mainstreaming gender in the institution, absence of internal formulation of GAD IEC materials, no measurement of GAD outcomes, and nonexistence of GAD Multi-Purpose Building which can serve as the support structure for the efficient and effective mainstreaming of gender plans, programs, and activities into the areas of instruction, research, and extension for the local community as well as for the advancement of RA 9710.

RECOMMENDATIONS

In accordance with the findings of the study, the following are hereby recommended to further strengthen the gender mainstreaming efforts in the institution:

A. On Policy
1. Issuance of an internal GAD mandate/GAD agenda to strengthen the implementation of gender mainstreaming in the institution. It should set the tone of GAD as a due diligence of the organization in compliance with national and international mandates related to gender equality and women empowerment.

2. Issuance of policy on GAD activities for the whole year to ensure that proper calendaring be done so that participants will be informed beforehand of the schedule of trainings/seminars/activities they will participate in.

B. On People
1. Program capacity building for top to middle-level management which must include Gender Sensitivity Training, Gender Mainstreaming, Gender Analysis, and GAD Planning and Budgeting for them to grasp the basic GAD concepts and realize the need to address gender-related issues and concerns.
2. Potential GAD champions and sectoral GAD experts may be identified to sponsor and sustain GAD advocacy in the organization based on the series of trainings conducted.
3. Conduct GAD training of trainers to prepare the GAD Focal Point System as possible resource speakers for GAD-related seminars.
4. Make women an integral dimension and have a gender perspective of the design, implementation, monitoring, and evaluation of policies, activities, and programs of PMMA.
5. Hiring of personnel who will act as GAD secretariat as well as contracting a GAD expert who will serve as consultant in identification, design, implementation, monitoring and evaluation of GAD-related activities/projects to ensure these are gender-responsive for the attainment of the minimum 5% GAD attribution.

C. On Enabling Mechanisms
1. Put in place and/or strengthen vital functional GAD mechanisms such as: sex-disaggregated database, gender database, Committee on Decorum and Investigation (CODI), VAW Referral System, and other mechanisms that respond to the gender needs of clients.
2. Forge strong partnership with different stakeholders such as DOTr, PCW, MARINA, PCG, PN, shipping companies, and other maritime education institutions, to ensure multi-level support and broad scale partnership that will benefit the graduates of the Academy especially alumnae.
3. Integrate GAD in the Major Final Output of the PMMA. This necessitates the establishment of a Monitoring and Evaluation System consisting of gender indicators.
4. Establish a comprehensive IEC program on GAD to educate the personnel and clients on GAD including setting-up of GAD corner in the PMMA Knowledge Center. This would create a buy-in and effectively draw a stronger support for GAD implementation across the organization and clientele.

D. On Program, Activities, and Projects
1. Conduct a participatory gender audit of the client-focused PAPs and use the results of this audit as a basis for defining GAD agenda, the overall direction of the agency's gender mainstreaming, and formulate PAPs to address gender gaps.
2. Conduct impact assessment to evaluate the effect of GAD-related activities and measure GAD outcomes on internal and external clients. The results may be a basis for enhancement of PAPs to further address the gender needs of clients.
3. Push for the establishment of the GAD Multi-purpose building to serve as the support structure for the efficient and effective mainstreaming of gender plans, programs, and activities into the areas of instruction, research, and extension for the local community as well as for the advancement of RA 9710.

REFERENCES

Commission on Higher Education. (2015, January). *Establishing the Policies and Guidelines on Gender and Development in the Commission on Higher Education and Higher Education Institutions (HEIs)* (CHED Memorandum Order No. 01 Series of 2015). https://www.ched.gov.ph/wp-content/uploads/2017/10/CMO-no.-01-s.-2015.pdf

David, C. C., Albert, J. R. G., & Vizmanos, J. F. V. (2017, November). *Filipino women in leadership: Government and industry* (Policy Note No. 2017–22). Philippine Institute for Development Studies. https://pidswebs.pids.gov.ph/CDN/PUBLICATIONS/pidspn1722.pdf

Dayo, M. H. F., & Illo, J. F. I. (2015). Women and Education. *Review of Women's Studies*, *25*(1–2).

Derbyshire, H., Dolata, N., & Ahluwalia, K. (2015, March). *Untangling Gender Mainstreaming: A Theory of Change based on experience and reflection*. Gender and Development Network (GADN). https://static1.squarespace.com/static/536c4ee8e4b0b60bc6ca7c74/t/54fdd685e4b0c25577fa6cb3/1425921669656/GADN+GM+Briefing+FINAL.pdf

Esteban-Pulmano, R. (2016). Implementation of the Gender and Development Program of State Universities and Colleges in Region III: An Evaluation. *International Journal of Education and Research*, *4*(5), 165–170. https://www.ijern.com/journal/2016/May-2016/15.pdf

Ilagan, L. S. (2019). Gender Mainstreaming in a Higher Education Institution (HEI). *European Journal of Social Sciences Studies*, *4*(4), 12–21. https://www.oapub.org/soc/index.php/EJSSS/article/view/592/1173

Magramo, M., & Eler, G. (2012). Women Seafarers: Solution to Shortage of Competent Officers? *TransNav - the International Journal on Marine Navigation and Safety of Sea Transportation*, *6*(3), 397–400. http://www.transnav.eu/Article_Women_Seafarers:_Solution_to_Shortage_Magramo,23,377.html

Paraggua, V. Q., Alvarez, M. D., Diviva, R. C., Millar, J. C., Solas, C. S., & Naca, V. A. M. (2015). Philippine Merchant Marine Academy Alumnae Tracer Study. *Alliance Research Publication*, *IV*(1).

Philippine Commission on Women. (2016). *Enhanced Gender Mainstreaming Framework*. Philippine Commission on Women. https://www.pcw.gov.ph/sites/default/files/documents/resources/Enhanced%20GMEF%20handbook%20complete_0.pdf

Philippine Merchant Marine Academy Annual Gender and Development (GAD) Accomplishment Report FY 2016 - 2021

Republic of the Philippines. (2010). *Republic Act No. 9710: Magna Carta of Women Implementing Rules and Regulation*. https://www.coa.gov.ph/gad/resources/downloads/RA_Circular/RA_9710_with_IRR.pdf

Revised Implementing Rules on the Gender and Development (GAD) Guidelines on the Philippine Merchant Marine Academy

UN Women. (2014). *Beijing Declaration and Platform for Action, Beijing+5 Political Declaration and Outcome*. United Nations. https://beijing20.unwomen.org/~/media/headquarters/attachments/sections/csw/pfa_e_final_web.pdf

United Nations Development Programme. (2020). *Human Development Report 2020, The Next Frontier: Human Development and the Anthropocene, Briefing note for countries on the 2020 Human Development Report: Philippines*. UNDP. http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PHL.pdf

United Nations Human Rights (Ed.). (1979). *Convention on the Elimination of All Forms of Discrimination against Women New York, 18 December 1979*. https://www.ohchr.org/en/professionalinterest/pages/cedaw.aspx

UP University Center for Women's Studies. (2015). Philippine NGO Beijing+20 Report. *Review of Women's Studies*, *25*(1–2).

Valencia, M. I. C. (2017). Gender Mainstreaming in a Teacher Education Institution in the Philippines. *EDUCARE: International Journal for Educational Studies*, *9*(2), 85–94. http://journals.mindamas.com/index.php/educare/article/view/801

World Economic Forum. (2016). *The Global Gender Gap Report 2016*. https://www3.weforum.org/docs/GGGR16/WEF_Global_Gender_Gap_Report_2016.pdf

World Economic Forum. (2017). *The Global Gender Gap Report 2017*. https://www3.weforum.org/docs/WEF_GGGR_2017.pdf

World Economic Forum. (2018). *The Global Gender Gap Report 2018*. https://www3.weforum.org/docs/WEF_GGGR_2018.pdf

World Economic Forum. (2020). *The Global Gender Gap Report 2020*. https://www3.weforum.org/docs/WEF_GGGR_2020.pdf

World Economic Forum. (2020, March). *The Global Gender Gap Report 2021*. https://www3.weforum.org/docs/WEF_GGGR_2021.pdf

World Health Organization. (2018, August 27). *Gender*. https://www.who.int/westernpacific/health-topics/gender-equity-and-human-rights

EMOTIONAL INTELLIGENCE AND MATHEMATICS PERFORMANCE OF EDUCATION STUDENTS IN ISABELA STATE UNIVERSITY

SHERYL IRENE E. MANALIGOD
Assistant Professor II, College of Education
Isabela State University
Isabela, Philippines

ABSTRACT

This study was conducted to determine the emotional intelligence and mathematics performance of education students in Isabela State University. Specifically, this study aimed to describe the students' profile in terms of gender, religion, and program enrolled in and identify the students' mathematics performance and emotional intelligence and their relationships and differences in the emotional intelligence, and their profile. The descriptive-correlational and comparative method of research was used and 220 students were solicited using an adapted questionnaire. Based on the data gathered, the profile of the students generally reveals females outnumbering males, Roman Catholic and enrolled in Bachelor in Elementary Education. Moreover, the mathematics performance of the students is good. As regards to the emotional intelligence of the students in terms of self-awareness, motivation, and relationship management, the level was in areas of strength while in terms of empathy and self-management the level was revealed to be in areas where giving attention to where felt weakest will play dividends.
In terms of gender and program enrolled in, the students have the same level of motivation since these variables do not significantly differentiate the students' emotional intelligence. However, the religion of the students significantly differentiates the students' emotional intelligence in terms of self-awareness and motivation. The study also leads to the conclusion that gender, religion, program enrolled in and mathematics performance are not significantly related to their emotional intelligence. With these results, further investigation should be done in determining the potential effects of emotional intelligence on the mathematics performance of the students, and extended research should be conducted aligned with the objectives of this study .

Keywords: emotional intelligence, mathematics performance, gender, religion, program enrolled in

INTRODUCTION

Any educational system around the world has a goal in common. It is to produce students who are morphed to be assets for the development of the system and society in general. To judge their total potentialities and capabilities, academic performance is considered to be a key criterion. It can be manifested through the test scores or marks assigned, or even their final grades from the different subjects taken. Thus, it is more pressing for them to have high academic performance. In general subjects that the students take, mathematics is one of the disciplines that are constantly appearing.

Relatively, the level of Intelligence Quotient (IQ) is a predictor of the level of academic performance of students in all subjects, including mathematics. According to Randy Tudy (2014), mathematics is an interesting but challenging subject. This is evident in the usual situation of education students of Isabela State University that the lesson plans in mathematics lack an affective domain, and focus mainly on the cognitive one. The subject then tends to demand evaluations that assess mainly the IQ of the learners. In consequence, many students find the subject abstract, impractical, boring, and difficult; emotion or appreciation is hardly considered.

However, intelligence and success in this century are not seen the same way they were before (Goleman 1995). New theories of intelligence have been introduced and are gradually replacing the tra-

ditional ones. The whole child/student has become the center of concern, not only his reasoning capacities but also his creativity, emotions, and interpersonal skills. The Multiple Intelligence Theory was introduced by Gardner (1983) and the Emotional intelligence theory by Mayer and Salovey (1990) and then Goleman (1995). IQ alone is no more the only measure of success; emotional intelligence, social intelligence, and luck also play a big role in a person's success (Goleman 1995). Apart from the traditional IQ, Emotional Intelligence (EI) is seen by researchers to possess the ability to fully explain performance outcomes (Gardner, 1983).

As belonged to the new theories introduced, Bar-On (2006) stated that emotional intelligence is being concerned with understanding oneself and others well, relating effectively to people, and adapting and coping with the immediate surroundings to be more successful in dealing with environmental demands. Bar-On suggests that emotional intelligence develops over time and that it can be improved through training, programming, and therapy. Bar-On hypothesizes that those individuals with higher than average EQs are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in emotional intelligence can mean a lack of success and the existence of emotional problems (Lofti Kashami, 2012).

Hence, the researchers in this study aimed to determine the emotional intelligence and mathematics performance of education students in Isabela State University.

STATEMENT OF THE PROBLEM

This study aimed to determine the emotional intelligence and mathematics performance of education students in Isabela State University. Specifically, it sought to answer the following questions:
1. What is the profile of the respondents in terms of:
   a. gender;
   b. religion; and
   c. program enrolled in?
2. What is the Mathematics performance of the respondents?
3. What is the emotional intelligence of the respondents in terms of self-awareness, empathy, self-management, motivation, and relationship management?
4. Is there a relationship between the emotional intelligence and Mathematics performance of the respondents?
5. Is there a difference in the emotional intelligence of the respondents when grouped according to their profile?

METHODOLOGY

This study used the descriptive-correlational and comparative research design. The respondents were 220 students who were randomly selected from different programs offered in the College of Education. It includes Bachelor of Elementary Education and majors namely English, Filipino, Social Sciences, TLE, MAPEH, and Mathematics from Bachelor of Secondary Education. The sample size was computed and proportionally allocated to the number of fields of specialization in the college.

Table 1. Frequency Distribution of the Respondents by Program Enrolled In

Program Enrolled In	Population	Sample
BSEd – English Major	71	33
BSEd – Filipino Major	49	23
BSEd - Social Science Major	50	22
BSEd – TLE Major	58	26
BSEd – MAPEH Major	72	33
BSEd – Mathematics Major	68	32
BEEd	125	54
Total	**487**	**220**

Additionally, the main data gathering instrument used in this study was the survey questionnaire. It consists of two parts: the respondent's profile and statements regarding their emotional intelligence. The first part was filling up details where the respondents are asked for their school ID number, gender, religion, and program enrolled in. The second part of the questionnaire was adopted from Harvey Deutschendorf (2000). It consists of 25 questions that seek the emotional intelligence and mathematics performance of the respondents in learning Mathematics. These 25 questions are grouped into 5 categories: self-awareness, empathy, self-management, motivation, and relationship management. In this part, the respondents were given a scale of 1 (Does not apply), 2 (Does not apply most of the time), 3 (Applies half the time), 4 (Applies most of the time), and 5 (Always apply) to be checked in each box to determine how each statement applies to them.

The mean values obtained in terms of self-awareness, managing emotions, motivating oneself, empathy, and social skill will be interpreted as stated below:

Mean Values	Areas
18-25	Area of strength
9-17	Area where giving attention to where felt weakest will play dividends
5-8	Area to make a development priority

The following scales were used to determine the Mathematics performance of the respondents:

Range	Descriptive Equivalent
1.0-1.24	Excellent
1.25-1.49	Very Satisfactory
1.50-1.74	Satisfactory
1.75-1.99	Fairly Satisfactory
2.0-2.24	Good
2.25-2.49	Fairly Good
2.50-2.74	Fair
2.75-2.99	Below Fair
3.0-3.99	Passed
5.0	Failed

The data was checked and arranged with the use of statistical packages for social science (SPSS). The profile of the respondents was analysed using frequency count, percentages, and means. Pearson r was used to recognize if there is a relationship between the emotional intelligence and mathematics performance of the respondents. It was also used to identify if there is a relationship between the emotional intelligence of the respondents and their profiles. Varying methods were utilized to recognize if there is a significant difference between the emotional intelligence and mathematics performance when grouped according to profile variables. For the religion and program enrolled in, the method was F-Test while T-Test was for the gender variable.

FINDINGS

A. Profile of the Respondents

Table 2 presents the frequency and percent distribution of the respondents according to gender, religion, and program enrolled in.

Table 2. Profile of the Respondents

Gender	Frequency (n=220)	Percent (%) (100.0)
Gender		
Male	79	35.9
Female	141	64.1
Religion		
Roman Catholic	109	49.5
Methodist	12	5.5
Iglesia Ni Cristo	16	7.3
Jehova's Witnesses	4	1.8
Born Again	50	22.7
Others	29	13.2

Program Enrolled In		
BSEd – TLE	26	11.8
BSEd - Social Science	23	10.5
BSEd – Mathematics	31	14.1
BSEd – MAPEH	32	14.5
BSEd – Filipino	22	10.0
BSEd – English	32	14.5
BEEd	54	24.5

The result showed that 141 of the 220 respondents are female (64.1%) while 79 are male (35.9%). More female students preferred to take teacher education as a course than male students, as evidence of the fact that there are more female teachers in the Philippines as compared to male teachers.

The dominant religion among the respondents is Roman Catholic with a frequency of 109 (49.5%): followed by Born Again with a frequency of 50 (22.7%): other religions (Espirista, Iglesia Filipina Independiente, Church of Jesus Christ, Pentecost, Seventh Day Adventist) with a frequency of 29 (13.2%): Iglesia Ni Cristo with a frequency of 16 (7.3%): Methodist with a frequency of 12 (5.5%) and Jehova's Witnesses with a frequency of 4 (1.8%). The result was aligned with the data gathered by the Philippine Statistics Authority (PSA) as of 2015 where 86 percent of the population is Roman Catholic, 6 percent belong to various nationalized Christian cults, and another 2 percent belong to over 100 Protestant denominations. Relatively, the greatest portion of the respondents was still affiliated with the Roman Catholic Church introduced by Spain in the early 16th century in Cebu while lesser ones were alienated from the traditional Christianity in the Philippines following the other sects and beliefs.

The largest portion of the respondents was enrolled in Bachelor of Elementary Education with a frequency of 54 (24.5%): followed by Bachelor of Secondary Education major in English and MAPEH which have a frequency of both 32 (14.5%): BSE Mathematics with a frequency of 31 (14.1%): BSE TLE with a frequency of 26 (11.8%): BSE Social Science with a frequency of 23 (10.5%); and BSE Filipino with a frequency of 22 (10.0%). Based on the result, more students aspire to teach pupils in elementary schools than aiming to teach high school or college students in different fields of specialization.

B. Emotional Intelligence of the Respondents

Table 3 reveals the level of emotional intelligence of the respondents.

Table 3. Level of Emotional Intelligence of the Respondents

Emotional Intelligence Scale	Mean Value	Descriptive Interpretation
Self-Awareness	19.2358	Area of strength
Empathy	17.0000	Area where giving attention to where felt weakest will play dividends
Self-Management	15.1320	Area where giving attention to where felt weakest will play dividends
Motivation	20.2300	Area of strength
Relationship Management	17.7692	Area of strength

Results revealed that their self-awareness, motivation, and relationship management were areas of strength with mean values of 19.2358, 20.23, and 17.7692. On the other hand, the respondents' empathy and self-management were revealed to be areas where giving attention to where they felt weakest will play dividends with mean values of 17, and 15.1320.

The respondents feel in themselves that they are highly capable of explaining their actions, understanding others' feedback, describing what they are feeling, and making sense of things happening in their lives; they believe that others don't see them as they see themselves. Furthermore, the respondents are confident that they are clear about their goals; they use their deepest emotions to move towards those goals, and they are manageable in influencing others. On the other hand, they are still doubtful about their ability to control their emotions and sense what others are feeling.

C. Mathematics Performance of the Respondents

Table 4 shows the frequency and percent distribution of Mathematics performance of the respondents.

Table 4. Frequency and Percent Distribution of Mathematics Performance of the Respondents

Average Grade Range	Descriptive Equivalent	Frequency (n=220)	Percentage (%) (100.0)
1.25	Very Satisfactory	2	.9
1.50	Satisfactory	14	6.4
1.75	Fairly Satisfactory	34	15.5
2.0	Good	46	20.9
2.25	Fairly Good	73	33.2
2.50	Fair	36	16.4
2.75	Below Fair	14	6.4
3.0	Passed	1	5

Mean Grade = 2.1398 (Good)

The result showed that the leading group of the respondents has a fairly good Mathematics Performance (2.25) with a frequency of 73 (33.2%); good (2.00) with a frequency of 46 (20.9%); fair (2.50) with a frequency of 36 (16.4%); fairly satisfactory (1.75) with a frequency of 34 (15.5%); satisfactory (1.50) and below fair (2.75) with a frequency of both 14 (6.4%); very satisfactory (1.25) with a frequency of 2 (0.9%); passed (3.0) with a frequency of 1 (5%). None of the respondents got excellent (1.0) or failed (5.0). The obtained mean value is 2.1398, indicating good mathematics performance.

It was shown that the respondents are generally decent performers in the general mathematics subjects. Though they don't excel greatly in Mathematics, it is evident that they make sure they won't get a failing grade.

The result contradicted the Philippines' National Achievement Test (NAT) result for School Year 2011-2012, where students showed poorly in Mathematics with an overall Mean Percentage Score (MPS) of 46.37. It also opposed the TIMSS 2011 report, which stated that achievement in Mathematics for sixth-grade students fell at or below Low International benchmarks (Mullis et al., 2011).

D. Relationship Between Emotional Intelligence and Mathematics Performance of the Respondents

Table 5 presents the relationship between emotional intelligence and the profile of the respondents according to gender.

Table 5. Relationship between Emotional Intelligence and Mathematics Performance of the Respondents

Emotional Intelligence Domain	Correlation Coefficient	Sig.
Self-Awareness	-.053 [ns]	.365
Empathy	-.033 [ns]	.583
Self-Management	.083 [ns]	.145
Motivation	-.055 [ns]	.341
Relationship Management	.005 [ns]	.931

[ns] not significant   * significant

Result reveals that the emotional intelligence and mathematics performance of the respondents showed no significant relationship as evident from their correlation coefficient starting from -.055 to .083 and significance or p-value ranging from .145 to .931 which are all greater than 0.05.

Even if the students have poor performance in mathematics subjects, their ability to understand themselves and others, as included from emotional intelligence, is not affected. On the other way around, the students who have poor emotional intelligence can still have excellent mathematics performance, as the two variables show no positive correlation.

The result confirmed the study of Rode et al (2007) who confirmed that emotional intelligence was not meaningfully associated with the grade point average of the respondents. Results from the study by O'Connor and Little (2003) showed that emotional intelligence was not a strong predictor of academic achievement regardless of the type of instrument used to measure it. In another study, it was found that

the correlation between emotional intelligence and academic achievement does not statistically matter, so it must be disregarded (Malik & Shahid, June 2016, Vol. 38, No. 1).

Therefore, based on the results, the hypothesis stating that there is no relationship between the emotional intelligence and Mathematics performance of the respondents was accepted.

E. Differences in Emotional Intelligence when Grouped According to Their Profile

1. Emotional Intelligence and Gender
Table 6 presents the difference in emotional intelligence when grouped according to gender.

Table 6. Differences in Emotional Intelligence when Grouped According to Gender

Emotional Intelligence Domain	Mean		t Value	Sig.
	Male	Female		
Self-Awareness	3.8987	3.9007	$-.024^{ns}$	.980
Empathy	3.5063	3.3901	1.535^{ns}	.126
Self-Management	3.1772	3.0071	1.685^{ns}	.093
Motivation	4.0127	4.1135	-1.074^{ns}	.284
Relationship Management	3.6962	3.5319	1.821^{ns}	.070

^{ns} not significant   * significant

It is evident that the emotional intelligence and gender of the respondents showed no significant difference based on their test values from -1.074 to 1.821 and significance or p-value ranging from .070 to .980 which are all greater than 0.05. In comparison to the means between males and females, the female gender got higher values in terms of self-awareness, empathy, and motivation. On the other hand, the male gender got higher mean values in terms of self-management, and relationship management.

Based on the findings, female respondents were better at explaining their actions; understanding what they feel and what the feedback others gave than males. Females are also better at sensing what others are feeling; they are also superior at being clear about their goals as compared to males. In contrast, male respondents are better at managing themselves and controlling their emotions; they are also better at controlling their relationships with others as compared to female respondents. But because the results show no significant difference, it is not wise to say that emotional intelligence is directly favored by either males or females. This field of intelligence can still be said to be neutral between the two genders.

Relatively, Goleman (1998) asserts that no gender differences in Emotional Intelligence exist, admitting that while men and women may have different profiles of strengths and weaknesses in different areas of emotional intelligence, their overall levels of EI are equivalent. This assertion was agreed upon by the study of Parveen et al. (2012) who found no significant difference between males and females in emotional intelligence. He also agreed with Goleman's assertion that both genders have the same level of the said intelligence.

Therefore, the hypothesis which states that there is no significant difference in emotional intelligence when grouped according to gender is accepted

2. Emotional Intelligence and Religion
Table 7 presents the difference in emotional intelligence when grouped according to religion.

Table 7. Differences in Emotional Intelligence when Grouped According to Religion

Emotional Intelligence Domain	F	Sig.
Self-Awareness	3.153*	.009
Empathy	1.630^{ns}	.153
Self-Management	1.256^{ns}	.284
Motivation	2.493*	.032
Relationship Management	2.135^{ns}	.062

^{ns} not significant   * significant

It was found from the result that there are two significant differences: in terms of self-awareness with a correlation coefficient of 3.153 and significance of .009; and in terms of motivation with a correlation coefficient of 2.493 and p-value of 032. Using Tukey HSD, it is revealed that the respondents affiliated with Iglesia Ni Cristo attained the highest rate in the domain of self-awareness while respondents affiliated with Born Again attained the highest rate in the domain of motivation. The other domains of emotional intelligence showed no significant difference based on their correlational coefficients starting from 1.256 to 2.135 and p-values from .062 to .284.

In terms of self-awareness, it was shown that the respondents who are members of Iglesia Ni Cristo feel in themselves that they know what they are feeling, whether angry or not. They are mostly confident that what they really feel is synonymous with what they think they feel. More scriptures from the Bible, as based on Robert Jerus (2015) can be readily found that support self-awareness; positive psychology (optimism, forgiveness, mercy...) and self-management; empathy, compassion, service, and social awareness; and relationships, are forms of emotional intelligence. The Iglesia Ni Cristo, as an independent church believing in the authenticity of the Bible, reflects their self-awareness based on incmedia.org preaching to its members to be aware that God is working in people's lives, even though He is a spirit.

Born Again Christians are the best ones to demonstrate motivation. They feel that they are clear about their goals and get excited about them; they believe that their career is moving on the right path. This is due to their belief that everything is possible with God. The result reflects the confidence of the said Christians, as referred by David E. Pratte (1998) who shared the same belief with the latter group, that it is God who gives motivation, guidance, and encouragement. Several articles including the work by Yvonne I. Wilson (2014) and Melanie Newton (2013), which were inclined with the beliefs of Born Again Christians, associated Jesus in deeds to be motivated because they believe that without Jesus, man can accomplish nothing (John 15:5).

As for the other domains, getting into what others are feeling, managing emotions or anger, and the ability to influence others through emotion are not directly favored by a specific type of religion. Consequently, being a Catholic is not an advantage over being a Protestant when it comes to the said qualities.

Therefore, the hypothesis which states that there is no significant difference in emotional intelligence when grouped according to religion is accepted except in terms of self-awareness and motivation.

3. Emotional Intelligence and Program Enrolled In

Table 8 presents the difference in emotional intelligence when grouped according to the program enrolled in.

Table 8. Differences in Emotional Intelligence when Grouped According to Program Enrolled In

Emotional Intelligence Domain	F	Significance
Self-Awareness	.840 [ns]	.540
Empathy	1.530 [ns]	.170
Self-Management	.835 [ns]	.544
Motivation	.984 [ns]	.437
Relationship Management	1.500 [ns]	.180

[ns] not significant   * significant

Results revealed that emotional intelligence and program respondents enrolled in gathered correlation coefficients from .835 to 1.530 and p-values ranging from .170 to .544, showing no significant difference.

Based on the result, a specific program where students enrolled in can't have a benefit over other programs in terms of getting a higher level of emotional intelligence. Even if a student's field of specialization emphasizes the affective domain, it cannot be a direct link to the improvement of their emotional intelligence.

It follows the findings of Conejar (2014) which revealed that their level of emotional intelligence is the same regardless of the field of specialization of BSEd students.

Therefore, the hypothesis which states that there is no significant difference in emotional intelligence when grouped according to the program enrolled in is accepted.

CONCLUSION

Based on the findings obtained, it is therefore concluded that the Education students of Isabela State University feel in themselves that they are highly capable of recognizing and understanding what they feel; using their deepest emotions to move towards a goal, and managing to influence others. The respondents are also generally decent in mathematics performance. On the other hand, they are still doubtful about their ability to control their emotions and sense what others are feeling. The emotional intelligence of the respondents is independent of their gender, religion, and program enrolled in. However, being aware of self and being motivated as related to emotional intelligence can be affected according to the religion they're affiliated with.

RECOMMENDATIONS

As based on the findings gathered, the following recommendations are given:
1. For the mathematics teachers, further investigation should be done in determining the potential effects of emotional quotient on the mathematics performance of students.
2. For the administration, other factors in addition to traditional intelligence (intelligence quotient) should be taken into consideration in conducting seminars at the school.
3. For the parents, encouragement for the improvement of dealing with others' emotions, getting well with classmates, not getting carried away with emotions, and controlling outbursts of the rage of their children should be taken into consideration.
4. Extended research should be conducted aligned with the objectives of this study for further exposure to emotional intelligence.

ACKNOWLEDGMENT

REFERENCES

Al-Rfou, M. A. (2012). *Emotional intelligence and its relation with instructional achievement of Tafilah Technical University students*. Research Journal, Tafila Technical University, Tafila p. o. box (179), Jordan

Aquino, B. T. (2015). *Emotional and academic performance among students of selected high schools*. Thesis, Isabela State University – Echague Campus

Azimifar, M. (2013). *The relationship between emotional intelligence and academic achievement among Iranian students in elementary schools*. Research Journal, Payame Noor University

Chamani, O. M. (2016). *The relationship between emotional intelligence and religious attitudes with mental health of high school students in Neka City*", Research Journal, Islamic Azad University, Sari, Iran

Erasmus, P. (2013). *Relationship between emotional intelligence, study orientation in maths and maths achievement of middle adolescent boys and girls*. Research Journal, North West University

F.*, K. (2013). *Relationship between religious beliefs and emotional intelligence in university students*.

Research Article, Gilan University, Rasht, Iran

Festus, A. B. (2012). *The relationship between emotional intelligence and academic achievement of senior secondary school students in the Federal Capital Territory, Abuja*. Research Journal, National Mathematical Centre, P.M.B. 118, Abuja, Nigeria

Gomez, N. P. (2013). *Profile, emotional and mathematical quotients of third year students of Isabela State University Cauayan Cluster*. Thesis, Isabela State University - Echague Campus

Łowicki, P. & Zajenkowski, M. (2017). *Divine emotions: on the link between emotional intelligence and religious belief*. Journal of Religion and Health

Rupande, G. (2015). *The impact of emotional intelligence on student learning*. Research Journal, Zimbabwe Open University

Rust, D. A. (2014). *Relationship between the emotional intelligence of teachers and student academic achievement*. Dissertation, University of Kentucky

Walsh-Portillo, J. G. (2011). *The role of emotional intelligence in college students' success*. Dissertation, Florida International University

Zhao, N. (2011). *Mathematics learning performance and Mathematics learning difficulties in China*. Research Project, Ghent University

METACOGNITIVE SKILLS AND MATHEMATICS PERFORMANCE OF THE EDUCATION STUDENTS IN ISABELA STATE UNIVERSITY

SHERYL IRENE E. MANALIGOD
Assistant Professor II, College of Education
Isabela State University
Isabela, Philippines

ABSTRACT

This study was conducted to determine the metacognitive skills and mathematics performance of education students in Isabela State University-Echague Campus. Furthermore, this study aimed to describe the profile of the respondents and determine the relationship between their metacognitive skills and Mathematics performance and the differences in their metacognitive skills according to their profiles. The respondents of the study were 220 education students and a stratified proportional sampling procedure was adapted and proportionally allocated to the number of fields of specialization of the programs. Moreover, a survey questionnaire served as the main data-gathering instrument. Findings revealed that the less the students try to relate unfamiliar problems with previous situations or problems solved, consider what information needed might not be given in the statement of the problem is, analyze the steps of the plan and the appropriateness of each step, and attempt to break down the problem to find the starting point will give a higher probability for them to get higher mathematics performance. Consequently, three skills have significant difference in terms of gender, and nine skills have significant difference in terms of program enrolled in out of 27 metacognitive skills. Based on the result of the study, teachers should help students develop their metacognitive skills for successful learning not only in mathematics subjects but in all areas. Moreover, curriculum makers should employ and consider the students' metacognitive skills during the planning and making of the curriculum content. Lastly, further study of this research with a wide range of factors and extensive investigation and evaluation is highly recommended.

Keywords: metacognitive skills, mathematics performance, gender, program enrolled in

INTRODUCTION

Mathematics is one of the subjects recognized as a major factor in the development, causing the national agenda to focus on this area (Ogena, 2010). The first principle and goal of mathematics education as stated in the "Mathematics Framework for Philippine Basic Education", is to develop a mathematically competent student that does not only know how to compute and perform algorithms but is also able to pose and solve mathematical problems and apply mathematical skills and reasoning in other subjects and everyday experiences. Since mathematics is different from other subjects because of its abstractness, it became one of the national priorities to address the quality of education the learners may receive to be globally competitive. Therefore, the students must be able to solve a mathematical problem systematically, so that similar problems can be solved more easily in the same way.

Mathematics instructors and professors today, particularly in the College of Teacher Education, Isabela State University, are faced with classrooms full of students who come to them with varying levels of knowledge about how they learn. The College of Teacher Education is composed of diverse learners having unique learning styles. Some students are active, self-directed learners who know how they learn and can apply what they know to various learning situations. Others may be average students who work hard and who have awareness of their learning strengths and weaknesses, but who may not adequately regulate their learning. Still, others may be passive learners who have little awareness of how they learn

and how to regulate their learning. In essence, professors are faced with classrooms full of students who come to them with various levels of metacognitive skills.

Metacognition, a concept introduced by John Flavell (1979) refers to "thinking about thinking". Meaning it is the knowledge you have of your cognitive processes. It also denotes knowledge involving cognitive processes for careful monitoring and regulating the comprehension strategy of readers with certain goals. On the other hand, metacognitive skills refer to the intentional regulation of study strategies. During a learning process, metacognitive skills allow students to select an appropriate strategic intervention, monitor the execution of the strategy, and evaluate its effectiveness.

College students equipped with these metacognitive skills are perceived and expected to have a reservoir of knowledge since they spent 10 years studying basic education. Students taking a degree in education courses are even more expected to showcase these skills for they will be the channel of information for quality education soon they graduated. Regardless of the specialization, every future teacher and professional teacher must know the fundamental concepts of mathematics. During the employment, aside from the license and competencies presented, the employer also looks at the academic performance of the applicant.

However, the research study of Andaya (2014) on the Bachelor of Elementary Education (BEEd) students of Philippine Normal University, reveals that the achievements of students in Math Courses are poor. Also, the government worries about the issue and is concerned about the deteriorating mathematics performance of Filipino students. On the 2003 Trends in International Mathematics and Science Study (TIMSS) data, the Philippines ranked 36th out of 38 nations worldwide, and in the 2015 TIMSS, the Philippines is out of the list. The 2015 World Economic Forum shows also the global competitiveness of the Philippines in the quality of mathematics and science and has placed the country 67th out of 140 countries. The declining popularity of mathematics among students and poor mathematical performance of students is not only local and national but also a global concern.

Thus, this study is conducted to determine the metacognitive skills and mathematics performance of Education students in Isabela State University. It also determined the significant relationship between metacognitive skills and mathematics performance. This study helped the students know their metacognitive skills and how to properly apply these skills to achieve better. Consequently, it is important to be able to assess the metacognition of college students to determine if this knowledge and skills are related to academic achievement. If we can say that metacognitive knowledge and skills are related to measures of academic success then professors can use various techniques to assess their students' metacognition and develop means by which to improve students' metacognition when necessary. The teachers knowing the metacognitive skills of their students may improve their teaching designs to facilitate better these skills, and the same with the school administrators to improve the curricula, creating the school as a center of excellence.

STATEMENT OF THE PROBLEM

This study aimed to determine the metacognitive skills and Mathematics performance of the Education Students in Isabela State University.

Specifically, it seeks to answer the following questions:
1. What is the profile of the respondents in terms of:
   a. Gender; and
   b. Program enrolled in?
2. What is the Mathematics performance of the respondents?
3. What are the dominant metacognitive skills of the respondents?
4. Is there a significant relationship between the respondents' metacognitive skills and their Mathematics performance?
5. Is there a significant difference in the students' metacognitive skills when grouped according to their profile?

METHODOLOGY

The descriptive-correlational and comparative research design was employed in this study. There are 220 respondents involved in this study who came from the Third year and Fourth year Education students who already finished their Fundamentals of Mathematics, College Algebra, and Plane Trigonometry subjects. The sample size was computed and proportionally selected from the different fields of specialization of the Programs, Bachelor of Secondary Education and Bachelor of Elementary Education, of the College of Teacher Education, Isabela State University (Echague Campus.

Table 1. Frequency Distribution of Respondents by Program Enrolled In

Program Enrolled in	Population Size (N)	Sample Size (n)
Bachelor in Secondary Education		
English	71	32
Filipino	49	22
MAPEH	72	32
Mathematics	68	31
Social Science	50	23
Technology and Livelihood Education	58	26
Bachelor in Elementary Education	119	54
TOTAL	**487**	**220**

Moreover, a survey questionnaire served as the main data-gathering instrument. It contains two major parts. The first part is the descriptive survey on information which includes gender, and the program enrolled in. The second part contains Metacognitive Skills consisting of 27 items where it evolves several questions concerning the Students' Metacognitive Skills of the respondents. Students were asked to rate how often they perform each statement of the questionnaire on a scale ranging from never (1) to always (5) and the following rating scale was used.

Scale	Range	Descriptive Equivalent
5	4.50 – 5.00	Always
4	3.50 – 4.49	Often
3	2.50 – 3.49	Sometimes
2	1.50 – 2.49	Seldom
1	1.00 – 1.49	Never

The questionnaire was adapted from Cooper and Sandi-Urena, (2009) in their study Metacognitive Activities Inventory. Guidelines and information were given to ensure a clearer understanding of answering the questionnaire correctly.

The grades of the respondents in the three general subjects in Mathematics which include Fundamentals of Mathematics, College Algebra, and Plane Trigonometry were taken from the Registrar's office and the range and the descriptive equivalent below were used in evaluating the Mathematics performance of the respondents.

Grade	Range	Description
1.00	1.00 - 1.24	Excellent
1.25	1.25 - 1.49	Very Satisfactory
1.50	1.50 - 1.74	Satisfactory
1.75	1.75 - 1.99	Fairly Satisfactory
2.00	2.00 - 2.24	Good
2.25	2.25 - 2.49	Fairly Good
2.50	2.50 - 2.74	Fair
2.75	2.75 - 2.99	Below Fair
3.00	3.00	Passed
5.00	5.00	Failed

Also, the researcher used the following tools to analyze, and interpret the data scientifically and objectively with the aid of the Statistical Package for Social Sciences (SPSS).

a. Frequency count, percentages, and means were used to examine the profile and metacognitive skills of the respondents.
b. Pearson r was utilized to find out the significant relationship between the students' metacognitive skills and their mathematics performance.
c. Independent T-test was used to determine the significant difference in the students' metacognitive skills in learning mathematics and their gender. Moreover, F-test was used to identify the significant difference in the students' metacognitive skills in learning Mathematics and Program Enrolled in.

FINDINGS

A. Profile of the Respondents
1. Gender and Program Enrolled in
Table 2 presents the profile of the respondents according to Gender and Program Enrolled in.

Table 2. Profile of the Respondents According to Gender and Program Enrolled in.

Profile	Frequency n=220	Percent (%) 100.0
Gender		
Male	66	30
Female	154	70
Program Enrolled in		
BSEd – English	32	14.5
BSEd –Filipino	22	10.0
BSEd –MAPEH	32	14.5
BSEd -Mathematics	31	14.1
BSEd -Social Science	23	10.5
BSEd – TLE	26	11.8
BEEd	54	24.5

Based on the data gathered, 154 or 70% of the respondents are female while, 66 or 30% of the respondents are male. The table above also shows the frequency of the respondents in the program they enrolled in. The majority of the respondents are enrolled in the program Bachelor of Elementary Education (BEEd) with 54 or 24.5% of the total respondents.

Under the program Bachelor of Secondary Education, BSEd – English, and BSEd -MAPEH outnumbered the rest of the programs enrolled in, wherein, each major (BSEd – English, and BSEd -MAPEH) is composed of 32 or 14.5% of the respondents. It is followed by BSEd – Mathematics with 31 or 14.1%, BSEd – TLE with 26 or 11.8%, and BSEd – Social Science with 23 or 10.5%, of the total number of respondents. On the other hand, the Filipino major is the least group composed of 22 or 10% of the overall number of respondents.

B. Mathematics Performance of the Respondents
Table 3 presents the frequency and percent distribution of the Mathematics performance of the respondents.

Table 3. Frequency and Percent Distribution of the Mathematics Performance of the Respondents

Grade	Descriptive Equivalent	Frequency n=220	Percent (%) 100.0
1.25	Very Satisfactory	1	0.5
1.50	Satisfactory	11	5.0
1.75	Fairly Satisfactory	37	16.8
2.00	Good	45	20.5
2.25	Fairly Good	70	31.8
2.50	Fair	38	17.3
2.75	Below Fair	16	7.3
3.00	Passed	2	0.9
Mean Grade = 2.23	Good		

Generally, the table above shows that most of the respondents with 70 or 31.8% have performed "Fairly Good" or equal to a grade of 2.25, and neither of the respondents displayed an "Excellent" performance or equals to a grade of 1.00, nor "Failed" performance or equals to a grade of 5.00. Only 45 or 20.5% of the respondents performed "Good" or equal to a grade of 2.00, followed by 38 or 17.3% who performed "Fair" or equal to a grade of 2.50, and 37 or 16.8% performed "Fairly Satisfactory" or equals to a grade of 1.75. Moreover, 16 or 7.3% of the respondents have "Below Fair" performance or equal to a grade of 2.75, and 11 or 5% have "Satisfactory" performance or equal to a grade of 1.5. Lastly, there are 2 or 0.9% and 1 or 0.5% who performed "Passed" and "Very Satisfactory" which equals grades of 3.00 and 1.25, respectively.

It also shows that the distribution of the mathematics performances of the respondents is concentrated on grades from 1.75 or descriptive equivalent "Very Satisfactory" to 2.50 or descriptive equivalent "Fair". Also, the average Mathematics performance of the respondents is 2.23 which is described as simply "Good" performance.

The results show that only a few respondents achieved Mathematics performances that are extremely high and extremely low and that the respondents' average performance in Mathematics is "Good" but not excellently. Although none of the respondents failed in their Mathematics subject, it can be concluded that most of them are underachievers in Mathematics, as shown in table 3. The results can also be reflected in the research study of Andaya (2014) on the Bachelor of Elementary Education (BEEd) students of Philippine Normal University, which revealed that the achievements of students in Mathematics Courses are poor. This is because many variables that affect students learning result in low performance, such as teacher factors, student factors, and environmental factors (Suan, 2014), and because the application of the metacognitive strategies is not applied accurately. As a result, this affects the performance and future social studies among the respondents (Oxford, 2013). Since Mathematics is a multifaceted subject, some of the respondents might not have the metacognitive capabilities that can help them in understanding complex issues (ALshammari, 2015).

C. Metacognitive Skills of the Respondents

Table 4 presents the Metacognitive skills of the respondents in Mathematics.

Table 4. Metacognitive Skills of the Respondents

Metacognitive Skills	Mean	Descriptive Equivalent	Rank
I read the statement of a problem carefully to fully understand it and determine what the goal is.	4.38	Often	1
When I do assign problems, I try to learn more about the concepts so that I can apply this knowledge to test problems.	4.02	Often	3
I sort the information in the statement and determine what is relevant.	3.95	Often	4
Once a result is obtained, I check to see that it agrees with what I expected.	3.94	Often	5
I try to relate unfamiliar problems with previous situations or problems solved.	3.79	Often	13
I try to determine the form in which the answer or product will be expressed.	3.77	Often	14
If a problem involves several calculations, I make those calculations separately and check the intermediate results.	3.88	Often	6
I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution.	3.87	Often	8
I consider what information needed might not be given in the statement of the problem.	3.82	Often	12
I try to double-check everything: my understanding of the problem, calculations, units, etc.	4.05	Often	2
I use graphic organizers (diagrams, flow-charts, etc.) to better understand problems.	3.55	Often	21
I experience moments of insight or creativity while solving problems.	3.66	Often	17
I jot down things I know that might help me solve a problem before attempting a solution.	3.85	Often	9
I find important relation amongst the quantities, factors or concepts involved before trying a solution.	3.71	Often	16
I make that my solution actually answers the question.	3.88	Often	7
I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan).	3.83	Often	11
I reflect upon things I know that are relevant to a problem.	3.71	Often	15
I analyze steps of my plan and the appropriateness of each step.	3.83	Often	10
I attempt to break down the problem to find the starting point.	3.58	Often	18
I spend little time on problems for which I do not already have a set of solving rules or that I have not been taught before.	3.56	Often	19
When I solve problems, I omit thinking of concepts before attempting a solution.	3.55	Often	20
Once I know how to sole a type of problem, I put no more time in understanding the concepts involved.	3.40	Sometimes	23

I do not check that the answer make sense.	3.04	Sometimes	27
If I do not know exactly how to solve a problem, I immediately try to guess the answer.	3.28	Sometimes	25
I start solving problems without having to read all the details of the statement	3.10	Sometimes	26
I spend little time on problems, I am not sure I can solve.	3.32	Sometimes	24
When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure.	3.41	Sometimes	22
Grand Mean	**3.69**	**Often**	

The results shown in Table 4 denote how frequently the metacognitive skills of the respondents are being used in their Mathematics performance to the extent of "Always" to "Never". The table revealed a grand mean of 3.69 which indicates that the respondents employed their metacognitive skills as frequently as "Often". In the 27 metacognitive skills, 21 of them showed "often" and 6 showed "sometimes" as to how frequently they use their metacognitive skills in solving mathematical problems.

Based on the gathered data, the most dominant metacognitive skills are "I read the statement of a problem carefully to fully understand it and determine what the goal is" with the highest mean of 4.38 and is followed by "I try to double-check everything: my understanding of the problem, calculations, units, etc." with a mean of 4.05, "When I do assign problems, I try to learn more about the concepts so that I can apply this knowledge to test problems" with a mean of 4.02; and "I sort the information in the statement and determine what is relevant" and "Once a result is obtained, I check to see that it agrees with what I expected" gained a mean of 3.95 and 3.94 respectively.

On the other hand, the least frequent in the table are the following: "Once I know how to solve a type of problem, I put no more time in understanding the concepts involved" with a mean of 3.40, "I spend little time on problems, I am not sure I can solve" with a mean of 3.32, "I start solving problems without having to read all the details of the statement" with a mean of 3.28, "If I do not know exactly how to solve a problem, I immediately try to guess the answer" had a mean of 3.10 and lastly "I do not check that the answer makes sense" with a mean of 3.04.

Thus, the data gathered shows that students often used their metacognitive skills and integrate planning, organizing, and evaluating when they are solving mathematical problems. According to Sternberg (1985), metacognition (self-regulation) which involves planning, evaluating, and monitoring problem-solving activities is the executive process of the brain. He refers to these executive processes as meta-components. (As cited by Zulkiply, 2011) Sternberg claimed that these meta-components are responsible for "figuring out how to do a particular task or set of tasks, and then making sure that the task or set of tasks are done correctly". He concluded that the ability to appropriately allocate cognitive resources, such as deciding how and when a given task should be accomplished, is central to intelligence. Thus, knowing that the respondents often used and have high metacognitive skills as reflected in Table 4, respondents are nominated to be called intellectuals.

D. Relationship between Metacognitive Skills and Mathematics Performance of Respondents

Table 5 presents the Relationship between Metacognitive Skills and Mathematics Performance of the Respondents

Table 5. Relationship between Metacognitive Skills and Mathematics Performance of the Respondents

Metacognitive Skills	Correlation Coefficient	Sig.
I read the statement of a problem carefully to fully understand it and determine what the goal is.	-0.082^{ns}	0.158
When I do assign problems, I try to learn more about the concepts so that I can apply this knowledge to test problems.	-0.087^{ns}	0.161
I sort the information in the statement and determine what is relevant.	-0.097^{ns}	0.086
Once a result is obtained, I check to see that it agrees with what I expected.	-0.031^{ns}	0.510
I try to relate unfamiliar problems with previous situations or problems solved.	-0.137^{*}	0.015
I try to determine the form in which the answer or product will be expressed.	-0.100^{ns}	0.077
If a problem involves several calculations, I make those calculations separately and check the intermediate results.	-0.070^{ns}	0.216
I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution.	-0.069^{ns}	0.217
I consider what information needed might not be given in the statement of the problem.	-0.139^{*}	0.015
I try to double-check everything: my understanding of the problem, calculations, units, etc.	-0.078^{ns}	0.164
I use graphic organizers (diagrams, flow-charts, etc.) to better understand problems.	-0.070^{ns}	0.216
I experience moments of insight or creativity while solving problems.	-0.058^{ns}	0.322

I jot down things I know that might help me solve a problem before attempting a solution.	-0.046 ns	0.430
I find important relation amongst the quantities, factors or concepts involved before trying a solution.	-0.045 ns	0.431
I make that my solution actually answers the question.	-0.030 ns	0.538
I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan).	-0.013 ns	0.819
I reflect upon things I know that are relevant to a problem.	-0.078 ns	0.164
I analyze steps of my plan and the appropriateness of each step.	-0.128*	0.023
I attempt to break down the problem to find the starting point.	-0.124*	0.028
I spend little time on problems for which I do not already have a set of solving rules or that I have not been taught before.	0.008 ns	0.916
When I solve problems, I omit thinking of concepts before attempting a solution.	-0.010 ns	0.863
Once I know how to sole a type of problem, I put no more time in understanding the concepts involved.	-0.014 ns	0.799
I do not check that the answer make sense.	0.038 ns	0.496
If I do not know exactly how to solve a problem, I immediately try to guess the answer.	0.013 ns	0.819
I start solving problems without having to read all the details of the statement	0.037 ns	0.503
I spend little time on problems, I am not sure I can solve.	0.024 ns	0.665
When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure.	-0.007 ns	0.899

*significant   ns not significant

As shown in Table 5, only four (4) of the identified Metacognitive skills are significantly related to the Mathematics performance of the students. One of these statements is (1) "I try to relate unfamiliar problems with previous situations or problems solved" with a correlation coefficient of -0.137 and a significance of 0.015 which implies that this particular metacognitive skill does not have any bearing on the students' mathematics performance.

Other skills which showed a significant relationship to mathematics performance were (2) "I consider what information needed might not be given in the statement of the problem" with a correlation coefficient of -0.139 and significance of 0.015; (3) "I analyze steps of my plan and the appropriateness of each step" with a correlation coefficient of -0.128 and significance of 0.023; and (4) "I attempt to break down the problem to find the starting point" with a correlation coefficient of -0.124 and significance of 0.028. The rest of the Metacognitive skills were not significant. These three metacognitive skills having a negative correlation coefficient implies that the respondents do not consider what information needed might not be given in the statement of the problem, they do not analyze the steps of their plan and the appropriateness of each step, and they do not attempt to break down the problem to find the starting point.

This means that respondents do not apply strategies that could break down mathematics problems into simpler forms. Usually, students have an experience of blindly following instructions. They have not acquired the habit of questioning themselves to lead to effective performance on intellectual tasks (Lozada, 2015). Moreover, problem-solving is an easy task if learners can know the content knowledge relative to the problem, which is being aware of the learning situation. But before solving a problem, they have to use their repertoire of thinking skills (Barbacena, L. and Sy, N. 2015).

Therefore, respondents' Mathematics performance is related to how the students plan when solving mathematics problems, and that planning skills can be the predictor of students' success in getting the right answers and high scores wherein it is reflected in their mathematics performance.

Compared to the results of the study by Mamuri (2017), the mean Metacognitive skills of this study's respondents were 3.69 or "Often" and their Mathematics performance was 2.23 which is described as "good performance". Therefore we can infer that higher metacognitive skills employed in solving Mathematical problems lead to a better Mathematics performance.

Consequently, a study of which also says that metacognitive instruction and skills have positive effects on students' problem-solving skills and are required to enhance academic achievement (Safari and Meskini, 2015).

Therefore, the hypothesis that there is no significant relationship between the respondents' metacognitive skills and their Mathematics performance is being rejected for the Metacognitive skills "I try to relate unfamiliar problems with previous situations or problems solved", "I consider what information needed might not be given in the statement of the problem is", "I analyze steps of my plan and the appropriateness of each step" and "I attempt to break down the problem to find the starting point", which showed a significant relationship.

E. DIFFERENCE IN THE METACOGNITIVE SKILLS OF THE RESPONDENTS
1. Metacognitive Skills and Gender of the Respondents

Table 6 reveals the differences in the metacognitive skills and gender of the respondents.

Table 6. Differences in Metacognitive Skills and Gender of the Respondents

Metacognitive Skills	Mean		t-value	P-Value
	M	F		
I read the statement of a problem carefully to fully understand it and determine what the goal is.	4.32	4.40	-0.769^{ns}	0.443
When I do assign problems, I try to learn more about the concepts so that I can apply this knowledge to test problems.	4.06	4.00	0.534^{ns}	0.594
I sort the information in the statement and determine what is relevant.	3.83	4.01	-1.382^{ns}	0.168
Once a result is obtained, I check to see that it agrees with what I expected.	3.82	3.99	-1.403^{ns}	0.162
I try to relate unfamiliar problems with previous situations or problems solved.	3.65	3.85	-1.558^{ns}	0.121
I try to determine the form in which the answer or product will be expressed.	3.77	3.77	0.000^{ns}	1.000
If a problem involves several calculations, I make those calculations separately and check the intermediate results.	3.89	3.88	0.154^{ns}	0.878
I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution.	3.86	3.88	-0.109^{ns}	0.913
I consider what information needed might not be given in the statement of the problem.	3.91	3.78	1.171^{ns}	0.243
I try to double-check everything: my understanding of the problem, calculations, units, etc.	4.08	4.05	0.232^{ns}	0.816
I use graphic organizers (diagrams, flow-charts, etc.) to better understand problems.	3.71	3.49	1.743^{ns}	0.083
I experience moments of insight or creativity while solving problems.	3.67	3.66	0.085^{ns}	0.932
I jot down things I know that might help me solve a problem before attempting a solution.	3.65	3.93	-2.138^{*}	0.034
I find important relation amongst the quantities, factors or concepts involved before trying a solution.	3.61	3.75	-1.229^{ns}	0.220
I make that my solution actually answers the question.	3.74	3.94	-1.474^{ns}	0.142
I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan).	3.83	3.82	0.069^{ns}	0.945
I reflect upon things I know that are relevant to a problem.	3.73	3.71	0.148^{ns}	0.883
I analyze steps of my plan and the appropriateness of each step.	3.71	3.88	-1.303^{ns}	0.194
I attempt to break down the problem to find the starting point.	3.59	3.57	0.146^{ns}	0.884
I spend little time on problems for which I do not already have a set of solving rules or that I have not been taught before.	3.67	3.52	1.218^{ns}	0.225
When I solve problems, I omit thinking of concepts before attempting a solution.	3.53	3.56	-0.278^{ns}	0.781
Once I know how to sole a type of problem, I put no more time in understanding the concepts involved.	3.59	3.32	1.958^{ns}	0.051
I do not check that the answer make sense.	3.12	3.00	0.774^{ns}	0.440
If I do not know exactly how to solve a problem, I immediately try to guess the answer.	3.42	3.21	1.366^{ns}	0.173
I start solving problems without having to read all the details of the statement	3.38	2.98	2.486^{*}	0.014
I spend little time on problems, I am not sure I can solve.	3.48	3.25	1.637^{ns}	0.103
When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure.	3.67	3.30	2.567^{*}	0.011

* significant ^{ns} not significant

As revealed in the table, three (3) of the Metacognitive skills gave significant differences in gender of the respondents. These include (1) "When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure" with a t-value of 2.567 and a probability of 0.011 wherein, males have a mean of 3.67 and is higher than females with a mean of 3.30; (2) "I start solving problems without having to read all the details of the statement" with a t-value of 2.4846 and probability of 0.014 wherein, males have a mean of 3.38 and is higher than females with a mean of 2.98; and (3) "I jot down things I know that might help me solve a problem before attempting a solution." with a t-value of -2.138 and probability of 0.034 wherein female has a mean of 3.93 and is higher than males with a mean of 3.65. The table also shows the grand mean of males and females, where males have a greater mean of 3.71 than females with a mean of 3.69.

It can be gleaned from the table that the metacognitive skills "I start solving problems without having to read all the details of the statement" and "I jot down things I know that might help me solve a problem before attempting a solution" which showed a significant difference in the Mathematics performance are the same metacognitive skills that showed significance on Table 6. However, in Table 8 the metacognitive skill "I jot down things I know that might help me solve a problem before attempting a solution" got a negative T-value making the statement negative where the female has a higher mean than the male. The result implies that males are less frequent in jotting down things they know that might

151

help them solve a problem before attempting a solution which indicates that there is not enough evidence that the claim of Laistner (2016) that females put more effort than male is always true.

On the other hand, the metacognitive skill "I start solving problems without having to read all the details of the statement" where the mean of males is higher than the mean of females, can be merged as simply relying on ability. It can be stated that males solve problems more promptly than females since males do not have to read all the details of the statement when they start solving.

Meanwhile, the Metacognitive skill "When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure" showed that the mean of males is higher than the mean of female. It can be implied that males tend to have better performance in problem-solving when they are to memorize the procedures.

Ciasci, et.al (2011) also said that there are some gender differences in metacognition. The most differences seem to firstly emerge on knowledge of cognition rather than on regulation of cognition. However, some elements of both knowledge and regulation of cognition are differently related to learning according to pupils 'gender. It seems that males and females use differently their metacognitive knowledge and skills in the learning process.

Therefore, the hypothesis that Metacognitive skills have no significant relationship between the Metacognitive Skills and the profile of the respondents is rejected for metacognitive skills "When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure", "I start solving problems without having to read all the details of the statement" and 3 "I jot down things I know that might help me solve a problem before attempting a solution".

2. Metacognitive Skills and Program Enrolled in

Table 7 presents the differences in respondents' metacognitive skills and the program enrolled in.

Table 7. Differences in respondents' Metacognitive Skills and Program Enrolled in.

Metacognitive Skills	F-value	Sig.
I read the statement of a problem carefully to fully understand it and determine what the goal is.	2.527^*	0.022
When I do assign problems, I try to learn more about the concepts so that I can apply this knowledge to test problems.	2.096^{ns}	0.055
I sort the information in the statement and determine what is relevant.	1.032^{ns}	0.405
Once a result is obtained, I check to see that it agrees with what I expected.	1.527^{ns}	0.170
I try to relate unfamiliar problems with previous situations or problems solved.	1.110^{ns}	0.357
I try to determine the form in which the answer or product will be expressed.	1.640^{ns}	0.137
If a problem involves several calculations, I make those calculations separately and check the intermediate results.	2.094^{ns}	0.055
I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution.	2.380^*	0.030
I consider what information needed might not be given in the statement of the problem.	2.860^*	0.011
I try to double-check everything: my understanding of the problem, calculations, units, etc.	1.592^{ns}	0.151
I use graphic organizers (diagrams, flow-charts, etc.) to better understand problems.	3.144^*	0.006
I experience moments of insight or creativity while solving problems.	1.920^{ns}	0.079
I jot down things I know that might help me solve a problem before attempting a solution.	0.968^{ns}	0.448
I find important relation amongst the quantities, factors or concepts involved before trying a solution.	2.831^*	0.011
I make that my solution actually answers the question.	2.653^*	0.017
I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan).	2.305^*	0.035
I reflect upon things I know that are relevant to a problem.	2.269^*	0.038
I analyze steps of my plan and the appropriateness of each step.	1.919^{ns}	0.079
I attempt to break down the problem to find the starting point.	4.043^*	0.001
I spend little time on problems for which I do not already have a set of solving rules or that I have not been taught before.	0.822^{ns}	0554
When I solve problems, I omit thinking of concepts before attempting a solution.	0.799^{ns}	0.572
Once I know how to sole a type of problem, I put no more time in understanding the concepts involved.	0.474^{ns}	0.827
I do not check that the answer make sense.	0.575^{ns}	0.750
If I do not know exactly how to solve a problem, I immediately try to guess the answer.	0.379^{ns}	0.892
I start solving problems without having to read all the details of the statement	0.984^{ns}	0.437
I spend little time on problems, I am not sure I can solve.	0.857^{ns}	0.528
When practicing, if a problem takes several attempts and I cannot get it right, I get someone to do it for me and I try to memorize the procedure.	1.338^{ns}	0.241

*significant ^{ns} not significant

The following are the Metacognitive skills that showed a significant difference in the Program enrolled in of the respondents: first, "I read the statement of a problem carefully to fully understand it and determine what the goal is" with an F-value of 2.527 and a significance of 0.022. This implies that respondents showed paramount importance in fully comprehending a problem when they are to start solving it. More importantly the BSEd Mathematics who have the highest mean under this metacognitive skill as was shown in the comparable results of posthoc analysis using Tukey's Honestly Significant Difference (HSD) Test with a mean of 4.7419. It is followed by BSEd – Filipino with a mean of 4.4545, BEEd with a mean of 4.4074, BSEd – English with a mean of 4.3750, BSEd – MAPEH with a mean of 4.3438, BSEd – Social Science with a mean of4.1304 and lastly, BSEd – TLE with a mean of 4.0769.

Next metacognitive skill which showed a significant difference in respondents' program enrolled in is "I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution" with an F-value of 2.380 and a significance of 0.030. This skill indicates another comprehension strategy where respondents got to identify the goal of the problem which means that the different programs differs in their application of comprehension strategies. Also, Mathematics Majors has the highest "metacognitive' skill difference on this metacognitive skill with a mean of 4.2581, compared to BSEd – English with a mean of 3.9688, followed by BEEd with a mean of 3.8704, BSEd – Filipino with a mean of 3.8636, BSEd Social Science with a mean of 3.6522 and BSEd – TLE with a mean of 3.585.

Another metacognitive skill is "I use graphic organizers (diagrams, flowcharts, etc.) to better understand problems" with an F-value of 3.144 and a significance of 0.006. This implies that the knowledge and use of graphic organizers in different programs vary on their degree of applying this strategy as it could be affected by varying knowledge on the use of graphic organizers in problem-solving. This metacognitive skill also showed a comparable result, where BSEd – Mathematics has the highest mean of 4.0645, compared to BSEd – MAPEH with a mean of 3.6250, BSEd – Filipino with a mean of 3.5455, BSEd – TLE with a mean of 3.5385, BEEd with a mean of 3.500, BSEd – English with a mean of 3.4375 and BSEd – Social Science with a mean of 3.0870.

The next metacognitive skill is "I consider what information needed might not be given in the statement of the problem" with an F-value 2.860 and a significance of 0.011. The same result on this metacognitive skill revealed BSEd – Mathematics to be the program with the highest mean of 4.1290 and is comparable to other programs, where BEEd has a mean of 3.9074, followed by BSEd – MAPEH with a mean of 3.8750, BSEd – English with a mean of 3.8438, BSEd – Filipino with a mean of 3.7727, BSEd – TLE with a mean of 3.5769 and lastly, BSEd - Social Science with a mean of 3.3913.

It can be clearly observed that the first four aforementioned metacognitive skills which showed a significant difference in the respondents' program enrolled in were skills that indicate understanding or comprehending the problem strategies. With that, it can be implied that the respondents have varying metacognitive skills under problem comprehension abilities according to their program enrolled in. It was also shown that BSEd Mathematics gave the highest means of these four metacognitive skills. This implies that BSEd Mathematics students have the highest comprehension strategies among the different programs. However, BSEd TLE and BSEd Social Science have the lowest means of these metacognitive skills.

Another metacognitive skill is "I find important relation amongst the quantities, factors or concepts involved before trying a solution" with an F-value of 2.831 and a significance of 0.011. This means that the respondents, according to their program enrolled in, have varying abilities in correlating the quantities, factors, or concepts involved in a problem before trying a solution. And it was shown on the posthoc analysis of Tukey's HSD Test that respondents under the program BEEd have the highest mean on the metacognitive skill "I find important relation amongst the quantities, factors or concepts involved before trying a solution" with a mean of 3.9444, compared to BSEd-Mathematics with a mean of 3. 9355, BSEd-MAPEH with a mean of 3.8125, BSEd-TLE with a mean of 3.6154, BSEd – Social Science with a mean of 3.4783, BSEd - Filipino with a mean of 3.4545 and BSEd-English with a mean of 3.4063.

Another metacognitive skill is "I make that my solution actually answers the question" with an F-value of 2.653 and a significance of 0.017. This implies that the respondents of different programs vary in selecting appropriate steps and solutions to come up with accurate answers. This metacognitive skill "I make that my solution actually answers the question" also showed BSEd – Mathematics has a mean of 4.3226 to be comparable to other programs. BEEd has a mean of 3.9630, BSEd – TLE with a mean of

3.9615, BSEd – English with a mean of 3.7813, BSEd – Filipino with a mean of 3.7727, BSEd – MAPEH with a mean of 3.6875, and BSEd – Social Science with a mean of 3.4783.

The next metacognitive skill is "I reflect upon things I know that are relevant to a problem" with an F-value of 2.269 and a significance of 0.038. This indicates that respondents have a varying scope of their background knowledge as affected by their programs which leads to their different frequency of reflecting upon things that are relevant to a problem.

It was again in this Metacognitive skill "I reflect upon things I know that are relevant to a problem" where BSEd - Mathematics has the highest mean of 4.0968, followed by BEEd with a mean of 3.8889, BSEd-Filipino with a mean of 3.6364, BSEd-MAPEH with a mean of 3.5625, BSEd-English with a mean of 3.6250 and BSEd-Social Science with a mean of 3.3913.

Another metacognitive skill is "I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan)" with an F-value of 2.305 and a significance of 0.035. This means that respondents' planning strategies in solving mathematical problems differ from the different programs they are enrolled in where BSEd – Math, once again, has the highest mean of 4.1613, followed by BEEd with a mean of 4.000, BSEd – Filipino with a mean of 3.9091, BSEd – TLE with a mean of 3.7308, BSEd – MAPEH with a mean of 3.6563, BSEd – English with a mean of 3.5938 and lastly BSEd – Social Science with a mean of 3.5652.

Lastly, "I attempt to break down the problem to find the starting point" with an F-value of 4.043 and a significance of 0.001. This metacognitive skill also implies the use of planning strategy in solving mathematical problems. Therefore indicates that breaking down the problem to find the starting point differs in the degree or frequency of being used by the different programs. The same result goes with this metacognitive skill where BSEd-Mathematics has the highest mean of 3.9355, followed by BEEd with a mean of 3.7778, BSEd-MAPEH with a mean of 3.6563, BSEd-English with a mean of 3.6250, BSEd-Filipino with a mean of 3.4091, BSEd - TLE with a mean of 3.2692 and BSEd- Social Science with a mean of 2.9565.

This means that the instruction received by respondents in different programs enhance the metacognitive skills of respondents that showed significant differences. This can be associated with the study by Lozada (2015) that teachers who are aware of their metacognitive functioning tend to play a more significant role in helping learners develop skills in metacognition.

Therefore, the hypothesis that there is no significant difference on the respondents' metacognitive skills when grouped according to their profile under program enrolled in is rejected for the metacognitive skills "I read the statement of a problem carefully to fully understand it and determine what the goal is", "I clearly identify the goal of the problem (the unknown variable to solve for the concept be defined) before attempting a solution", "I consider what information needed might not be given in the statement of the problem", "I use graphic organizers (diagrams, flow-charts, etc.) to better understand problems", "I find important relation amongst the quantities, factors or concepts involved before trying a solution", "I make that my solution actually answers the question", "I plan how to solve a problem before I actually start solving it (even if it is a brief mental plan)", "I reflect upon things I know that are relevant to a problem" and "I attempt to break down the problem to find the starting point" that showed significant difference in the program enrolled in of the respondents.

CONCLUSION

Based on the results of this study, it is concluded that education students of Isabela State University Echague campus have high metacognitive skills yet have an average mathematics performance. It can also be concluded in the significant differences in gender and metacognitive skills that males have higher metacognitive skills than females. However, gender cannot be the measure of skills and intelligence of the students, and teachers should treat and provide fairly guidance and attention to both male and female students in developing their metacognitive skills. However, in the difference of metacognitive skills and program enrolled in, BSEd - Mathematics has higher metacognitive skills among the others on metacognitive skills that showed significant difference. But, the result shows closeness to each program, therefore, students' metacognitive skills are the same regardless of the program they enrolled in.

RECOMMENDATION

Below are the following recommendations for this study:
1. Students should be taught with metacognition strategies and teachers should develop the metacognitive skills of students for successful learning and perform better not only in mathematics subjects but in all areas.
2. Students must be aware of their metacognitive skills so that they can use them whenever it is necessary especially when solving mathematics problems.
3. Curriculum makers should employ and consider the diversity of learners in particular with students' metacognitive skills, during the planning and making of curriculum content.
4. A further study on determining the metacognitive skills of the students is highly recommended.

ACKNOWLEDGMENT

REFERENCES

Abdullah, A.H, et al. (2014) *Non-routine Mathematics problems among in-service and pre-service Mathematics teachers, In. International Conference of Teaching, assessment, and learning* (TALE) 2014, Wellington New Zealand, Proceedings of IEEE International Conference on Teaching, Assessment, and learning for Engineering: Learning for The Future Now. USA: IEEE p. 18-24

ALshammari, M. K. (2015). *The effect of using metacognitive strategies for achievement and the trend toward social studies for intermediate school students in Saudi Arabia*. European Centre for Research Training and Development UK.p.33

Alzahrani, K. S.(2017). *Metacognition and its role in mathematics learning: an exploration of the perceptions of a teacher and students in a secondary school*. IESME – MATHEMATICS EDUCATION.Vol.12.No.5.p.534

Andaya, O. F. (2014). *Factors that affect mathematics achievements of students of Philippine Normal University – Isabela Campus*. Researchers World. Vol.5.No.4

Aurah, C. M. (2013).*The effects of self-efficacy beliefs and metacognition on academic performance: a mixed-method study*. Masinde Muliro University of Science and Technology, Kakamega, Kenya.pp.18-20.

Channa Ahmed M., Nordin, Shukri Z.(2017). *Identifying metacognitive strategies through learners' reading comprehension: A review of related studies*. Cognitive Sciences and Human Development, University Malaysia.p.23.

Hargrove, R. A.(2012). *Assessing the long-term impact of a metacognitive approach to creative skill development*. Int J Technol Des Educ.p.27-28

Java, L. A. (2014). *Problem-solving strategies and metacognitive skills for gifted students in middle school.* Louisiana State University and Agricultural and Mechanical College.p.12.

Koloa, A. G., Binti, W. M., Binti, A. N..(2017). *Relationship between academic self-efficacy believed of college students and academic performance.*p.9.

Lozada, M. B..(2015). *The effect of metacognitive learning strategy in physics achievement*. The International Journal of Science and Technologies. Capiz State University, Buria, Mambusao, Philippines.

p.2

Nett, U.E.,Goetz, T., Hall, N.C. and Frenzel, A.C. (2012). *Metacognitive strategies and test performance: an experience sampling analysis of students' learning behavior*. Hindawi Publishing Corporation, Educational Research International. Vol. 2012. Article ID958319

Safari, Y. and Meskini, H. (2015). *The effect of metacognitive instruction on problem-solving skills in Iranian students of health and sciences*. Global Journal of Health Sciences. Canadian Center Science and Education. Vol.8.No.1.pp.154-155

SEI-DOST & MATTHED. (2011).*Mathematics Framework for Philippine Basic Education*. Science Education Institute, Department of Science and Technology, Metro Manila, Philippines.pp.2-3

Smith, M. J. (2013). *An exploration of metacognition and its effect on mathematical performance in differential equations*. Journal of the Scholarship of Teaching and Learning. Vol.13.No.1.p.107

Zulkiply, N. (2011). *Metacognition and its relationship with students' academic performance*. Faculty of Cognitive Sciences and Human Development University Malaysia Sarawak, 94300 Kota Samarahan, Sarawak. pp. 1-2.

TOPONYMY OF BOHOL'S SECOND DISTRICT TOWNS

STANLEY O. RASONABE, CpE, LPT, PhD-Fil
Instructor
Bohol Island State University Calape Campus
College of Technology and Allied Sciences
San Isidro, Calape, Bohol, Philippines

ABSTRACT

The main thrust of the study is to unravel the folktales and legends about the origin of the name of the 14 towns of the Second Congressional District of the province of Bohol, Philippines. The study was conducted in the following towns: Bien Unido, Buenavista, Clarin, Dagohoy, Danao, Getafe, Inabanga, Pres. Carlos P. Garcia, Sagbayan, San Isidro, San Miguel, Talibon, Trinidad and Ubay. The researcher tried to determine the level of awareness of the residents of these towns about the origin of the names of the said towns. The researcher used qualitative and quantitative analyses of the data gathered. The study used self-made questionnaire and tested through Chron Bach's Alpha Test with an excellent reliability result. It was found out that the names of the mentioned towns were derived from the following: (1) good character of the people, (2) geographical characteristics of landscape, (3) name of Catholic saints, (4) from influential leaders/politicians of the community, (5) name of a hero, 6. name of foreign place and (7) from the name of an equipment. It was concluded that the local folktales have a big role in the way of life of a race. These serve as: (1) Show connection of the people to nature. (2) Protection to the cultural and natural heritage. (3) Value the things around the community and society at large. (4) Repository of the local history and belief system. It was recommended to publish the findings for widest dissemination .

Keywords: Toponymy, Folktales, Legend, Origin, Towns

INTRODUCTION

Culture and arts give colour to different places in the world. This mirrors the way of life of a particular race and a heritage from its ancestors. It is said that people's culture can be traced in the literature.

Literature is very important to the place's history. This connects the feelings and opens individual eyes. In literature, we can find uniqueness of each people and places.

Each places has its own name and this has a great role in the lives of the people living in the community. Its name was derived from its language and the language is the soul of the culture.

We can trace our history by knowing the origin of place name. Its name was formed due to its long history passed through different generations.

The place name is connected to the stories in a particular locality. Philippines for example has a lot of stories about the origin of the place name.

In every region of the Philippines has its oral traditions like its folktales. This oral tradition is one of the source of knowledge of its residents. In addition, place name can be explained through its folktales, myths and legends.

Bohol province is rich in folktales. The stories here reflected the activities of the community, gatherings of the locality and shared rituals. This is part of the unique culture of the province. Folktales are believed to be a repository history.

Bohol province has a very unique characteristics. The people, community and the way of life are just few factors that influenced the kind of folktales it had as time passed by.

Boholanos in general are naturally inclined to storytelling about life, things, way of living, community, government, and other experiences related to the different kinds of feelings that were manifested as a way of giving value to the place they lived.

Local folktales has a cultural value and has a great contribution to the society at large. Preserving these stories is of utmost significance. Keeping stories are important in the sense of preserving one's cultural heritage. Folktales describe a nation's mentality and belief system when their social structure.

But as time passed by, people's interest in folktales waned. This might probably because of several factors and one of which is the proliferation of the new technology that most people are hooked with. Due to the fast changing time, we found it difficult to go back and discover our beginnings as an individual. The preservation and collection of the folktales and other literature must be given with utmost significance and this prompted the researcher to conduct this particular research.

STATEMENT OF THE PROBLEM

The main objective of the study is to gather and analyse the level of awareness of the people in a particular town regarding the story and legend of the name of their town as bases for an instructional material. Specifically it sought to answer the following questions:

1. What is the origin of the name of the towns of the Second Congressional District of Bohol?
2. What is the level of awareness of the respondents about the origin of the name of their town?
3. What is the basis of the respondent's knowledge relative to the origin of the name of their respective town?

METHODOLOGY

This research used qualitative and quantitative method. The study also used descriptive method. A self-made questionnaire was used which was subjected to Chron Bach Alpha test with a reliability result of 0.984 which means it is excellent. The researcher went to the different towns of the Second Congressional District of Bohol namely the towns of Bien Unido, Buenavista, Clarin, Dagohoy, Danao, Getafe, Inabanga, Carlos P. Garcia, Sagbayan, San Isidro, San Miguel, Talibon, Trinidad and Ubay to conduct survey. The respondents were chosen through stratified random sampling. There are twelve (12) respondents in each town of the Second District of Bohol with the following age brackets. Two (2) respondents aged 21-30 years old, two (2) respondents aged 31-40 years old, two (2) respondents aged 41-50 years old, two (2) respondents aged 51-60 years old, two (2) respondents aged 61-70 years old, two (2) respondents aged 71 and above. A total of 168 people responded the survey.

FINDINGS

Several information were gathered and analyzed after the conduct of this study. The succeeding information were validated by comparing the respondents' responses to the stories written in the reliable history books in the Bohol Provincial Library. Table 2 presented the origin of the town's name of the Second District of Bohol. It was found out that the names of the mentioned towns were derived from the following: (1) good character of the people, (2) geographical characteristics of landscape, (3) name of Catholic saints, (4) from influential leaders/politicians of the community, (5) name of a hero, 6. name of foreign place and (7) from the name of an equipment.

Table 2. The Origin of the Town's Name of the Second District of Bohol

Towns	Origin of the Name of the Town
Bien Unido	Bien-Unido- the term came from the Spanish term which means "well-united".
Buenavista	Buenavista- the term came from the Spanish terms "Buen" which means good and "vista" which means view. Therefore Buenavista means good view.
Clarin	Clarin- named after the first Civil Governor of the province of Bohol in 1901 who was Anecito Clarin.
Dagohoy	Dagohoy- this town was formerly known as Victoria taken from the name of the daughter of former Philippine President Quirino but later on, the President then Carlos P. Garcia suggested that it will be changed to Dagohoy to perpetuate the heroism of a Boholano hero Francisco Dagohoy.
Danao	Danao-it was believed that this place is a lowland area which was frequently submerged by water. In the local dialect "LANAO" means that a place is inundated with water. As time passed by, letter "L" was replaced with letter "D" making it Danao.
Getafe	Getafe- the term was derived from a city of Spain.
Inabanga	Inabanga- The first theory, the term Inabanga came from the happenings in the river. In every year, lives were lost because of drowning. Many died because of crocodile attack. The lives were sad to be a rental to the river or "Abang" in the local dialect. The second theory was the story of the Macaban cave. People rented equipments from the fairy. But one time, people started not returning the borrowed this making the fairy so angry. That is why, residents were not able to borrow those things again from the fairy.
Pres Carlos P Garcia	Pres. Carlos P. Garcia- is the name of the fourth President of the Republic of the Philippines. With the help of the former governor of Bohol Lino Chatto, the town of Pitogo was renamed in 1977 as Pres. Carlos P. Garcia due to his great contribution of the illustrious to the province of Bohol.
Sagbayan	Sagbayan- this town was known to have a lot of wild pigs, deer monkeys, and other animals. People here used to be hunters that is why they put their catch up in the trunk of the trees. They call such branches as "SAGBAYAN" as something that they will hang their catched animals.
San Isidro	San Isidro- the term was derived from the patron Saint in this town who were predominantly Catholic. St. Isidore is the patron Saint of the farmers.
San Miguel	San Miguel- the term was from the two very influential personalities of the town namely Miguel Cambangay and Miguel Cresano and also the term San Miguel is from the patron Saint St. Michael Archangel.
Talibon	Talibon- from the word "Talibong" which was an old name for an equipment for gold mining in the 17th century. As years passed by, letter "g" was deleted.
Trinidad	Trinidad- the term came from the name of the wife of the former Philippine President Manuel who was Trinidad Roxas.
Ubay	Ubay- the term is derived from the phrase "ubay-ubay sa baybayon" or sail along the long seashore that sailors usually did during their travel.

Table 3. Level of Awareness of the Respondents about the Origin of the Name of Their Town
N=168

Level of Awareness	Number of Respondents	Percentage	Rank
5 (Very High Awareness)	3	1.78	5
4 (High Awareness)	46	27.38	2
3 (Aware of the story but limited only)	67	39.88	1
2 (Not sure of the story)	29	17.26	3
1 (Not aware of the story at all)	23	13.69	4
Total	168	100	

Based on Table 3, it is observed that 39.88 % of the respondents has an awareness about the origin of the name of their town but limited only. This means that most of them do not know the very detail of the story. Only 1.78% of the respondents had the very high awareness level. This means that only very few of the respondents knew the story of the origin of their town's name.

Table 4. Bases of the Respondents' Awareness of the Origin of the Name of their Town
N=168

Bases of the Respondents' Awareness	Percentage	Rank
Heard from the Ancestors	62.33	1
Heard from the Officials of the government	33.85	2
Heard from the Speakers of the Seminar/Workshop/Training	9.55	3
Heard from Teachers	5.38	5
Heard from Parents/ Aunt/Uncle	0.69	8
Heard from siblings and cousins	0.52	10
Heard from neighbors	1.04	7
Heard from classmates/schoolmates	0.52	10
Heard from radio	0.35	12
Heard/Read from television	0.52	10
Read from newspapers/magazines	0.17	13
Read from tarpaulin/leaflets/pamplets	1.74	6
Read from websites/social media/other online sites	9.38	4

Table 4 reflected the bases of the respondents' awareness of the origin of name of their town. 62.33% of the respondents based their knowledge from their ancestors and only 0.17% based it in the readings of the newspapers and magazines. This mean that the ancestors had a very great influence and a major source of information in the community. Their role in passing the stories to the next generation is of great importance.

CONCLUSION

Based from the gathered result of this study, the following conclusions were formed.

The local folktales have a great role in the way of lives of the residents. Here are some of its connections:

1. The profile of the respondents like their age, sex, number of years of stay in the locality, education, work, were some of the factors that affect their level of awareness about the origin of the name of their town.
2. The Roman Catholic religion had a great influence in the lives of the residents until at present times. Some of the evidences are the naming of their town from the Saints and some are from the name of the parish priest during those times. Due to the great influence of the parish priests then, they name also few towns similar to the name of their hometown in Spain.
3. The influence of the powerful clans in several towns like the politicians were also a factor in the naming of their place.
4. The kind of plants that grew abundantly in the place is also evident in naming their place from such specie.
5. The way of living of the residents was reflected in the name of their town.
6. The beliefs of the ancestors in the supernatural also influenced in the naming of their locality.
7. The land formation or geography was a factor in naming their own place.
8. National heroes had a great contribution to the country that is why, few towns were named after them.
9. The good attitude and character of the constituents were given with importance and to perpetuate these good characteristics, some towns were named after these.
10. Most of the Filipinos were aware of the origin of the name of their town but the awareness level is very limited in terms of the detail of the whole story.
11. Most of the respondents' bases of their knowledge of the origin of the name of their town were from what they have heard from their ancestors. This probably because of their high respect and trust to their elders and these stories were passed on the next generation.

RECOMMENDATION

Based on the findings and conclusion, the researcher come up with the following recommendations.
1. Publish books or reading materials both in hardcopies and softcopies online about the origin of the names of their towns for widest dissemination.
2. It is a mandate of Philippine Education System such as Department of Education to implement the contextualization and localization. In this process, teachers will integrate the discovered stories in each towns as a springboard of their lesson so that students understand their origin as a race and encourage them to value cultural heritage in each town.
3. Encourage the local government of the different towns to initiate Cultural Festival which focuses in the creation or establishment of their towns to elevate the level of awareness of its residents.
4. Use the technology to preserve local cultural heritage in each towns.
    4.1. Create a "webserver/database/website". The webserver/database/website should be done by each local government. This will be used for collecting local stories depicting the origin of the name of their town so with other oral traditions in their community. The database/website should be accessible by the public. An administrator shall control, regulate and manage the site.
    4.2. Create a social media account like in Facebook, Instagram and other relevant social media sites. It can't be denied that those social media platforms have a great influence to the netizens since a lot of Filipinos have their accounts in the said platform.
5. Use the name of the town as a form of branding to promote tourism and trade.
6. Use the name of the town to relive and uplift the kind of living of the residents with the help of the local government.
7. Use the name of the place as basis for policy-making for the development of the town.

ACKNOWLEDGMENT

References

Bien Unido DECS Administrators and Teachers. (1990).*Bien Unido: Yesterday, Today, and Tomorrow.* Unpublished.

Buenavista DECS Administrators and Teachers. (1990). *Buenavista: Yesterday, Today, and Tomorrow.* Unpublished.

Clarin DECS Administrators and Teachers. (1990). *Clarin: Yesterday, Today, and Tomorrow.* Unpublished.

Dagohoy DECS Administrators and Teachers. (1990). *Dagohoy: Yesterday, Today, and Tomorrow.* Unpublished.

Danao DECS Administrators and Teachers. (1990). *Danao: Yesterday, Today, and Tomorrow.* Unpublished.

Getafe DECS Administrators and Teachers. (1990). *Getafe: Yesterday, Today, and Tomorrow.* Unpublished.

Inabanga DECS Administrators and Teachers. (1990). *Inabanga: Yesterday, Today, and Tomorrow.* Unpublished.

Pres. Carlos P. Garcia DECS Administrators and Teachers. (1990). *Pres. Carlos P. Garcia: Yesterday,*

Today, and Tomorrow. Unpublished.

Sagbayan DECS Administrators and Teachers. (1990). *Sagbayan: Yesterday, Today, and Tomorrow.* Unpublished.

San Isidro DECS Administrators and Teachers. (1990). *San Isidro: Yesterday, Today, and Tomorrow.* Unpublished.

San Miguel DECS Administrators and Teachers. (1990). *San Miguel: Yesterday, Today, and Tomorrow.* Unpublished.

Talibon DECS Administrators and Teachers. (1990). *Talibon: Yesterday, Today, and Tomorrow.* Unpublished.

Trinidad DECS Administrators and Teachers. (1990).*Trinidad: Yesterday, Today, and Tomorrow.* Unpublished.

Ubay DECS Administrators and Teachers. (1990). *Ubay: Yesterday, Today, and Tomorrow.* Unpublished.