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The background of the cover is a photograph of a train station platform. The platform is long and empty, with a series of tracks extending into the distance. The sun is low on the horizon, creating a strong golden glow that illuminates the tracks and the platform. The station has a modern design with a curved roof and large windows. The overall mood is serene and contemplative.

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GENDER AND DEVELOPMENT (GAD) AWARENESS AND GENDER ROLES AMONG PWDs IN CONNER, APAYAO

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ABSTRACT

Gender is an integral component of every aspect of the economic, social, daily and private lives of individuals and societies, and of the different roles ascribed by society to men and women as emphasized by the Food and Agriculture Organization (FAO) of the United Nations . The PWDs of Conner are aware of GAD and GAD related Laws. There were 8 respondents who claimed knowledgeable on GAD. These are the respondents who are well- informed about GAD. The respondents were mostly aware of RA 8972 , followed by RA 6725, RA 7877, and RA 9262. Further, the respondents were aware about PPAs related to environmental protection and sustainable development and disaster. In addition , they perform gender roles along social empowerment, reproductive roles, household managing roles, community and political roles. With regards to trainings, the findings showed that the top five training priorities identified by the respondents included WEDGE, GAD, Responsible parenthood and Reproductive health act, Anti Violence against women and their children and Human Rights. Organic Fertilizer Production was also of interests among the PWDs. They also have signified preparedness and knowledge on what to do in cases of disaster.

Keywords: gender roles, PWDs, GAD laws

INTRODUCTION

In the Philippines, the Gender and Development (GAD) Programs are mandated in every institution to make governance gender responsive. According to the Philippine Commission on Women (2009), laws mandate non-discriminatory and pro-gender equality and equity measures to enable participation in the formulation, implementation, and evaluation of policies, plans, and programs for national, regional, and local development. The Philippine Commission on Women presents that the gender perspective looks at the impact of gender on people's opportunities, social roles and interactions. Successful implementation of the policy, programs and project goals that are gender related have directly affected the process of social development. Gender is an integral component of every aspect of the economic, social, daily and private lives of individuals and societies, and of the different roles ascribed by society to men and women. Gender differences are social constructs, inculcated on the basis of a specific

society's particular perceptions of the physical differences and the assumed tastes, tendencies and capabilities of men and women. According to Fiar - od (2000), gender roles are the result of how societies socialize men and women to behave. For several years now, governments and development agencies have given top priority to gender issues in development planning and policies. Gender responsiveness is concern on resource access and allocation as well as opportunities for social and economic advancement. There is a need for policy -makers to be mindful of the major aspects of socially ascribed gender functions and the specific needs of men and women such as employment, family life, health, education, the environment, public life and decision-making bodies (FAO, 2000).

With the mandate for GAD, the College, as part of its Extension Services, conducted this assessment as input in updating the Training Program considering the needs of one sector of the society- the PWDs.

LITERATURE REVIEW

Globally, governments and development agencies have prioritized gender issues in development planning and policies. National and international cooperations were geared towards gender equity, resource access and allocation, social and economic advancement like the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro (known as the "Earth Summit"), World Conference on Human Rights, held in Vienna in 1993, The World Summit for Social Development, held in Copenhagen in 1995 and the likes (FAO, 2000).

The 1987 Constitution states two prominent provisions on gender equality and development namely; first in the Declaration of Principles Article II Section 14 which asserted that "The State recognizes the role of women in nation-building and shall ensure the fundamental equality before the law of women and men" and article XIII-Labor: Section 14 provided that "The state shall protect working women by providing safe and healthful working conditions taking into account their maternal functions, and such facilities and opportunities that will enhance their welfare and enable them to realize their full potential in the service of the nation". Anonuevo (2000) provided overview of the gender situation in the Philippines. Accordingly, the gender situation in the Philippines is characterized by sharp contradictions. In summary, the legal framework has provided basic frameworks and processes for women empowerment and gender fairness but the dynamics of political and social institutions reinforced by the cultural standpoints continue to provide a push-pull effect on gender equality. Secondly, women have made significant advances in politics, such that the role of women in national and local decision-making can no longer be ignored and their competence, in some cases, suits up or even exceeds that of male politicians. Moreover, women's voice in the society is very strong due the vibrant women's movement, which showed many changes in the various facets of the Philippine society. Though there are statistics on women problems and challenges.

Furthermore, the Philippine government have programs issuance towards Harmonized Gender and Development Guidelines, ICC policy, Guidelines for the Creation, Strengthening and Institutionalization of a Regional Gender and Development Committee un-

der the Regional Development Council (NEDA) , Guidelines for the Creation, Strengthening, and Institutionalization of the Gender and Development (GAD) Focal Point System and others .

OBJECTIVES

This study aimed to describe the awareness of the PWDs on GAD and their gender roles.

Specifically, it sought answers to the following:

1. determine the awareness of the respondents on GAD related laws
2. describe the gender roles of PWDs in Conner
3. determine training needs of the respondents

METHODOLOGY

The study employed descriptive method of research. The study was conducted in Conner, Apayao among 15 officers and members of the Association of PWDs in Conner consisting of 10 female and 5 male respondents. Purposive sampling was employed in the study. PWDS who were present during the conduct of the research were interviewed by the researchers. The questions were modified from the Questionnaire on GAD of the Commission on Audit. Results were analyzed using descriptive statistics like frequency, percentage and ranking.

FINDINGS

Knowledge about GAD Program and awareness of laws related to GAD

The respondents claimed knowledgeable on GAD. More than half of the respondents (53.33) are informed about GAD. The respondents are most ware on RA 8972- Solo parents welfare , followed by RA 6725- Law against discrimination against women in the workplace, RA 7877- Anti-sexual harassment law, and RA 9262- Anti-VAWC Law. Further, the respondents were aware on PPAs related to environmental protection and sustainable development and disaster reduction.

Table 1. Respondents' Knowledge about GAD and awareness of GAD related laws

	Fre- quency	Per- centag e
A. Knowledge about GAD		
Knowledgeable on GAD	8	53.33
B. Awareness on GAD laws		
RA 6725- Law against discrimi- nation against women in the workplace	12	80.00
RA 10354- Responsible parenthood and reproduction health law	10	66.67
RA 7192- Women in nation- building law	10	66.67
RA 7877- Anti-sexual harass- ment law	12	80.00
RA 8972- Solo parents welfare	13	86.67
RA 9710- Magna Carta of	11	73.33
RA 9262- Anti- VAWC Law	12	80.00
Other Laws:		
1.Awareness of Constitutional provisions on security, justice and peace	9	60.00
2.Awareness of PPAs related to environmental protection and sustainable development	11	73.33
3.Awareness of PPAs related to disaster reduction	10	66.67

Gender Roles and Responsiveness

a. *Economic Empowerment.* Majority of the PWDs are breadwinners of the family. For both men and women respondents, they are involved in production and other related- farming activities. The respondents tended work in the farms. The women claimed roles in domestic work. Compared to other research findings that there is gender disparities in access to economic resources, including credit, land and economic power-sharing, the table revealed that the women respondents have access to family financial resources and participate in decision- making involving family (Philippine Commission on Wom-

en, 2009). The findings implies the women respondents experiencing the kind of economic empowerment and able to provide the needs of life for themselves and their dependents .

Table 2. Productive Roles of the PWDs – respondents

Productive roles	Frequen- cy	Percent- age
Sources of income		
employment	1	6.67
investments	1	6.67
farm	12	80.00
direct selling	1	6.67
Access to your family		
Yes	13	86.67
No response	2	13.33
Participation in decision- making involving family		
Yes	12	80.00
No response	3	20.00

b. *Reproductive Roles.* The respondents claimed that they are no longer in the child bearing stages. However they have recalled that their spouses have helped them in child rearing such as caring, doing babysitting including attending to the child's basic needs.

Table 3. Reproductive Roles of the PWDs – respondents

Reproductive role	Frequency	Percentage
The family at the child bearing stage	3	20.00
Sharing in the re- sponsibility of child rearing	10	66.67

c. *Household Managing roles.* The respondents claimed that the spouses participate in the household tasks and other members of the family also share tasks in family chores.

Table 4. Household Managing roles of the Respondents

Household Managing roles	Frequency	Percentage
The spouse participate in the household	13	100.00
Family members participate in the household	15	100.00
Participate in decision in the management of	14	93.33

d. *Community & Politics Roles.* The respondents are involved in community organizations such as Farmers' Association, Peoples' Club, KALIPI, KALAH, Sustainable Livelihood Program, and 4Ps. Some of the PWDs have been officers and members of these organizations. The respondents claimed that joining organizations have helped them socialize and feel acceptable in the society. All the respondents are members of various organization.

Table 5. Community and Politics roles of the Respondents

Community & Politics Roles	Frequency	Percentage
Involved in community	15	100.00
Exercise your right to	14	93.33
Family members are of	7	46.67

e. *Social Development Rights and Protection.* Most of the respondents are owners of their house and lot, while very few are renting and living with relatives. This is a good indication that majority of the PWDs- respondents are able to satisfy one of the basic needs which is shelter. In addition water and lights are available. With energized households, appliances are available for use. Cellphone, being one of the popular means of communication in this age is the major tool for communication for majority of the respondents (86.67%). Also a popular means of communication, the television. The PWDs have regular physical/ medical/ dental checkups (53.33%),

attend church or religious gathering (86.67%), recreation activities (53.33%), have enough time to rest (86.67%), manage stress (80.00%), and relax (26.67%). The respondents all agreed that their respective home environment provide opportunities to grow and reach maximum potentials.

Table 6. Social Development Rights and Protection

Social Development Rights and Protection	Frequency	Percentage
Living in a property that	13	86.67
Availability of the following		
Light	15	100.00
Water	15	100.00
Mobile phone	13	86.67
TV	9	60.00
Health care by the government	12	80.00
Stove & Gas range	4	26.67
Oven	2	13.33
Regular physical/ medical/ dental checkups	8	53.33
Attend church or religious	13	86.67
Regular recreation activity	8	53.33
Enough time to rest	13	86.67
Management of stress	12	80.00
Undertake activities that will	6	40.00
Home environment provide opportunities to grow and	15	100.00

Training Needs Assessment among the PWDs

With regards to trainings, the findings show that the top five training priorities identified by the respondents included WEDGE, GAD, Responsible parenthood and Reproductive health act, Anti Violence against women and their children and Human Rights. Organic Fertilizer Production was also of interests among the PWDs

Table 7. Trainings Needed by the Respondents

TRAININGS	Frequency	Rank
GAD	7	3
Responsible parenthood and Reproductive health act	7	
Anti Violence against women and their children	7	
Disaster Preparedness	5	6
WEDGE	8	1
Human Rights	6	5
Organic Fertilizer	4	7

CONCLUSION

The PWDs are aware of GAD and GAD related Laws. In addition , they perform gender roles along social empowerment, reproductive roles, household managing roles, community and political roles. With regards to trainings, the findings show that the top five training priorities identified by the respondents included WEDGE, GAD, Responsible parenthood and Reproductive health act, Anti Violence against women and their children and Human Rights. Organic Fertilizer Production was also of interest among the PWDs.

RECOMMENDATIONS

The College through the Extension Unit should consider findings in updating its Training programs and extend services to the PWDs related GAD

The College to conduct other GAD related researches in the future.

ACKNOWLEDGMENT

Sincere acknowledgement to the barangay officials, PWDs who served as respondents and key informants, ASC administrators and researchers and all those who in one way helped in the realization of this research

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LOCAL GOVERNMENT UNITS' EDUCATIONAL SERVICES FOR OUT-OF-SCHOOL YOUTH IN THE MUNICIPALITY OF JOLO: AN ASSESSMENT

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ABSTRACT

The main purpose of this study was to assess the local government units' educational services for Out-of-School Youth (OSY) in the municipality of Jolo. The research design employed was descriptive exploratory. Using purposive sampling, one hundred OSY-respondents were drawn among the eight barangays in the municipality of Jolo namely: Bus-Bus; Takut-Takut; Chinese Pier; San Raymundo; Alat; Asturias; Serantes and Walled City. The findings of this study revealed that Food security, economic difficulties and poor social services are factors that affect the OSY in the municipality of Jolo; There are twelve (12) existing policies, programs, and projects on education for OSY in the said municipality. These are: Alternative Learning System (ALS), Technical Vocational and Skills' Training, Barangay Health Services (BHS), Consumer Electronics, Food and Beverages, Welding, Pharmacy Services, Bread/Pastry Production, Dress-making, Small Engine/Motorcycle Repair, Massage Therapy and Electrical Installation and Maintenance. Using the chi-square computation, the results displayed that there are significant differences among the perceptions of the respondents regarding the existing policies, programs and projects on education for OSY in the municipality of Jolo when respondents are grouped according to age, gender and educational attainment. On the basis of the findings, it is concluded that are existing policies, programs and projects for OSY in the municipality of Jolo and it is recommended that in order to strengthen and revitalize the existing educational policies, programs and projects for OSY not only in the municipality of Jolo but the rest of Sulu Province, an establishment of strong-linkages with TESDA, LGU, NGOs and GOs must be realize.

Keywords: *Out-of-School Youth (OSY), Local Government Unit (LGU), Jolo, Educational Services and Assessment*

INTRODUCTION

Education in general or even at its very least raw and basic form is crucially important in the lives of every human being. In most instances it is the source of every man's success. It is one of the few and rare things in this world that cannot be taken away from any individual who truly seeks and subsequently acquires it. It has been universally recognized as the most powerful instrument for gearing up the socio-economic development of a nation in general and an individual in particular.

Indeed, nobody can deny the fact that education is extremely important for bringing change in the lives of individuals. But not all of us are given the chance and mostly the means to acquire it by attending a formal school. And un-

fortunately not all citizens are given the opportunity to fully seek and acquire it especially so, that formal education to the underprivileged is expensive.

However, the efficacies of the government's efforts for the Out-of-School Youth particularly in the municipality of Jolo are yet to be determined through this scholarly endeavor. It is against this background that this significant study was conceived in order to explore and find out the effectiveness and efficiency of the existing policies, programs and projects on Education for Out-of-School-Youth in the municipality of Jolo and assess the impact on their present as well as future status in their respective places of the learning and knowledge gained.

Conceptual Framework of the Study

Following the Eastonian Model, the conceptual framework of this study considered three (3) research variables, namely: independent variables, intervening variable and dependent variable.

Under the independent variables, this constituted the demand and support, which served as the input. Accordingly, for demand, this referred to the factors affecting the Out-of-School Youth clamor for educational services. As for Support, this referred to the demographic profile of the Out-of-School Youth among the eight (8) barangays in Jolo that supports the demand. For the intervening variable, this referred to the conversion machine, which are actually the Local government units through the barangay. And finally, for the output, these constituted programs, policies and projects formulated and implemented by the local government units on education. These comprise the alternative learning system (ALS), technical vocational and skills training, barangay health services, consumer electronics, food and beverages, welding, pharmacy services, bread/pastry production, dress-making, small engine/motorcycle repair, massage therapy and electrical installation and maintenance.

How this conceptual framework square with reality need to be explored and investigated for pragmatic and academic purposes.

STATEMENT OF THE PROBLEMS

Consistent with the research problem briefly discussed in the previous section, this study provided corresponding answers to the posited queries below:

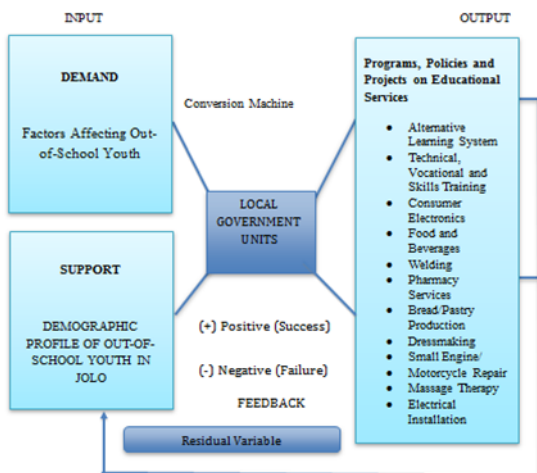


Figure 1. The Conceptual Model of the Study

1. What are the factors affecting Out-of-School Youth in the municipality of Jolo?

2. What are the existing policies, programs and projects on Education for Out-of-School Youth in the municipality of Jolo?
3. How effective are the policies, programs and projects on Education for Out-of-School Youth in the municipality of Jolo?
4. Is the program beneficial to the Out-of-School Youth in the municipality of Jolo?
5. Is there a significant difference between the perceptions of the respondents regarding the existing policies, programs and projects on Education for Out-of-School Youth in the municipality of Jolo when they are grouped according to age, gender, educational attainment and barangay?

METHODOLOGY

The study was conducted among the Out-of-School Youth in the eight barangays of the municipality of Jolo namely: Bus-Bus, Chinese Pier, Alat, Asturias, SanRaymundo, Takut-Takut, Tulay and Walled City.

Jolo is the capital town of Sulu and is one of the most developed out of the nineteen major municipalities of the province of Sulu. Sulu on the other hand is one of the six (6) provinces in the Autonomous Region in Muslim Mindanao (ARMM). It is located in the southern part of the Philippines and lies approximately between latitudes 5° 25' and 6° 30' North and between longitudes 119° 35' and 122° 0' East, bounded by the Sulu Sea on the North and Celebes Sea on the East.

The time-frame for this study was school year 2015-2016. The source of the empirical data for this study and who served as the respondents were the one hundred (100) Out-of-School Youth from among the eight barangays of the municipality of Jolo namely: Bus-Bus, Chinese Pier, Alat, Asturias, San Raymundo, Takut-Takut, Tulay and Walled City. The purposive random sampling was used to draw the 100 respondents from the eight (8) barangays aforementioned. Owing that there is a hypothesis posited in this study, it employed a descriptive-exploratory research design, which is appropriate in describing and assessing the factors affecting the educational services for Out-of-School Youth by the local government units in the municipality of Jolo.

This method used was a descriptive method to collate, tabulate and validate data. Description emerges following creative exploration, and serves to organize the findings in order to fit them with explanations, and then test or validate those explanations (Krathwohl, 1993).

In the course of gathering the empirical data, a letter approved by the Dean of Graduate Studies was

sought. The researcher then requested permission from the Office of the Municipal Mayor and the Chief Executives of the eight (8) barangays namely: Bus-Bus, Chinese Pier, Alat, Asturias, San Raymundo, Takut-Takut, Tulay and Walled City, respectively. Such letters contained requests to allow the researcher to conduct the study among the said offices. The research instrument used in generating the empirical data was a self-made questionnaire, which constituted close-ended or fixed questions stated in English language, developed specifically to meet the objectives of this study. The instrument consisted of three (3) blocks.

FINDINGS

The study arrived at the following major findings:

Factors Affecting Out-of-School Youth (OSY) in the Municipality of Jolo

Food security and economic difficulties moderately affected the Out-of-School Youths in the municipality of Jolo. Lack of infrastructure/facilities and poor social services also affected the Out-of-School Youths in the municipality of Jolo.

TABLE 1
Factors Affecting the OSY in the Municipality of Jolo
N=100

Factors	Mean	Interpretation
Food Security	4.19	Moderately Affected
Economic Difficulties	3.94	Moderately Affected
Lack of Infrastructure/Facilities	3.28	Affected
Poor Social Services	2.89	Affected
Average	3.58	Moderately Affected

Existing Policies, Programs, and Projects on Education for Out-of-School Youth in the Municipality of Jolo

As indicated by the respondents, pharmacy services and massage therapy had the lowest frequency at 44% and 38% respectively. It means that less than one-half of the respondents perceived the two services as existing in the municipality of Jolo. Other services like the Alternative Learning System, Technical-Vocational and Skills Training, Barangay Health Services, consumer electronics, food and beverages, bread/pastry production, dressmaking, small engine/motorcycle repair, and electrical installation and maintenance existed in the municipality of Jolo. Alternative learning system (ALS) tech-voc and skill train-

ing, and welding services had the highest frequency. It could only mean that these three services really existed in Jolo.

The mean average score of 68.83 shows that a little more than half of the respondents perceived the policies, programs, and projects on education for Out-of-School Youth existed in the municipality of Jolo.

TABLE 2
Existing Policies, Programs, and Projects on Education for Out-of-School Youth in the Municipality of Jolo
N=100

Effectivity of the Policies, Programs, and Projects on the Education for Out-of-School Youth in the Municipality of Jolo

The alternative learning system, tech-voc and skills training, small engine/motorcycle repair, and electrical installation and maintenance are moderately effective in terms of education for out-of-school youths in the municipality of Jolo. Other programs are effective except massage therapy which is less effective as indicated by the respondents. Massage therapy was expected to be less effective in a conservative society like Jolo. Male therapists are not allowed to touch a woman's body. Nevertheless, the average mean of 3.34 for the 12 projects shows that the policies, programs, and projects on education for Out-of-School Youth were effective in the municipality of Jolo.

Policies, Programs, and Projects	Frequency	Percentage (Existing)
Alternative learning System (ALS)	94	94
Technical Vocational and Skill Training	85	85
Barangay Health Services (BHS)	62	62
Consumer Electronics	61	61
Food and Beverages	63	63
Welding	86	86
Pharmacy Services	44	44
Bread/Pastry Production	65	65
Dressmaking	68	68
Small Engine/Motorcycle Repair	79	79
Massage Therapy	38	38
Electrical Installation and Maintenance	81	81
Average	68.83	68.83

TABLE 3
Effectivity of the Policies, Programs, and Projects on Education for Out-of-School Youth in the Municipality of Jolo
N=100

Benefits of the Programs to the Out-of-School Youth in the Municipality of Jolo.

The alternative learning system, technical vocational and skills training, welding, and electrical installation and maintenance are highly beneficial to the Out-of-School Youth in the municipality of Jolo. Other services like barangay health services, consumer electronics, food and beverages, bread/pastry production, dressmaking, and small engine/motorcycle repair appeared as moderately beneficial to the out-of-school youths. Massage therapy as expected is less beneficial but Pharmacy services are beneficial as indicated by the respondents.

The average mean score of 68.83 confirmed that the programs are moderately beneficial to the out-of-school youths in the municipality of Jolo.

Policies, Programs, and Projects	Mean	Interpretation
Alternative learning System (ALS)	4.44	Moderately Effective
Technical Vocational and Skill Training	4.36	Moderately Effective
Barangay Health Services (BHS)	3.23	Effective
Consumer Electronics	2.76	Effective
Food and Beverages	2.56	Effective
Welding	3.32	Effective
Pharmacy Services	3.09	Effective
Bread/Pastry Production	2.99	Effective
Dressmaking	3.15	Effective
Small Engine/Motorcycle Repair	3.99	Moderately Effective
Massage Therapy	2.30	Effective
Electrical Installation and Maintenance	3.85	Moderately Effective
Average	3.34	Effective

TABLE 4
Benefits of the Programs to the Out-of-School Youth in the Municipality of Jolo
N=100

Programs	Existing	Interpretation
Alternative learning System (ALS)	94	Highly Beneficial
Technical Vocational and Skill Training	85	Highly Beneficial
Barangay Health Services (BHS)	62	Moderately Beneficial
Consumer Electronics	61	Moderately Beneficial
Food and Beverages	63	Moderately Beneficial
Welding	86	Highly Beneficial
Pharmacy Services	44	Beneficial
Bread/Pastry Production	65	Moderately Beneficial
Dressmaking	68	Moderately Beneficial
Small Engine/Motorcycle Repair	79	Moderately Beneficial
Massage Therapy	38	Less Beneficial
Electrical Installation and Maintenance	81	Highly Beneficial
Average		Moderately Beneficial

LEGEND:	RANGE	INTERPRETATION
	81-100	Highly Beneficial
	61-80	Moderately Beneficial
	41-60	Beneficial
	21-40	Less Beneficial
	1-20	Not Beneficial

Significant Difference between the Perceptions of the Respondents regarding the Existing Policies, Program, and Projects on Education for Out-of-School Youth in the Municipality of Jolo when they are Grouped according to Age

At $\alpha = .05$ and $df=3$, the χ^2 critical value is 7.82. The computed χ^2 of 275.92 is greater than the χ^2 critical value of 7.82. It means that the null hypothesis is rejected.

Therefore, there is a significant difference between the perceptions of the respondents regarding the existing policies, programs, and projects on education for Out-of-School Youth in the municipality of Jolo when they are grouped according to age.

TABLE 5
Significant Difference between Perceptions and Existing Policies, Programs, and Projects when Respondents are Grouped according to Age

N=100

AGE	OBSERVED O	EXPECTED E	O-E	$\frac{(O-E)^2}{E}$
20-24	87	25	62	153.76
25-29	9	25	-62	10.24
30-34	3	25	-32	88.88
40 and Above	1	25	-24	23.04
TOTAL	100	100		275.92

CONCLUSIONS

Based on the findings of the study, the following conclusions are made:

1. Food security, economic difficulties and poor social services are factors that affect the out-of-school youth in the municipality of Jolo;
2. There are twelve (12) existing policies, programs, and projects on education for out-of-school youth in the municipality of Jolo. These are: Alternative Learning System (ALS), Technical Vocational and Skills' Training, Barangay Health Services (BHS), Consumer Electronics, Food and Beverages, Welding, Pharmacy Services, Bread/Pastry Production, Dressmaking, Small Engine/Motorcycle Repair, Massage Therapy and Electrical Installation and Maintenance.
3. Among the twelve (12) existing policies, programs and projects, nine (9) of them are considered effective. These are Barangay Health Services (BHS), Consumer electronics, Food and Beverages, Welding, Pharmacy Services, Bread and Pastry, Dressmaking and Massage Therapy.
4. Based on the data gathered, out of the twelve (12) existing policies, programs and projects, four (4) are considered highly beneficial to the out-of-school youth. These are: Alternative Learning System (ALS), Technical Vocational and Skills Training, Welding and Electrical Installation and Maintenance.
5. Finally, there is a significant difference between the perceptions of the respondents regarding the existing policies, programs and projects on education for out-of-school youth in the municipality of Jolo when respondents are grouped according to age, gender and educational attainment based on chi-square test computation.

RECOMMENDATIONS

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

1. Establish strong-linkages with TESDA, LGU, NGOs and GOs to strengthen and revitalize the existing educational policies, programs and projects for Out-of-School Youth not only in the municipality of Jolo but in the entire Province of Sulu as well.
2. Educational policies, programs and projects as a social intervention measures for Out-of-

School Youth should be in the form of scholarships and grants and on a short-term basis to realize expeditiously the return of investment.

3. Conduct further advanced empirical studies to scrutinize the factors affecting the problem on Out-of School Youth.

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STATUS AND PROBLEMS OF RUMINANT PROJECTS OF OCCIDENTAL MINDORO STATE COLLEGE: LESSONS FOR RUMINANT MANAGEMENT IN THE PHILIPPINES

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ABSTRACT

This highlights the production status, problems encountered, and interventions made by Occidental Mindoro State College ruminant projects covering the period 2006-2013. The socio-demographic profile of projects-in-charges is likewise described.

The OMSC ruminant projects-in-charge are middle-aged educated men who have little opportunity to attend relevant training and seminars on ruminant projects management.

The ruminant projects adopted semi-intensive production system. The projects are beset with challenges. Although amenities and practices ideal for ruminant production are provided and observed, ingenuities to address the problems remain wanting. Inadequate land area and parasite infestation are “serious” problems that require concrete solutions.

Keywords: production status, problems encountered, semi-intensive production system, serious, wanting, concrete solutions

INTRODUCTION

One of the mandated functions of the Philippines' State Universities and Colleges (SUC's) is production. The SUCs are granted corporate powers by virtue of RA 8292 otherwise known as Corporate Code of the Philippines “to enter into joint ventures with business and industry for the profitable development and management of economic assets of the college, the proceeds from which to be used for development and strengthening of the college or university.” The SUCs are given corporate power to develop and maximize the optimum use of its assets and re-

sources to achieve financial capability to improve and sustain the quality of services they offer in their service areas (Rodriguez, 2001).

The Occidental Mindoro State College (OMSC) as a SUC has the social responsibility to provide the best services to its constituents. OMSC just like other SUCs in the country makes sure it can help uplift the educational, social, cultural, and political well-being of its students, faculty, and staff and the community it serves (Sapitula, 2012). Faced by budget cuts from the government funds and to make the most of its resources to support its activities in the furtherance

of its mandate, the OMSC engages in various income-generating projects (IGP) managed by the Production Unit.

The Production Unit of OMSC is a product of many transitions. In the past before its conversion to IGP, it served as laboratories for experiential learning of the students. The IGP is also a creation of challenges in the governance of SUCs like rationalization of programs. The Production Unit is now named Enhanced Food and Income Production Program (EFIPP) managed by a Director.

According to the OMSC EFIPP Manual (2012), the IGPs of the College are clustered into the general categories, namely: Agricultural Products and Services (APS) and Trading and Manufacturing (TM). Projects under APS include organic fertilizer, rice and seeds production, tractor services, swine production, cattle production, goat production, off-season vegetables production, poultry production, agricultural mechanics, nursery, development projects and fish pond. The TM includes marketing center, bakery and refreshment parlor, food processing, canteen and community outreach center.

Most of the projects started as Student Instructional Units (SIUs) and Income Generating Projects (IGPs) and offshoots of the AGRITECH program. Both SIUs and IGPs were geared towards the development of the Agriculture students' entrepreneurial skills. At present, more projects are operated in order to provide the constituents a variety of agricultural products and services. Although the projects are considered one of the businesses of the College, these also offer venues for students, faculty, and staff to their researches in the field of agriculture and allied sciences.

Cattle production is one of the APS long-term but profitable projects. At present, the project has a total 24 heads. This number is sufficient for production, instruction, and large ruminant research purposes. The College devoted a 4 hectare land area with perimeter fence, adapting the semi-extensive-semi-intensive cattle produc-

tion. Based on 2012 records, the cattle project has a total cash balance of PhP189, 290.00 and a livestock inventory amounting to PhP241, 000.00 (OMSC EFIPP Manual, 2012).

The other ruminant project is goat production. It is considered a medium-term profitable project which requires minimal capital. As of study time (2014), the project has 45 heads. The cash balance is amounting to PhP139, 723.00 and livestock inventory is PhP44, 000.00 (EFIPP Manual, 2012).

The above figures, however, according to EFIPP Director indicate the projects are not performing well. Bearing in mind all the income generated and the operation expenses incurred, the Director revealed the projects are losing and considered for closure. This is not a good idea as the projects are essential component of the College of Agriculture. These serve as laboratories for the students especially those specializing in Animal Science. Hence, there is a need to evaluate the ruminant projects in terms of status and problems encountered in their management. This will be done to identify some measures needed to improve the projects' performance particularly in terms of income generation. This investigation excludes determining the financial status of the projects. This is due to the fact that several persons served as project-in-charge who could not provide all the figures relative to expenditures and income, hence, a limitation of this evaluation.

OBJECTIVES

This study primarily focused in determining the status and problems of the ruminant projects of Occidental Mindoro State College that includes the project in-charges and the ruminant project. This specially intended to:

1. Describe the socio-demographic profile of ruminant projects in-charge in terms of:
 - a. Age;
 - b. Sex;
 - c. Educational attainment,

- d. Number of years in service; and
- e. Training and seminar attended.
2. Determine the production status of the projects.
3. Determine the problems encountered in projects management.
4. Analyze interventions made to address the problems encountered.

REVIEW OF RELATED LITERATURE AND STUDIES

This presents the related literature, both conceptual and research in nature, which is found relevant and could, enriched the context of this study. These are lifted from internet.

Small Ruminant Production

Small ruminant production, specifically meat goat production, is one of the fastest growing agricultural production systems in the United States. This growth has created opportunities for producers, especially the small-scale farmer looking for a profitable alternative enterprise to integrate into their existing production system (Okpebholo, et al., 2007).

The demand for goat meat outpaces the supply in the United States. Producers simply cannot keep up as demand is currently doubled the domestic production (Coffey, 2006). This is thought to be triggered by the influx of new immigrants into the United States who prefer goat meat in their diets and for religious festivals.

Another potential group of consumers of goat products is the health conscious group of the mainstream population. The current and expected increase in demand for goat meat and the lack of sufficient supply have created opportunities for limited-resource farmers to fill the void and enhance their business prospects by integrating meat goat production into their farm enterprises (Luginbuhl, 2000).

Low start-up cost is another factor that creates an opportunity for the development of a small ruminant production system by a small-scale farmer with limited resources. Start-up cost for a meat goat producer is considerably lower

than that of cattle producers. First, five does can normally be acquired for the price of one cow. Second, goats require less land than cattle, as six goats can be sustained by the same amount of area needed to sustain one cow. Third, goats can do well on low quality forage diets and thrive on harsh terrain, which means they do not need expensive structures like barns to thrive. However, the animals do need some sort of shelter, which can be constructed from inexpensive materials. No special or unique equipment is needed for small ruminants as existing equipment for young calves could be converted for goat use.

Okpebholo, et al., (2007) small ruminant production is less labor intensive when compared to the production of larger animals. Due to the size of goats, women and children in the family can easily handle the animals. Most goats are good tempered and the chances of children and women getting injured are limited. Therefore, investing in a small ruminant production system can create employment opportunities for members of the entire family. An added-value to goat production is that the animals can be used for grazing and vegetation management. Goats are very suitable as vegetation management tools because of their ability to consume many types of forages and their apparent resistance to many plant toxins. Goats can be used effectively to control kudzu, poison ivy, and many other plants that are not utilized by grazing cattle. Additionally, goats seem to be a good choice in multi-species grazing systems as they tend to integrate well with other farm animals. In fact, one or two goats per cow could be grazed together in a herd without adversely affecting the well-being of neither the cattle nor the goats. By suppressing or eliminating the brushes and weeds, goats reduce the need for herbicides and reduce competition for scarce soil nutrients, which could ultimately result in an increase in pasture yield. Apart from being environmentally-friendly, using goats to control brushes and weeds will save money for the farmer by decreasing the amount of money spent on purchasing herbicides and other weed control devices.

Although goats are seasonal breeders, a doe (mature female goat) can be bred and successfully give birth (or kid) three times every two years. Moreover, goats have more reproductive cycles than cattle within the same period of time. In a period of two years, it is possible for a doe to give birth to six kids because of its high twinning rate, whereas a cow is most likely to produce two

calves for the same period. This quick turn over rate is an advantage to the producer in terms of cash flow and the building up of his or her herd size. There are many opportunities for limited-resource farmers who decide to enter into the small ruminant industry, the challenges that influence their success are real and must be addressed.

Problems of Small Ruminant Production

The main challenges that have created the largest obstacles to the development of a viable small ruminant industry in the United States are lack of an effective means to control internal parasites, lack of effective marketing strategies for products derived from goat meat, inadequate expertise information, and limited access for limited-resource farmers to financial support.

The control of infestations of small ruminants by internal parasites is the most serious problem that challenges the small ruminant industry. Report revealed that infestations of these parasites can cause major economic losses to producers because of the cost of treatment, production loss, and death of heavily infested animals. Proper and effective management of internal parasites is extremely important for the survivability of the small ruminant industry. The ability to detect the clinical signs of a major worm infestation, to properly treat the infected animals, and to effectively reduce the herd's exposure to these parasites are all very important for effective internal parasite management. Worms that infect small ruminants have developed resistance against most of the available and widely used anthelmintics (dewormers). This is mainly attributed to the fact that many of these drugs are not approved for use in goats, are frequently used, and the animals are commonly under-dosed. Since there are few anthelmintics approved for use in goats, the dosage used for goats are normally "extra-label" or the producer uses the same dosage rates that are recommended for cattle or sheep. Goats are known to metabolize anthelmintics faster than cattle and sheep, which points to the fact that they require a higher dosage. Even though there is a need for drugs that have approved dosage rates for goats, it is unlikely there will be any new types or classes of anthelmintics for goats in the near future because the limited markets for these drugs do not validate the high discovery and developmental cost needed to create the drugs. Although preventive measures such as low stocking rate, pasture rotation, and proper nutrition could reduce

the level and the effects of infestation by these parasites, prevention strategies that effectively reduce the need for anthelmintics and decrease parasitic infestations are needed. Effective prevention of parasitic infestations would bring a huge boost to the development of the small ruminant industry (Geary, et al., 1999).

Despite the increasing demand, marketing goat meat is still a major challenge to the development of the meat goat industry. The current market situation is erratic and not organized. There are no established standards for marketing goat meat. Also, there are not enough government-approved processing plants for goats, and these plants are mostly located in large cities and are far from farmsteads. Consequently, the producer's ability to market his products is limited because of the difficulty and expense required to transport the animals to these slaughter facilities. Additionally, the link between the farmers and the ethnic consumers needs to be strengthened because these ethnic groups prefer fresh meat slaughtered on the farm, and buying directly from the producers increases the producers' profit margin as compared to marketing through stock yard auctions. Other serious marketing challenges facing the goat production industry are how to convince the mainstream sector of the population to consume goat meat, and how to establish a viable marketing outlet for this group. Large and established grocery companies are skeptical about the inclusion of goat meat in their stock because of the uncertainty of reliable and constant supplies, the uniformity of cuts, and the lack of a wide range of products from goat meat that will appeal to these emerging, mainstream groups. Predictable and consistent products like pre-cooked and pre-packaged products from goat meat should enhance the consumption by the mainstream. Also, a boost in the consumption of goat meat may come when the mainstream population becomes better informed about the health benefits they can receive from the consumption of goat meat. These are vital issues in the development and long-term sustainability of the meat goat industry. Limited Expertise and Information Available expertise and information for meat goat production are very limited when compared to what are available for the production of traditional meat animals such as cattle and swine. For example, there are no accurate statistics on the number of goats produced or sold, appropriate feeding regimes for goats are not yet determined, and standard goat herd health programs are not very developed. However, researchers are work-

ing in these areas and hope to develop a standard of production and a marketing strategy for goat meat in the near future (Okpebholo, et al., 2007).

Economics of Small Ruminant Production

The economics discipline has a broad mandate. Farmers' goals and objectives - what the farmer attempts to maximize or minimize in his production activities - have first to be identified.

Production constraints and resource limitations then need to be identified and quantified. Given the physical and sociopolitical environment, technological innovations have to be tested for adoption. In a step by step process, economics needs to provide answers to whether small ruminants are profitable as an enterprise, whether they are profitable or competitive relative to existing farm and non-farm enterprises or opportunities, what are the losses (cash or kind) associated with a given constraint to the farmer or the production system, what are the losses and benefits of introducing a given technology, and what is the optimal level of resource or technological innovation for alternative resource levels or management strategies.

According to Ngategize (1999), apparent production constraints such as "high" mortality, "long" birth intervals and "slow" growth rates may not be as critical to the farmer as production scientists think. Recommended technologies may not therefore be adopted in given social, economic and ecological circumstances. High mortality rates in pastoral systems may reflect the management system - lack of permanent settlement and hence lack of housing and attention to the young. Although monetary losses may appear to be high and static monetary benefits to outweigh the costs of interventions, such interventions would impose on the herdsman the need to settle at one place to the detriment of the mature and productive livestock. Similarly, increased incomes as a result of an innovation may lead to change in farmers' attitudes towards livestock.

Large Ruminant Production

The Philippine beef cattle industry is traditionally led by the private sector and is largely of the smallholder or backyard endeavor. It is considered one of the country's least developed commodities for the past several years. This is demonstrated by the reduction in local cattle pop-

ulation and the continuous importation of both live cattle and beef products to satisfy the local demand. The decline of cattle population is primarily attributed to high slaughter rate (<http://www.pcaarrd.dost.gov.ph>).

In 2008, the number of cattle slaughtered for meat in the Philippines was higher by 4.48 percent than the previous year. Animal deaths and losses likewise rose by 1.32 percent. Also, total cattle population was estimated at 2.56 million head, slightly down by 0.29 percent than last year's head count. The number of dairy cattle reached 13,810 head, 14.19 percent higher than in 2007. Inventory of cattle from backyard farms declined by 0.31 percent, while stocks from commercial raisers acquired a minimal growth of 4 percent. Of the total cattle population, around 94 percent were raised in backyard farms (<http://www.pcaarrd.dost.gov.ph>).

Commercial feedlot fattening operation emerged and proliferated on account of the huge demand for meat and meat products. Three things accounted for this great demand--the ever-increasing population, changing food preferences of the Filipinos, and import liberalization (<http://www.pcaarrd.dost.gov.ph>).

However, the industry is heavily dependent on the importation of feeder stocks coming mostly from Australia. In 2007, the number of imported live cattle was 17,982 head or 23.79 percent while 90 percent of the country's beef supply is imported from Brazil. Almost 97 percent of the total importation was feeder cattle and the rest were classified as breeders (<http://www.pcaarrd.dost.gov.ph>).

Constraints of Big Ruminant Production

The major constraints to growth and development of the cattle industry are low breeding base, poor nutrition and herd management, localized peace and order situation, efficient marketing systems and structures and unfavorable government policies. Problems mostly encountered in backyard operations include inefficient breeding techniques, inadequate feed supply and lack of adequate technical support, veterinary and extension services from the government. This scenario shrank the country's cow-calf operations both in number and production performance (Phanthayong, 2013).

Major constraints to production of livestock, included: limited land zoning for livestock development; the prevalence flow input/low output systems; lack of sufficient land and labor; animal disease outbreaks; inadequate vaccination production and delivery; and high mortality and poor growth in young animals. The overall targets for large ruminant to production are increased production and export of livestock commodities. Important are as for future efforts include: zoning and regional strategies; breeding (improving Indigenous breeds); feed provision; animal health and disease prevention through vaccination, improved diagnostic labs, border checkpoints, village veterinary workers [VVs] roles; improved extension services; and addressing economic and human resource shortfalls (Phanthayong, 2013).

Windsor (2013) revealed the current constraints of livestock included trans-boundary and endemic diseases, poor use of nutritional resources and lack of breeding management and poor understanding by small holder farmers of pricing and marketing mechanisms and opportunities.

According to Dr. Joseph Madamba as cited by Casuncad (2014), low productivity is primarily attributed to low nutritional level, poor animal health, and inferior quality of stocks, inadequate production, facilities and poor overall health management. Low nutritional level is caused by lack of a year round feed supply and coordination of breeding. Also the management with seasonal forage supply, poor animal condition has been responsible for high mortality and lowered rate of production, other factors are the incidence of infectious diseases, increase parasites and numerous farm accident, and non-coordination of management with seasonal factors.

However, another contributory factor to poor productivity is breed. No amount of animal husbandry practices will correct inferior heredity. Hence, there is a need for upgrading the gene pool with well selected and better performing breeding stock.

In addition, inadequacy of present facilities of cattle husbandry operation has been responsible to a certain degree, for some of the poor management practices. Summing it up, lack of fencing and sub-divisional pasture utilization and improper segregation of stock according to age

and class groups are some factors which could hinder efficient management of the herd (Madamba) as cited by (Casuncad, 2014).

METHODOLOGY

This study is descriptive employing a case study method to determine the status and problems of OMSC Ruminant Projects. Qualitative technique was also utilized to gather in-depth information relative to problems encountered in the management of the projects. Secondary data such as inventories and other pertinent documents taken from the EFIPP Office were used. Data were analyzed using the descriptive statistics such as frequency distribution, percentage, and mean.

The respondents were the five OMSC personnel who served as ruminant projects in-charge in various times during the 2006-2013 periods. Their names were obtained from the OMSC EFIPP records. The EFIPP Director was likewise sought to shed light on important details regarding the status and problems of the College's ruminant projects.

FINDINGS

Project in-charges' Socio-demographic Profile

The project in-charges' socio-demographic profile determined were age, sex, educational attainment, number of years handling the project, and seminars and training relative to animal production attended.

Table 1 shows the projects-in-charges are middle-aged (40%) male (100%) who are understood to be physically and intellectually able to manage the ruminant projects. They can perform physically demanding work.

In terms of educational attainment, 40% have a college degree in Animal Science while some 20% have advanced graduate units leading to master's degree. Some have earned a vocational diploma (20%) and a high school diploma (20%). This implies that the projects are managed by competent persons who understand the essentials of ruminant management.

In terms of number of years handling the projects, most (60%) have served in short period of time. This finding can be explained by the fact that there was no permanent employee assigned to

handle the projects. Picking the persons to handle the projects depends on the Campus Director. In the past, management of the projects was entrusted to a temporary College Instructor with full academic load.

Table 1. Socio- demographic profile of project in charge-respondents.

Variable	Category	Frequency n=5	Percentage (%)
Age	Young (39 yrs. and younger)	1	20
	Middle aged (40-59)	3	60
	Old (60 yrs. and above)	1	20
Sex	Male	5	100
Educational Attainment	High school	1	20
	Vocational	1	20
	College	2	40
	With advanced	1	20
No. of years in the project	Long (4yrs. and above)	2	40
	Short (3yrs. and below)	3	60

Table 1b presents the training and seminars related to ruminant production attended by the projects in charge. The finding reveals the trainings attended were relevant but these were outdated. The only recent training the personnel attended was on waste management and utilization. None of the trainings was on large ruminant production particularly on cattle production.

Moreover, it was found that some 40% of the projects-in-charges have not attended any seminar and trainings relative to animal production. Although they expressed confidence that they can well-manage the projects because of their college degree and related experience, attendance to training is deemed necessary.

Training and development program should be part of any organization. Training is

found to have an important role in enhancing the productivity level of employees (Zulueta, De Lara & Nebres (1999). According to [Bodack \(2012\)](#), the benefits in attending seminar are learning new information, networking with people within the field, building ability to share ideas and get immediate feedback from credible individuals, and getting opportunity to evaluate the latest technologies that can potentially help develop the business.

Table 1b. Seminars and training attended by the projects-in-charges.

Name of training and seminar	Date	Venue
Training sponsored by Philippine Agricultural	April 27, 1996	Baguio
Technology Education Project Agritech*	February 10, 2000	CLSU
Goat Raising Technology Team Building	October 1-10, 2000	Marawoy, Lipa City
International Training on Waste Mgt. and Utilization Goat Immersion	December 19-26, 2000	La-lo Cagayan Valley

*Respondent forgot the name of training and seminar.

Production Status of the Ruminant Projects

Table 2 presents the projects' number of stocks and production system and production practices employed. The OMSC ruminant projects are considered commercial scale operation employing a semi-intensive production system where the animals browse free in the pasture area. Animals are fed with rice straw (25% supplements) and cut-and-carried forages. According to NSA (2016), raising of more than 20 mature cattle and goats are classified as commercial. Also, livestock inventories showed that population is declining.

Table 2. The projects number of stocks, production system, and production practices.

Variable	Description/Number
Number of stock	28-cattle (CY 2006-2010) 24cattle; 35 goats (CY
Production system	Semi-intensive production
Production practices: Housing	Conventional; Gable type (cattle), Semi-monitor (goat)
Materials used	Light/locally available
Facilities available	Watering trough Squeeze chute Night corral (old, dilapidated) Fencing
Feeding system employed	All-Roughage (Cattle), Supplemental feeding (goats). Pasturing/Tethering and Cut and carrying were employed
Kinds of feeds used as supplement	Cut and carry forages Rice Straw Molasses Rice bran UMMB Rock Salt (NaCl)
Disease prevention and control practices	Vaccination (irregular) Deworming Quarantine /isolation Vitamin Administration
Disposal of dead tock	Burying
Records kept	Inventory Animal ID record Production record Financial record Animal health program

Brahman cattle raised in 2006-2010 and upgraded Brahman breeds were added to the stock in 2011-2012. Crossbred Boer and Anglo-nuvian goats were raised in 2006-2013. The sources of stock/bull were the Artificial Insemination (AI) recipients of the Provincial Agriculture Office, Bureau of Animal Industry, and other local cattle and goat raisers. The system of mating employed is natural.

The data revealed housing was provided to cattle using the gable type. For goats, the semi-

monitor type of housing utilizing light materials such as wood and bamboo was used. The facilities provided used for the ruminant projects included feeding trough, watering facilities, squeeze chute, and fencing. Disease prevention and control in ruminants was done by vaccination of animals once a year. Furthermore, deworming, delousing, and introducing of vitamins to animals were employed. Castration, hoof trimming, and dehorning of goats were practiced.

Dead stocks were buried. Quarantine was observed especially for newly arrived stock two to three weeks before they are placed with other herd and band and when the animals are suspected to have disease.

Record keeping is important in ruminant production. Production, financial, stock inventory, animal health program, and animal identification records were maintained.

Problems Encountered in Managing the OMSC Ruminant Projects

Table 3 presents the problems encountered relative to management of the ruminant projects.

The inadequacy of land area for the ruminant projects was rated the “most serious” (weighted mean=2.60). The land area requirement for cattle production is 1:1, which means one head per hectare. OMSC has only four hectares for 18 cattle. This implies the projects do not conform to the desired 1:1 ratio. Areas allotted for pasture were reduced due to establishments of new projects and programs such as coconut nursery, sweet tamarind production and organic fertilizer plant. Likewise, riverbank erosions and weed succession causes pasture area inadequate.

Feeds and feeding, facilities and equipment, diseases, and breeding were rated “moderately serious.” The problem relative to feeds and feeding (weighted mean=2.1) can be attributed to high price of feeds and inadequate feeds supply. The problem on facilities and equipment (weighted mean = 2.25) is due to lack of equipment for carrying forages, watering, and waste disposal.

The occurrence of disease (weighted mean=2.2) considered as “moderately serious” was caused by parasite infestation. This is most common in ruminant production. According to the projects-in-charges, the cattle production is infected with liver fluke. This had been a problem since

the time the project was managed under the AGRITECH program (prior to OMSC and OMPC integration). Breeding (weighted mean=1.6) rated as “moderately serious” problem can attributed to the inefficient breeding techniques employed.

Table 3. Problems encountered relative to ruminant projects management.

Problems	Mean	Over all Mean	Interpretation
A. Feeds and Feeding			
High cost of feeds	2		Moderately serious
Inadequate feed supply	2.2		Moderately serious
		2.1	Moderately serious
B. Housing			
Overcrowding/ overstock	1.2		Not serious
Improper ventilation	1.4		Not serious
		1.3	Not serious
C. Land area			
Space requirements	2.6		Serious
		2.6	Serious
D. Facilities and Equipment			
Watering facilities	2		Moderately serious
Hay barn	1.8		Moderately serious
Waste management	2.8		Moderately serious
Handling equipment	2.4		Serious
		2.25	Moderately serious
E. Kinds of disease according to causal pathogen			
Parasite infestation	3		Serious
Virus infestation	2.4		Moderately serious
Bacteria infestation	1.6		Moderately serious
Fungi infestation	1.8		Moderately serious
		2.2	Moderately serious
F. Breeding			
Inefficient breeding techniques	1.6		Moderately serious
		1.6	Moderately serious
G. Price			
Low price of meat	1.4		Not serious
		1.4	Not serious
Over all mean		1.92	Moderately serious

Legend: 0.50-1.50-not serious 1.51-2.50-moderately serious 2.51-3.50-serious

Intervention Made to Address the Problems Encountered

Problems relative to price (weighted mean=1.4) and housing (weighted mean=1.3) were rated “not serious.” The respondents revealed they were not allowed to sell live weight animals. Problems with regards to housing although considered “not serious” can be attributed to overcrowding/overstocking of animals, improper ventilation, and dilapidated house for ruminants. Overall, the problems encountered on the management of ruminant projects are “moderately serious.”

Table 4 presents the interventions made to address the problems encountered in the management of ruminant projects.

The intervention made on feeds and feeding was provision of forage rice straw and cut-and-carry forages. Ipil-ipil (*Leucaena leucucephala*) leaves and silage were provided. Since the project do not have its own hauling equipment, four-wheel tractor was used which requires more fuel and additional personnel in hauling rice straw. Tricycle personally owned by the in-charge was oftentimes used in cut and carrying when the tractor operator is not available and the tricycle of the institution is used by other projects and or not functional.

Animal diseases were prevented by deworming every three months, regular vaccination, and delousing. In goats, dehorning and hoof trimming were practiced. Problem on overcrowding/overstocking was solved by expanding the house, culling of animals, and tethering. Repair of fence and night corrals and provision of durable squeeze chute were likewise made. However, due to limited financial resources the in-charges are utilizing locally available materials and recovered materials from condemned buildings and facilities of the Institution.

It can be noted that most of the interventions made is considered short-termed and less appropriate, resulted to continuous decreased in the number of stock. Consequently, profit is affected negatively. Considering the inputs required in the operation of the project, cattle and goat projects should have at least 15 cows and 30 does, respectively.

Table 4. Interventions introduced to address the problems encountered.

Problems	Intervention made
Insufficient feeds and feeding	<ul style="list-style-type: none"> - Provision of ipil-ipil (<i>Leucaena leucocephala</i>) - Preparation of silage (occasional) - Cut and carry of forages (limited sources) - Rice straw handling
Occurrence of diseases	<ul style="list-style-type: none"> - Deworming every 3 months - Regular vaccination (delayed in cattle) - Delousing - Dehorning - Hoof trimming
Overcrowded	<ul style="list-style-type: none"> - Culling of animals
Lack of facilities and equipment	<ul style="list-style-type: none"> - Shed expansion - Improvised housing - Repair of night corrals and fence - Provision of durable squeeze chute
Limited land area	<ul style="list-style-type: none"> - Culling of animals - Tethering

Status of Provision of the Required Inputs for the OMSC Ruminant Projects

Table 6 summarizes the status of provision of the required inputs for the OMSC ruminant projects. Status of each required input necessary for the good performance of the ruminant projects was rated 3, 2, and 1 and interpreted as “provided,” “partially provided,” and “not provided,” respectively.

Table 5. Status of provision of the required inputs for the ruminant projects.

Variable	Rating	Interpretation
A. Feeds and feeding	2	Partially provided
B. Housing	2	Partially provided
C. Required land	1	Not provided
D. Facilities and equipment		
Watering facilities	2	Partially provided
Hay barn	1	Not provided
Fencing	2	Partially provided
Night corrals	2	Partially provided
Squeeze chute	2	Partially provided
Handling equipment	1	Not provided
E. Disease management	3	Provided
F. Breeding	1	Not provided
Overall mean	1.72	Partially provided

Legend: 0.50-1.50-not provided 1.51-2.50 - partially provided 2.51-3.50-provided

Housing, fencing, night corrals, squeeze chute watering trough were provided but found not adequate for the animals. The structure was too old and built using dilapidated materials salvaged from worn-out goat production house.

Hay barn and handling equipment were not provided. Fencing, night corrals, squeeze chute were provided but inadequate because they were too old and not durable. Watering trough was also provided but inefficient because it is too small. The animals jammed to be able to drink

resulting in spilling over of water. This is costly because the machine which utilizes diesel to pump water operates in an extended time to allow all animals drink adequate water.

Feeding trough, water pump for the goat production, and tractor with trailer for carrying forages and rice straw were likewise not available. The desired land area for the number of ruminants raised was not provided. The projects management is only strong in disease management as vaccination and deworming were done. The overall, the mean rating for the status of provision of required inputs for the ruminant projects is 1.72 and interpreted as “partially provided.” This implies that the OMSC needs to put in adequate housing and facilities for the projects to give a good return on investment.

CONCLUSIONS

Based from intensive assessments of data collected and pertinent findings, the researchers concluded the following:

- 1.The OMSC ruminant projects-in-charge are middle-aged educated men who had little opportunity to attend relevant training and seminars on ruminant projects management.
- 2.The ruminant projects are classified as commercial, adopted semi-intensive production system. The projects are beset with challenges. Although amenities and practices ideal for ruminant production were provided and observed, ingenuities to address the problems remain wanting. There are still many important things that need to be done.
- 3.Inadequate land area and parasite infestation are “serious” problems that require concrete solutions.
4. Short-term, less appropriate interventions were employed in addressing problems.

RECOMMENDATIONS

The following are recommended to advance the performance of the ruminant projects:

1. Designate qualified and permanent personnel to handle and improve the projects.
2. Regularly send personnel to relevant trainings to acquire new knowledge and skill in ruminant project management
3. Improve production practices especially breeding techniques by procuring genetically superior stocks and culling of old cows.
4. Shift production system from semi intensive to intensive if pasture expansion is not possible.
5. Address promptly serious problems on inadequate land area and infestation by scouting potential pasture areas and providing handling equipment like hand tractor with trailer for carrying forages as an immediate solution to limited pasture area. This will enable the in-charge to augment dry matter requirements of the ruminants effectively and efficiently, in his own.

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AWARENESS ON GENDER CONCEPTS AND PERCEPTION ON GENDER ROLES OF FACULTY, STAFF AND STUDENTS OF MOUNTAIN PROVINCE STATE POLYTECHNIC COLLEGE

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ABSTRACT

This study intended to know the gender gaps and gender issues among the three groups of respondents. Scoring was used for the awareness on gender concepts. A four point attitudinal scale was utilized to quantify the respondents' perception of gender roles. Based on the findings, the three groups of respondents have a different level of awareness. Male and female faculty and staff are very much aware of gender concepts. This is attributed to the training, seminars, and orientations that they participated and attended. On the contrary, male and female student respondents have moderate awareness on gender concepts. The perception of the three groups of respondents on gender roles varied. All male respondents strongly agree on the different gender roles which represent the superiority of men over that of women or the masculinity ideology as a manifestation of the Philippine patriarchal society. This reveals a gender issue among the male respondents. In order to check this perception and address gender issues, gender-related consciousness activities should be conducted. In like manner, GAD should be integrated into the curriculum and GAD-related activities should be conducted.

Keywords- gender, gender roles, gender issues, gender, and development, patriarchal

INTRODUCTION

The concept of gender needs to be understood clearly as a cross-cutting socio-cultural variable. It is an overarching variable in the sense that gender can also be applied to all other cross-cutting variables such as race, class, age, ethnic group, etc. Gender systems are established in different socio-cultural contexts which determine what is expected, allowed and valued in a woman/man or a girl/boy in these specific contexts. Gender roles are learned through socialization processes; they are not fixed but are changeable. Gender systems are institutionalized through education systems, political and economic systems,

legislation, culture and traditions. In utilizing a gender approach, the focus is not on individual women and men but on the system which determines gender roles/responsibilities, access to and control over resources, and decision making potentials. It is also important to emphasize that the concept of gender is not interchangeable with women. Gender refers to both women and men, and the relations between them. Promotion of gender equality should concern and engage men as well as women (Women's Watch 2001).

Early cultures have discriminated the women of the society. Women were placed in a

lower position than men. The man was the boss and the breadwinner of the family. Productive activities are considered “women’s work”. However, the dynamism of culture accommodated the changes on the concepts, practices knowledge and customs of people in a society.

The empowerment of women gradually spread to many societies of the world. In reality, women are not subordinate to men. They are not a weaker sex, rather they are men’s equal partners in development. Studies show that there is a strong connection between gender equality and development (Primer on Gender Mainstreaming and Institutionalizing in the Budgeting Process, 2002). Gender and Development recognize women as agents of development and not merely as passive recipients of development assistance. It questions the underlying assumptions of current social, economic and political structures, examines them and demands commitments to change all forms of structures and relationships that promote inequality, including unequal power relations between women and men.

Gender roles differ among societies or even among groups within a particular society and often change over time in one society. They represent agreed ideas in the particular society and culture about what is appropriate and “usual” for a particular sex, group and society. However, individual women and men may actually occupy gender roles that are typical of the opposite sex (Conner 2008). According to Pleck (1981), masculinity is regarded as a cultural construction. In this view, men’s behavior is accounted for by the conceptions of masculinity that men internalize from their culture.

Gender roles are the socially and culturally determined activities, occupations and roles that are considered “usual” or “appropriate” for each sex, but which are actually capable of being done by the opposite sex. For example, many people would consider that occupations such as engineers, miners, and astronauts are only appropriate for men. However, there are women engineers, miners, and astronauts. Men can be full-time caregivers for infants or kindergarten teachers, although these are generally considered more appropriate for women. Gender roles may be contrasted with sex roles such as breastfeeding or giving birth, which is possible only for women. The gender roles considered appropriate for women and men differ among societies. For example, in some societies, all trading is considered to be a

man’s role, but in Cambodia and in many North African countries, trading, especially small scale, is considered to be a woman’s role (Corner 2008).

A study on gender awareness of rural women in Bangladesh was conducted by Parveen, Shahnaj (2007). The findings indicated that the majority of the rural women, based on sample investigated, were not aware of gender inequality because of traditional beliefs kept them in the shadow of their fathers, husbands and sons. In like manner Palangdao, de la Cruz et. Al conducted a study on gender awareness of the faculty, staff and college students of Abra State Institute of Science and Technology. High significant difference exist on the perception of the students compared to the faculty and staff. The students moderately agree that men are the superior sex while the women are the weaker sex. The faculty and staff disagree with this kind of perception. On gender role at home, high significant difference exist on the responses of the students to that of the faculty and staff. Both the faculty and staff agree that household work and other affairs that concern the family is shared responsibility between the husband and wife. Experiencing the life of parents and their experience in their workplace have taught them to be gender sensitive.

This study is guided by a conceptual framework. It represents the level of gender awareness, perception on gender concepts and gender roles of male and female faculty, staff and students of Mountain Province State Polytechnic College.

With this, efforts have been made to institutionalize the concepts of gender and development, and gender mainstreaming in government agencies. This study then provides a basis for the institution to further develop its GAD Program and provides baseline data for gender analysis in order that the institution can identify gender issues and design strategies relevant to existing Projects, Activities, and Programs (PAPs).

STATEMENT OF THE PROBLEMS

The study primarily aimed to assess the level of gender awareness of male and female faculty, staff, and students of Mountain Province State Polytechnic College (MPSPC).

Specifically, it attempts to answer the following questions:

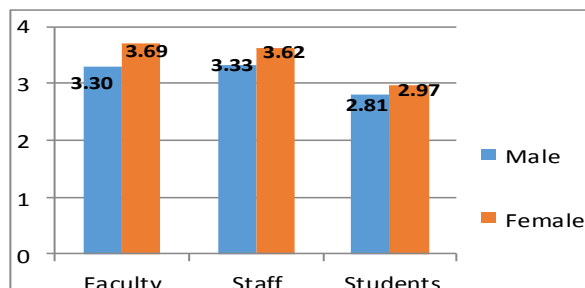
1. What is the level of gender awareness of male and female faculty, staff and students of Mountain Province State Polytechnic College?
2. What is the perception of male and female faculty, staff and students of Mountain Province State Polytechnic College on gender concepts and gender roles?
3. Are there significant differences that exist on the level of awareness, perceptions on gender concepts and gender role of the male and female faculty, staff and students?

METHODOLOGY

The descriptive survey method was used in the study. A questionnaire was used as a research instrument; it solicited information on the level of awareness on gender concepts and perception on gender roles of male and female faculty, staff and students of Mountain Province State Polytechnic College, Bontoc, Mountain Province. The study was conducted on the two campuses of MPSPC. The Slovin formula was adapted in taking the samples of the male and female student respondents. Twenty percent of the total student population using the random sampling was followed. On faculty and staff respondents, 50% was targeted to be taken for the study. However, the actual retrieved questionnaires from the staff were 41% while from the faculty respondents, the fifty percent (50%) target samples became thirty-nine percent (39%). All data gathered were statistically treated. Scoring was used to determine the level of awareness on gender concepts but to quantify a large amount of data a 4 point attitudinal scale was utilized. In the same manner, a 4 point attitudinal scale was also applied at the level of perception on gender roles. Sandler's was utilized to determine the significant difference of the awareness and perception of the male and female respondents.

FINDINGS

Fig. 1 Level of Awareness of Male and Female Faculty, Staff, and Students



Awareness Level		
3.01 – 4.00	Very Much Aware	(VMA)
2.01 – 3.00	Moderately Aware	(MoA)
1.01 – 2.00	Little Awareness	(LA)
0.01 – 1.00	Not Aware	(NA)

As gleaned from fig.1 both male and female faculty are very much aware (VMA) on the different gender concepts stated in the questionnaire. This is attributed to the different trainings, orientation and seminars attended and participated by both male and female faculty respondents.

In like manner, the male and female staff also are very much aware (VMA) on the different gender concepts. This is because male and female staff have attended and participated in the different GAD related activities conducted by the college and conducted by other agencies.

On the contrary, the male and female students are moderately aware (MoA) of the different gender concepts. This is because only selected group of students attended and participated GAD related trainings, seminars, orientations, and workshops conducted by the college.

TABLE 1. PERCEPTION OF MALE AND FEMALE FACULTY ON GENDER ROLES

Gender Roles	Faculty			
	Male		Female	
	X	P	X	P
1.Men are the head and bread winner of the family and women takes care of the children and manage the home.	3.7 3	SA	3.1 5	SA
2.Women are obliged to provide sexual services to their men according to their needs and desires.	3.5 8	SA	2.5 9	M A

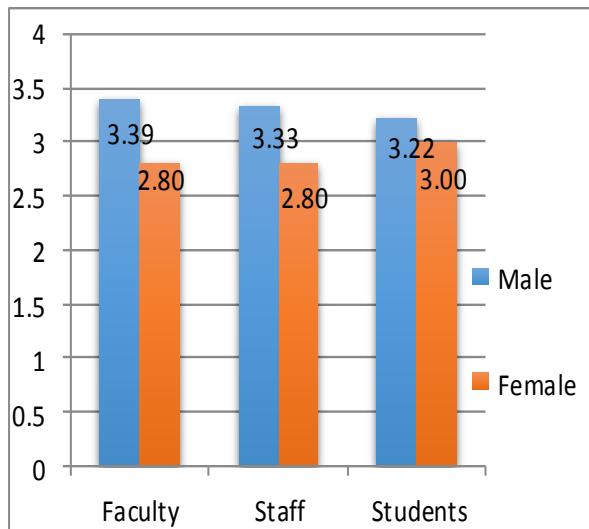
Gender Roles	Faculty			
	Male		Female	
	X	P	X	P
3. Women/Girls are expected mainly to perform household – related jobs and be submissive, serve others and have unending patience.	3.09	SA	2.05	MA
4. Men are expected to do chores outside the house, earn and protect the family. They are therefore, expected to be powerful and strong	3.82	SA	3.59	SA
5. Women should teach young boys and girls to do household chores as well as farm chores.	3.67	SA	3.49	SA
6. In mix community – based groups, women cannot play an active role in the discussions and decision.	3.40	SA	1.38	DA
7. Men/Husbands tell their wives what to do. And should have the final word about decisions in his home.	3.15	SA	1.36	DA
8. Men do “dirty jobs” such as construction and mechanics. On the other hand, women do the “clean jobs” such as secretaries, teachers, librarians, etc.	3.24	SA	3.41	SA
9. Men occupies high or key positions in the corporate or political arenas.	3.00	SA	2.90	MA
10. Women put their families first before career advancement.	3.67	SA	3.95	SA

11. Changing diapers, giving kids a bath, and feeding the kids are the mother’s responsibility.	3.15	SA	2.26	MA
12. A man and a woman should decide together what type of contraceptive to use.	3.94	SA	4.00	SA
13. Husbands and wives should share equally in housework such as cooking, washing dishes, and	2.94	MA	3.92	SA
14. Men are better suited than women to work outside of the house.	3.48	SA	2.00	DA
15. Men are better at making decisions about money. Women are better at making decisions	3.00	MA	2.00	DA
Overall X	3.39	SA	2.80	MA

As gleaned from table 1, the male faculty strongly agree (SA) with the different traditional gender roles stated in the questionnaire. This shows that the male respondents still adheres with the patriarchal mindset, which has been inculcated, defined by culture, and dictated by society. This reveals gender manifestation which is stereotyping, thus creates gender issues among the faculty members. On the other hand, the female faculty moderately agree (MoA) on the traditional roles. However, there are traditional roles that the female faculty strongly agree with the male faculty, these roles are: men are the head and bread winner of the family and women takes care of the children and manage the home, men are expected to do chores outside the house, earn and protect the family. They are therefore, expected to be powerful and strong, Women should teach young boys and girls to do household chores as well as farm chores, and men do “dirty jobs” such as construction and mechanics. On the other hand, women do the “clean jobs” such as secretaries, teachers, etc. and women put their families first before

career advancement. Both also agree in one modern view on gender roles which is, man and a woman should decide together what type of contraceptive to use. The strong agreement of both male and female faculty on the traditional gender roles reveals a gender issue. While it is true that the stated traditional roles are culturally accepted it creates gender bias for both sexes. Their expectations on gender roles are based on sexes.

Fig.2 Perception of Male and Female Faculty, Staff, and Students on Gender Roles



Perception Level

- 3.01 – 4.00 Strongly Agree (SA)
- 2.01 – 3.00 Moderately Agree (MoA)
- 1.01 – 2.00 Disagree (DA)
- 0.01 – 1.00 Strongly Disagree (NA)

Figure 2 shows that the male faculty, staff and students strongly agree on the different traditional gender roles prescribed to men and women. This reveals a stereotyped mindset among the male respondents and should be corrected. On the other hand, the female respondents moderately agree on the different traditional gender roles. The responses of the three group of respondents needs to be corrected.

TABLE 1a. PERCEPTION OF MALE AND FEMALE STAFF ON GENDER ROLES

Gender Roles	Staff			
	Male		Fe-male	
	X	P	X	P
1.Men are the head and bread winner of the family and women takes care of the children and manage the home.	3.8	S	3.	S
	3	A	77	A
2.Women are obliged to provide sexual services to their men according to their needs and desires.	3.5	S	1.	D
	6	A	96	A
3.Women/Girls are expected mainly to perform household – related jobs and be submissive, serve others and have unending patience.	3.2	S	2.	M
	8	A	65	A
4.Men are expected to do chores outside the house, earn and protect the family. They are therefore, expected to be powerful and strong	3.8	S	3.	S
	3	A	19	A
5.Women should teach young boys and girls to do household chores as well as farm chores.	3.7	S	3.	S
	2	A	69	A
6.In mix community – based groups, women cannot play an active role in the discussions and decision.	3.2	S	1.	D
	0	A	81	A
7.Men/Husbands tell their wives what to do. And should have the final word about decisions in his home.	3.3	S	1.	D
	9	A	85	A
8.Men do “dirty jobs” such as construction and mechanics. On the other hand, women do the “clean jobs” such as secretaries, teachers, librarians, etc.	3.3	S	2.	M
	3	A	38	A
9.Men occupies high or key positions in the corporate or political arenas.	2.9	M	2.	M
	5	A	12	A
10.Women put their families first before career advancement.	3.9	S	3.	S
	4	A	88	A
11.Changing diapers, giving kids a bath, and feeding the kids are the mother’s responsibility.	3.0	S	2.	M
	6	A	38	A

12. A man and a woman should decide together what type of contraceptive to use.	3.05	SA	3.96	SA
13. Husbands and wives should share equally in housework such as cooking, washing dishes, and housecleaning	3.94	SA	3.81	SA
14. Men are better suited than women to work outside of the house.	3.28	SA	1.96	DA
15. Men are better at making decisions about money. Women are better at making decisions about child care	2.11	MA	1.85	DA
Overall X	3.37	SA	2.80	MA

Table 2a shows that the male staff strongly agree (SA) on the different traditional gender roles. The male staff viewed these roles as norms and based on masculinity. According to Pleck (1981) masculinity is regarded as cultural construction. Men's behavior is accounted for by the conceptions of masculinity that men internalize from their culture.

On the other hand, female staff moderately agree on these traditional gender roles. While male staff strongly agree that women are to provide sexual services to their men according to their needs and desires, the female staff disagree. In like manner the female staff disagree on the following: only men play an active role in the mixed groups community based discussions and decisions, men tell their wives what to do and should have the final word about decisions in the home, men are better suited than women to work outside the house, and men are better at making decisions about money while women are better at making decisions about child care. This perception of the female staff reveals that they want involvement in areas of male dominated activities. Likewise the female staff also likes to involve

males in decision making at home and for the children. This shows an understanding of the female staff that gender is not an absolute characteristic of a particular individual, who will have some masculine and some feminine roles.

TABLE 1b. PERCEPTION OF MALE AND FEMALE STUDENTS ON GENDER ROLES

Gender Roles	Staff			
	Male		Female	
	X	P	X	P
1. Men are the head and bread winner of the family and women takes care of the children and manage	3.59	SA	3.79	SA
2. Women are obliged to provide sexual services to their men according to their needs and desires.	3.83	SA	2.84	MA
3. Women/Girls are expected mainly to perform household – related jobs and be submissive, serve others and have unending patience.	1.81	DA	1.96	DA
4. Men are expected to do chores outside the house, earn and protect the family. They are therefore, expected to be powerful and strong	3.32	SA	3.67	SA
5. Women should teach young boys and girls to do household chores as well as farm chores.	3.73	SA	3.62	SA
6. In mixed community – based groups, women cannot play an active role in the discussions and decision.	1.90	DA	1.68	DA
7. Men/Husbands tell their wives what to do. And should have the final word about decisions in his home.	3.32	SA	1.73	DA

8.Men do “dirty jobs” such as construction and mechanics. On the other hand, women do the “clean jobs” such as secretaries, teachers, librarians, etc.	3.62	SA	3.00	MA
9.Men occupies high or key positions in the corporate or political arenas.	2.66	MA	3.84	SA
10.Women put their families first before career advancement.	3.34	SA	3.95	SA
11.Changing diapers, giving kids a bath, and feeding the kids are the mother’s responsibility.	3.36	SA	3.56	SA
12.A man and a woman should decide together what type of contraceptive to use.	3.95	SA	3.95	SA
13.Husbands and wives should share equally in housework such as cooking, washing dishes, and housecleaning	2.97	DA	3.99	SA
14.Men are better suited than women to work outside of the house.	3.66	SA	3.00	MA
15.Men are better at making decisions about money. Women are better at making decisions about child care	2.25	MA	2.00	DA
Overall X	3.22	SA	3.00	MA

As gleaned from table 2b, the male students strongly agree on the traditional gender roles, while the female students moderately agree. However, there are traditional gender roles that both male and female students strongly agree on. These roles are: men are the head and bread winner of

the family and women takes care of the children and manage the home, men are expected to do chores outside the house, earn and protect the family. They are therefore, expected to be powerful and strong, women should teach young boys and girls to do household chores as well as farm chores, and women put their families first before career advancement, Changing diapers, giving kids a bath, and feeding the kids are the mother’s responsibility.

This perception reveals that the female students accepts the traditional gender roles prescribed by the society and dictated by culture. This shows a gender issue which is stereotyping and needs to be corrected. Perez (2004) explained that this is reality. The most distinct roles expected of a woman or a wife is to dedicate her entire time to childbearing, preparing food, bathing and providing educational guidance and support.

TABLE 3. COMPARISON ON AWARENESS OF MALE AND FEMALE FACULTY ON GENDER CONCEPTS

Gender	Male	Female	D	D ²
1	3.45	3.58	-0.13	0.0169
2	3.33	3.91	0.58	0.3364
3	3.55	3.67	-0.12	0.0144
4	3.24	3.79	-0.55	0.3025
5	3.89	3.51	0.38	0.1444
6	3.17	3.55	-0.38	0.1444
7	3.43	3.65	-0.22	0.0484
8	2.78	3.72	-0.94	0.8836
9	3.39	3.80	-0.41	0.1681
10	3.27	3.37	-0.1	0.01
11	3.21	3.67	-0.46	0.2116
12	3.35	3.74	-0.39	0.1521
13	3.15	3.72	-0.57	0.3249
14	3.32	3.63	-0.31	0.0961
15	2.95	3.76	-0.81	0.6561
16	3.25	3.57	-0.32	0.1024
17	3.28	3.87	-0.59	0.3481

18	3.15	3.66	-0.51	0.2601
19	3.27	3.76	-0.49	0.2401
20	3.55	3.78	-0.23	0.0529
Total	65.98	73.71	ΣD	ΣD²
Mean	3.30	3.69	-7.73	4.5135

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = \frac{4.5135}{(-7.73)^2}$$

$$A = \frac{4.5135}{59.7529}$$

$$A = 0.076$$

$$df = n-1$$

$$= 20-1$$

$$= 19$$

Critical value at .05 = 0.267

Conclusion: At .05 level of significance there is a significant difference between the male and female faculty on their level of awareness on gender concepts. The female faculty have a higher awareness on gender concepts than the male faculty.

TABLE 3a. COMPARISON ON AWARENESS OF MALE AND FEMALE STAFF ON GENDER CONCEPTS

Gender Con-	Male	Female	D	D ²
1	3.61	3.71	-0.1	0.01
2	3.29	3.35	-0.06	0.0036
3	3.18	3.5	-0.32	0.1024
4	3.29	3.37	-0.08	0.0064
5	3.25	3.78	-0.53	0.2809
6	3.55	3.94	-0.39	0.1521
7	3.23	3.77	-0.54	0.2916
8	3.44	3.81	-0.37	0.1369
9	3.18	3.67	-0.49	0.2401
10	3.29	3.39	-0.1	0.01
11	3.47	3.57	-0.1	0.01
12	3.13	3.39	-0.26	0.0676
13	3.15	3.78	-0.63	0.3969
14	3.41	3.73	-0.32	0.1024
15	3.49	3.64	-0.15	0.0225
16	3.23	3.33	-0.1	0.01

17	3.47	3.77	-0.3	0.09
18	3.45	3.71	-0.26	0.0676
19	3.23	3.65	-0.42	0.1764
20	3.33	3.59	-0.26	0.0676
Total	66.70	72.50	ΣD	ΣD²
Mean	3.33	3.62	-5.78	2.245

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = \frac{2.245}{(-5.78)^2}$$

$$A = \frac{2.245}{33.4084}$$

$$A = 0.0671$$

$$df = n-1$$

$$= 20-1$$

$$= 19$$

Critical value at .05 = 0.267

Conclusion: At .05 level of significance there is a significant difference between the male and female staff on their level of awareness on gender concepts. The female staff have a higher awareness on gender concepts than the male staff.

TABLE 3b. COMPARISON ON AWARENESS OF MALE AND FEMALE STUDENTS ON GENDER CONCEPTS

Gender Concepts	Male	Female	D	D ²
1	2.98	2.15	0.83	0.6889
2	2.9	3.19	-0.29	0.0841
3	3.13	2.78	0.35	0.1225
4	3.05	2.93	0.12	0.0144
5	2.22	3.18	-0.96	0.9216
6	2.76	3.27	-0.51	0.2601
7	2.65	3.35	-0.7	0.49
8	3.59	3.53	0.06	0.0036
9	2.21	2.79	-0.58	0.3364
10	2.9	3.01	-0.11	0.0121
11	1.97	2.12	-0.15	0.0225
12	3.31	2.97	0.34	0.1156
13	3.22	3.14	0.08	0.0064
14	2.53	2.77	-0.24	0.0576
15	2.16	3.21	-1.05	1.1025

16	2.97	3.11	-0.14	0.0196
17	2.71	2.87	-0.16	0.0256
18	3.19	3.22	-0.03	0.0009
19	2.63	2.73	-0.1	0.01
20	3.12	3.09	0.03	0.0009
Total	56.20	59.41	ΣD	ΣD²
Mean	2.81	2.97	-3.21	4.2953

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = 4.2953/(-3.21)^2$$

$$A = 4.2953/10.3041$$

$$A = 0.4168$$

$$df = n-1$$

$$= 20-1$$

$$= 19$$

Critical value at .05 = 0.267

Conclusion: At .05 level of significance there is a significant difference between the male and female students on their level of awareness on gender concepts. The female students have a higher awareness on gender concepts than the male students.

TABLE 4. COMPARISON OF PERCEPTION OF MALE AND FEMALE FACULTY ON GENDER ROLES

Gender	M	F	D	D ²
1	3.73	3.15	0.58	0.3364
2	3.58	2.59	0.99	0.9801
3	3.09	2.05	1.04	1.0816
4	3.82	3.59	0.23	0.0529
5	3.67	3.49	0.18	0.0324
6	3.40	1.38	2.02	4.0804
7	3.15	1.36	1.79	3.2041
8	3.24	3.41	-0.17	0.0289
9	3.00	2.90	0.1	0.01
10	3.67	3.95	-0.28	0.0784
11	3.15	2.26	0.89	0.7921
12	3.94	4.00	-0.06	0.0036
13	2.94	3.92	-0.98	0.9604

14	3.48	2.00	1.48	2.1904
15	3.00	2.00	1	1
Total	50.86	42.05	ΣD	ΣD²
Mean	3.39	2.80	8.81	14.8317

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = 14.8317/(8.81)^2$$

$$A = 14.8317/77.616$$

$$A = 0.1910$$

$$df = n-1$$

$$= 15-1$$

$$= 14$$

Critical value at .05 = 0.270

Conclusion: At .05 level of significance there is a high significant difference between the male and female faculty on their perception on gender roles. The male faculty strongly agree on the different traditional on gender roles than the female faculty.

TABLE 4a. COMPARISON OF PERCEPTION OF MALE AND FEMALE STAFF ON GENDER ROLES

Gender	Male	Female	D	D ²
1	3.45	3.58	-0.13	0.0169
2	3.33	3.91	0.58	0.3364
3	3.55	3.67	-0.12	0.0144
4	3.24	3.79	-0.55	0.3025
5	3.89	3.51	0.38	0.1444
6	3.17	3.55	-0.38	0.1444
7	3.43	3.65	-0.22	0.0484
8	2.78	3.72	-0.94	0.8836
9	3.39	3.80	-0.41	0.1681
10	3.27	3.37	-0.1	0.01
11	3.21	3.67	-0.46	0.2116
12	3.35	3.74	-0.39	0.1521
13	3.15	3.72	-0.57	0.3249
14	3.32	3.63	-0.31	0.0961
15	2.95	3.76	-0.81	0.6561
16	3.25	3.57	-0.32	0.1024

17	3.28	3.87	-0.59	0.3481
18	3.15	3.66	-0.51	0.2601
19	3.27	3.76	-0.49	0.2401
20	3.55	3.78	-0.23	0.0529
Total	65.98	73.71	ΣD	ΣD²
Mean	3.30	3.69	-7.73	4.5135

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = \frac{12.3871}{(9.21)^2}$$

$$A = \frac{12.3871}{84.8241}$$

$$A = 0.1460$$

$$df = n-1$$

$$= 15-1$$

$$= 14$$

Critical value at .05 = 0.270

Conclusion: At .05 level of significance there is a highly significant difference between the male and female staff on their perception on gender roles. The male staff strongly agree on the different traditional gender roles while the female staff moderately agree.

TABLE 4b. COMPARISON OF PERCEPTION OF MALE AND FEMALE STUDENTS ON GENDER ROLES

Gender Roles	M	F	D	D ²
1	3.59	3.79	-0.2	0.04
2	3.83	2.84	0.99	0.9801
3	1.81	1.96	-0.15	0.0225
4	3.32	3.67	-0.35	0.1225
5	3.73	3.62	0.11	0.0121
6	1.90	1.68	0.22	0.0484
7	3.32	1.73	1.59	2.5281
8	3.62	3.00	0.62	0.3844
9	2.66	3.84	-1.18	1.3924
10	3.34	3.95	-0.61	0.3721
11	3.36	3.56	-0.2	0.04
12	3.95	3.95	0	0
13	2.97	3.99	-1.02	1.0404

14	3.66	3.00	0.66	0.4356
15	2.25	2.00	0.25	0.0625
TOTAL	47.31	46.58	ΣD	ΣD²
MEAN	2.36	2.33	0.73	7.4811

$$A = \frac{\sum D^2}{(\sum D)^2}$$

$$A = \frac{7.4811}{(0.73)^2}$$

$$A = \frac{7.4811}{0.5329}$$

$$A = 14.0$$

$$df = n-1$$

$$= 15-1$$

$$= 14$$

Critical value at .05 = 0.270

Conclusion: At .05 level of significance there is **no** significant difference between the male and female students on their perception on gender roles. Male and female students moderately agree on the different tradition gender roles.

CONCLUSION

The study found out that the three groups of respondent have a different level of awareness on gender concepts.

- The high level of awareness of both male and female staff are results of the different trainings, seminars, orientations and workshop that faculty and staff attended and participated. GAD related activities whether conducted by the college or other agencies capacitated the faculty and staff for it served as a vehicle in raising GAD awareness among the male and female faculty and staff. The trainings, seminars, orientations and workshops are necessary to increase the level of awareness and eradicate presumptions on gender and development.

On the contrary, the male and female students are moderately aware of the gender concepts. One factor as to why the students are moderately aware on the different gender concepts is because of lack of trainings, seminars, orientations, and workshops conducted for the students. Conducted GAD related activities by the college is attended and participated only by identified

groups. Trainings, seminars, orientations, and workshop helps increase level of awareness on gender concepts. Without such activities students are not aware of Gender and development, thereby hampering their growth and understanding.

On the other hand, the perception of the three groups of respondents on gender roles varies.

- All the male respondents strongly agree on the different gender roles which represent the superiority of men over that of women which are a strong manifestation of the Philippine patriarchal society. The male respondents still have a stereotyped mindset which hampers development, thus a manifestation of gender inequality.
- The female respondents moderately agreed on the traditional gender roles; The female respondents are doing away with the traditional gender roles, they are more pro-active when it comes to the recognition of the different gender roles. However, they still carry a belief system that gender roles are base on sex or the masculinity or feminism.

RECOMMENDATION

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

- To upgrade the level of gender awareness of the students on gender concepts, Gender Orientation should be conducted every semester particular for the first years and transferees.

GAD related trainings, seminars, and workshops should be conducted (organizational and clientele focus) as indicated in the GAD Plans, Activities, and Projects (PAPs) of the college.

- Develop MPSPC GAD module that can serve as teaching references on different subject areas where gender concepts can be integrated.
- Upgrade the GAD corner in the library through the purchase of books and other reading materials related to GAD.
- Increase involvement of men and women in the different training, seminar, orientation on Gender and Development (GAD)
- Enhance the commitment of the institution to gender equity and equality by developing and

practicing advocacy.

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PRODUCT DEVELOPMENT OF BREAD ROLLS FROM TANNIA (*Xanthosoma sagittifolium*)

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ABSTRACT

This study was conducted to develop bread rolls which utilized cheaper, healthier and locally available raw materials, i.e. Tannia tubers, as additional ingredient. It was conducted at Apayao State College, Conner, Apayao and was funded through the fund of the college. Standard procedure in making bread roll was used. Foods experts who are also faculty members of ASC oversaw the preparation of the product.

Samples were coded and were subjected to sensory evaluation by panel of 30 examinees consisting of students, faculty members and administrators of the college. Each sample was evaluated in terms of aroma, flavor, color, texture, and overall acceptability. The 5-point Likert scale was used for aroma, color, flavor, and texture and the 7- point Hedonic Scale was used for the general acceptability.

Results showed that Treatment 3 (399 g Tannia puree) got the highest rating in terms of Aroma, Flavor, Color and Texture with mean rating of 4.16 (Aromatic), 4.32 (Very Flavorful), 4.24 (very Attractive), and 4.36 (Very Fine). Treatment 1 (133 g Tannia puree) and Treatment 2 (266 g Tannia puree) had almost similar ratings for Aromatic, Flavorful, Attractive and Fine. The control, which had the lowest mean rating got verbal interpretation as Aromatic, Moderately Flavorful, Attractive, and Fine.

For the overall acceptability of the product, T₃, T₂, T₁ got mean ratings of 5.90, 5.80, and 5.67 respectively with similar descriptive interpretation "Like moderately." The Control with mean rating of 5.00 was interpreted as "Like slightly".

Furthermore, T₃ delivered the highest net income which was five (5) times higher than the control and ROCE which is four (4) times better. This was followed by T₂ and T₃ with net income of 89.20 and 44.20 and ROCE of 55.47 % and 28.37 %, respectively.

Keywords: Tannia puree; bread rolls; Likert scale; Hedonic scale; ROCE

INTRODUCTION

Value-adding activities for farm products including food processing are very essential factors in attaining food sufficiency and uplifting socio-economic conditions of many of our farm workers. Food processing typically takes raw, clean harvested crops or butchered animal products and transforms this into food or into other forms which are attractive, marketable, and often with longer shelf-life.

Apart from generating better returns, since processed foods fetch comparatively higher rates than the raw produce itself, it also adds value, and enhances the shelf life of farm products. Further, food processing, has the potential of solving the major problems of agriculture surpluses, wastages, unemployment and uncertain prices of products.

Tannia (*Xanthosoma sagittifolium*), locally called *Lusya* in Isneg can reach a height of about 2 m and have a short erect stem and large, long-stalked sagittate or hastate leaves, which differ from those of *Colocasia* in that the leaf stalk joins the blade at the margin between the lobes (not into the surface of the blade), and the tips of the lobes are pointed, not rounded. The leaves have a prominent marginal vein, and are 50-75 cm long, occasionally more; the petioles are about 1 meter long. The inflorescence is borne below the leaves, with a pale green spathe about 20 cm long; some cultivars never flower and seed is rarely produced. A corm is produced at the base of the plant and this bears several (usually 10 or more) lateral corms (cormels), each 10-25 cm long.

Furthermore, the physicochemical and pasting properties of taro (*Colocasia esculenta* L.) flour were investigated and compared with flours from other botanical sources. Proximate composition, color parameters, water and oil absorption, foaming characteristics and pasting properties (measured using Rapid visco analyzer) of flours were related to each other using Pearson correlation and principal component analysis (Perez E. et al. 2004).

The utilization of Tannia and six other root and tuber crops known and grown by the Isnegs of Apayao were mainly for household use, mostly for snacks and viand or vegetable purpose and as feed for animals (Gayao, B. et al., 2014). However, a follow-up study of Gayao et al. (2016), revealed that the indigenous peoples in the Northern Philippines have no practices that pro-

longs storage life of the root crops, though cleaned and washed. To promote its utilization, value-adding activities has to be done, such as processing the raw materials into processed products or utilizing it as alternative raw materials in the production of a new product. Such product development could arise if there are new concepts and/ or ideas on how and what to develop out of the available raw materials at hand, thus this study was conceptualized.

LITERATURE REVIEW

In the Philippine Statistics Authority (PSA) records, the top seven root and tuber crops in the list includes cassava, sweetpotato, potato, greater yam (ubi), taro (gabi), Tannia (galiang), and lesser yam (tugui). In terms of crop production in 2014, cassava ranks first in the Philippines at 2.54 million metric tons (MT), followed by sweetpotato at 0.519 MT, potato 0.119 MT, and taro at 0.110 MT. Greater yam (0.014 MT), tannia (0.011 MT) and lesser yam (0.003 MT) were produced in lesser amounts (PSA, 2013). The bulk of root and tuber supply is for food consumption (95% for sweetpotato, ubi and gabi, 71% for potato, 82% for galiang and 86% for tugui) except cassava where the bulk of it is for the processing industry (84%) and only 10% is for food consumption. Although the PSA report did not include the harvest data for ubi and sweetpotato used for processing, the Department of Agriculture Agribusiness Division listed several yam and sweetpotato processors.

In the study of Gayao et al. (2016), they found out that aside from the seven roots and tubers listed in the country's agricultural statistics, there were more than 20 roots and tubers grown or known by the indigenous peoples in Northern Philippines which can be utilized as human food and animal feed. Among of these were: Root crops- cassava, sweetpotato, greater yam, taro, tannia; Tuber crops- greater yam, lesser yam, arrow root, aerial yam, potato, canna, nami, wild greater yam, wild lesser yam, elephant yam; Corm crops- taro, tannia, wild taro and giant taro. However, the Isnegs of Apayao had only been growing and utilizing six cultivated species and seven wild species of these root crops (Gayao et al., 2014).

In the pasts, these different root and tuber crops were mentioned in news articles and earlier studies as survival crops among resource-poor families to counter the ill-effects of natural calam-

ities and food crises. This was also evident during World War II in the Cordillera Highlands (Solimen et al., 1998); the aftermath of the 1990 earthquake in Benguet (Sano et al., 1991) and the year round cultivation of sweetpotato, ubi and tugui. These were also considered as subsistence crops in the island province of Batanes (Dayo et al., 1998).

OBJECTIVES

This study was conducted to develop bread rolls utilizing cheaper, healthier and locally available materials, such as Tannia, as additional ingredient.

Specifically, it aimed to:

- 1.To determine the acceptability of the bread rolls using Tannia
- 2.To determine the projected return on investment (ROCE) in the preparation of bread rolls with Tannia as an ingredient.

METHODOLOGY

Project Location

The project was conducted at Apayao State College, Conner, Apayao. The project was funded by the College through its research fund. Foods experts who are also faculty members of ASC oversaw the preparation of the product.

Treatment Preparations

Standard procedure in making bread roll was used. The following were the treatment preparations:

T0	T1	T2	T3
450 g Bread flour	450 g Bread flour	450 g Bread flour	450 g Bread flour
116 g Refined sugar	116 g Refined sugar	116 g Refined sugar	116 g Refined sugar
59 g, Margarine	59 g Margarine	59 g Margarine	59 g Margarine
90 g, Egg	90 g Egg	90 g Egg	90 g Egg
7 g, Yeast	7 g Yeast	7 g Yeast	7 g Yeast
2 g salt	2 g salt	2 g salt	2 g salt
102 g Evaporated milk	102 g Evaporated milk	102 g Evaporated milk	102 g Evaporated milk
94 g water	94 g water	94 g water	94 g water

Filling:

133 g Tannia puree	266 g Tannia puree	399 g Tannia puree
102 g Evaporated milk	102 g Evaporated milk	102 g Evaporated milk
13 g Mar-	13 g Marga-	13 g Mar-
94 g Refined sugar	94 g Refined sugar	94 g Refined sugar
16 g flour	16 g flour	16 g flour

Process Flow Chart

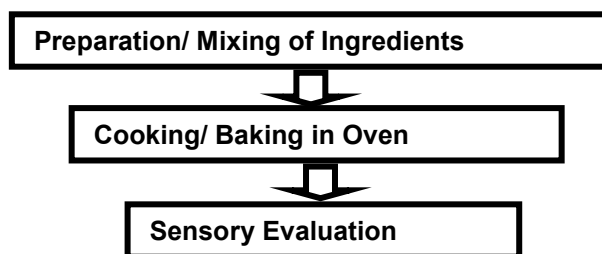


Figure 1. Schematic Diagram of the processes involved in the study.

Data Gathered

Samples were coded and were subjected to sensory evaluation. Samples were evaluated by 30 panel of examinees consisting of students, faculty members and administrators of the college. Each sample were evaluated in terms of aroma, flavor, color, texture, and overall acceptability.

Statistical Analysis of Data

Data were analyzed using 5-point Likert scale for aroma, color, flavor, and texture. For the general acceptability, 7- point Hedonic Scale was used. The scales used are presented below:

Table 1. Scale and verbal interpretation of 5-point Likert scale

Scale	Limits of Description	Aroma	Flavor	Color	Texture
		Very aromatic	Very Flavorful	Very attractive	Very Fine
4	3.40-4.19	Aromatic	Flavorful	Attractive	Fine
3	2.60-3.39	Moderately aromatic	Moderately Flavorful	Moderately attractive	Moderately Fine

2	1.80-2.59	Slightly aro-	Slightly Fla-	Slightly attrac-	Slightly Fine
1	1.00-1.79	No aroma	Not Flavorful	Not attractive	Coarse

Table 2. Scale and verbal interpretation using 7-point Hedonic scale

Scale	Interpretation
7	Like very much
6	Like moderately
5	Like slightly
4	Neither like nor dislike
3	Dislike slightly
2	Dislike moderately
1	Dislike very much

FINDINGS

Acceptability of Tannia Bread Roll

Table 3 shows that Treatment 3 (399 g Tannia puree) got the highest rating in terms of Aroma, Flavor, Color and Texture with mean rating of 4.16 (Aromatic), 4.32 (Very Flavorful), 4.24 (very Attractive), and 4.36 (Very Fine). Treatment 1 (133 g Tannia puree) and Treatment 2 (266 g Tannia puree) had almost similar ratings i.e. Aromatic, Flavorful, Attractive and Fine. The control, which had the lowest mean rating got verbal interpretation as Aromatic, Moderately Flavorful, Attractive, and Fine.

The result shows that Tannia puree can really improve the acceptability of bread rolls in terms of aroma, flavor, color and texture.

Table 3. Acceptability of Tannia Bread Roll in terms of Aroma, Flavor, Color and Texture

Overall Acceptability of Tannia Bread Roll

For the overall acceptability of the product, T₃, T₂, T₁ got mean ratings of 5.90, 5.80, and 5.67 respectively with similar descriptive interpretation “Like moderately”. The Control with mean rating of 5.00 was interpreted as “Like slightly”.

This would simply mean that the addition of at least 133 grams of Tannia puree in the preparation of bread roll would improve its overall acceptability. The result jives with the study of Hidalgo (2016), Bayaua (2016), and Laguna and Bono (2016) which also used Tannia and Camote puree to improve the quality of jam, cookies and buns respectively.

Table 4. Overall acceptability of the different treatments of Tannia bread roll

Treatment	Overall Acceptability	
	Mean Rating	Descriptive Interpretation
Control - No Tannia	5.00	Like slightly
T1- 133 g Tannia	5.67	Like moderately
T2- 266 g Tannia	5.80	Like moderately
T3- 399 g Tannia	5.90	Like moderately

Return on Cash Expense (ROCE)

As seen in Table 5, T₃ delivered the highest net income which is five (5) times higher than the control and ROCE which is four (4) times better. This is being followed by T₂ and T₁ with net income of 89.20 and 44.20 and ROCE of 55.47 % and 28.37 %, respectively.

Table 5. Return on Cash Expense on the different treatments of Tannia bread rolls.

Items	T0	T1	T2	T3
TOTAL PRO-DUCTION COST	124.30	155.80	160.80	165.80
GROSS IN-COME	150.00	200.00	250.00	300.00
NET IN-COME	25.70	44.20	89.20	134.20
ROCE (%)	20.68	28.37	55.47	80.94

CONCLUSION

Based on the result of the study, it is concluded that the addition of 399 g of tannia puree to 102 g evaporated milk and 13 g margarine as filling to bread rolls made out of 450 g bread flour, 116 g refined sugar, 90 g egg, 7 g yeast, 102 g evaporated milk, and 94 g water, did not only enhance the acceptability of bread rolls but also yielded higher net returns.

Production of bread roll from Tannia can be a viable enterprise since the availability of raw materials from the Tannia crop is year round, coupled with the positive response on its acceptability as an ingredient and the higher return on investments that can be derived.

RECOMMENDATION

Production of bread rolls using Tannia as an ingredient should be promoted as a viable household level enterprise in the municipality of Conner.

Mass production bread using Tannia should be done as part of the income generating activity of the college.

The Tannia rolls should be subjected for analysis to determine its nutrient content.

Further research on appropriate packaging and labeling of the product should be conducted.

Promotion of the developed technology to a wider range of consumers through participation in exhibits and trade fairs should be done.

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SENSORY EVALUATION OF TANNIA (*Xanthosoma sagittifolium*)- CAMOTE (*Ipomea batatas*) COOKIES

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ABSTRACT

This study was conducted to develop nutritious cookie product from Tannia and Camote. Specifically, it sought to identify the best combination of Tannia and Camote as additional ingredient in the preparation of cookies through sensory evaluation and to determine the projected return on investment in the preparation of cookies with tannia and Camote as additional ingredients.

Based on the results of the study, it is concluded that adding tannia and camote as ingredients in the preparation of cookies effectively enhanced the acceptability of cookies. Particularly, adding 160 grams tannia and 160 grams camote was seen to be most acceptable in terms of the various attributes as well as the general acceptability of the cookies. Further, using tannia and Camote as additional ingredients yielded higher returns on investments. Initial shelf-life analysis using the organoleptic method showed that the cookies reached a shelf- life of 30 days. Under room temperature, the samples started to taste rancid and show beginnings of molds after one month.

Through this study, a new processing technology was developed, namely; an innovation/ modification of Cookie Processing Procedure wherein the production technique involves the use of nutritious materials like tannia and Camote as additional ingredient which basically is an improvement of the usual processing procedure and cookies with a composition not similar with the usual ingredients used in the preparation of the same.

Keywords: *Sensory Evaluation, Tannia- Camote Cookies, Acceptability, Return on Investment*

INTRODUCTION

The Isneg ethno- linguistic group of Apayao grew rice as their staple but also grew root crops even if considered a low prestige crop. In Talifugo, Conner, Apayao, six cultivated and seven wild or volunteer roots and tubers are known by Isnegs (Gayao et al., 2014). Two of these root crops grown were Tannia and Camote.

Tannia (*Xanthosoma sagittifolium*), locally called *Lusya* in the Isneg can reach a height of about 2 m and have a short erect stem and large, long-stalked sagittate or hastate leaves, which differ from those of *Colocasia* in that the leaf stalk joins the blade at the margin between the lobes

(not into the surface of the blade), and the tips of the lobes are pointed, not rounded. The leaves have a prominent marginal vein, and are 50-75 cm long, occasionally more; the petioles are about 1 m long. The inflorescence is borne below the leaves, with a pale green spathe about 20 cm long; some cultivars never flower and seed is rarely produced. A corm is produced at the base of the plant and this bears several (usually 10 or more) lateral corms (cormels), each 10-25 cm long.

Camote on the other hand, scientifically known as *Ipomoea batatas* belongs to the botanical family Convolvulaceae. Sweetpotato is a perennial that is usually grown as an annual. It grows from underground tuberous roots with trailing, twisting stems that can be as long as twenty feet.

Leaves are variable in shape, size, and color but are generally more or less heart-shaped and green with purple markings. The single flowers are funnel shaped and white or pale purple but are rarely seen in temperate regions. Roots grow where stem nodes touch the ground, and most develop into the edible storage roots, usually four to ten storage roots per plant.

Household food consumption and sale of roots and tubers are low thus there's insignificant role of tubers in the household food security and income of the Isneg indigenous people. (Gayao et al., 2014). With this information coupled with the fact that storage roots and tubers contain varied quantities of protein, essential vitamins and minerals (Horton, 1988), as well as dietary fiber, potassium, and iron, and are low in fat and cholesterol, the researchers of Apayao State College sought ways to develop food products from root crops to enhance the consumption of the same.

Further, this initiative aimed to develop practical and low- cost food processing technologies that may be adopted by farmers and women-folk's as an alternative source of income and livelihood.

REVIEW OF LITERATURE

Roots and tuber crops are collective terms for plants that are grown for their modified, thickened roots or stems which generally develop underground. Special terms for specific types are root crops for modified roots, tuber crops and corm crops for modified stems (Bareja, 2010).

In the Philippine Statistics Authority (PSA) records, the top seven root and tuber crops in the list includes cassava, sweetpotato, potato, greater yam (ubi), taro (gabi), Tannia (galiang), and lesser yam (tugui). In terms of crop production in 2014, cassava ranks first in the Philippines at 2.54 million metric tons (MT), followed by sweetpotato at 0.519 MT, potato 0.119 MT, and taro at 0.110 MT. Greater yam (0.014 MT), tannia (0.011 MT) and lesser yam (0.003 MT) were produced in lesser amounts (PSA, 2013). The bulk of root and tuber supply is for food consumption (95% for sweetpotato, ubi and gabi, 71% for potato, 82% for galiang and 86% for tugui) except cassava where the bulk of it is for the processing industry (84%) and only 10% is for food consumption. Although the PSA report did not include the harvest data for ubi and sweetpotato used for processing, the Department of Agriculture Agribusiness Division listed several yam and

sweet potato processors.

In the study of Gayao et al. (2016), they found out that aside from the seven roots and tubers listed in the country's agricultural statistics, there were more than 20 roots and tubers grown or known by the indigenous peoples in Northern Philippines which can be utilized as human food and animal feed. Among of these were: Root crops- cassava, sweetpotato, greater yam, taro, tannia; Tuber crops- greater yam, lesser yam, arrow root, aerial yam, potato, canna, nami, wild greater yam, wild lesser yam, elephant yam; Corm crops- taro, tannia, wild taro and giant taro. However, the Isnegs of Apayao had only been growing and utilizing six cultivated species and seven wild species of these root crops (Gayao et al., 2014).

In the pasts, these different root and tuber crops were mentioned in news articles and earlier studies as survival crops among resource-poor families to counter the ill-effects of natural calamities and food crises. This was also evident during World War II in the Cordillera Highlands (Solimen et al., 1998); the aftermath of the 1990 earthquake in Benguet (Sano et al., 1991) and the year round cultivation of sweetpotato, ubi and tugui. These were also considered as subsistence crops in the island province of Batanes (Dayo et al., 1998).

OBJECTIVES

Generally, this study was conducted to develop nutritious cookie product from Tannia and Camote.

Specifically, it sought to answer the following questions:

1. identify the physical attributes and acceptability of Tannia and Camote as additional ingredient in the preparation of cookies through sensory evaluation
2. determine the projected return on investment in the preparation of cookies with Tannia and Camote as additional ingredients.

METHODOLOGY

Project Location

The project was conducted at Apayao State College Conner, Apayao. The project was funded by the College through its research fund. Foods experts who are also faculty members of ASC oversaw the preparation of the product.

Treatment Preparations

For treatment 0, the standard procedure in baking the cookies was used, while for treatments 1, 2 and 3, pureed Tannia and Camote were added as additional ingredients. The following were the treatment preparations:

T0:	Standard procedure/ No Tannia and
T ₁ :	Addition of 80 grams Tannia and 80 grams
T ₂ :	Addition of 120 grams Tannia and 120
T ₃ :	Addition of 160 grams Tannia and 160 grams Camote

Procedures

1. Sift flour and weigh, add baking powder and skim milk.
2. Cream egg, white sugar and margarine.
3. Add flour, Tannia, and Camote puree.
4. Continue mixing until ingredients are well blended.
5. Form into desired size.
6. Place in a greased baking pan and flatten.
7. Bake in a pre-heated oven for 15- 20 minutes. Remove and serve hot.

Process Flow Chart

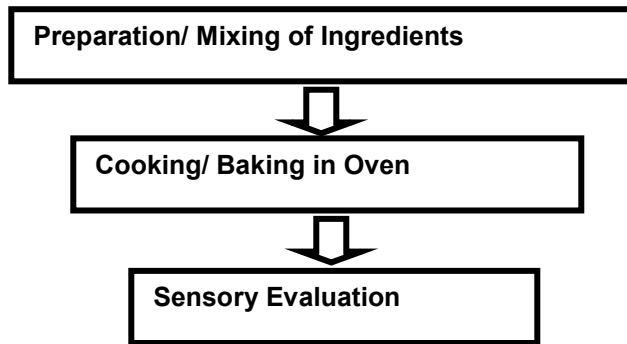


Figure 1. Schematic Diagram of the processes involved in the study.

Data Gathered

Samples were coded and were subjected to sensory evaluation. Samples were evaluated by panel of 30 examinees consisting of students, faculty members and administrators of the college. Each sample were evaluated in terms of aroma, flavor, color, texture, and overall acceptability.

Statistical Analysis of Data

Data were analyzed using 5-point Likert scale for aroma, color, flavor, and texture. For the general acceptability, 7- point Hedonic Scale was used. The scales used were as follows:

Table 1. Scale and verbal interpretation of 5-point Likert scale

Scale	Limits of Description	Aroma	Flavor	Color	Texture
5	4.20-5.00	Very aromatic	Very Flavorful	Very Appealing	Very Fine
4	3.40- 4.19	Aromatic	Flavorful	Appealing	Fine
3	2.60- 3.39	Moderately aromatic	Moderately Flavorful	Moderately Appealing	Moderately Fine
2	1.80- 2.59	Slightly aromatic	Slightly Flavorful	Slightly Appealing	Slightly Fine
1	1.00-1.79	No aroma	Not Flavorful	Not Appealing	Coarse

Table 2. Scale and verbal interpretation using 7-point Hedonic scale

Scale	Interpretation
7	Like very much
6	Like moderately
5	Like slightly
4	Neither like nor dislike
3	Dislike slightly
2	Dislike moderately
1	Dislike very much

FINDINGS

Physical Attributes of Tannia- Camote Cookies

For aroma of the cookies, Table 1 showed T₃ (160 g Tannia + 160 g Camote) garnered the highest mean rating of 4.25 with verbal interpretation “very aromatic.” This is followed by T₂ (120 g Tannia + 120 g Camote) with mean of 3.44 which is interpreted as “aromatic” and T₁ (80 g Tannia + 80 g Camote) and control (no Tannia/ Camote) with mean of 3.00, “moderately aromatic.” This implies that the more Tannia & Camote puree added in the mixture, the more aromatic the cookies had become.

In terms of flavor, T₃ still garnered the highest mean rating of 4.31 with verbal interpretation “very flavorful”, while T₂ was rated flavorful with mean of 3.50. Both T₁ and control were both moderately flavorful with means of 3.00 and 2.88, respectively. This means that the addition of tannia puree enhanced the flavor of the cookies.

For color, control, T₃, and T₂ were rated “attractive” with means of 3.81, 3.75, and 3.56, respectively, while T₁ had the lowest mean of 3.25 and was rated “moderately attractive.”

As to the texture of the cookies, T₃ got the highest mean with 4.25 which means “very fine”, followed by T₂ (3.69) rated as “fine” while T₁ and control with means of 3.25 and 3.19 were rated “moderately fine.”

Overall, T₃ had the highest mean in all the attributes of the cookie. This is reflected in majority of the comments of the evaluators who claimed that the mixture of Tannia and Camote can be distinctly tasted in the said treatments.

Table 3. Physical Attributes of Tannia - Camote Cookies

Treatment	Attributes							
	Aroma		Flavor		Color		Texture	
	Mean	Scale	Mean	Scale	Mean	Scale	Mean	Scale
Control	3.00	Moderately Aromatic	3.00	Moderately Flavorful	3.81	Attractive	3.19	Moderately Fine

T1	3.00	Moderately Aromatic	2.88	Moderately Flavorful	3.25	Moderately Attractive	3.25	Moderately Fine
T2	3.44	Aromatic	3.50	Flavorful	3.56	Attractive	3.69	Fine
T3	4.25	Very Aromatic	4.31	Very Flavorful	3.75	Attractive	4.25	Very Fine

Overall Acceptability of the Tannia- Camote Cookies

As to overall acceptability of the cookies, T₃ emerged as having the highest rating of 6.13 which is interpreted as “Like moderately”. The rest of the treatments, including the control received a rating of 5, with the verbal interpretation of “Like slightly”.

Table 4. Overall acceptability of Tannia- Camote Cookies

Treatment	Overall Acceptability	
	Mean Rating	Descriptive Interpretation
Control - No Tannia & Camote	5.31	Like slightly
T1- (80 g Tannia + 80 g Camote)	5.06	Like slightly
T2- (120 g Tannia + 120 g Camote)	5.50	Like slightly
T3- (160 g Tannia + 160 g Camote)	6.13	Like moderately

Initial Shelf- life Analysis

Using the organoleptic method of analyzing the shelf life of the cookies, it was found out

that the cookies reached a shelf- life of 30 days. Under room temperature, the samples started to taste rancid and show beginnings of molds after one month.

Table 5 presents the cost and return analysis of the four cookie samples. Although all treatments yielded positive returns on investments, higher returns were derived from using Tannia and Camote as additional ingredients.

This reflects that producing cookie using Tannia and Camote translates into higher net income. Further, aside from the tubers being locally available all year round in Conner, Apayao, using these showed better acceptability in terms of the various attributes of the bread. A parallel study of Hidalgo (2016), and Laguna and Bono (2016) using Tannia and Camote in the preparation of Jams and Buns resulted in a similar result.

Table 5. Cost and Return Analysis of Tannia-Camote Cookies

Particulars	Amount			
	T ₀	T ₁	T ₂	T ₃
500 g APF	20	20	20	20
305 g White Sugar	15	15	15	15
150 g Margarine	55	55	55	55
90 g Skim Milk	10	10	10	10
90 ml Water	1.50	1.50	1.50	1.50
10 g Baking	2	2	2	2
2 pcs. Eggs	12	12	12	12
Tania puree	0	2.50	3.75	5.00
Camote puree	0	3.75	5.60	7.50
Gasul	20	20	25	25
Labor	30	50	50	50
Total Production Cost	165.5	191.75	199.85	203
Gross Income	60 pcs @ 3.00=	70 pcs @ 3.00=	80 pcs @ 3.00=	90 pcs @ 3.00=
	P 180	P 210	P 240	P 270
Net Income	14.5	18.25	40.15	67
ROCE	8.06 %	8.81 %	16.73 %	24.81 %

CONCLUSION

Based on the results of the study, it is concluded that adding Tannia and Camote as ingredients in the preparation of cookies effectively enhanced the acceptability of cookies. Particularly, adding 160 grams Tannia and 160 grams Camote was seen to be most acceptable in terms of the various attributes as well as the general acceptability of the cookies. Further, using Tannia and Camote as additional ingredients yielded higher returns on investments.

RECOMMENDATIONS

In light of the findings and conclusion, the following are forwarded as recommendations:

1. Production of cookie using Tannia and Camote as additional ingredient should be promoted as a viable household level enterprise in the municipality of Conner.
2. Mass production of Tannia- Camote products should be done as part of the income generating activity of the college.
3. The Tannia- Camote cookies should be subjected for analysis to determine its nutrient content.
4. Further research on appropriate packaging and labeling of the product should be conducted.
5. Promotion of the developed technology to a wider range of consumers through participation in exhibits and trade fairs should be done.

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ABUYUG: THE PRACTICE OF BAYANIHAN IN CONNER, APAYAO

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ABSTRACT

This study focused on *abuyug* (Bayanihan) practices among Isnag communities of Conner, Apayao. It dealt with the concept of *abuyug* as practiced in Conner, identification of activities where *abuyug* is employed and reasons on the participation of the respondents in *abuyug*. The study employed descriptive-survey method of research. Results revealed that *abuyug* traces its origin to the term “*magkukuyug*” where group of people or a company or a group of individual resort to helping one another. The use of manpower without any money involved for a particular task or work is referred to *inabuyugan*. *Abuyug* is practiced for both upland planting and rice paddies. Further, among the Isnag elder-respondents and key informants, *abuyug* is nowadays oftentimes practiced during planting and harvesting compared in the old times. With, commercialization and daily labors/ wages, contract labor, *abuyug* is not much practiced in house construction. In social occasions, *abuyug* is practiced while others claimed that is more of a voluntary participation as a relative or neighbor. In the past years, *abuyug* is manifested during the preparation of water ways or *pa-yas*, cleaning of pathways like *sipat* and stonewalling or *padipid* usually for sloping terrains. Today, there has been a shift in the contract or paid labor in the activities on road/ pathway constructions, rip rapping/ stonewalling and excavations. The respondents agreed that *abuyug* is practiced to manifest the spirit of unity, harmonious community relationship, more work is accomplished and no cash or money as payment. It is highly recommended the development of IEC on *abuyug* in communities of Apayao and dissemination of *abuyug* practices to wider audiences.

Keywords: *Abuyug; Bayanihan; cooperation; Isnag; occasions*

INTRODUCTION

Bayanihan, locally called *abuyug* among Isnag communities of Conner, is one of the core values among Filipinos of helping out one's neighbor as a community, and doing a task together, thus lessening the workload and making the job easier. It is also called the ‘community spirit’. *Bayanihan* is a Filipino word derived from the word *bayan* meaning town, nation, or community in general. “*Bayanihan*” literally means, “being a *bayan*,” and is thus used to refer to a spirit of communal unity and cooperation([http://](http://groups.csail.mit.edu/cag/bayanihan/bayanword.html)

groups.csail.mit.edu/cag/bayanihan/bayanword.html).

In the Cordillera Administrative Region, the Ifugao Rice Terraces is a concrete product of the bayanihan system. Madangeng, V., Ngohayon, S., and Ognayon, G. (2015), described the different kinds of bayanihan practices in Ifugao. The Isnag communities of Conner, Apayao also have their version of “bayanihan” displayed in everyday living. Locally, the term *abuyug*, can be traced from the word “*magbubuyug*” meaning companionship. According to elders in the community, *abuyug* is manifested in many forms.

From farming, house construction, social occasions, or community works.

The bayanihan practice is displayed in various situations and practiced in different ways geared towards helping one another. This study described the *abuyug* as a value among Isnag elders practiced even up to the present. In addition, the study will provide a good overview on how *abuyug* is being practiced in different stages of farming, house construction, social occasions and community works. Observations revealed that the children of this generation do not understand well and practice *abuyug*. It is in this context that the research was conducted to document the practice of *abuyug* among the Isnag elders so that the young generation appreciate the value of *abuyug* even at the present times.

LITERATURE REVIEW

Bayanihan is a Tagalog term that captures the spirit of communal unity (Lien Center for Social Innovation, 2013). In addition, the concept of Bayanihan is traced back to in a country's tradition which can be observed in rural areas, wherein the town's people were asked especially the men to lend a hand to a family who will move into a new place (<https://themixedculture.com/2013/09/25/filipinosbayanihan/>). With bayanihan, the essence that man cannot work entirely alone becomes evident. This ensures positive work ethics and work attitudes. Resources are used and shared. People are respected. Cooperation and collaboration is instilled in bayanihan rather than selfishness. (https://everything-filipino.com/filipinoculture-bayanihan-the-filipino-value-that-must-be-retained/?do-ing_wp_cron=1472792804.2246339321136474609375). Further more The Bayanihan spirit shows Filipinos' concept of helping one another most especially in times of need without expecting anything in return. Filipinos strongly believe in helping their "kababayans (fellow countrymen)" in any possible way they can do to extend a helping hand. Bayanihan is a beautiful Filipino mentality of helping one another. (<https://themixedculture.com/2013/09/25/filipinos-bayanihan/>).

Cooperation and civic participation in modern societies take many forms (Omato and Snyder, 2002). Locally, Madangeng, V., Ngohayon, S., and Ognayon, G., (2015) described ba-

yanihan practices in Ifugao. This includes Hadang/Badang/Bachang where bayanihan is rendered in the form of labor or material help. Another is Baddang(Hungduan): he "takin" is provided by the opposite of who are inheritance is given. On the other hand, Dad-a is a term that refers to the collective free labor in the plantation of the rice fields also known as bayanihan system in Filipino while Dang-a refers to community free labor extended by the people to help a person in putting up his house or granary, or in doing field work in his terraces. During baddang, dang-a di pague usually applies, where gentleman starts to gather the bundled rice in the rice field and directly upon reaching the house they start to arrange on the ground. Others include Dang-a di Abung, Ubbu/ ubfu, Moma/Engagement, Tanig/Pahang/Wedding Ceremony, BodangBodang, Kateh/minatayan, Dangli, and Bogwah. They concluded that the documented various bayanihan practices in the study proves that the Ifugao people practice the inherited the value system of helping one another in times of in need.

OBJECTIVES

This study aimed to document the practice of *abuyug* among the Isnag elders in Conner, Apayao particularly in barangay Ripang and Paddaoan, Conner, Apayao.

Specifically, it sought to :

1. describe the concept of *abuyug* as practiced in Conner
2. identify the activities where *abuyug* is employed in Conner, Apayao
3. determine the reasons on the participation in *abuyug* within the community

METHODOLOGY

The study was conducted in Paddaoan and Ripang, Conner, Apayao. A combination of methods was used in gathering the information. Focused group discussions and key informant interviews were carried out for the study. The study employed descriptive method of research. There were 30 household heads and Isnag elders who served as respondents and key informants of the study. These were Isnag elders and farmers who are practicing and valued *abuyug* even today.

FINDINGS

Concepts / Views about *Abuyug*

Abuyug traces its origin to the term “*magkukuyug*” where group of people or a company or a group of individual resort to helping one another. The use of manpower without any money involved for a particular task or work is referred to *inabuyugan*.

Anti Penwa, 76 years old, recalled that *abuyug* employed *maggillu* where each household schedule for the activity in a rotation scheme or *maglebut*. She remarked that *abuyug* emphasizes being able to provide help to the neighbors or *magtitinulung*. Her *ama* (Isnag term for father), usually provide lunch for all the people who participated in the *abuyug*, then in the evening, drink *basi* as a way to ease their tiresome. In addition, elder Agapito, 83 years old, recalled that, before great works are accomplished with even no money or cash at all because people resort to *inabuyugan*. About 10 to 15 people usually participate in one *abuyug* activity. He mentioned that during their times there is no money or *krisis o awanpiha*.

Activities where *abuyug* is employed in Conner, Apayao

A. Farming

Abuyug is practiced for both upland planting (*uma*) and rice paddies.

a.1. Upland Farming (*uma*). *Abuyug* is practiced in the upland farming activities starting from land preparation. *Mangatalon*, is the first stage of upland farming. It is also a site survey for cutting of tress and clearing “*maguma*” for upland. This is done early in the morning before breakfast. Isnag elder Jose, 84 years old, remarked that, *ama*, (the household head), gets a bolo, goes to the site of the *uma*, waits and hears the singing of the “*balsit*” (black feathered bird with red feather on neck) and move from “*rakam*” (right to left hand) is the beginning of the *abuyugin uma*. *Manudu*. This next stage headed by a *magpangu-lu* involved clearing/ cutting of trees. Once dried, *sag-gabor* unwanted plant parts are burn and the site is ready for planting. During the actual planting called *Pasâ*, one peculiar practiced among the Isnag elders, the *magtuna*, and owner of the upland farm is the first to plant, then the group of people or *abuyug* follows. Weeding, comes in two

processes. *Ballat* involves entire clearing of weeds done before *pasa* that is no rice plants yet while *lamun*, is weed removal when the rice plants are about a foot size. *Abuyug* is practiced in harvesting. During harvesting or *mag-gani*, the farmers do not practiced *gapas* but do *magani*. The bundled palay called *batta* are hanged as *ahay*. These are in turn hanged in the stove or sun dried. For post-harvest/ hauling, thus is in the form of *isyaw*. The male farmers carry in their shoulders the *batta*, using a bamboo usually a *bulu*. No carabao is used in hauling. The females participate in post harvest activities. A basket or *lahba*, is used as a container to carry rice using their head or *su-sun*. Isnag elder, Gotad, 60 years old, mentioned that no sacks were used and bought for their harvest of rice.

a.2. Rice Paddies/ Lowland Farming. *Abuyug* is practiced during land preparation or *magahadu*, uprooting or *sikaor bagut*, transplanting or *loop*, harvest or *maggani* and post-harvest or *isyaw*. The respondents claimed that rotor/ machine is not used during preparation. The *abuyug* is composed of all male farmers. On the other hand, *sika*, *loop*, *maggani* and *isyaw* are participated by both male and female farmers.

Further, among the Isnag elder- respondents and key informants, *abuyug* is nowadays oftentimes practiced during planting “*pasa*” and “*maggani*” or harvesting . It is not much practiced during land preparation, weeding and post-harvest of palay.

B. House Construction

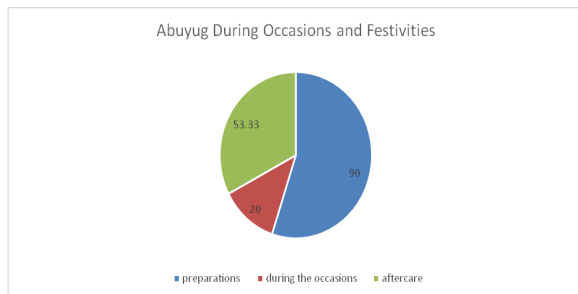
In house construction, *abuyugis* practiced during ground works, walling and roofing activities especially for houses that are not completely concrete. During house construction, group of males usually participate in digging or *kohob*. As part of the traditional activity, is the butchering of a pig or a chicken. Further, *mamahang* that is the first pole is placed in the hole. Then, the house construction commences called *mamasdâ*. The actual roofing or *magatap* and *di-ding*” or walling activities employ *abuyug* among a group of male carpenters.

With, commercialization and daily labors/ wages, contract labor, *abuyug* is not much practiced in house construction. Though, some respondents believed that *abuyug* is practiced during ground works or “*Kohob*” and “*Mamahang*”. Males participate in digging the haul for the foundation of the house. Fewer number of people par-

ticipate in roofing and walling, since these activities require skills.

C. Social Occasions

Inabuyug is practiced during occasions such as *boda* or wedding and *patung* or thanksgiving after a harvest (feast). During the preparatory, people helped along *magpalti* or butchering, *maguigador* grate coconut, *manekat* or preparation of rice cakes, *magalong* or setting up of sarong. During the occasions, *abuyug* is practiced in washing, serving, cooking, and fetching water. In aftercare, there is *abuyug* in *satsat* or removal of the sarong, *magisolior* return borrowed materials (utensils, chairs, tables, etc). All left overs, are in turn, given to all those who joined in the occasion. The respondents also claimed that, this is more of a voluntary participation being a member of a relative or a neighbor. There are more of the respondents who have helped during the preparation of the occasions as presented below.



D. Community projects

In community involvements, *abuyug* is manifested during the preparation of water ways or *pa-yas*, cleaning of pathways like *sipats* since the pathways are not paved and are narrow; and stonewalling or *padipid* usually for sloping terrains. *Ubrakumon* or voluntary community works and bringing materials in any kind such as coconut, rice, fruits, fish, etc is being practiced.

Today, *abuyug* is no longer practiced on these activities since NIA has been created and there has been a shift in the contract or paid labor in the activities on road/ pathway constructions, rip rapping/ stonewalling and excavations.

Reasons why *abuyug* is being practiced

The respondents agreed that *abuyug* is practiced to manifest the spirit of unity, harmonious community relationship, more work is accom-

plished and no cash or money as payment. In addition, through *abuyug*, teamwork and cooperation is strengthened. Three (3) elder Isnags claimed that *abuyug* has been the practiced of their forefathers before and that this old practice that has never been forgotten handed to them. In addition, more work is accomplished if there is *abuyug* as one respondent pointed out. Other respondents mentioned that labor is never paid in cash in *inabuyug*. The respondents also claimed that money is very difficult to find. Everyone is a team player during *inabuyug* as one respondent claimed. Civic participation take many forms by actively involving themselves in doing good for others. Individuals and communities who have mobilized themselves to respond to social problems, helping and community service occurs in a variety of contexts and a range of activities (Omato and Snyder, 2002).

CONCLUSION

Abuyug is a practice by a group of people on helping one another with the use of manpower without any money. *Inabuyugan* is employed in farming activities, house construction, selected social occasions and community activities. But through the years, it has become employed in selected farming activities only. *Abuyug* instills unity, helpfulness, and community relationship not just money.

RECOMMENDATIONS

The research findings should be presented to the communities of Isnag, NCIP and LGU

Development of IEC in the form of flyers and monographs reflecting the value of *abuyug*.

ACKNOWLEDGMENT

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MOCK-UP MULTI FUNCTION THREE PHASE INDUCTION MOTOR: AN INSTRUCTIONAL TOOL

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ABSTRACT

The main goal of this study was to design Mock-up Multi-function Three Phase Induction Motor at the Bohol Island State University. Particularly, the study sought to answer the specific problem on determining the level of skills acquired by the respondents using the Mock-up Multi-function Three Phase Induction Motor. This study used the experimental design and utilized questionnaires as data-gathering instruments and the data were tabulated using the average weighted mean. The average weighted mean with the use of gadget rated “outstanding” which means that the level of skill acquisition has been met all the times. This means that it is more advantageous to use the Mock-up Multi-function Three Phase Induction Motor during class discussion. The study concluded that Mock-up Multi-function Three Phase Induction Motor is more advantageous as instructional tool for the electrical technology program in the discussion of the components of three phase motor. Moreover, analysis of variance was used to measure the performance level of the mock-up multi-function three phase induction motor. The result indicated that there was no significant difference in terms of Educational Value, Convenience, and Safety. Therefore, the gadget can contribute to the skills of the students. The researchers recommended that the Mock-up Multi-function Three Phase Induction Motor shall be introduced to the school to serve as an instructional machine for the students during class discussion about three phase motor rewinding which is commonly used in the industry. The result of this study shall be used as a guiding tool for the future researchers and as a basis for other students who are interested to conduct further studies about Mock-up Multi-function Three Phase Induction Motor.

Keywords: Three Phase induction motor, Skill Acquisition, Mock-up

INTRODUCTION

Today, technology has grown and expanded all over the country. Through this modern advancement, work is done easier and faster and people live life more comfortably.

In fact, most of the colleges and universities of the country have sufficient instructional machines and equipment particularly in the field of electrical technology. Practical ways of teaching in electrical technology is used like schematic diagram, board trainer, wiring board installation and motor control.

However, it is observed that it is not enough that one learns through a schematic diagram or block diagram written on the board. From the perspective of the students in electrical technology, it is imperative that there will be an apparatus that will help learners to understand more and to discover the different functions and characteristics of the Three Phase Motor which is an alternating – current motor and widely used for various industrial operations. The importance of three phase motor over other types are having self-starting property, no need of starting device, higher power factor, good speed regulation and rebuts construction. Three phase motor is also based on the production of rotating magnetic field. Because of this information, the instructors will easily facilitate or simplify the transfer of information towards students by using Mock-up Multi-function Three Phase Induction Motor. By this observation, the researchers venture to create Mock-up Multi-function Three Phase Induction Motor.

Indeed, mock-up is an enlargement design learning device for the students in studying the constructions and is used in teaching demonstration and instruction. It provides the functionality of system and enables testing design. This is very helpful to the learning process because with this instrument, the instructor will be able to teach and demonstrate the students what are the functions of the components in the circuit of the Mock-up Multi-function Three Phase Induction Motor. The students will easily understand and have knowledge about the different connections of the Three Phase Motor.

Furthermore, the researchers believed that the creation of the Mock-up Multi-function Three Phase Induction Motor is quite helpful to the instructor for instruction purposes. Finally, the

researchers aimed that this study will have great contribution especially in the field of Electrical Technology in Bohol Island State University.

LITERATURE REVIEW

Educators are one of the instruments from whom students gain knowledge and acquire more skills in school. Relative to this concept, teachers prepare visual aids, samples, actual materials and trainers being important paraphernalia so that students can actually assimilate the lessons and perform physical manipulations.

Instructional materials are strong foundations of learning experiences, much more on the actual hands-on exercises. As advocated by Jerome Bruner in the constructivist theory for teaching and learning, a combination of concrete, pictorial then symbolic activity will lead to more effective learning. Through discovery learning, students become active inquirers in the subjects they are studying.

In the theory of identical elements, Thorndike states that the amount of transfer depends upon the identical elements present or is common in both learning situations. The presence of identical element in the content, methods, rules or principles facilitates learning. (Vega, 2004).

Goethe, a famous German dramatist as cited by Pateña (2007), said “knowing is not enough, we must apply; willingness is not enough, we must do.” With this skill acquisition precept the student should be enlightened that actual performance is far more important than mere knowing and understanding of theories and principles.

The preceding statements tend to go alongside with one of the tenets of technical-vocational education which implies that technical-vocational training shall be a replica to operations in the industry. True indeed, these elements are necessary for the students to learn comparable applications. The skills acquired were concrete because the instructional tool used as exemplified by the mock up three phase induction motor, have reliable content and well-organized methods.

This study revolved around the applications of a three phase induction motor. This newly developed instrument, enables the learner to determine the operational state of three phase induc-

tion motor components and how they act in the circuit. Students can actually perform in-depth exploratory studies about induction motor. A thoroughly defined manual of instructions goes with the gadget to ensure reliability of operations.

The instructional tool has a step-by-step procedure from simple to complex design. It deals with the behavior and characteristics of a three phase induction motor. It has test points where the test probes will be injected to measure the voltage, current and resistance values of its components. There are several switches to open and close a circuit.

In accordance with the pertinent provision of Republic Act No. 7722, otherwise known as the Higher Education Act of 1994, and in order to update the Education Curriculum to make it more responsive to the demands of the today's society, a rich learning environment is necessarily adopted by the educators.

The success of integrating technology as one enrichment in the curriculum is dependent on several factors like ability to procure, maintain and sustain the technologies. The presence of a teacher in the classroom is still necessary even with the availability of these new gadgets. No amount of technology can replace a teacher who can guide a student and transform his way of thinking (Albit, 2010). Technology as an educational tool has a definite role particularly in facilitating the learning process.

Creating an alternative tool is one of the best methods in the mastery of skills because some degree of repetitiveness exists and routine is established. The concept of Gagne's knowledge hierarchy leads to the assumption that it is important to present all necessary lower – level facts before teaching at higher level concept if they have learned all the procedures before reaching acquisition to mastery. This study also aimed to know how the students learn the basic operation of the three phase induction motor before they manipulate actual three phase induction motor. It has guide questions for every manipulative procedure.

The researcher believes that the innovative instructional tool will improve the instruction in electrical technology, enhance learning capabilities and enhance the delivery of skills to the students.

OBJECTIVES

The main goal of this study was to design and assemble Mock-up Multi-function Three Phase Induction Motor for the BS Electrical Technology Students and Instructors at the Bohol Island State University.

Specifically:

- 1.To help electrical instructors enhance the learning skills of the students in rewinding and connecting the loops of magnetic wire through the innovation of Mock-up Multi-function Three Phase Induction Motor.
2. To provide instructional reference for students as to the parts and functionality of the three phase induction motor.
3. To determine the performance level of the application of the Mock-up Multi-function Three Phase Induction Motor.

METHODOLOGY

Research Design

This study used the experiment research design in assembling the gadget. The gadget was tested through its different aspects like educational value, convenience, and safety measures that served as legal bases. The instructor discussed about the principles of induction motors and its function. Demonstration was conducted after the discussion on how to connect the different connections of induction motor. Hands-on exercises followed with close supervision of the instruction and assessment if needed the learners gained knowledge about induction motor.

The researchers used the unrestricted random sampling. It is a type of scientific sampling where there is no restriction and every member of the population has equal chance to determine the acceptability of the Mock-up Multi-function Three Phase Induction motor. Electrical technology students of the different campus were the respondents of the study to prevent bias. After understanding the experiment, the questionnaires were utilized by the respondents for the purpose of gathering data of the results. The data were gathered, analyzed and interpreted.

FINDINGS

1. Designing the Mock-up Multi-function Three Phase Induction Motor

The description of Mock-up Multi-function Three Phase Induction Motor through the preparation which finalized the design for the schematic and block diagram of each section as a reference and also with the technical design which is searched and conducted by the researchers' trials in order to find the right design. The materials were completely brought and the tools were ready to be used in assembling the gadget. After the final assembling the researchers labeled the sections to determine function and uses. The researchers gave instruction manual on how to operate the gadget and also the precautions and application.

After assembling, the researchers demonstrated the use of gadget to the respondents. The data were collected and interpreted. The study presented the level of effectiveness and acceptability of the Mock-up Multi-function Three Phase Induction Motor.

2. Evaluation of the Performance Level

Results revealed the level of acceptability of the Mock-up Multi-function Three Phase Induction Motor.

1. It showed that Mock-up Multi-function Three Phase Induction Motor was rated "outstanding" in terms of educational value, convenience, and safety, with an overall weighted mean of 2.60. It means that it is more advantageous to use mock-up as an instructional tool during discussion of induction motor.

2. The Mock-up Multi-function Three Phase Induction Motor is accepted by respondents as guide because it can help them in their study and give convenience to the instructor to teach about induction motor. This can help the students to fully understand the uses and function of the induction motor.

Table 1
Performance Level of Mock-up
Multifunction Three Phase Induction Motor
(N=100)

Criteria		Mock-up Multifunction Three Phase Induction Motor	
		W M	DESCRIPTION
1. Educational Value			
1.1	The students can easily identify terminals of the windings.	2.58	Oustanding
1.2	Students can easily connect the respective windings of different 3 phase motor connections.	2.56	Oustanding
1.3	Can acquire depth knowledge in assembling Three Phase Motor connections.	2.45	Oustanding
1.4	The students have the chance to connect the WYE and DELTA connection of high and low voltage connection, forward-reverse connection as well.	2.64	Oustanding
1.5	The students can have an advanced knowledge and skill in 3 phase motor in terms of connections and troubleshooting.	2.39	Oustanding
Average Weighted Mean (AWM)		2.52	Oustanding
2. Convenience			
2.1	Easy to use Mock-up Multifunction Three Phase Induction Motor with Overload Protection by using safety leads in connecting (banana jack & banana plug).	2.64	Oustanding
2.2	Can save time during discussion because of actual demonstration of learning in rewinding an electric motor about three phase motor	2.45	Oustanding

Average Weighted Mean (AWM)		2.55	Oustanding
3. Safety			
3.1	All slots are insulated in electric motor.	2.77	Oustanding
3.2	Connections are soldered properly.	2.74	Oustanding
3.3	Windings are properly baked and varnished.	2.77	Oustanding
3.4	All parts are connected properly.	2.75	Oustanding
3.5	Having overload protection at the contractor.	2.67	Oustanding
3.6	Section terminals are properly labelled.	2.74	Oustanding
Average Weighted Mean (AWM)		2.74	Oustanding
Overall Weighted Mean (OWM)		2.60	Oustanding

Table 1 shows the Performance Level of Mock-up Multifunction Three Phase Induction Motor in terms of Education Value, Convenience and Safety. As clearly viewed in the table, Mock-up Multi-function Three Phase Induction Motor from items 1 to 5 under educational value were rated “Outstanding” with an average weighted mean of 2.52. This means that the Mock-up Multifunction Three Phase Induction Motor is an acceptable gadget in Electrical Technology shop.

Meantime, in terms of convenience, the Mock-up Multifunction Three Phase Induction Motor has a weighted mean of 2.55 rated as “Outstanding”. It shows that the convenience of Mock-up Multifunction Three Phase Induction Motor during Three Phase rewinding discussion is very helpful towards learning using the gadget.

In terms of safety, the Mock-up Multifunction Three Phase Induction Motor has a weighted mean of 2.74 described as “Outstanding”. This shows that the Mock-up Multifunction Three Phase Induction Motor is more acceptable to be used in the field of Electrical technology and it is safe for actual demonstration using the gadget.

The overall weighted mean of the Mock-up Multifunction Three Phase Induction Motor is 2.60 which is described as “Outstanding”. This means that the Mock-up Multifunction Three Phase Induction Motor is more convenient to be used as instructional tool in the Electrical Shop, therefore, acceptable by the users.

CONCLUSIONS

1. The Mock-up Multifunction Three Phase Induction Motor was accepted by the respondents.
2. The Mock-up Multifunction Three Phase Induction Motor is more effective than the visual presentation of the Three Phase Motor winding.
3. The general performance of the Mock-up Multifunction Three Phase Induction Motor is good which implied that the Mock-up Multifunction Three Phase Induction Motor has met the satisfaction of the respondents.
4. The Mock-up Multifunction Three Phase Induction is very useful in the field of Electrical technology as an instructional machine as well as in engaging electric motor windings.

RECOMMENDATIONS

Based on the conclusions drawn from the study, the researchers have drafted these recommendations:

1. The Mock-up Multifunction Three Phase Induction Motor can be introduced to the school to serve as guidelines on having rewinding of electric motors for the electrical students.
2. The demonstration of the gadget can be conducted for the electrical students to be aware of the parts and connection of a Three Phase motor.
3. Future researchers can conduct related studies to develop more gadget as instructional machine in the electrical shop aside from Mock-up Multifunction Three Phase Induction Motor.
4. The Mock-up Multifunction Three Phase Induction Motor must be used as an instructional machine for electrical instructors during three Phase Motor discussions.

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ENRICHING THE QUALITY OF BUNS USING TANNIA AND CAMOTE

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ABSTRACT

Bread is always a special treat whether there is a celebration or not. Breads range from simple unadorned loaves to elegant creation made of light cake filled and frosted with a variety of sweet thing. Bread buns are available in the market but many of these have limited nutrient content. Buns can be enriched by pureed root crops, as these storage roots and tubers contain varied quantities of protein, essential vitamins and minerals (Horton, 1988).

Due to the low consumption of roots and tubers, there is a need to develop new products utilizing these roots and tubers. One particular way is innovating on the usual processing procedure of making bread by utilizing a cheaper, healthier, and locally available material which will not only appeal to health conscious individuals but will also have the potential to provide alternative source of income and generate livelihood opportunities en route to contributing to the economic condition of the Province of Apayao.

This study was then conducted to develop a bread bun product from Tannia and Camote. Specifically, it sought to identify the best combination of Tannia and Camote as ingredients in the preparation of buns through sensory evaluation.

Based on the results of this study, it is concluded that using $\frac{3}{4}$ cups tannia and $\frac{1}{2}$ cup camote added to 445 g bread flour as ingredients in the preparation of buns does not only enhance the acceptability of buns but will also generate higher return on investment. Particularly, using tannia and camote was seen to be most acceptable in terms of the various attributes as well as the general acceptability of the buns.

Keywords: Buns, Tania, Camote, Root crops, tubers, acceptability

INTRODUCTION

In a study conducted in Talifugo, Conner, Apayao, it was found out that the diversity of root and tuber crops known among the Isnegs includes six cultivated species and seven wild species. These tubers are commonly grown for household use, mostly for snacks and viand or vegetable purposes (Gayao, et al., 2014).

However, a follow-up study of Gayao et al. (2016), revealed that the indigenous peoples in the Northern Philippines have no practices that prolongs storage life of the root crops, though

cleaned and washed. Even in the olden times, the Isnegs' main staple is rice and that root crops are of low prestige.

Root and tuber crops have been an alternate staple food among Filipinos. It is the upland and forest dwellers in the rural communities and the indigenous people who are the traditional consumers and producers of root crops (Gayao et al., 2016).

Tannia (*Xanthosoma sagittifolium*), locally called Lusya in the Isneg dialect can reach a height of about 2 m and have a short erect stem

and large, long-stalked sagittate or hastate leaves, which differ from those of *Colocasia* in that the leaf stalk joins the blade at the margin between the lobes (not into the surface of the blade), and the tips of the lobes are pointed, not rounded. The leaves have a prominent marginal vein, and are 50-75 cm long, occasionally more; the petioles are about 1 m long. The inflorescence is borne below the leaves, with a pale green spathe about 20 cm long; some cultivars never flower and seed is rarely produced. A corm is produced at the base of the plant and this bears several (usually 10 or more) lateral corms (cormels), each 10-25 cm long.

The sweet potato (*Ipomea batatas*) is a perennial, although it is grown as an annual. It belongs to the morning glory family or Convolvulaceae. The roots are large, fleshy, edible storage roots are formed on the underground stem nodes.

LITERATURE REVIEW

Roots and tuber crops are collective terms for plants that are grown for their modified, thickened roots or stems which generally develop underground. Special terms for specific types are root crops for modified roots, tuber crops and corm crops for modified stems (Bareja, 2010).

In the Philippine Statistics Authority (PSA) records, the top seven root and tuber crops in the list includes cassava, sweetpotato, potato, greater yam (ubi), taro (gabi), Tannia (galiang), and lesser yam (tugui). In terms of crop production in 2014, cassava ranks first in the Philippines at 2.54 million metric tons (MT), followed by sweetpotato at 0.519 MT, potato 0.119 MT, and taro at 0.110 MT. Greater yam (0.014 MT), tannia (0.011 MT) and lesser yam (0.003 MT) were produced in lesser amounts (PSA, 2013). The bulk of root and tuber supply is for food consumption (95% for sweetpotato, ubi and gabi, 71% for potato, 82% for galiang and 86% for tugui) except cassava where the bulk of it is for the processing industry (84%) and only 10% is for food consumption. Although the PSA report did not include the harvest data for ubi and sweetpotato

used for processing, the Department of Agriculture Agribusiness Division listed several yam and sweetpotato processors.

In the recent study of Gayao et al. (2016), they found out that aside from the seven roots and tubers listed in the country's agricultural statistics, there were more than 20 roots and tubers grown or known by the indigenous peoples in Northern Philippines which can be utilized as human food and animal feed. Among of these were: Root crops- cassava, sweetpotato, greater yam, taro, tannia; Tuber crops- greater yam, lesser yam, arrow root, aerial yam, potato, canna, nami, wild greater yam, wild lesser yam, elephant yam; Corm crops- taro, tannia, wild taro and giant taro.

OBJECTIVES

Generally, this study was conducted to develop a bread bun product from Tannia and Camote.

Specifically, it sought to answer the following questions:

1. identify the best combination of Tannia and Camote as ingredients in the preparation of buns through sensory evaluation and over all acceptability
2. determine initial shelf life of the tannia and camote buns
3. determine the cost and return benefit of the tannia and camote buns

METHODOLOGY

Project location

The project was conducted at ASC Conner, Apayao. The project was funded by the College through its research fund. Foods experts who are also faculty members of ASC oversaw the preparation of the product.

Treatment Preparations

Standard procedure in baking the buns was used. The following were the treatment prep-

arations:

T0	T1	T2	T3
445 g Bread flour	445 g Bread flour	445 g Bread flour	445 g Bread flour
169 g Evaporated milk	169 g Evaporated milk	169 g Evaporated milk	169 g Evaporated milk
53 g Refined sugar	53 g Refined sugar	53 g Refined sugar	53 g Refined sugar
54 g shortening	54 g shortening	54 g shortening	54 g shortening
7 g yeast	7 g yeast	7 g yeast	7 g yeast
57 g water	57 g water	57 g water	57 g water
55 g egg	55 g egg	55 g egg	55 g egg
17 g egg yolk	17 g egg yolk	17 g egg yolk	17 g egg yolk
3 g salt	3 g salt	3 g salt	3 g salt
	67 g Tannia puree	133 g Tannia puree	200 g Tannia puree
	67 g Camote puree	133 g Camote puree	200 g Camote puree

Procedures:

1. Measure dry and liquid ingredients
2. Combine flour, sugar salt and yeast in a mixing bowl
3. Add water, milk, egg and shortenings
4. Blend thoroughly and add Tannia and Camote puree
5. Knead dough until smooth and elastic and form into ball

6. Place in slightly greased mixing bowl and brush the top with shortening and cover
7. Let it rise in a warm place for 1 hour until double in size
8. Punch down and continue kneading
9. Divide the dough into desired sizes and form into balls
10. Cleave the dough until smooth
11. Place in a greased baking sheet and let it rise for 45 minutes to 1 hour
12. Brush with egg yolk and bake for 15 to 20 minutes at 191 °C or 375 °F
13. Remove from the oven and let it cool for 10 minutes.
14. Serve

Process Flow Chart

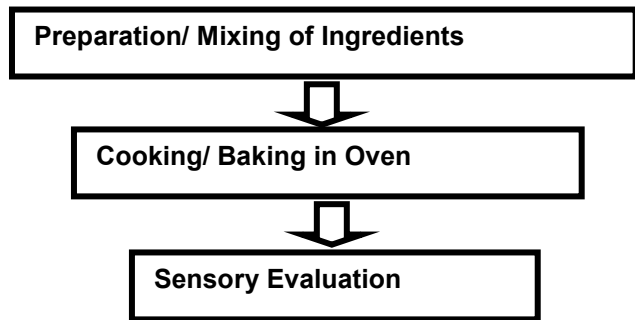


Figure 1. Schematic Diagram of the processes involved in the study.

Data Gathered

Samples were coded and were subjected to sensory evaluation. Samples were evaluated by 30 panel of examinees consisting of students, faculty members and administrators of the college. Each sample were evaluated in terms of aroma, flavor, color, texture, and overall acceptability.

Statistical Analysis of Data

Data were analyzed using 5-point Likert scale for aroma, color, flavor, and texture. For the general acceptability, 7- point Hedonic Scale was used. The scales used are presented below:

Table 1. Scale and verbal interpretation of 5-point Likert scale

Scale	Limits of Description	Aroma	Flavor	Color	Texture
		Very aromatic	Very Flavorful	Very attractive	Very Fine
4	3.40-4.19	Aromatic	Flavorful	Attractive	Fine
3	2.60-3.39	Moderately aromatic	Moderately Flavorful	Moderately attractive	Moderately Fine
2	1.80-2.59	Slightly aromatic	Slightly Flavorful	Slightly attractive	Slightly Fine
1	1.00-1.79	No aroma	Not Flavorful	Not attractive	Coarse

Table 2. Scale and verbal interpretation using 7-point Hedonic scale

Scale	Interpretation
7	Like very much
6	Like moderately
5	Like slightly
4	Neither like nor dislike
3	Dislike slightly
2	Dislike moderately
1	Dislike very much

FINDINGS

Physical Attributes of Tannia- Camote Buns

As seen in table 1, T₃ garnered the highest mean rating of 3.54 which means aromatic. This is followed by T₂ and T₁ which were also rated as aromatic. This implies that the more tannia &

camote added, the more aromatic the resulting buns.

In terms of flavor, all three treatments were rated flavorful in which T₃ garnered the highest mean rating of 3.71, T₂ and T₁ with 3.67. The control was rated moderately flavorful. For color, T₃ was rated the most attractive compared with the two other treatments and control.

As regards the texture of the buns, T₃ was rated the highest mean rating of 4.21 which means very fine. This is attributed to the addition of Tannia (batik batik variety) showing glutinous characteristics. All the other treatments were rated fine and the control as moderately fine. \

Table 3. Physical Attributes of Tannia – Camote Buns

Treatment	Attributes							
	Aroma		Flavor		Color		Texture	
	Mean	Descriptive Scale	Mean	Descriptive Scale	Mean	Descriptive Scale	Mean	Descriptive Scale
Control	2.88	Moderately aromatic	2.88	Moderately Flavorful	2.75	Moderately attractive	3.00	Moderately Fine
T1-	3.46	Aromatic	3.67	Flavorful	3.79	attractive	3.75	Fine
T2	3.50	Aromatic	3.67	Flavorful	3.96	attractive	3.96	Fine
T3	3.54	Aromatic	3.71	Flavorful	4.00	Attractive	4.21	Very Fine

Overall Acceptability of the Tannia- Camote Buns

As to overall acceptability of the buns, using the 7- point Hedonic Scale in evaluating the samples, T₃ emerged as having the highest rating of 5.83 which is interpreted as “Like moderately”. T₂ and T₁ were also liked moderately by the raters.

This implies that the use of camote and tannia in the preparation of buns, enhances the acceptability of the buns.

Table 4. Overall acceptability of Tannia- Camote Buns

Initial Shelf- life Analysis

Treatment	Overall Acceptability	
	Mean Rating	Descriptive Interpretation
Control	3.67	Like slightly
T1-	5.50	Like moderately
T2-	5.71	Like moderately
T3-	5.83	Like moderately

Using the organoleptic method of analyzing the shelf life of the buns, it was found out that the tannia- camote buns reached a shelf- life of 4 days. Under room temperature, the samples started to show beginnings of mold.

Cost and Return Analysis of Tannia- Camote Buns

Treatment 3 got the highest Net Income and ROCE as compared to the other three treatments. This can be attributed to the addition of Tannia and Camote as alternative additive ingredient for the preparation of buns.

A parallel study of Hidalgo (2016), and Laguna and Bono (2016) using Tannia and Camote in the preparation of Jams and Buns resulted in a similar result.

Table 5. Return on Cash Expense in the preparation of Tannia- Camote Buns

54 g shorten-	7.50	7.50	7.50	7.50
7 g yeast	0.75	0.75	0.75	0.75
57 g water	0.0	0.0	0.0	0.0
55 g egg	6.00	6.00	6.00	6.00
17 g egg yolk	4.00	4.00	4.00	4.00
3 g salt	0.50	0.50	0.50	0.50
67 g Tannia	0.00	2.50	5.00	7.50
67 g Camote	0.00	2.00	3.00	5.00
LPG	15.00	15.0	15.00	15.00
Labor	30.00	30.0	30.00	30.00
Total Production Cost	97.22	101.72	105.22	109.72
Gross Income	20 pcs. @ 6.00 = 120.00	25 pcs. @6.00 = 150.00	30 pcs. @ 6.00 = 180.00	35 pcs. @ 6.00 = 210.00
Net Income	22.78	48.28	74.78	100.28
ROCE (%)	23.43	47.46	71.07	91.40

Based on the results of this study, it is concluded that; T3 or the use of 200 grams tannia and 133 grams camote as additional ingredients together with 445 g bread flour, 169 g evaporated milk, 53 g refined sugar, 54 g shortening, 7 g yeast, 57 g water, 55 g egg, 17 g egg yolk and 3 g salt, for the preparation of buns does not only enhance the acceptability of buns but will also generate higher return on investment. Particularly, using tannia and camote was seen to be most acceptable in terms of the various attributes as well as the general acceptability of the buns.

CONCLUSION

Particulars	Treatments			
	Control	T-1	T-2	T-3
445 g Bread flour	18.40	18.40	18.40	18.40
169 g Evaporated milk	12.00	12.00	12.00	12.00
53 g Refined sugar	3.07	3.07	3.07	3.07

RECOMMENDATIONS

1. In light of the findings and conclusion, the following are forwarded as recommendations:
2. Mass production of tannia- camote buns should be done as part of the income generating activity of the college.
3. Promotion of the developed technology through trainings and participation in trade fairs should be done.

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MATH ANXIETY AND SCHOLASTIC ACHIEVEMENT OF THE STUDENTS IN SQUIJOR STATE COLLEGE

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ABSTRACT

This study investigated the “Math Anxiety and scholastic achievement of students in Siquijor State College” from the College of Education in Siquijor State College, Larena, Siquijor. It determined the profile of respondents regarding their sex, year level and scholastic achievement. It also determines the level of students’ math anxiety and the students’ math anxiety reduction strategies. It also looked into the significant relationships between the scholastic achievement and anxiety reduction. It also examined the significant differences in the level of math anxiety and math anxiety reduction when the students are classified into year levels. The respondents of the study were the 133 BSED and 168 BEED students. Questionnaire and descriptive survey method were used in this research. The statistical tools used in this study were percentage, weighted mean, simple regression, and analysis of variance.

The findings of this study showed that most of the respondents are female. It is also noted that almost all of the respondents have qualified for the required minimum Qualitative Point Average (QPA) for entry to the next curricular level. Findings also showed that the respondents’ experienced of Math Anxiety to a little amount. The study also revealed that there is a little inverse relationship between math anxiety and scholastic achievement but there is no relationship between scholastic achievement and anxiety reduction techniques. Therefore, based on the findings, it is concluded that math anxiety had a little inverse with scholastic achievement while anxiety reduction do not have any relationship at all.

Keywords: math anxiety, scholastic achievement, curricular level, qualitative point average, anxiety reduction

INTRODUCTION

Mathematics anxiety has been defined as a feeling of tension and anxiety that interfere with the manipulation of numbers and the solving of mathematical problems in a wide variety of ordinary life and academic situations, math anxiety can cause one to forget and lose one’s self-confidence.

Usually math anxiety stems from unpleasant experiences in mathematics. (Rossmann, 2006)

Typically math phobias had math presented to them in such a fashion that it led to limited understanding. Unfortunately, math anxiety is often due to poor teaching. Much has been written about math anxiety, which can be described as reluctance to engage in, and fear of, mathematics-related activities. Individuals who exhibit such anxiety do not enjoy doing arithmetic, particularly in public. They agonize over mental arithmetic, apologize for their lack of skill, and avoid activities associated with mathematics. In short, they

are dysfunctional in mathematics.

Most individuals with mathematics anxiety are beyond elementary school age. Research shows that mathematics is liked and enjoyed by a majority of elementary students. It is unconvinced that large numbers of elementary school children suffer math anxiety. However, it is clear that many children have learned not to enjoy mathematics. They have experienced considerable failure in their attempts to learn concepts and skills. They have been asked to learn certain mathematical ideas that they were not ready to learn; they have been moved through a curriculum, "learning" mathematics for which they did not have the prerequisites and struggling with new concepts that did not make any sense. They may have been pressured to memorize hundreds of basic addition and multiplication facts and subjected to timed tests in front of their peers. They believe that success in mathematics knows a certain "magical process" that results in correct answers. Failure and humiliation are powerful forces that cause children to be reluctant to engage in mathematics. Dislike of mathematics and reluctance to participate in math activities is more prevalent in middle school, providing a challenge to teachers (Cruikshank and Jensen Sheffield, 2005, p.22).

The Teacher Education Department of Siquijor State College has a retention policy to ensure that students are prepared when it comes to the board examination aside from the learning standards of Siquijor State College. Thus, a research on the math anxiety of the students will assist these faculty members in the process of preparing themselves for the board exam so that will see it, not just as a flunk or pass licensure exam but as to their readiness in the profession.

Experienced teachers often note that as many students enter middle school, there seems to be a decline in motivation and performance. Research indicates that students may persist in studying in an area such as mathematics if they believe they are unsuccessful because of factors they can control (e.g., lack of necessary skills or poor study habits). Students who believe that their lack of success is due to factors beyond their control, however they tend to see no hope for improvement, and, thus, are unmotivated to study. Simply put, students will be motivated to continue studying mathematics, if they believe that they can improve through their own efforts. Students who believe that their lack of success is due to factors

such as poor teaching, the mathematics being too hard or that "the teacher doesn't like me" will lose the motivation to study. (Ashcraft, 2002)

Another theory offered to explain students' motivation, or lack thereof, is known as goal theory. In goal theory, there are two primary goal orientations: task goals and ability goals. Students who establish task goals believe that personal achievement and progress in mastering skills and knowledge are the criteria for judging success. A task goal might be passing algebra or learning to create box-and-whisker graphs. On the other hand, students who rely on ability goals believe that success lies in appearing competent, usually in comparison to others. An example of an ability goal might be getting an "A" in algebra. Students who rely on a task goal orientation are better able to use effective learning strategies, are more willing to seek assistance, are more likely to undertake challenging work, and have more positive feelings about themselves as learners and about school (Ryan, Hicks, and Midgley, 1997). Conversely, students who rely on an ability goals orientation are less likely to seek assistance, are less likely to take challenging courses, and have more negative feelings about themselves as learners and about school.

The theory of self-determination as an explanation for students' motivation states that students have three types of needs; a need for a sense of competence, a need for a sense of relatedness to others, and a need for a sense of autonomy. Competence refers to knowing how to reach a certain goal or outcome and believing in one's ability to do so. Relatedness refers to developing satisfactory connections, or relationships, with others, particularly one's peers. Autonomy refers to one's ability to initiate and regulate their own actions. Most research in self-determination theory, particularly within the classroom, focuses on the need for sense of autonomy (Anderman and Midgley, 1997). Factors that support a middle school students' growing need for autonomy include the ability to choose the type of task to engage in and to gauge the time needed for the task. Giving students the option of choosing one of several projects or assignments for demonstrating mastery of a skill or concept, or the option of working with a partner on a team of three or four classmates, or individually, are ways the middle school teacher can support student autonomy without creating havoc in the classroom. Allowing such options in your mathematics classroom does not guarantee immediate and continuous suc-

cess for students. It takes time and practice to develop good time management skills and decision-making skills. Here your classroom management practices can support learning by limiting the number of options, providing guidelines or a timeline for completion of the steps in a project, and teaching students how to break a large task into a series of small tasks.

Two other terms used to describe student motivation are intrinsic and extrinsic motivation. Briefly, intrinsic motivation describes those students who engage in learning out of curiosity, interests, or enjoyment, or to accomplish their own personal goals. These students do not need balloons or candy or other rewards. They will complete a task simply because it is challenging. In contrast, students who are extrinsically motivated will complete a task to receive a reward or to avoid a punishment. Such students rarely do more than the minimum effort necessary to meet the goal or finish the work. They are more likely to be discouraged and to give up when they feel unsuccessful in comparison to their classmates (Brewster and Fager, 2000). It should be noted that some researchers object to this categorization of student motivation as being simplistic to adequately describe the many complex and interrelated factors that influence students' motivation to succeed in school. Most of us probably identify times in our lives when we were extrinsically motivated and other times when we were intrinsically motivated (Ormrod, 2006, p.340).

STATEMENT OF THE PROBLEMS

- 1.What is the profile of the students in terms of:
 - 1.1. sex,
 - 1.2. year level,
 - 1.3. scholastic achievement?
- 2.What is the level of the students' math anxiety?
- 3.What is the level of the students' math anxiety reduction strategies?
- 4.Is there a relationship between scholastic achievement and anxiety reduction?
- 5.Is there a significant difference in the level of math anxiety when the students are classified into year levels?
- 6.Is there a significant difference in the level

of anxiety reduction when the students are classified into year levels?

RESEARCH METHODOLOGY

Research Design

This research utilized the descriptive method where questionnaires served as the main instrument of data collection. A documentary research using the data on the students' grades during quizzes and major examinations were used to determine the performance or achievement of the students. The grades were used when the data from the questionnaires were subjected to the test of significant relationships of variables such as anxiety and academic performance.

Research Environment

The research was conducted in the College of Education where the Bachelor of Secondary Education and Bachelor of Elementary Education courses are being offered. It has 301 students enrolled.

Research Respondents

The respondents of this study were the Teacher Education students enrolled for school year 2014-2015.

Table 1: Distribution of the Respondents of the Study

Year Level	N	n	% to population
1 st	111	63	36.63
2 nd	65	37	21.51
3 rd	55	32	18.60
4 th	70	40	23.26
Total	301	172	100.00

Research Instrument

Since the study was descriptive, it utilized math anxiety and anxiety reduction questionnaire including a document analysis of the grades in the students' enrolled subjects. The Quality Point Average or QPA was the basis for the academic performance for the second semester.

The questionnaires that were used were taken from the various educational psychology

books and from on-line literatures. The questionnaires were modified to ascertain the degree of the items presented and to fit the environment of the students. However the essence of the statements was still retained despite the minor revision or modification.

1. For Math Anxiety

Scale	Range	Description	Explanation
5	4.20-5.00	Very Much (MV)	10 out of 10 instances
4	3.40-4.19	Much (M)	7-9 out of 10 instances
3	2.60-3.39	Fair Amount (FA)	5-6 out of 10 instances
2	1.80-2.59	A Little (AL)	1-4 out of 10 instances
1	1.0-1.79	Not at all (N)	0 out of 10 instances

2. For Anxiety Reduction Checklist

Scale	Range	Description	Explanation
5	4.20-5.00	All the time (A)	10 out of 10 instances
4	3.40-4.19	Most of the time (M)	7-9 out of 10 instances
3	2.60-3.39	Sometimes (S)	5-6 out of 10 instances
2	1.80-2.59	Seldom (SD)	1-4 out of 10 instances
1	1.0-1.79	Not at all (N)	0 out of 10 instances

Scale	Range	Description
5	4.20 - 5.00	All the time (A)
4	3.40 - 4.19	Most of the time (M)
3	2.60 - 3.39	Sometimes (S)
2	1.80 - 2.59	Seldom (S)
1	1.00 - 1.79	Not at all (N)

Dry Run Procedure

To determine the functional validity of the research instrument, a dry run was administered to selected students who were not part of the final respondents of this investigation.

Data Collection Procedures

The sequence of the conduct of the study was divided into two phases:

Gathering the Data. Before the actual administration of the instrument, the researcher provided an overview on the purpose of the study to the students. After the brief overview of about ten minutes, she proceeded with the explanation of the items in the questionnaire to ensure that the respondents followed the instruction properly especially that the instrument has numerical descriptions of varying degrees which might be confusing on their part. After the explanation, the respondents were given enough time as possible to clarify areas in the questionnaire that they think need more elaboration. The students were asked on the extent of their math anxiety and anxiety reduction.

Retrieval of Data. The respondents were allowed to bring the instrument home provided that they submit it within the week to leave time for tabulation. The researcher and her research assistants personally followed-up and retrieved the research instruments.

Data Treatment

Data gathered were treated using the following statistical tools:

1. Percentage for the respondents' profile
2. Weighted mean for the test anxiety and anxiety reduction
3. Simple regression for the test anxiety and anxiety reduction with scholastic achievement
4. ANOVA test among and between means for test anxiety and anxiety reduction
5. Tukey Pairwise test for significance of difference among means.

RESULTS AND DISCUSSION

1. Profile of the respondents in terms of gender, year level, and scholastic achievement

Table 2: Profile of the Respondents

Scholastic Achieve-					
Below 80%	0	0	0	0	0
	0	0	0	0	0
80-82.99%	2	1	0	0	3
	3.17	3.12	0	0	1.74
83-84.99%	10	5	3	0	18
	15.8	15.6	8.11	0	10.4
85-86.99%	18	13	18	19	68
	28.5	40.6	48.6	47.5	39.5
	7	3	5	0	3
87% and	33	13	16	21	83
	52.3	40.6	43.2	52.5	48.2
	8	3	4	0	6
Total	63	32	37	40	172
	100	100	100	100	100
Average QPA	86.7	87.8	89.2	90.6	
	6	4	2	7	

Variable	Year Level				Total
	1st	2nd	3rd	4th	
Gender					
Male	19	12	6	15	52
	17.	18.	10.	21.	17.28
	12	46	91	43	
Female	92	53	49	55	249
	82.	81.	89.	78.	82.72
	88	54	09	57	
To-	111	65	55	70	301
	100	100	10	100	100
			0		

There are 301 respondents with the gender representation of 52 (17.28%) males and 249 (85.71%) females while in terms of academic achievement, the first year students attained an average QPA of 86.76%, the second year students got an average QPA of 87.84%, the third year stu-

dents attained an average QPA of 89.22%, and the fourth year students got an average QPA of 90.67%. Almost half of the respondents have a QPA of 87% (48.84%) and above.

2. The level of Math Anxiety of the respondents

Table 3: Extent of Math Anxiety

Experiences of Math Anxiety/ Apprehension	1 st	2 nd	3 rd	4 th	Composite Mean
Studying for a midterm exam in Mathematics	3.99	3.58	3.30	2.50	3.34
Studying for final exam in Mathematics	3.39	2.20	3.66	3.25	3.13
Building new mathematical knowledge through problem solving	3.99	2.58	2.12	2.50	2.80
Solving problems that arise in mathematics and other contexts	2.98	2.90	2.24	2.25	2.59
Applying and adapting a variety of appropriate strategies to solve problems	2.66	2.65	2.23	2.75	2.57
Monitoring and reflecting on the process of mathematical problem solving	2.12	2.80	2.33	2.87	2.53
Recognizing reasoning and reasoning as fundamental aspects of mathematics	2.66	2.27	2.43	2.63	2.50

Making and investigate mathematical conjectures	2.54	2.24	2.21	2.87	2.47
Developing and evaluate mathematical arguments	2.76	2.73	2.12	2.25	2.47
Understanding how mathematical ideas interconnect and build one another to produce a coherent whole	2.11	2.02	2.17	2.69	2.25
Recognizing and apply mathematics in context outside of mathematics	2.54	2.31	1.03	3.06	2.24
Creating and use representations to organize, record, and communicate mathematical ideas	2.86	2.10	2.33	1.56	2.21
Selecting and using various types of reasoning and methods of proof	2.21	2.48	3.00	2.00	2.42
Organizing and consolidate their mathematical thinking through communication	2.56	2.29	2.88	1.56	2.32
Communicating their mathematical thinking correctly and clearly to peers, teachers and others	2.29	1.92	1.90	3.12	2.31
Analyzing and evaluating the mathematical thinking and strategies of others	2.11	2.30	2.21	2.50	2.28

Using the language of mathematics to express mathematical ideas precisely	2.87	2.30	2.09	1.81	2.27
Recognizing and use connections among mathematical ideas	3.02	2.11	2.02	1.87	2.26
Selecting, applying and translating among the mathematical representations to solve problems	2.65	2.12	2.14	1.94	2.21
Using representations to model and interpret physical, social and mathematical phenomena	2.46	2.13	2.07	2.12	2.20
Grand Mean	2.74	2.40	2.32	2.41	2.47

The ten most anxious experiences of the respondents are: studying for a midterm exam in Mathematics (3.34), studying for a final exam in Mathematics (3.13), building new mathematical knowledge through problem solving (2.80), solving problems that arise in mathematics and other contexts(2.59), applying and adapting a variety of appropriate strategies to solve problems(2.57), monitoring and reflecting on the process of mathematical problem solving (2.53), recognizing reasoning and reasoning as fundamental aspects of mathematics (2.50), making and investigating mathematical conjectures (2.47), developing and evaluating mathematical arguments (2.47), and selecting and using various types of reasoning and methods of proof (2.42).

A composite mean of 2.47 showed that the respondents experience these apprehensions to a little amount, about 4 out of 10 instances. Among the year level, first year has the highest level of anxiety (2.74) followed by fourth year (2.41), second year (2.40) and third year (2.32)

respectively.

The first year students experienced anxiety when studying for a midterm exam in mathematics, building new mathematical knowledge through problem solving, studying for final exam in mathematics, recognizing and use connections among mathematical ideas, solving problems that arise in mathematics and other contexts, using the language of mathematics to express mathematical ideas precisely, creating and use representations to organize, record, and communicate mathematical ideas, developing and evaluate mathematical arguments, applying and adapt a variety of appropriate strategies to solve problems, selecting, applying and translating among the mathematical representations to solve problems, organizing and consolidate their mathematical thinking through communication, making and investigate mathematical conjectures, recognizing and apply mathematics in context outside of mathematics, using representations to model and interpret physical, social and mathematical phenomena, communicating their mathematical thinking correctly and clearly to peers, teachers and others, selecting and using various types of reasoning and methods of proof, analyzing and evaluate the mathematical thinking and strategies of others, and understanding how mathematical ideas interconnect and build one another to produce a coherent whole. Being a first timer in the department and in the higher education, teachers play an important part in providing a conducive learning atmosphere as well as in the implementation of the school's academic standards. Having a major exam for the first time is a milestone for the freshmen. Hence, they experience anxiety.

The fourth year students followed through with studying for final exam in mathematics, communicating their mathematical thinking correctly and clearly to peers, teachers and others, recognizing and apply mathematics in context outside of mathematics, monitoring and reflecting on the process of mathematical problem solving, making and investigate mathematical conjectures, applying and adapting a variety of appropriate strategies to solve problems, understanding how mathematical ideas interconnect and build one another to produce a coherent whole, building new mathematical knowledge through problem solving, analyzing and evaluating the mathematical thinking and strategies of others, studying for a midterm exam in mathematics, recognizing reasoning and reasoning as fundamental aspects of mathematics, solving problems that arise in math-

ematics and other contexts, developing and evaluate mathematical arguments, using representations to model and interpret physical, social and mathematical phenomena, selecting, applying and translating among the mathematical representations to solve problems, recognizing and use connections among mathematical ideas, using the language of mathematics to express mathematical ideas precisely, organizing and consolidate their mathematical thinking through communication, and creating and use representations to organize, record, and communicate mathematical ideas. It may be that being in the last curriculum year/level, mathematics anxiety is at its highest considering that they are expecting to graduate and the pressure of being able to pass is always being considered not only by them but their families as well. Hence, studying for final exam in mathematics is an anxious situation for them.

The second year students are also anxious to study for a midterm exam in mathematics, solving problems that arise in mathematics and other contexts, monitoring and reflecting on the process of mathematical problem solving, developing and evaluate mathematical arguments. As what Zolar and Ben-chain stated, that "the era in which we live is attest conscious age in which the lives of many people are not only greatly influenced, but are also determined by their test performance."

Finally, the third year students came in with the lowest anxiety focusing on the idea that they need a higher score or grade in order to maintain in school. In the Teacher Education Department, third year spells the responsibility that they can graduate in the next year because this is the stage where they are required to meet a minimum Quality Point Average (QPA) of 85%. Otherwise, they cannot join the Student Teaching/ Practicum in the next year thereby extending their stay in school and losing the possibility of graduating on time.

Table 4: Math Anxiety Reduction Strategies

Experiences of Math Anxiety/ Apprehension Reduction	Year Level				Composite
	1st	2nd	3rd	4th	
Rewards oneself for a job well done!	4.0 2	3.47	3.9 7	4.0 2	3.87

After finishing the exam, check the answers, proofread for omissions, and check for solutions on errors.	3.67	3.57	3.69	4.03	3.74
Carefully read the directions to all problems and circle significant equations and words to avoid misinterpretation.	3.10	4.04	3.67	4.11	3.73
Arrive at the exam on time and avoid talking to others.	4.11	3.55	3.76	3.36	3.70
Say positive self-statements to one-self and push away all distracting thoughts.	3.70	3.69	3.75	3.45	3.65
Proceed comfortably through the exam, working first on the problems that come the most easily to the students.	3.43	3.33	3.57	4.22	3.64
Quickly read through the exam, note point-values, and schedule the time accordingly.	3.20	3.62	3.62	3.69	3.53

Reviewed and worked out lots of problems to know the material out of context.	3.44	3.27	3.14	3.76	3.40
Analyzed past pattern of typical errors to be alert to them on the exam.	2.89	3.28	3.52	3.67	3.34
On practice exam, remains calm, relaxed and positive, checking breathing often.	3.35	3.00	3.10	3.88	3.33
Through the exam, remains calm, relaxed and positive, checking breathing often.	3.05	3.61	3.32	3.19	3.29
Practiced relaxation exercises along with positive visualization in the days and half-hour before the exam.	3.31	3.10	3.39	3.32	3.28
Got 8 hours of sleep in the days prior to the exam.	3.14	3.07	3.25	2.96	3.11
Knowing roughly how many questions will be on the exam and its duration.	2.78	2.76	3.14	3.22	2.98
Given oneself several practiced exams.	3.06	3.85	2.68	2.19	2.95

Kept up a regular program of moderate exercise.	2.53	2.81	3.06	3.26	2.92
Knew the format and content of the upcoming exam.	3.11	2.80	2.40	3.14	2.86
Write all the formulas and key ideas on the top corner of the exam sheet before beginning the test.	3.16	2.85	2.80	2.14	2.74
Eaten a small meal of low-fat protein 1-2 hours before the exam and avoided too much caffeine.	3.20	2.76	2.14	2.42	2.63
Grand Mean	3.28	3.29	3.26	3.37	3.30
Description	S	S	S	M	S

All the respondents have tried means to lessen their activity. Almost all have the same level of anxiety reduction. The top five anxiety reduction include rewarding oneself for a job well done (3.87), after finishing the exam, check the answers, proofread for omissions, and check for solutions on errors (3.74), carefully read the directions to all problems and circle significant equations and words to avoid misinterpretation (3.73), arrive at the exam on time and avoid talking to others (3.70), and arrive at the exam on time and avoid talking to others (3.65).

The reduction techniques show that the students try to focus on the coming exam or test by avoiding talking to others which may distract them from focusing on the test. It may be that talking to others which may become a source of apprehension with other students talking negatively about the test or fearing failure which can also affect them in concentrating for the exam. Moreover, they reduced their math anxiety by carefully reading and reviewing their solutions/answers before submitting these to the professor.

When tested for the relationship between academic achievement and math anxiety reduction, it was found that there is a little inverse relationship between math anxiety and academic achievement but there is no relationship between academic achievement and anxiety reduction techniques.

This result supported various findings that math anxiety adversely affects academic performance or achievement. These studies revealed that anxiety and achievement are related to each other. Another study on undergraduate students found that students with academic achievement have low math anxiety scores and finally with Chapell, et.al (2005) that there is a significant and negative relationship between math anxiety and academic achievement.

Table 5: Relationship between Academic Achievement and Math Anxiety and Anxiety Reduction

Academic Achievement and:	Critical Value	Computed	Decision	Interpretation
Math Anxiety	3.925	5.492	Reject Ho	Significant
Anxiety Reduction	3.925	3.040	Accept Ho	Not Significant
Test at $\alpha = 0.05$ level of significance				

In trying to determine if a significant difference exists between math anxiety when students are classified into year levels, there is a difference between the first year and third year students but there is no significant difference in terms of anxiety reduction.

Table 6: Significant Difference Math Anxiety and Anxiety Reduction When Classified According to Year Level

Academic Achievement and:	Critical Value	Computed Value	Decision	Interpretation
Math Anxiety	2.6864	5.81722	Reject Ho	Significant
Anxiety Reduction	2.6864	1.4353	Accept Ho	Not Significant
Test at $\alpha = 0.05$ level of significance				

Major Findings

1. There are 301 respondents with gender representation of 43 males and 258 females.
2. Almost all of the respondents have qualified for the required minimum QPA for entry to the next curricular level.
3. The ten most anxious experiences of the respondents are: studying for a midterm exam in Mathematics (3.34), studying for a final exam in Mathematics (3.13), building new mathematical knowledge through problem solving (2.80), solving problems that arise in mathematics and other contexts(2.60), applying and adapting a variety of appropriate strategies to solve problems(2.57), monitoring and reflecting on the process of mathematical problem solving (2.53), recognizing reasoning and reasoning as fundamental aspects of mathematics (2.50), making and investigating mathematical conjectures (2.47), developing and evaluating mathematical arguments (2.47), and selecting and using various types of reasoning and methods of proof (2.43).
4. A composite mean of 2.47 showed that the respondents experience these apprehensions to a little amount, about 4 out of 10 instances. Among the year level, first year has the highest level of anxiety (2.74) followed by fourth year (2.51), second year (2.41) and third year (2.32) respectively.
5. There is a little inverse relationship between math anxiety and academic achievement but there is no relationship between academic achievement and anxiety reduction techniques.

CONCLUSION

Based on the findings, it is concluded that math anxiety had a little inverse with scholastic achievement while anxiety reduction do not have any relationship at all.

RECOMMENDATIONS

Based on the foregoing conclusions

1. The teacher may devise strategies that students will look at tests not as a measurement of error but as a reflection of their performance and therefore to be taken as a source for improvement.

2. The guidance office may provide counseling sessions to students with high math anxiety.
3. Include in the homeroom guidance activities, topic and activities that address math anxiety and promote anxiety reduction techniques or strategies.
4. There is a need to employ relevant real-life or situational problems and applications in teaching in order to motivate students and to be aware that Mathematics is a tool subject, as such mathematical concepts and skills are useful.
5. Workbooks or activities may be updated to keep abreast with the new trends in Mathematics teaching. Besides, more exercises in Mathematics should be provided in the classroom especially on items or topics where they find most difficult.

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TAU'SUG LEVEL OF AWARENESS AND ACCEPTANCE OF GOVERNMENT HEALTH SERVICES FOR LEPROSY IN SULU

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ABSTRACT

The main purpose of this study was to determine the level of awareness of the Tau'sug and their acceptance towards the Department of Health's (DOH) policies, programs and projects for Post-Hansenites in Sulu. A descriptive exploratory research design was employed. Two hundred (200) Tau'sug respondents were drawn in the province of Sulu using systematic purposive random sampling. The findings of this study revealed that: There was relatively sufficient hoard of labor force in Sulu; The population in the research area was within the threshold of poverty; and There was underemployment in Sulu due to curricular mismatch between curricular offerings and the demand for sustainability and growth of the economy. The people seemed to have less interest on what the government were doing; The respondents indicated that the crucial factors in the success of government's health services for leprosy is attributed to tri-Media, dedicated and caring health workers, and effective health administrators. And, finally, based on the Statistical Computation using Multiple Regression, the Null Hypothesis was rejected. Wherefore, based on David Easton's Model, the study concluded that the type of existing feedback was positive in the context of policies, programs and projects. As for the level of acceptance, the result was negative. It is therefore recommended that: To hasten the delivery of health services including leprosy, among the poor and marginalize Tau'sug, the political ambiance of the Province, should take prerequisite steps both local and national government in reducing if not totally eradicating poverty incidence in the said locality.

Key words: Awareness, Acceptance, Tausug, Government Health Services, and Leprosy

INTRODUCTION

The World Health Organization (WHO) in 1995 estimated that between two and three million individuals are permanently disabled because of leprosy. And this number has increased noticeably in some parts of the world. In fact, leper colonies and sanatoria still remain around the world in countries such as India, Vietnam and the Philippines (www.who.int).

Leprosy is one of the oldest recorded diseases of mankind. A disease of antiquity yet its

uniqueness continued to shroud in mystery even today in the age of scientific advancement. It is a chronic infectious disease of man caused by the microorganism *Mycobacterium Leprae* that is, it mainly affects the skin and peripheral nerves. In advance cases, which have not had treatment, *Mycobacterium Leprae* can be found in the nasal mucus membrane, lymph nodes, testes and small blood vessel walls (Rehabilitation Prevention of Impairment and Disabilities Manual, Philippine Leprosy Mission, 2000).

Globally, leprosy as a chronic infectious

disease has been considered as a “Public Health Problem”. In fact, the WHO has held a global forum on elimination of leprosy on May 26, 2006 at Geneva, Switzerland. However serious, this most feared and disabling disease of mankind is curable and eliminative. During that same assembly, it was noted that one hundred sixteen (116) out of one hundred twenty-two (122) endemic countries have eliminated leprosy as a Public Health Problem (WHO 2006). Quite recently, the WHO encouraged by the effectiveness of Multi-Drug Therapy (MDT) conferred with its individual benefactors to plan for an eventual eradication of leprosy.

Here at home in the Philippines, the leprosy problem can be traced back to the early American regime. To combat this, the American Colonial Government enacted Commonwealth Act 104 that provided for the strict and compulsory segregation of any individual affected with leprosy regardless of race, creed and religion. Under Governor Frank Murphy, he followed it up by issuing an Executive Order that set aside reservation sites such as the Sulu Sanitarium for this purpose (Unpublished Thesis NDJC, 2006).

In the 1990s, Department of health (DOH) issued Department Order Number 72, series of 1994, mandating the Sulu Sanitarium and the like to expand its services to general medical care, based on the premise and promise that leprosy is curable with the powerful multi-drug therapy. To a limited extent, this department order helps improve the health services to the Hansenites and Non-Hansenites patients especially those within the poverty line (Sulu Sanitarium Manual 2000).

In the province of Sulu, it is an established fact that leprosy is a common disease among its marginal sector. Worst is the fact that even if the person is cured with the aforesaid disease, still, the social stigma remains. In other words, though the lepers were cured, the significant question is, does the general public accept these cured or Post-Hansenites now? This was the social problem that this researcher would like to focus on, in order to determine specifically, the social intervention measures formulated and implemented by the DOH under its policies, programs and projects in its Sulu flagship center, which is Sulu Sanitarium to totally eradicate if not, mitigate the social stigma of the Hansenites and Non-Hansenites for them to be integrated into the mainstream Tausug Society and authentically

respond to the social demands of the Post-Hansenites in the said locality.

OBJECTIVES OF THE STUDY

This research assessed the awareness and acceptance of the Tau’sug on government health services for leprosy in Sulu. The specific objectives of this study are:

1. Describe the profile of the Tau’sug respondents in terms of age, gender, civil status, income and educational attainment;
2. Determine the level of awareness of the Tau’sug towards the government as an instrument of health service for leprosy:
 - 2.1 in the area of policies;
 - 2.2 in the area of programs;
 - 2.3 in the area of projects;
3. Assess the level of awareness of the Tau’sug towards the Post-Hansenites in Sulu;
4. Ascertain the level of awareness of the Tau’sug on the strengths, weaknesses, opportunities and threats of the government policies, programs and projects;
5. Evaluate the level of acceptance of the Tau’sug towards the Post-Hansenites in Sulu in the context of: employment, socialization, family, peer group, school, and mosque/church;
6. Gauge the level of awareness of the Tau’sug on the benefits of the government health policies, programs, and projects;
7. Probe whether a significant relationship exist on the Tau’sug level of awareness when grouped according to age, gender, civil status, income and educational attainment in accepting Post-Hansenites to the society.

Conceptual Framework of the Study

Applying the theory of David Easton, the schematic diagram below reflects its very reification. As may be gleaned in Figure1, for the independent variables, there are two (2). These are: (1) Demand, and (2) Support. Accordingly, for the

demand, we have the Tau'sug population's demand for government health services for leprosy. In turn, for the support; there is the Post-Hansenites integration into mainstream Tau'sug society. As for the intervening variable, the government bureaucracy is responsible for formulating and implementing health services for Hansenites. The particular branch of government that is responsible for formulating and implementing policies, programs and projects is the Department of Health (DOH) through administrative order, executive order and presidential decree for the management of health services, including Hansen's disease. In the global perspective, DOH is under the umbrella of World Health Organization (WHO), in terms of managing, monitoring and evaluating the policies, programs, and projects which pertain to universal or endemic diseases. For the dependent variables there are also two (2). These are: (1) policies, programs and projects for Post-Hansenites, and (2) level of acceptability which included: (1) employment, (2) socialization, (3) family, (4) mosque/church, (5) school, and (6) peer group. For pragmatic and academic purposes, this espoused conceptual framework needs to be validated in this study. And finally, for residual variable, we have the feedback which can either be positive (success) or negative (failure) with regards to the integration of Post-Hansenites into the Tau'sug mainstream society.

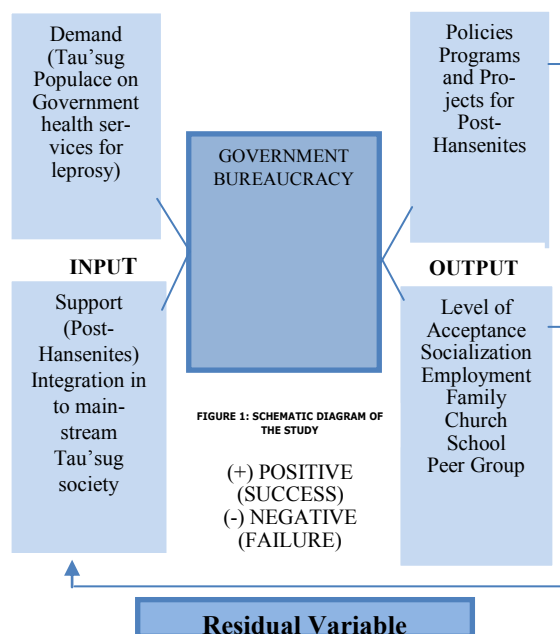


FIGURE 1: SCHEMATIC DIAGRAM OF THE STUDY

Conceptual Model of the Study on Tau'sug Level of Awareness and Acceptance of Government Health Services for Leprosy in Sulu

METHODOLOGY

The study was undertaken in the municipalities of Jolo, Luuk and Indanan, province of Sulu. Descriptive exploratory-survey method was adopted to assess the Tau'sug level of awareness and acceptance of government health services for leprosy in Sulu. The investigation used purposive and random sampling schemes in determining the respondents from the said municipalities, respectively. A total of two hundred (200) constituent-respondents served as informants of the study. In gathering of data, an interview schedule and self-devised questionnaire with a Tau'sug version was administered. Prior to its use, experts from the academe and the Sulu Sanitarium agency duly validated the contents of said instrument. To ensure reliability, a try-out was conducted resulting to a Cronbach alpha of 0.79 suggesting higher acceptability. The test primarily solicited information from Sulu Sanitarium Leprosy Coordinators on the existing policies, programs and projects of government health services for leprosy. In analyzing the data, descriptive and inferential statistics like weighted mean, frequency count, simple percentage distribution and multiple regression tests were used. In most calculations, the utilities of Statistical Package for Social Sciences were maximized.

FINDINGS

Based on the analysis of the data gathered, the following findings were revealed:

On Demographic Profile

The findings showed the following trends: (1) there was relatively sufficient hoard of labor force in the locality; (2) the population in the research area was within the threshold of poverty; (3) there was underemployment in the locality due to mismatch between curricular offerings

and the demand for sustainability and growth of the economy.

Table 1
Demographic Profile of the Tau'sug Respondents in Terms of Age, Gender, Civil Status, Income and Educational Attainment

Characteristics	Frequency	Percent
Age		
21-40	99	49.5
41-65	101	50.5
Gender		
Male	86	43.0
Female	114	57.0
Civil Status		
Single	99	9.5
Married	137	68.5
Divorced	21	10.5
Separated	23	11.5
Monthly Income		
P1,000-2,249.99	2	1.0
P2,250-3,749.99	14	7.0
P3,750-5,249.99	31	15.5
P5,250-7,249.99	44	22.0
P7,250-8,749.99	24	12.0
P8,750-10,249.99	37	18.5
P10,250-11,749.99	8	4.0
P11,750-13,249	24	12.0
P14,750-OVER	16	8.0
Educational Attainment		
Elementary Level	1	5
Elementary Graduate	3	1.5
High School Level	31	15.5
High Scholl Graduate	59	29.5
College Level	10	5.0
College Graduate	81	40.5
Others	15	7.5

On the Level of Awareness of the Tau'sug on the Government as an Instrument of Health Service for Leprosy in terms of its Policies, Programs and Projects

The survey disclosed the following implications: (1) the people seemed to have less interest on what the government in general and the Department of Health in particular were doing in the locality; (2) while there seemed to be lack of interest on the part of the populace concerning the performance of the government, they were fully aware of what the government should do, vis-

vis on matters of health and other services; (3) the apathy of the Tau'sug populace is probably attributed to their unsatisfied expectations of the government; and (4) the limited awareness of the Tau'sug towards the government policies, programs and projects towards the Post-Hansenites in the locality is probably attributed to either: (a) insufficient amount of government information drive; and (b) the limited or absence of political participation and involvement of the Tausug in the course of formulating and implementing policies, programs and projects for treating leprosy in the locality, or both.

Table 2
Level of Awareness of the Tau'sug towards the Government as an Instrument of Health Service for Leprosy in Terms of its Policies, Programs, and Projects

Areas	Mean Rank	Level of Awareness
1.The role of the government to the people as an instrument of service is to address Leprosy problem in Sulu Province.	3.31	Moderately Aware
2.As an instrument of service, the government policies, programs and projects through the DOH must address the demands of the leprosy-affected persons.	3.40	Moderately Aware
3.The DOH is inclined to serve the interests of the elites rather than the Hansenites.	3.31	Moderately Aware
4.The DOH as a government agency is an instrument of health service	3.77	Aware
5.The health services of the government are ineffective since they do not have regular execution of monitoring and evaluation.	3.20	Moderately Aware
6.The failure of most DOH policies, programs, and projects in Sulu is attributed to negligence.	3.12	Moderately Aware

7.The success of the governmental services in terms of policies, programs and projects is attributed to the presence of information drive among the clientele.	3.66	Aware
8.More often than not, national and local government agencies are insensitive to the problems and plight of the downtrodden masses as well as leprosy-affected persons.	3.01	Moderately Aware
10. The national and local government usually formulates and implements palliative policies, programs and projects.	4.13	Aware
11. The ability of the government to have a great number of health service policies, programs and projects is attributed to the faithful payment of foreign debts.	4.15	Aware
Over-all Mean	3.47	Moderately Aware

Legend:

1- no awareness	4- aware
2 -less aware	5-well aware
3-moderately aware	

On the Level of Awareness of the Tau'sug towards the Post-Hansenites in the Province of Sulu

The survey showed the following implications: (1) the respondents believed that the crucial factors in the success of policies, programs, projects and in the context of implementation-for the treatment of Leprosy is attributed to: (a) tri-Media, (b) dedicated and caring health workers and (c) effective health administrators; (2) factors such as: supportive Tau'sug community and the administration of multi-drug therapy and other modern medicine were considered among the respondents as less crucial; (3) it seemed that what the DOH was doing in an effort to reduce if not,

totally eradicate leprosy in the Province is virtually not visible in the eyes of the Tau'sug; and (4) the respondents seemed to have a fair knowledge on the significance of a regular monitoring and evaluation scheme which is a contributing factor to the success or failure of the policies, programs, and projects for Post-Hansenites.

Table 3
Level of Awareness of the Tau'sug towards the Post-Hansenites in the Province of Sulu

Areas	Mean Rank	Level of Awareness
1.The DOH has comprehensive policies, programs, and projects for the Post-Hansenites in the Province of Sulu	3.11	Moderately Aware
2.The implementation of policies, programs and projects for the Post-Hansenites in the Province of Sulu is successful.	3.98	Aware
3. The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to adequate use of Tri-media in its information drive.	3.85	Aware
4.The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to dedicated and caring health workers.	4.18	Aware
5.The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to effective health administrators.	3.98	Aware
6. The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to a supportive Tau'sug community.	3.12	Moderately Aware

7.The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to the adoption of multi-drug therapy and other modern medicine.	3.40	Moderately Aware
8.The success of the policies, programs, and projects for the Post-Hansenites in the Province of Sulu is attributed to the effort of DOH to conduct regular monitoring and evaluation.	3.43	Moderately Aware
9.The series of visitations, ocular inspections, trainings, consultations and community outreach activities done by medical health workers, health administrators and consultants are concrete results of regular monitoring and evaluation of policies, programs and projects for Post-Hansenites.	3.50	Aware
Over-all Mean	3.62	Aware

Legend:

1- no awareness	4- aware
2 - less aware	5- well aware
3 - moderately aware	

On the level of Awareness of the Tau’sug on the Strengths, Weaknesses, Opportunities and Threats of the Government Policies, Programs and Projects

The findings displayed the following implications: the strengths of the government policies, programs, and projects for leprosy were dependent on the progressive health administrators. For weaknesses, the survey showed that: there is an apparent incidence of marginalization among the Post-Hansenites due to forcibly denying them to join the productive forces in the society for health reason. For opportunities, the result of the

survey implied that the Tau’sug has a working knowledge on the prospects of the policies, programs, and projects for Post-Hansenites. As for threats, the survey revealed that the Tau’sug populace possessed a fairly accurate view of the current political issues in their locality that attributes to the deliberate fiasco of the policies, programs and projects instituted by DOH for Post-Hansenites.

Table 4
Level of Awareness of the Tau’sug towards Strength, Weaknesses, Opportunities, and Threats of the Government, Health Policies, Programs, and Projects

Areas	Mean Rank	Level of Awareness
A. STRENGTHS	3.10	Moderately Aware
1. Adequate Funding	3.98	Aware
2. Dedicated health 3. Workers	3.85	Aware
4. Progressive health Administrators	4.18	Aware
5. Adoption of Modern Medicine	3.98	Aware
6. Adequate Use of Tri- Media in its Infor- mation Drive	3.12	Aware
7. Supportive Tau’sug Community	3.40	Moderately Aware
8. Excellent Medical Facilities	3.43	Moderately Aware
B. WEAKNESSES	3.16	Moderately Aware
1. The weaknesses of DOH’s policies, pro- grams, and projects for Post-Hansenites in the Province of Sulu are attributed to:		
2. Faithful payment of Foreign Debt	2.60	Moderately Aware
3. Budget deficit	2.87	Moderately Aware
4. Bureaucratic Red Tape or delays of ser- vices	3.05	Moderately Aware
5. Marginalization of Post-Hansenites	3.65	Aware

Legend:

1 - no awareness	4- aware
2- less aware	5- well aware
3 - moderately aware	

On the Level of Acceptance of the Tau'sug Towards Post-Hansenites

The survey showed that there is ambivalence in the spheres of employment, socialization, mosque/church, school, and family.

Table 5

Level of Acceptance of the Tau'sug Towards Post-Hansenites in the Province of Sulu in Terms of Employment, Socialization, Family, Mosque/Church, School and Peer Group

Areas	Mean Rank	Level of Awareness
Employment	3.32	Uncertain
1.The Post-Hansenites have the right to be gainfully employed	3.32	Agree
2.The Post-Hansenites have the right to be self-employed	3.56	Agree
3.The Post-Hansenites should be countered as part of the labor force.	3.52	Agree
Socialization		
1.The Post-Hansenites should be allowed to attend social occasions such as: baptismal, wedding, burial and the like.	2.88	Uncertain
	3.36	Uncertain
Family	3.66	Agree
1.The Post-Hansenites kitchen utensils, clothing and bedding and other personal belongings should be separated.	3.98	Agree
2.The Post-Hansenites should be allowed to have bodily contact with the members of the household such as: shaking hands, embracing, kissing, sitting together and the like.	3.34	Uncertain

Legend:

1 - no awareness	4- aware
2- less aware	5- well aware
3 - moderately aware	

On the Tau'sug Awareness and Acceptance of the Existing Government Policies, Programs and Projects

The survey showed the following implications: (1) the Tau'sug populace were aware of the existing policies on treatment of Hansen's disease; (2) the Tau'sug populace has knowledge on the existing programs for leprosy in the locality instituted by DOH; (3) there were four prominent projects which the people in the locality were familiar of.

Table 6
Existing Policies for Leprosy that Respondent have Knowledge on

Policies	Frequency	Per-cent	Rank
1.Ensure the delivery of quality healthcare to all participants in the health system	61	30.5	2
2.Integration of National Leprosy Control Program (NLCP) activities into the general healthcare services	139	69.5	1

Existing Programs for Leprosy that Respondent have Knowledge on

Programs	Frequency	Percent	Rank
1.Implementation of National Leprosy Control Program (NLCP)	55	27.5	2
2.Designation of Sanitaria as referral center for diagnosis and management of leprosy	145	72.5	1

Existing Projects for Leprosy that Respondent have Knowledge on

Projects	Frequency	Percent	Rank
1. Training of all Rural Health Unit (RHU) Physicians, Public Health Nurse (PHN) and Barangay Health Midwife (BHW) on leprosy.	0	0.0	-
2. Regular and adequate supply of multiple drug therapy (MDT) drugs.	12	6.0	4
3. Public awareness campaign.	132	66.0	1
4. Adequate and appropriate Information Education Campaign (IEC) materials.	32	16.0	2
5. Active case finding through Leprosy Elimination Campaign (LEC), Special Action Project for Elimination of Leprosy (SAPEL) and Community Action Project for Elimination of Leprosy (CAPEL).	24	12.0	3
6. Regular Monitoring and supervision by Local Government Units (LGUs).	0	0.0	-
7. Program and Review meetings.	0	0.0	-
8. Integration of Prevention of Impairment and Disabilities (POID)	0	0.0	-

List of Policies that were Successfully Implemented

Policies	Frequency	Percent	Rank
1. Ensure the delivery of quality healthcare to all participants in the health system.	55	27.5	2
2. Integration of National Leprosy Control Program (NLCP) activities into the general healthcare services	145	72.5	1

List of Programs that were Successfully Implemented

Programs	Frequency	Percent	Rank
1. Implementation of National Leprosy Control Program (NLCP)	32	16.0	2
2. Designation of Sanitaria as referral center for diagnosis and management of leprosy	168	84.0	1

List of Projects that were Successfully Implemented

Projects	Frequency	Percent	Rank
1. Training of all Rural Health Unit (RHU) Physicians, Public Health Nurse (PHN) and Barangay Health Midwife (BHW) on leprosy.	11	5.5	6
2. Regular and adequate supply of multiple drug therapy (MDT) drugs.	23	11.5	5
3. Public awareness campaign.	69	34.5	1
4. Adequate and appropriate Information Education Campaign (IEC) materials.	27	13.5	4

5.Active case finding through Leprosy Elimination Campaign (LEC), Special Action Project for Elimination of Leprosy (SAPEL) and Community Action Project for Elimination of Leprosy (CAPEL).	35	17.5	2.5
6.Regular Monitoring and supervision by Local Government Units (LGUs).	0	0.00	-
7.Program and Review meetings.	0	0.00	-
8.Integration of Prevention of Impairment and Disabilities (POID)	35	17.5	2.5

Validation of Hypothesis, and the Success of the Implementation of Policies, Programs and Projects

The result of such test is reflected in the table below. Based on the result, the combined contribution of civil status, gender, age, monthly income and educational attainment has significant influence on the level of awareness and acceptance of the Tau'sug towards the Post-Hansenites since the F value is equal to 2.850, multiple regressions is equal to 0.262 and probability is equal to 0.017.

Based on the statistical results, through the computation of multiple regression, the null hypothesis which states that "There is no significant relationship that exists between level of awareness and acceptance of the Tau'sug when data are categorized according to age, gender, civil status, income and educational attainment", was therefore rejected. Hence, the alternative hypothesis has been accepted. The survey showed that from the perspective of the Tau'sug populace, the DOH has been relatively successful in formulat-

ing and implementing policies, programs and projects for the Post-Hansenites in the locality.

Moreover, the statistical findings also suggested that the most significant predictor among the demographic characteristics of the respondents is the monthly income. In a scientific way of putting it: monthly income is directly proportional to the level of awareness and acceptance of the Post-Hansenites.

Accordingly, in layman's language, the higher the respondent's income; the higher is his/her assessment or level of awareness and acceptance of the plight of the Post-Hansenites than the poor and down-trodden Tau'sug in the locality - - in a manner of speaking.

The rest of the demographic profile such as: civil status, gender, age, and educational attainment were not significant at 0.05 level using multiple regression statistical analysis. Meaning, these variables do not have bearing on the respondents' level of awareness and acceptance towards the Post-Hansenites.

From the Humanist perspective, people with higher income tended to empathize with the plight of the Hansenites. These finding validate the theory of cultural materialism whose proponent is Marvin Harris (1982). It says that man amidst abundance has the propensity to venture into speculative endeavor such as appreciation of beauty and suchlike.

Table 7
Relationship of the Respondents' Socio-Demographic Profile and the Level of Awareness and Acceptance towards the Post-Hansenites

Variable	Coef-ficient	Stand-ard Deviation	t-Val-ue	Proba-bility	Verbal De-scripti-on
(constan-t)	3.226	.185	17.402	.000	
Civil Status	.0.020	.042	.465	.642	NS
Gender	-.0.012	.065	-.179	.848	NS
Age	-.0.015	.066	-.222	.824	NS
Month-ly In-come	.0.060	.016	3.626	.000	Sig.
Educa-tional Attain-ment	-.0.45	.127	-1.665 NS	.098	NS

Multiple R	=	.262
F-Value	=	2.850*
Probability	=	0.017
NS	=	Not Significant at 5% level
Sig.	=	Significant at 5% level

CONCLUSION

On the basis of the research findings of this study, the following conclusions are advanced:

1. The Tausug-respondents displayed that half has age ranging from 41-45, indicating sufficient hoard of labor force in the locality; female preponderates over males, implying, in a patriarchal society such as the Tausug, there are more dependents than breadwinner; majority are married, suggesting that more are stable; majority are within the threshold of poverty; and forty percent of them are professionals, yet there is poverty in the locality. Matching educational skills with income, the findings reflected that there is an incidence of underemployment in the locality, attributed to mismatch between curricular offerings with the prerequisite demands for sustainability and growth of the local economy.

2. The Tau'sug-respondents moderate level of awareness on the government as an instrument of health service for leprosy in the areas of policies, programs and projects, inferring that the people have less interest on what the government in general and the DOH in particular were doing in the locality; while there seem to be lack of interest on the part of the populace concerning the performance of the government, they were fully aware of what the government should do, especially on matters of health and other services; their apathy is attributed to their unsatisfied expectations of the government and their limited awareness is credited to insufficient amount of government information drive and limited or absence of political participation and involvement in the course of formulating and implementing policies, programs and projects for treating leprosy.

3. The Tau'sug-respondents has moderate level of awareness of the Post-Hansenites in the province of Sulu, suggesting that the crucial factors in successfully implementing policies, programs and projects for the treatment of the leprosy is attributed to: tri-media, dedicated and caring

health workers and effective health administrators.

4. The Tau'sug-respondents has moderate level of awareness towards strengths, weaknesses, threats and opportunities of the government's health policies, programs and projects, deducing that: the strengths are dependent on progressive health administrators; weaknesses showed that there is an apparent marginalization among the Post-Hansenites due to forcibly denying them to join the productive forces in the society for health reason; in terms of opportunities, they have a working knowledge on the prospects of policies, programs and projects for Post-Hansenites and on threats, it revealed that they have a fairly accurate view of the current political issues in their locality due to the deliberate fiasco of the policies, programs and projects instituted by DOH for Post-Hansenites.

5. The Tau'sug are uncertain and virtually ambivalent towards their acceptance of the Post-Hansenites in the province of Sulu in terms of employment, socialization, family, mosque/church, school and peer group, signifying that the nature of their responses were due to relative outmoded and unscientific knowledge that the Post-Hansenites could still contaminate those persons who have no history of Hansen's disease.

6. The Tau'sug-respondents has moderate level of awareness of the benefits of government health policies, programs and projects denoting that: they are aware of the existing policy on the integration of National leprosy Control Program (NLCP) activities into the general health care services; aware of an existing program geared towards the implementation of NLCP and designation of sanatoria as referral center for diagnosing and managing leprosy; and has a working knowledge on the existing projects namely: Public Awareness Campaign, Information Education Campaign (IEC), Leprosy Elimination Campaign (LEC), Special Action Project for Elimination of Leprosy (SAPEL) and Community Action Project for Elimination of Leprosy (CAPEL).

7. Based on multiple regressions, the statistical results implied that: it failed to accept the null hypothesis, which states that "there is no significant relationship that exists between level of awareness and acceptance when grouped according to age, gender, civil status, income and educational attainment", and that the most significant predictor among the demographic characteristics is the income, suggesting that income is directly

proportional to the level of awareness and acceptance of the Post-Hansenites, thus, the higher is the income, the higher is the Tau'sug's level of awareness and acceptance of the plight of the Post-Hansenites. Finally, based on David Easton's Model, the validation of hypothesis in this study implied that the type of existing feedback was positive in the context of policies, programs and projects. As for the level of acceptance, the result was negative.

RECOMMENDATIONS

Based on the formulated conclusions, the following propositions are offered as recommendations for this study:

1. There is a need for educational planners - - both private and public institutions - - to at-tune their curricular offerings thus producing the type of manpower that could sustain and improve the local economy;
2. To improve the political ambiance of the province, the prerequisite steps that could be taken by the government - - both local and national - - is to reduce if not totally eradicate poverty incidence, thus hastening the delivery of health services among the poor and marginalize Tau'sug;
3. The DOH has to conduct a massive information drive and educational campaign on the nature of Hansen's disease and its capability to be cured with multi-drug therapy and modern medicine thus replacing the outmoded and unscientific beliefs of the Tau'sug towards leprosy;
4. The DOH should incorporate a social program in their treatment scheme that would simultaneously integrate the Post-Hansenites into the mainstream society. Both physical and social treatment of Leprosy should be a dual function of the DOH in the context of health services, thus treating the whole person and not just the disease itself;
5. The Tri-Media could take active role in enhancing the awareness of the Tau'sug towards the plight of the Post-Hansenites;
6. Ridding the world of leprosy requires that both the medical and social aspects of the disease be addressed (Sasakawa, 2006:1); and
7. In the context of acceptance - - a factor that would eventually integrate the Post-Hansenites into the Tau'sug mainstream society - - would be to consider the three (3) dimensions, these are (a) the need for self-acceptance; (b) the need for social ac-

ceptance; and (c) the need for acceptance by the community. (Correspondence to: J. Scott, email: James@qedi.co.za)

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NOTING DETAILS SKILL AND PROBLEM SOLVING ABILITY OF THE PRESCHOOLERS OF SELECT DEPED PRESCHOOLS IN SAN JOSE, OCCIDENTAL MINDORO

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ABSTRACT

This study was conducted on the basis that numerous correlational studies have shown that achievements in reading and math are correlated in many ways; however, there were no studies that have probed deeper on specific skills and abilities such as noting details and problem solving, particularly, among preschoolers. The research objectively tried to establish relationship between noting details skill and problem solving ability of learners. Specifically, it was intended to (1) describe the level of the noting details skill of the respondents; (2) describe the level of the problem solving ability of the respondents; and to (3) determine the relationship between the levels of noting details skill and problem solving ability of the respondents. The respondents were preschoolers of select DepEd Preschool in San Jose, Occidental Mindoro who were chosen purposively by the researchers through power analysis. The relationship between the noting details skill and problem solving ability was determined by the use of Pearson-r. The result of the study revealed that the noting details skill of the preschoolers is related with their problem solving ability. Those who are in the “excellent” level in noting details are also those who are in “excellent” level in problem solving. With this, cognitive development of children which include both noting details and problem solving should be enhanced all together as they grow and age.

Keywords—noting details skill, problem solving ability, preschoolers

INTRODUCTION

Basic in reading is one’s ability to note details. Basic in math is the learner’s ability to solve problems, especially in the fundamental operations. Several studies show that these skills are related, citing the study of Tymms, [19] that curricular achievement in reading and mathematics is related which he called general developed abilities.

One of the aspects of this intended research is the cognitive processes underlying academic achievement. Literature indicates that curricular achievement in mathematics and reading is

related to what Tymms [19] calls —general developed abilities. These imply the mastery of domain-specific skills such as phoneme-grapheme conversion, letter recognition, or knowledge of vocabulary for reading or counting, number comprehension, and knowledge of the decimal number system in the area of mathematics as cited by Dehaene [7].

However, Gathercole, Lamont, and Alloway [2] pointed out that the development of these domain-specific skills requires their interaction with other basic cognitive abilities that do not depend so much on environmental aspects and that

provide students with the necessary opportunities to acquire skills and knowledge during their development according to Bull et al., [6], Geary [8], and Graesser [9].

It is unclear which factors make learning difficulties more or less severe, which cognitive processes mediate the different aspects of academic achievement in reading and mathematics, and how they are related to each other. Lack of a globally accepted theoretical approach, frequently hinders the utilization and generalization of the results obtained from other studies.

Numerous correlational studies have shown that achievements in math and reading are correlated in many ways as emphasized by Geary [8], Jordan [10], Sovik, et al [18] and Tymms [19], as well as, Vukovich, et al [20]. However, no studies have been conducted probing deeper on specific skills such as noting details and problem solving, particularly, among preschoolers.

And this is what prompted the researchers to conduct one. Researchers also wanted to find out the levels of noting details skill and problem solving ability of the respondents and if these two are related.

OBJECTIVES

In all these studies conducted, reading comprehension skill and mathematical ability are taken as general constructs; whereas, this study basically focuses on specific areas such as noting details and problem solving.

Specifically, the study aims to answer the following questions:

1. What is the level of the noting details skill of the respondents?
2. What is the level of the problem solving ability of the respondents?
3. What is the relationship between the levels of noting details skill and problem solving ability of the preschoolers of select DepEd Preschool in San Jose, Occidental Mindoro?

REVIEW OF RELATED LITERATURE

There were no such studies about noting details in relation with early childhood develop-

ment of children. However, there are inputs which could be given by preschool teachers and introduced to preschoolers as inputs to start with acquisition of the skills as suggested by Skills Hub [16] that provided tips for making notes.

It highlighted the important thing about taking notes from printed sources where one's understanding of the material, is essential to write down what one understand in his/her own words. This does not mean re-writing the material in polished prose – notes which are brief and informal. If to get into the habit of simply copying text directly, one may not only fail to fully understand the material but will also run the risk of committing [plagiarism](#). Noting details are banked on reading.

Peralta [14] used noting details in its module on using compound words in sentences with direct objects and in transforming a declarative to an exclamatory sentence, as well as, in identifying abstract nouns but mentioned not so much information relating to noting details for preschool children.

In a research by Reutzel & Cooter [15], noting details were only cited as one question component in teaching reading comprehension which was largely taught by asking students questions following reading or by assigning skill sheets as practice for reading comprehension skills such as getting the main idea, determining the sequence, following directions, noting details, and cause and effect relationships.

Other studies show that noting details skill is really a fundamental need to be improved at the pre-school level as it has also effects later in life. One study made by Pascua [13] which aimed to find out the effects of multimedia instructions on the academic performance of students in higher education, as well as, which areas of linguistic and comprehension skills the students showed excellent and poor competencies.

The effect of multimedia instructions on students' linguistic and comprehension skills was significant except one comprehension skill - noting details. The experimental groups showed excellent competence in recognizing the main idea; while the comparison groups did not show excellent competence in any of the skills. They had a poor performance in noting details and sequencing. Multimedia instruction enhances students' learning when properly applied according to the

instructional objectives. However, Pascua [13] recommended that instructional module, as well as, activities be enriched to enhance the noting details skills of the students.

Given with no further studies on noting details concerning preschoolers, there were studies that probed on problem solving.

Problem solving, on the other hand, is seen as an important ability that contributes to academic and functional literacy for many children and adults. Successfully solving a problem requires a child to coordinate skills across several different domains as indicated by the Academic and Functional Literacy [1].

Citing what Berk [5] emphasized that children who are competent problem solvers can study a problem in detail and think critically about it, determine what needs to be done, generate strategies, evaluate the success of a given strategy, and persist in the problem-solving process until a solution is successful. Problem solving can be either an individual or a group activity. Mentioning what Vygotsky [21] stressed that both types require persistence, focused attention, and creativity. Group problem solving also requires effective communication, peer-interaction skills, and very often the ability to compromise.

Revealing what Shaffer [16] indicated that children begin to acquire problem-solving skills in early childhood.

By age three, most children have the rudiments of some problem-solving strategies and can apply those skills in specific situations. However, the problem-solving skills of very young children are limited by several factors, including a relatively short attention span, difficulty understanding cause-and-effect relationships, and limited experience in solving problems independently. As children develop, they have opportunities to observe adults solving problems and to practice problem solving for themselves.

As a result of ongoing observation and practice, children's critical-thinking skills and specific problem-solving strategies become more refined, and they become able to solve problems across a wider range of domains. Attention span and persistence also increase during early childhood and the elementary years as emphasized by Shaffer [16].

Stating also studies by Benard [4] that problem solving is also related to other positive

outcomes, such as school success and success in interpersonal relationships. Problem solving may also contribute to the resiliency of children and youth at risk. Children and youth at risk who are skillful problem solvers are more likely to survive and thrive in stressful conditions than children and youth with limited problem solving abilities.

Some of this effect is attributed to skillful problem solvers' increased feelings of control over their lives. Children who successfully solve problems believe that they can control their circumstances, which lessens their stress levels and increases their resiliency in the face of larger stressors as stressed by Benard [4].

Fortunately, bringing up Skinner, Wellborn, & Connell, 1990; Whitmore & Goodman [22] inputs that many components of problem solving can be taught through direct instruction, adult modeling, and guided practice in real-life situations

However, Keen [12] cited that problem solving is a signature attribute of adult humans, but emphasized the need to understand how this develops in children. Tool use is proposed as an ideal way to study problem solving in children less than 3 years of age because overt manual action can reveal how the child plans to achieve a goal. Motor errors are as informative as successful actions.

Research is reviewed on intentional actions, beginning with block play and progressing to picking up a spoon in different orientations, and finally retrieving objects with rakes and from inside tubes. Behavioral and kinematic measures of motor action are combined to show different facets of skill acquisition and mastery. Keen [12] also stressed the need to design environments that encourage and enhance problem solving from a young age.

In another study, Ismail [11] cited that problem solving skills is vital for children to face challenges in their daily live and in the future. Proofs that early education is significant in the future as later life poor experiences on problem solving are evident in some studies –one by Beal [3] indicated that recent assessments on American students do not score well on tests of scientific problem solving, relative to students in other nations using a web-based virtual environment that provides students with opportunities to solve science problems by viewing information resources through a suite of menu options, develop-

ing a hypothesis and submitting the hypothesis for feedback.

Students' patterns of search through the information sources are automatically classified by the software using a given model, producing a quantitative measure of strategic efficiency. That is, practice alone does not lead to better problem solving.

METHODOLOGY

This study utilized explanatory or nonexperimental design of research to evaluate the significant relationship between the noting details skill and problem solving ability of the preschoolers of the select DepEd preschool in San Jose, Occidental Mindoro.

The researcher of this study gathered the primary data from the 144 DepEd preschooler participants who were determined through power analysis method. They were chosen using purposive non-random sampling design.

Participants were shown and presented with the actual manipulatives/materials and after that was the actual conduct of simple noting details and problem solving questions. Researcher-made questions about a story presented orally through pictures involving noting details and applying problem solving were orally asked individually to the respondents. The questions were asked through performance-based tasks using manipulatives. A total of eight (8) questions, four questions for noting details and another four for problem solving were asked to each respondent.

For noting details, the preschoolers were asked to read a four-sentence story with picture using a big book. After reading the story, four (4) simple questions were asked like who the character/s is/are, what the character/s did and where and when the story happened. When one or two were cited, that was given points for noting details. The same was done with other questions alternately and counterbalancing the process.

The preschoolers were shown manipulatives to determine the level of their problem solving ability through simple addition of fruits, simple subtraction of toys through the use of eight (8) blocks by counting it and then taking away the rest and asking them how many were left. Simple multiplications and divisions were done using three (3) action figures or any chosen material. To assess the relationship between the noting details skill and problem solving ability of the preschool-

ers, Pearson r was employed.

FINDINGS

1. Level of Noting Details of the Respondents

Table 1 presents the level of noting details skill of the respondents which indicate 52 or 36.1% of the 144 respondents showed a "fair" skill; 45 or 31.3% scored 3 or with "very good" skill; 28 or 19.4% scored one or with "poor" skill; 18 or 12.5% scored 4 or with "excellent" ability in noting details. Only one or 0.7% showed "very poor." This implies that most of the respondents revealed a "fair" level of skills in noting details.

TABLE 1. LEVEL OF NOTING DETAILS SKILL

Level	Score	F	%
Excellent	4	18	12.5
Very Good	3	45	31.3
Fair	2	52	36.1
Poor	1	28	19.4
Very Poor	0	1	0.7
		144	100

2. Level of Problem Solving Ability

Table 2 presents the problem solving ability scores of the respondents. Analysis show that out of 144 respondents, 56 or 38.9% of them showed "fair" ability with a score of 2; 35 or 24.3% had "very good" ability with a score of 3; 32 or 22.2% had "poor ability" scored one and only 21 or 14.6% had "excellent" ability while none of them got a "very poor" ability in problem solving. It appears therefore that most of the preschool learners showed a "fair" level of ability in problem solving.

TABLE 2. LEVEL OF PROBLEM SOLVING ABILITY

Level	Score	F	%
Excellent	4	21	14.6
Very Good	3	35	24.3
Fair	2	56	38.9
Poor	1	32	22.2
Very Poor	0	0	00.0
Total		144	100

3. Relationship of the Level of Noting Details Skill and the Level of Problem-Solving Ability of Respondents

Based on Table 3, result shows that there is a high relationship between noting details skill and problem solving ability of the preschool learners because the Pearson r is 0.814. Since the p-value which is 0.010 is less than 0.05 then this high relationship is significant.

TABLE 3. RELATIONSHIP BETWEEN THE NOTING DETAILS SKILL AND PROBLEM SOLVING ABILITY

Variables	Pearson r	p-value	Interpretation
Noting Details Skill/Problem Solving Ability	0.814*	0.010	Significant

CONCLUSION

1. The following are the conclusions derived from the findings of the study:
2. The level of noting details skill of most of the preschoolers is “fair”.
3. The level of problem solving ability of most of the preschoolers is “fair”.
4. The noting details skill of the preschoolers is related with their problem solving ability. Those who are in the “excellent” level in noting details are also those who are in “excellent” level in problem solving.

RECOMMENDATIONS

1. Based on the findings and conclusions, the following recommendations are given:
2. Preschool Teachers should provide more reading and viewing activities to enhance and increase the skills and abilities of learners on noting details and problem solving
3. Preschool Teachers should be given seminars/trainings relating to teaching strategies on how to engage learners on activities involving noting details and problem solving

4. Parents should support learning of their children at home by providing them manipulative and print materials that will reinforce their noting details and problem solving skills and abilities

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ACCEPTABILITY OF THE DEVELOPED ENHANCEMENT MATERIAL IN ELEMENTARY STATISTICS

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ABSTRACT

The study aimed to assess the acceptability of the developed enhancement material in Elementary Statistics in terms of objectives, content, language and style and usefulness. Math teachers across all campuses of Occidental Mindoro State College and 140 OMSC CTE Sophomores during the A.Y. 2015-2016 were the respondents of the study. The research used an adopted and modified questionnaire-checklist to determine the level of acceptability of the enhancement material in terms of objectives, content, language and style and its usefulness. To determine the level of acceptability of the developed enhancement material as assessed by the two groups of respondents, weighted mean was utilized. Based from the result of the study, the enhancement material in Elementary Statistics for CTE Sophomore students of Occidental Mindoro State College is highly acceptable as to the objectives, content, language and style and usefulness using the math teachers' and students' separate assessments. In the light of this finding, it is therefore recommended that this enhancement material in Elementary Statistics be used not just by the CTE Sophomores of Occidental Mindoro State College but by other colleges of this institution as well.

Keywords-enhancement material, objectives, content, language and style, usefulness

INTRODUCTION

Statistical literacy has become indispensable in almost any field today. Statistical data pervade the language of the physical and social sciences.

At present, Statistics is a reliable mean of describing accurately the values of economic, political, social, psychological, biological, and physical data and serves as a tool to correlate and analyze such data. It is no longer confined to gathering and tabulating data, but is chiefly a process of interpreting the information. The development of the theory of probability increased the scope of statistical applications.

It is quite unfortunate, however, that the potentially warm enthusiasm of students being intro-

duced to Statistics as a subject is prevented from being realized by certain ways, both in the classroom and in textbooks, by which principles and concepts are communicated. Many current techniques of instruction give students the impression that Statistics is some sort of esoteric subject wrought with complicated formulas and procedures which at times appear meaningless and irrelevant.

During the past years, mathematics teachers were doing their best in presenting their lessons to their students especially in Statistics. Since Statistics is obviously perceived as a boring and difficult subject, the teachers tried to switch from the conventional method to a modern one. From the ordinary blackboard and whiteboard and prepared lectures written in manila paper or cartolina, the

use of slides, films, transparencies, and overhead projectors became the substitutes. Getting the students actively involved in instructional tasks that facilitate learning and embrace the level of achievement has been the major concerns of the teachers. Any investigation sought along this objective will contribute to the cause of statistical education.

Calderon [3] pointed out that the appropriateness and effectiveness of any teaching method depends on the learning situation that the teacher encounters. He mentioned that teachers must have tools and devices to carry an effective learning situation. He stressed that the important areas in teaching are the content and the skills to be developed through a scope and sequence guide.

Jaramillo [7] stated that as teacher we know that learning happens when the students are motivated. It is for this purpose that we should always strive to provide a rich learning environment and maintain the students' high level of interest. To attain this, we should use a variety of motivational techniques, teaching strategies and materials. The use of these materials contributes to the interest and the enthusiasm for learning.

The need for developing teaching-learning situations in mathematics is now being considered in mathematics education. It is the interest of the Department of Education and the teachers of mathematics to improve the curriculum, the teaching methods, aids and materials.

The instructional or enhancement materials are helpful tools to translate the concepts and the principles met with difficulty by the learners in a well understood manner and within their level of comprehension.

Jimoh [8] mentioned that teaching is not complete until knowledge has been successfully transferred which in most cases may not just be tied to teacher effectiveness or teaching skill but the instructional materials used in the learning process. According to Jimoh [8], ordinary words or verbalization has been found to be inadequate for effective teaching. Instructional materials serve as a channel through which message, information, ideas and knowledge are disseminated more easily. They can therefore be manipulated, seen, heard, felt or talked about. These materials facilitate activities and they are anything or anybody the teacher turns to for help in learning process.

Gibbon [5] stressed the need to develop self-instructional materials with the current shift to-

ward individualized programs in all levels of instruction; it is an approach that provides opportunities to develop a coherent instructional program that tolerates and nurtures widely divergent goals and accomplishments. The teachers must develop or prepare instructional materials suited to special groups of individuals in her class, whether the instruction is intended for a whole class, or a student.

Adebanjo [1] affirmed that the use of instructional materials in teaching and learning of Mathematics makes students learn more and retain better what they have been taught and that it also promotes and sustains students' interest. It also allows the learners to discover themselves and their abilities. Students learn more when they see what they are being taught.

According to Savoury as cited by Kjørholt [9], a well-planned use of IM in lessons should do much to banish apathy. In addition, he said that selection of IM which are related to the basic activity of a lesson helps in in-depth understanding of such a lesson by the learners, in that it makes the lesson attractive to them, thereby arresting their attention and thus, motivating them to learn and participate. Participation helps teachers to discover their learners' potential, to realize their talents and raise their self-esteem. In turn this can help them to question their boundaries and explore issues, voice aspirations, identify needs and facilitate their learning and personal development.

Gray [6] concluded that the use of workbooks/worktexts is beneficial, resulting in not only higher scores on standardized tests but also in increase power of self-direction, helps in retention, skill in fundamental processes, reasoning ability and solving problems.

Study carried out by Nwike and Onye-jegbu [10] revealed that those students taught with instructional materials performed better than those taught without instructional materials. This finding is in line with the work of Olanigunju [11] who found out that there was a remarkable difference in the achievement scores of students taught with various instructional materials and those not exposed to the use of instructional materials. There is therefore a general consensus that instructional materials enhances teaching and learning and leads to better students' achievement. This shows that students learn and perform better when they are taught with instructional materials because the use of instructional materials give the students

the opportunity to see, feel and touch the materials during teaching.

Thus, the researcher developed an enhancement material in Elementary Statistics which can be utilized as an effective tool in teaching and learning Statistics since it can be beneficial to anybody who learns its theories and versatility.

It is then the hope of the researcher that this study will be an effective tool in motivating students to like Statistics, to learn more about Statistics, enjoy Statistics and love Statistics.

OBJECTIVES

This study basically sought to determine the level of acceptability of the developed enhancement material in Elementary Statistics.

Specifically, the study aimed to:

1. Determine the level of acceptability of the developed enhancement material as assessed by the student respondents in terms of the following:
 - a. Objectives
 - b. Content
 - c. Language and style
 - d. Usability
2. Determine the level of acceptability of the developed enhancement material as assessed by the teacher respondents in terms of the following:
 - a. Objectives
 - b. Content
 - c. Language and style
 - d. Usability

METHODOLOGY

This study utilized the descriptive non experimental type of research to evaluate the acceptability of the enhancement material in Elementary Statistics for CTE sophomore students of Occidental Mindoro State College, San Jose, Occidental Mindoro.

The respondents were chosen using purposive sampling. The first group of respondents was the 140 OMSC, CTE sophomore students

who took up Elementary Statistics during the first semester of academic year 2015-2016. They made use of the enhancement material. The second group of the respondents was the 40 mathematics teachers from all the campuses of OMSC, San Jose, Occidental Mindoro. They were asked to assess the acceptability of the developed enhancement material.

The research used an adopted and modified questionnaire-checklist to determine the level of acceptability of the enhancement material in terms of objectives, content, language and style and its usefulness.

Weighted Mean by the use of Likert Scale was utilized to assess the acceptability of the developed enhancement material.

FINDINGS

Table 1 presents the assessment on the developed enhancement material by the two groups of respondents as to the objectives.

The math teacher-respondents assessed that the objectives set for the enhancement material is highly acceptable as evidenced by the composite mean of 4.85 and is also highly acceptable for the student-respondents with a composite mean of 4.95.

The findings supported the observation of Torralba [12] that a learning module should state its objectives in terms of learners' behavior.

Table 1. Assessment of the math teachers and students as to objectives.

Statements on Objectives	Math Teachers		Students	
	WM	VI	WM	VI
1. They are stated in behavioral terms.	4.87	HA	4.91	HA
2. They are specific and clearly stated.	4.87	HA	4.98	HA
3. They are measurable and attainable.	4.93	HA	4.98	HA
4. They are time bounded.	4.73	HA	4.93	HA
5. They are based on the learning abilities of the students.	4.87	HA	4.95	HA
Composite Mean	4.85	HA	4.95	HA

Scale: 4.50 - 5.00 = Highly Acceptable (HA); 3.50 - 4.49 = Acceptable (A); 2.50 - 3.49 = Moderately Acceptable (MA); 1.50 - 2.49 = Unacceptable (U); 1.00 - 1.49 = Highly Unacceptable (HU).

Table 2 presents the assessment on the developed enhancement material by the two groups of respondents as to the content.

Table 2. Assessment of the math teachers and students as to content.

Scale: 4.50 - 5.00 = Highly Acceptable (HA); 3.50 - 4.49 = Acceptable (A); 2.50 - 3.49 = Moderately Acceptable (MA); 1.50 - 2.49 = Unacceptable (U); 1.00 - 1.49 = Highly Unacceptable (HU).

Statements on Content	Math Teachers		Students	
	WM	VI	WM	VI
1. The concepts of introducing the topic are clear and correctly explained to the level of the learner's understanding and knowledge.	4.87	HA	5.00	HA
2. The content of the presentation motivates the students to formulate new concept which can be useful for academic advancement.	4.80	HA	4.93	HA
3. The exercises are relevant, interesting and self-motivating.	4.87	HA	4.94	HA
4. The phases of the exercises included in the material aid a lot in developing higher order thinking skills of the students in the study of Statistics.	4.73	HA	4.99	HA
5. The concept of the exercises supports the objective of the topic.	4.87	HA	4.98	HA
Composite Mean	4.83	HA	4.97	HA

Scale: 4.50 - 5.00 = Highly Acceptable (HA); 3.50 - 4.49 = Acceptable (A); 2.50 - 3.49 = Moderately Acceptable (MA); 1.50 - 2.49 = Unacceptable (U); 1.00 - 1.49 = Highly Unacceptable (HU).

It can be seen from the table that the composite mean obtained from the math teacher-respondents is 4.83 and is verbally interpreted as highly acceptable and the composite mean obtained from the student-respondents which is 4.97 is also verbally interpreted as highly acceptable.

Table 3 presents the assessment on the developed enhancement material by the two groups of respondents as to the language and style.

The table shows that the math teachers and student respondents assessed the developed enhancement material with respect to its language and style as highly acceptable with composite means of 4.88 and 4.96 respectively.

Bading [2] found out in her study that students had difficulties in translating mathematical sentences with two or more terms. This shows how important it is to use the proper style and language in presenting lessons.

Table 3. Assessment of the math teachers and students as to language and style.

Statements on Language and Style	Math Teachers		Students	
	WM	VI	WM	VI
1. Reading level of the text fitted for the college students.	4.93	HA	4.97	HA
2. Activity material introduces abstract concept by accompanying them with numerous concrete examples.	4.73	HA	4.93	HA
3. Activity materials avoid irrelevant details.	4.93	HA	4.95	HA
4. The vocabulary level of the activity material is suitable for students.	4.93	HA	4.95	HA
5. The exercises and activities are student-oriented.	4.87	HA	4.99	HA
Composite Mean	4.88	HA	4.96	HA

Scale: 4.50 - 5.00 = Highly Acceptable (HA); 3.50 - 4.49 = Acceptable (A); 2.50 - 3.49 = Moderately Acceptable (MA); 1.50 - 2.49 = Unacceptable (U); 1.00 - 1.49 = Highly Unacceptable (HU).

Table 4 presents the assessment on the developed enhancement material by the two groups of respondents as to the usefulness.

Table 4 shows that the composite means of 4.84 and 4.97 given by math-teacher and student-respondents to the usefulness of the enhancement material have the verbal interpretations of highly acceptable.

Table 4. Assessment of the Math Teachers and Students as to Usefulness

Statements on Usefulness	Math Teachers		Students	
	WM	VI	WM	VI
1. The materials prepare the students to think logically and critically.	4.87	HA	4.98	HA
2. The expression of the concepts in the materials is simple and comprehensive.	5.00	HA	4.99	HA
3. The mathematical ideas and examples provide opportunity for the development, enhancement of skills in each topic.	4.8	HA	4.95	HA
4. The amount of exercises given is sequenced to attain best result.	4.73	HA	4.97	HA
5. The enhancement material contributes to the acquisition of mastery of concepts and skills.	4.8	HA	4.97	HA
Composite Mean	4.84	HA	4.77	HA

Scale: 4.50 - 5.00 = Highly Acceptable (HA); 3.50 - 4.49 = Acceptable (A); 2.50 - 3.49 = Moderately Acceptable (MA); 1.50 - 2.49 = Unacceptable (U); 1.00 - 1.49 = Highly Unacceptable (HU).

CONCLUSION

On the basis of the findings, the following conclusions were drawn:

1. The developed enhancement material in Elementary Statistics for CTE Sophomore students of Occidental Mindoro State College is highly acceptable in terms of its objectives, content, language and style and usefulness as assessed by the math teacher-respondents.

2. The developed enhancement material in Elementary Statistics for CTE Sophomore students of Occidental Mindoro State College is highly acceptable in terms of its objectives, content, language and style and usefulness as assessed by the student-respondents.

RECOMMENDATIONS

In the light of the findings and conclusions, the following are recommended:

1. The developed enhancement material in Elementary Statistics be adopted by other colleges of Occidental Mindoro State College for further evaluation and validation.

2. The developed enhancement material in Elementary Statistics be further validated and evaluated to a bigger group of respondents.

3. A clear policy be formulated for usage and dissemination of the enhancement material.

4. Other enhancement materials be made not only in Elementary Statistics but in other subjects as well.

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A COMPARATIVE STUDY OF ONLINE AND CLASSROOM PERFORMANCES OF INFORMATION TECHNOLOGY STUDENTS IN OCCIDENTAL MINDORO STATE COLLEGE

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ABSTRACT

It is difficult to deny that having online learning has had steady growth over the years. A lot of accrediting institutions become interested in documenting, teaching and measuring its effectiveness, to which online students are successful as compared to the classroom counterparts. The effectiveness of measuring students' performances in two different ways are a crucial component of any institutional program. Data were analyzed using sampling method, mean scores, and t-test. Data were collected on the second semester of 2015-2016, having three sections, with the sampling number of 20 students in each section taught by the same instructor. Teaching modes were delivered inside the classroom. Performances during the half term of the given semester were delivered online. While another half of the term were delivered inside the classroom, considered as traditional practices. The results of this study suggest that there is no significant difference assessing the performance of the students' online and in classroom based performances.

Keywords-online education, online performances, classroom performances, traditional practices

INTRODUCTION

In this dynamic world, and fast changing environment, different sectors including schools are facing the challenge to keep pace with the myriad of technological changes affecting them Tucker [9]. According to Pitts [7], this modern world is fast-paced and dynamic. Varied sectors communicate effectively through the use of technology, and in school, if students are not being prepared in adopting new technology, it is simply like failing them. Students maybe at-risk when being deprived of the challenges of technology and of depriving the use of complex thinking skills.

According to Costley [2], the dominant

teaching methods for the students who are at-risk focus on the basic skills. Furthermore, communications and technology is around everything that most people do. But, is it actually a part of the classroom? as stressed by Grinter [5] that it must be a part of the classroom. Since, the aid of technology to the students are: able to collaborate ideas, use critical thinking, and eventually find ways to solve problems. Apparently that in the classroom situation, a less opportunity to exercise critical thinking to overcome problems will be observed.

Thus, Proserpio [8] strongly stressed that by having technology and by having the web-based tools and courses may be more consistent than traditional approaches with the learning

styles of a “virtual generation”. As formulated by Fullan [4] he argues that adoption of an innovation in education should be shaped by the characteristics of the innovation and implementation of technology. To these demands, different schools are infusing information technology throughout the entire curricula, others are using information technology simply as a method to deliver course instruction, and others are using some combination of these alternatives Alavi [1]

However, as stressed by Daymont [3] the scarcity of significant difference in the student perception and performance in online and face-to-face modes of instructions and assessments were puzzled those teachers who feel that something of the traditional classroom experience must be lost when mediated by the Internet or even by the technology. A fear of separating instructor and student account for the engagement or disengagement of students. A fear of not getting the real performance of the students from the traditional and virtual practices.

Thus, in this study the researcher seeks to fill this void by examining students’ performance in an online and in traditional way. Results of this study will benefit all the instructors especially those who spend most of the time in assessing their students purely in a traditional way.

REVIEW OF RELATED LITERATURE

Technology is now around everything we do. But does it really have a place in the classroom? According to Prosperio [8] traditional teaching methodology shows increased in basic skills of reading. However, as opposed by Daymont [3] that through technology, it can help more facilitate and influence the skills of the students because of critical thinking practiced by the students in order to solve a particular problems.

Added by Fullan [4], technology could be a barrier in education due to lack of teacher time, limited access, high cost of equipment, lack of teacher training, assessment, and many more.

However, at this age where technology are used and part of our lives, as strongly emphasized by Costly[2] that students, are at-risk. Students are at risk since they were deprived to simulate real-world environments and create actual environments for experiments. A work that students will really could take the authentic task as real workers against the real world. Such as, knowing what would be the possible solutions

from different point of view from varied people who do have different culture.

That is why, additional research that could really give an emphasized that technology is really among the influencing factor to help students as motivation to boost performances without putting down the benefit that could be given by the authentic world.

OBJECTIVES

The main objective of this study is to compare the performance of Information Technology students in an online and traditional practices.

Specifically, this study seeks to answer the following questions:

1. What is the performance of the students online with the following variables?
 - 1.1 Exam
 - 1.2 quizzes
2. What is the performance of the students’ in a self-centered classroom practices in terms of the following variables?
 - 2.1 Exam
 - 2.2 Quizzes
3. What is the total performance of the students’ to the following variables?
 - 3.1 Online performances
 - 3.2 Classroom performances
4. Is there a significant difference between an online and traditional practices of the students’ of Information Technology?

METHODOLOGY

This study was conducted during the second semester of the Academic Year of 2015-2016 which focused on the comparison of the performances of the 60 second year students. Data were collected from three sections of the same subject and instructor. Equal number of exams, and quizzes was given to the students per term of the given semester. Students were allowed to take performances online only for the period of mid-term and the usual practices inside the classroom were given only on the final term of the same semester. Students were administered with closed notes policy with the traditional practices inside the classroom while working online were given with quite short of time to lessen the time of asking and browsing notebooks in any varied search engines. The educational networking site of Edmodo was used to analyze the performance of the students online.

The descriptive statistic was used to analyze student characteristics and make the interpretation of the data more meaningful and reliable. T-test was utilized to compare the average in midterm and final grade of the students and to determine if there is a significant differences between online and traditional performance of the students when comparing the midterm and final grade point average.

FINDINGS

Table 1 reveals that, among the performances of the three varied sections online, the average for the quiz dominated the average of online exam with 4 points. Moreover, the ranking of the section speaks with the result of their performances.

TABLE 1. Average of Online Exam and Quizzes of the Three Sections (Mid Term)

SECTION	Exam	Ave	Total Ave	Quiz	Ave	Total Ave
A	M = 81	80	77	M = 84	86	81
	F = 79			F = 88		
K	M = 75	76		M = 78	80	
	F = 76			F = 82		
I	M = 75	75		M = 74	78	
	F = 75			F = 81		

Fig. 1 reveals that quiz performances is greater than the result of students examinations. In this scenario, it also shows that, there is a gap between the performances of the students based on the section. Exam and quizzes were taken with the highest score by the star section.

FIG. 1. Online Performances

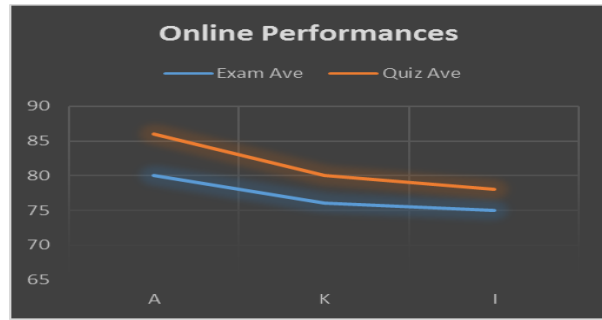


Table 2 shows the average of the Classroom performances of the three sections to which Section A still leads with the average of 86 for the exam and 88 for the quizzes. Result that is beyond the average of the two remaining sections.

TABLE 2. Average of Classroom Performances of the Three Sections (Final Term)

SECTION	Exam	Ave	Total Ave	Quiz	Ave	Total Ave
A	M = 86	86	81	M = 85	88	81
	F = 85			F = 91		
K	M = 77	78		M = 7	78	
	F = 78			F = 79		
I	M = 78	78		M = 80	79	
	F = 77			F = 78		

Fig. 2 shows the result gained by the three sections. For the classroom based performances and still section A leads the performances. The result is a bit higher compared to the students' performances online.

FIG. 2. Classroom Performances

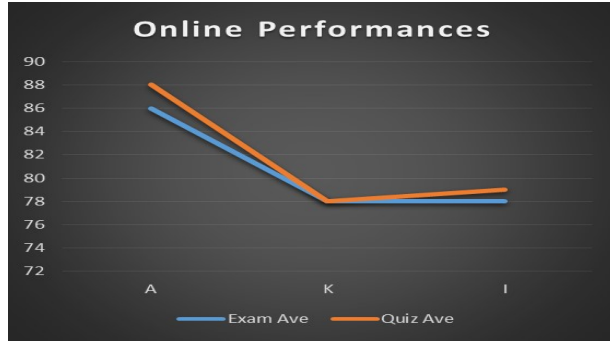


Table 3 shows the summary of the average performances of the three sections in an online and traditional basis. Online exam was given with shorter time compared to the traditional practices for them not to have any chance to ask nor browse search engines for their own research. It was obviously revealed that section A excel on the performances compared to the two sections. Having the grade point average of 81.67 for the classroom based performances dominated over the classroom performances.

TABLE 3. Summary Result for the Average of Online and Classroom Performances

	SEC	GEN	AVERAGE		GPA
			Exam 75 pts	Quiz (15mins for 5 quizzes)	
Online (Mid Term)	A	M= 10	81	84	81.17
		F= 10	79	88	
	K	M= 10	75	78	
		F= 10	76	82	
	I	M= 10	75	74	
		F=10	75	81	
Class- room (Finals)	A		Exam 75 pts (1hr. 10)	Quiz (25 mins for 5 quiz-	81.67
		M=10	86	85	
		F=10	85	91	
	K	M=10	77	77	
		F=10	78	79	
	I	M=10	78	80	
		F=10	77	78	

Fig. 3 shows the summary result between online and classroom performances, and because the students just started having the performances online, an activity that is not yet usual to them, should be given an emphasized. An advantage of embracing technology and enhancing ones critical thinking are the promising benefits prepared to them.

FIG.3. Summary of Result

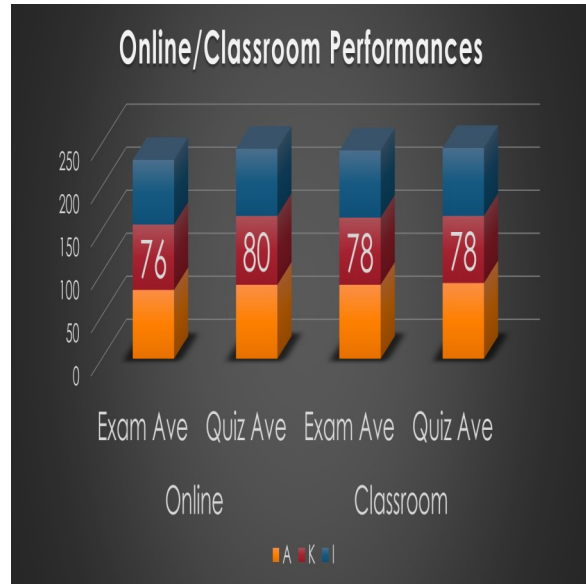
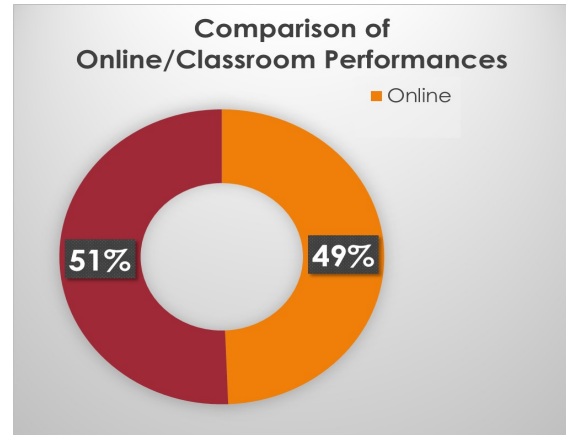


Fig. 4 shows the detailed comparison of online and classroom performances. It reveals that, exam and quizzes still dominated over the online activities.



To provide comparable analysis of the students' performance from the three sections the researcher have the sampling method with ten students for different gender for each section. Based on the t-test analysis as shown in table 4, the p-value of more than .05 which means that

there was no significant difference on the exam online and in classroom based should be accepted.

TABLE 4. T-test Analysis of Online and Classroom-Based Examination

	<i>online</i>	<i>classroom</i>
Mean	76.8333	80.167
Variance	6.56667	17.367
Observations	6	6
Pooled Variance	11.9667	
Hypothesized Mean Difference	0	
Df	10	
t Stat	-1.669	
P(T<=t) one-tail	0.06304	
t Critical one-tail	1.81246	
P(T<=t) two-tail	0.12608	
t Critical two-tail	2.22814	

P<.05=Significant

Table 4 shows that the T-test analysis of online and classroom-based examination has no significant difference since it exceeds to its p-value.

CONCLUSION

1. The study reveals that the examination of the students online gained the weight of 77% a bit lower than quizzes which is 81%.
2. Equal denomination of 81% for the students' examination and quizzes were given to the classroom performances.
3. The classroom performance of the students (81.67) was a little higher than the online performance (81.17)
4. Findings revealed that there was no significant difference of taking the exam and quizzes online as compared in the classroom performances.

RECOMMENDATIONS

1. Classroom-based examination is 3% higher as to online examination. Thus, a related research about knowing the factors that affect

online examination of the students should be investigate as additional basis to test its significant difference.

2. Quiz performance of the students were evaluated with equal denomination of 81%. Therefore, giving quiz online is highly recommended to be included in a classroom system.
3. A push to achieve and support to implement is a must in order to include technology as a part of classroom activities.

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DEVELOPMENT AND EVALUATION OF AN INSTRUCTIONAL MATERIAL IN “ISTRUKTURA NG WIKANG FILIPINO”

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ABSTRACT

The purpose of this study is to develop and evaluate an Instructional Material in Istruktura Ng Wikang Filipino in terms of its objectives, content, design characteristics, suitability of approach, clarity and evaluation. This study utilized a research and development design. The Instructional Materials Development Model adopted from Cabayanan and Petero (2010) was used in the development and evaluation of the proposed instructional material. This model consists of two stages: The first stage is the development of the instructional material following the syllabus prescribed by PRC and CHED. The second stage is the evaluation of the instructional material in terms of its objectives, content, design characteristics, suitability of approach, clarity and evaluation. Participants of the study are 11 purposively selected Filipino teachers in the main and Labangan campuses of the Occidental Mindoro State College and the 46 randomly selected Filipino major students from the same institution. Arithmetic mean was used to evaluate the Instructional Materials in terms of objectives, content, design characteristics, suitability of approach, clarity and evaluation. T-test of independent mean was used to test if there is a significant difference between the assessments of teachers and student respondents used in the study. Findings of the study reveal that the instructional material in Istruktura ng Wikang Filipino is “Very Good” as supplementary instructional material in terms of its objectives, content, design characteristics, suitability of approach, clarity and evaluation. It is recommended that this instructional material should be used as reference of the students who are taking Filipino as their major course in college. Students should also be exposed to trainings/seminars on instructional material production and development. Administration and heads of department should provide related activities regarding instructional material production. A further try- out and validation of this Instructional Material with the bigger group of participants is also recommended for future research.

Keywords-Instructional Material, Istruktura Ng Wikang Filipino, Programmed Instruction, Modular Instruction, Instructional Aids

INTRODUCTION

Teaching and learning now comes in different styles and forms. Educators are now experimenting on the new methods on teaching and learning which aim at improving the quality of education and the quality of citizens produced by schools. As new styles and forms of teaching and learning arrive, it also comes with pros and cons, or in short, it has advantages and disadvantages as well. Educators nowadays devote themselves on assessing the efficiency of these new styles in teaching and learning. Espinosa [10]

Changes in society and workplace have exerted pressure on the educational system. For instance, with increased internalization, growing knowledge-intensive work, and increasing use of information technology, instructional materials, schools are required to produce graduates who do not only possess relevant knowledge but also interpersonal relations and communication skills, ability to work in various contexts, and information literacy skills. Allen [1] Burgess [3].

According to Smith and Andrew (1989) as cited by Casihan (2006), the school manager is mainly tasked to assist the teacher in creating a learning focus. He is a resource provider and a developer of people who is directly involved in the interaction process. Such skills lead to delivery of quality instruction to the learners. Casihan [6].

It should be borne in mind that the act of teaching is so complex that it is nearly impossible to claim that a specific way of teaching is superior to other ways. Certain procedures, teaching styles and techniques that are generally not recommended seem to work well for a specific teacher. There are however many good ways to teach. Cachero [4]

One way of maintaining the interest of the learners is to provide them with activities which they can perform individually, after being given the proper guidance, direction, instruction and encouragement by the teacher. This is the use of programmed instruction as a teaching tool. These programmed materials claim to make learning interesting. Cudia [7]

Programmed instruction in module form is an important educational innovation and a teaching technique. It also offers a solution to the problems of teaching instruction. Modular instruction promises a more efficient mass education by

offering more effective individual instruction at a time when teacher is faced with a problem of producing learning in a large group all at the same time. It is a technique of self-instruction that involves the presentation of instructional materials to demonstrate their skills and comprehension. Goldschmid [12]

An example of individualized instruction is the use of modules or modular instruction. It accommodates individual differences and provides a variety of learning strategies and a systematized way of developing and implementing subject matters. Jimenez [13]. The student has the responsibility of learning by himself. He will be involved in responding to the instructional material as well as interacting with his classmates and also the teacher itself.

Instructional aids are devices that assist an instructor in the teaching-learning process. Instructional aids are not self-supporting; they are supplementary training devices. The key factor is that instructional aids, support, supplement or reinforce. Website [1].

The development of modules and other teaching materials is a better initiative of a teacher who is very concern on every learning output of the students. As mentioned in the study of Bucjan [2], Vitaza [17] cited The Richard Arrend's Theory on effective teaching. The said theory has underscored the characteristics of an effective teacher as "one who has the repertoire of best strategies that can help them improve the teaching learning process". The teacher's innovative style and creativity help the students to acquire necessary skills in language.

In this light, the researcher adheres to the belief that learning a language consists more of the acquisition of a set of habits rather than our intellectual mastery of a body of knowledge. Following the principle that one learns a language by using it, the researcher prepared an instructional material on "Istrukturang Wikang Filipino", one of the twenty (20) major subjects of the Bachelor of Secondary Education. It is concerned to provide the teacher in Filipino with a material that contains the basic rule in the structure of Filipino language and everyday Filipino language that the students must learn and master. It aims to develop the students' competence in communicating their ideas effectively.

The instructional material has seven (7) chapters. Each chapter contains an intro-

duction, instructional objectives, the lesson proper and set of exercises and activities to answer. The students will not only learn the structure of the Filipino language but will also develop their speaking, listening, writing skills as they make use of the enrichment activities in each chapter. In achieving the objectives, the students are assured of mastering the skills, concepts and attitudes that each chapter attempts to inculcate. This instructional material aims that at the end of the course, the students will find themselves more sensible, articulate and well-rounded Filipino major students.

This study is similar to the one conducted by Espina [9]. Her study attempted to find out the effectiveness of modular instruction in Filipino I. The experimental method was used. For this study, the respondents were grouped into two as the experimental and the control groups. Both groups took the pre-test and the post-test exams. The respondents of the study were all freshmen students of TIP Manila who were enrolled in Filipino 113. There were 60 matched participants in the study, 30 of them constituting the experimental group while 30 of the students represented the control group. Based on the findings, it is concluded that using modules as instructional materials in teaching *Komunikasyon sa Akademikong Filipino* enhanced the macro communicative skills of the students, which are listening, speaking, reading and writing.

LITERATURE REVIEW

Modules/Instructional Materials are best viewed as organized collections of useful instructional resources organized around several interdisciplinary topics. The module content developed by the ESSE teams is scientifically accurate and includes substantive components of the human and social dimensions of global change whenever possible. Materials are suitably formatted for electronic delivery, and innovative in their use of internet-based resources and computer-based tools, applications and models. Gloekner [11].

Sanqui (1992) points out that instructional modules enable students to think critically and serve as a unit of measurement. He further shows that module is measureable and attainable for students to work on with less assistance from the teacher. It is a sort of three-in-one package: an

approach, a method and a technique. Sanqui [16].

According to De Graw (1997), the module is an independent learning package that emphasizes students' learning activities rather than teachers' activities. Along with independent modular activities such as reading, writing, discussing and problem solving, students can use more class time to write, inquire and share ideas. A sample module outline might include: Statement of Purpose, Pre-requisites, Objectives, Pre-test, Materials, Program or Activities and Post-Test. De Graw [8].

When developing instructional materials, the instructor should begin by analyzing what the learner should know at the end of the course and how that learning will be demonstrated. In addition, the instructor should also consider: the instructional strategy, the costs involved in development and maintenance of the instructional materials, the skills the instructor and learner process and the resources available. Website [2].

Loveland (1999) describes modular education to be a method of delivery used in technology education on many levels throughout the world. He cites vendors having gone to a great expense to carefully research, develop, field test and modify their modules and believed the methodology models the real world of work management. According to him, students working in a module are introduced to four types of learning: active, cooperative, individualized and interdisciplinary. He acknowledged that module development is time consuming. Loveland [14].

Garcia (1990) as cited by Manuel (2004) describes the distinguishing characteristics of a good module. The list includes: it should be self-contained and self-pacing; it should be motivating; its objectives and activities should be congruent; it should be accurate; it should be written in clear, correct language suitable to the level of the target learners; it should contain all the necessary components of a module; the components should support each other. Manuel [15].

Clearly, a major goal of all instruction is for the student to be able to retain as much knowledge of the subject as possible, especially the key points. Numerous studies have attempted to determine how well instructional aids serve this purpose. Indications from the studies vary greatly from modest results, which show a 10 to 15per-

cent increase in retention, to more optimistic results in which retention is increased by as much as 80 percent. Website [3].

OBJECTIVES

The main purpose of the study is to develop and evaluate an instructional material in Istrukturura ng Wikang Filipino.

Specifically, the study aimed to:

1. Develop an instructional material based on the syllabus prescribed by the PRC and CHED;
2. Assess the instructional material in terms of objectives, content, design characteristics, suitability of approach, clarity and evaluation; and,
3. Test the significant difference between the assessment of the teachers and students.

METHODOLOGY

This study utilized a research and development design. The Instructional Materials Development Model adopted from Cabayanan and Petero (2010) was used in the development and evaluation of the proposed instructional material. This model consists of two stages: 1) development of the module, and 2) evaluation of the content of the module.

To evaluate the instructional material, a set of questionnaire was used to assess its objective, content, design characteristics, suitability of approach, clarity and evaluation, the researcher utilized the questionnaire of Cadiao (2009) on the Assessment of the Self-Instructional Material Development.

Participants of the study are 11 purposively selected Filipino teachers in the tertiary level of the two campuses of Occidental Mindoro State College and the 46 randomly selected Filipino major students.

To evaluate the objective, content, design characteristics, suitability of approach, clarity and evaluation of the instructional module, descriptive statistics such as mean and standard deviation was used.

T-test of independent mean was used to test if there is significant difference between the assessments of teachers and student respondents used in the study.

FINDINGS

1. Features of the Instructional Material in Istrukturura ng Wikang Filipino

The instructional material entitled Istrukturura ng Wikang Filipino authored by the researcher was carefully assessed by the panel of three local evaluators and the three members of Instructional Materials Development Committee of the Occidental Mindoro State College. The content of the instructional materials are the syllabus of the course prescribed by CHED and PRC, overview of the instructional material, general objectives of the course stated in a behavioral term. It has seven chapters, namely: Ang Wika; Kasasaysayan ng Wikang Pambansa at Komisyon ng Wikang Filipino; Ponolohiya; Monolohiya; Sintaks; Semantiks; at Bahagi ng Pananalita. Each chapter has its introductory part; instructional objectives, presentation and discussion of the topic, learning experiences and activities designed to help the students achieve a good result and evaluation.

2. Evaluation of the Instructional Material

Table 1 shows that based on the combined responses of students and peers, the proposed Instructional Material was evaluated "Very Good" on the aspects of objectives (3.89), content (3.72), design characteristics (3.70), suitability of approach (3.88), clarity (3.82), evaluation (3.87). The overall assessment is 3.80 interpreted as "Very Good".

The table shows that the "Objectives of the Instructional Material" has a mean of 3.89 interpreted as "very good." The item with the highest mean is "The Objectives are observable and measurable" (mean = 4.00).

In the "Content of the Instructional Material," it has a mean of 3.72 interpreted as "very good." The items with the highest mean is "The content is relevant to the concepts being developed" (3.84).

The "Design Characteristics" as a component is interpreted as "very good." The materials

are interesting to the learners” has the highest mean of 3.75.

The “Suitability of Approach” has a mean of 3.88 interpreted as “very good.” The item with the highest mean is the “considers the varying abilities of the learner.”

In the “Clarity of the Instructional Material” the mean is 3.82 interpreted as “very good.” “The Language structure used is suited to the prospective users” have the mean of 3.87.

The Evaluation of the Instructional Materials has a mean of 3.87 interpreted as “very good.” “Results of the self-progress test are properly interpreted” has a mean of 3.94 and is “very good”.

With the six components used, the overall mean is 3.80 interpreted as “very good”.

TABLE 1. MEAN VALUE AND INTERPRETATION OF THE INDICATORS OF THE MODULE

Indicators	Students	Peers	Combined	Interpretation
OBJECTIVES				
Observable and measurable.	4.00	4.00	4.00	Very Good
Stated in terms of the target users.	3.83	3.91	3.87	Very Good
Congruent with the inputs of the material	3.72	3.91	3.82	Very Good
Overall	3.83	3.94	3.89	Very Good
CONTENT				
Arranged in a logical sequence of learning.	3.46	3.91	3.68	Very Good
Presented accurately.	3.54	4.00	3.77	Very Good
Relevant to the concepts being developed.	3.67	4.00	3.84	Very Good
Activities provide participation and response	3.63	3.91	3.68	Very Good
Overall	3.58	3.77	3.72	Very Good

DESIGN CHARACTERISTICS				
The layout and overall design is appropriate	3.44	4.00	3.72	Very Good
Visuals contribute to understanding the subject	3.52	3.82	3.67	Very Good
Key points and concepts are well highlighted	3.61	3.73	3.67	Very Good
Materials are interesting to the learners	3.67	3.82	3.75	Very Good
Overall	3.56	3.84	3.70	Very Good
SUITABILITY OF APPROACH				
Considers the varying abilities of the learner	3.93	3.91	3.92	Very Good
Activities suit the interest and needs of students.	3.76	3.73	3.75	Very Good
The vocabulary load is suited to the level of users	3.76	4.00	3.88	Very Good
Overall	3.84	3.91	3.88	Very Good
CLARITY				
Language structure is suited to the users	3.83	3.91	3.87	Very Good
Directions are clear and easy to follow.	3.63	3.91	3.77	Very Good
Overall	3.73	3.91	3.82	Very Good
EVALUATION				
Assessment questions and activities are available	3.72	4.00	3.86	Very Good
The progress tests provide adequate evaluation	3.72	3.91	3.82	Very Good
Results of progress tests are properly interpreted	3.87	4.00	3.94	Very Good
Exercises serve to facilitate understanding	3.70	4.00	3.85	Very Good
Overall	3.75	3.98	3.87	Very Good
Faculty Satisfaction Grand Mean	3.71	3.89	3.80	Very Good

Legend: 4.50-5.00- Excellent
 3.50 -4.49 - Very Good
 2.50- 3.49 - Good
 1.50- 2.49 - Poor
 1.00- 1.49 - Very Poor

The difference in the assessment between teachers and students was determined using Mann-Whitney. Table 2 reveals that there is no significant difference between the respective assessment of students and faculty peers in the aspects of objectives (-1.39), content (-1.49), suitability of approach (-1.21), and clarity (-1.74). However, there is significant difference in the assessment between students and faculty peers in the aspects of design characteristics (-2.91) and evaluation (-6.61). This is because the faculty have prior knowledge and experience of content, style, design and evaluation of the whole Instructional Material than the students. Exposure to seminars/trainings on instructional material production and development of the faculty is also another factor to consider. Finally, given with knowledge, experience and exposure, faculty appreciation of instructional material for production and development is much more higher than that of students.

Variance of the Evaluation of Teachers and Students

In the overall perspective, there is significant difference in the assessment of students and faculty peers (-3.10). The t-test shows that the faculty peers (mean=3.89) had assessed higher the module compared to the student evaluators (mean=3.71). The null hypothesis that there is no difference in the assessment between teachers and students is rejected.

The findings imply that in the four aspects of Instructional Material development such as the objectives, content, suitability of approach and clarity, both teachers and students agreed on the “very good” assessment. On the other hand, in terms of design and evaluation, respondents have different views on the further enhancement of the Instructional Material.

TABLE 2. COMPARISON OF ASSESSMENT BETWEEN STUDENTS AND FACULTY PEERS

Indicators	Students	Peers	t-value	Sig	Interpretation
Objectives	3.83	3.94	-1.39	.170	Not significant
Content	3.58	3.77	-1.49	.157	Not significant
Design Characteristics	3.56	3.84	-2.91	.008	Significant
Suitability of Approach	3.84	3.91	-1.21	.246	Not significant
Clarity	3.73	3.91	-1.74	.087	Not significant
Evaluation	3.75	3.98	-6.61	.000	Significant
Overall	3.71	3.89	-3.10	.003	Significant

The pertinent findings of the study are as follows:

1. The overall assessment (mean= 3.80) of the *Instructional Material in Istruktura Ng Wikang Filipino* is “very good” in terms of objectives (mean = 3.89), content (mean = 3.72), design characteristics (mean =3.70), suitability of approach (mean = 3.88), clarity (mean= 3.82) and evaluation (mean=3.87).
2. There is significant difference (p=.000) in the assessments of the teachers and students in the instructional material in terms of design characteristics, evaluation, and overall assessment.

CONCLUSIONS

Based on the results and findings of the study, the following conclusions were drawn.

1. The instructional material was developed following the prescribed syllabi by PRC and CHED and it was used as supplementary instructional material in Filipino courses in the college level.
2. The instructional material is very good in terms of objectives, content, design characteristics, suitability of approach, clarity and evaluation.
3. There is significant difference in the assessment of the teachers and students in the Instructional Material in terms of design, characteristics, evaluation and over all assessment.

RECOMMENDATIONS

In view of the aforementioned findings and conclusions, the following are hereby recommended:

1. The *Instructional Material in Istruktura Ng Wikang Filipino* should be used as reference of the students who are taking Filipino as their major course in college.
2. Students should also be exposed to trainings/seminars on instructional material production and development.
3. Administration and heads of department should provide related activities regarding instructional material production.
4. A further try- out and validation of this Instructional Material with the bigger group of participants is also recommended for future research.

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PRODUCT DEVELOPMENT OF JAM FROM TANNIA AND CAMOTE

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ABSTRACT

Jams, marmalades, preserves, and conserves are fruit products preserved by sugar but they differ in gel consistency, ingredients and how the fruit is prepared. Jams are usually prepared using commonly- known fruits but some other crops also have the potential to be developed as excellent jams. Such is the case with camote and tannia which with substantial studies can serve as readily available and cheap materials for jam production. Although some rootcrops like ube have been popularly known to be processed into jam or halaya, lesser is known about camote or tannia being processed into the same, let alone the combination of both.

This study was conducted to develop jam product from Tannia and Camote. Specifically, it sought to identify the best combination of Tannia and Camote in the preparation of jam and to determine the projected return on investment in the preparation of tannia jam.

Based on the results of the study, the most acceptable combination is T1 (3 cups camote + ½ cup tannia) and T2 (3 cups camote + 1 cup tannia) with mean of 5.60 and 5.56, which both rated “like moderately.” The addition of more than 1 cup tannia in the mixture will result to its blandness. Further, it is concluded that the use of tannia in the preparation of jam effectively enhanced its acceptability and yielded higher returns on investments.

Keywords: Product Development, Tannia, Camote, Acceptability, Value- adding

INTRODUCTION

Jams, marmalades, preserves, and conserves are fruit products preserved by sugar. These products differ in gel consistency, ingredients and how the fruit is prepared. They are easy to make at home.

Jams are usually prepared using commonly-known fruits like strawberry and pineapple. But some other crops also have the potential to be developed as excellent jams. Such is the case with camote and tannia which with substantial studies can serve as readily available and cheap materials for jam production. Although some root crops like ube have been popularly known to be processed into jam or halaya, lesser is known about camote or tannia being processed into the same, let alone the combination of both.

Historically, jams and jellies may have originated as an early effort to preserve fruit for consumption in the off-season. Although the basic steps in the production of jams remain the same, there is a continuous demand for improvement in processing performance and product quality.

In Conner, Apayao, it has been observed that root crops like tannia and Camote grow abundantly all year round and just can be found even in the wilds. In a study of Gayao, B. et al. (2014), it was found out that the diversity of root and tuber crops known among the Isnegs of Apayao includes six cultivated and seven wild species. However, in the recent study of Gayao, B. et al. (2016), they found out that indigenous peoples of Northern Philippines had no practices that prolongs storage life of the root crops, though cleaned and washed.

Moreover, its utilization for local household consumption and sale was also low may be due to the lack of knowledge and skill on the other uses of Camote and tannia aside from being prepared in variety of ways as snack food and as viand or as vegetable menu and as feed for the animals. Thus this study is conducted to develop new products from said root crops.

LITERATURE REVIEW

In the Philippine Statistics Authority (2013 and 2014) records of top 10 root and tuber producing provinces in Northern Philippines, the

five major root and tuber crops were cassava with 2,540,254 metric tons (MT), followed by sweetpotato (519,855 MT), Potato (119,140 MT), Taro (110,365 MT), and Greater Yam (15,260 MT). The bulk of root and tuber supply is for food consumption (95% for sweetpotato, ubi and gabi, 71 % for potato, 82% for tannia and 86% for lesser yam) except cassava where bulk of it is for food consumption.

The provinces of Isabela, Camarines Sur, Quezon, Albay, Apayao, Pangasinan, Batangas, Pampanga and Cagayan were the top producers of cassava in 2014. Top producing provinces for sweetpotato were Camarines Sur, Albay, Quezon, and Tarlac. On the other hand, potato production has been concentrated in Benguet and Mountain Province. Taro producers are Isabela, Albay, Cagayan and Benguet, while Cagayan, Batanes and Albay were the top producers for greater yam (PSA, 2014). Throughout the country, however, almost all the provinces are producing roots and tubers for food consumption.

Aside from the seven roots and tubers listed in the country's agricultural statistics, there were more than 20 roots and tubers identified by the indigenous peoples in Northern Luzon (Gayao et al., 2016). But for the Isnegs in Apayao, they only grow six cultivated species and utilizes seven wild species of these varied roots and tuber crops. The limited cultivation and utilization of the roots and tuber crops are due to its low marketability.

These root and tuber crops were considered as survival crops among resource-poor families, especially during food crisis or when there are natural calamities; such as, during the World War II in the Cordilleras highlands (Solimen et al, 1998), or during the aftermath of the 1990 earthquake in Benguet (Sano et al., 1991) which resulted to the wrong perception of root crops as starchy staples only for the poor. According to Horton (1988), storage roots and tubers contain varied quantities of protein, essential vitamins and minerals. Furthermore, cassava, potato and sweetpotato significantly out yield the cereals in dry matter/ caloric production per unit area and even on a per day basis in the case of potato.

OBJECTIVES

Generally, this study was conducted to develop jam product from Tannia and Camote.

Specifically, it sought to answer the following questions:

1. identify the combination of Tannia and Camote in the preparation of jam based on physical attributes like aroma, flavor, appearance and texture
2. determine the overall acceptability of the Tannia and camote jam
3. determine the projected return on investment in the preparation of jam from tannia and Camote as ingredients.

METHODOLOGY

Project location

The project was conducted at ASC Conner, Apayao. The project was funded by the College through its research fund. Foods experts who are also faculty members of ASC oversaw the preparation of the product.

Treatment Preparations

The following were the treatment preparations:

Control	T1	T2	T3
3 cups camote puree	3 cups camote puree	3 cups camote puree	3 cups camote puree
No tannia puree	½ cup tannia puree	1 cup tannia puree	1 ½ cup tannia puree
1cups refined sugar	1/2 cups tannia puree	1cups refined sugar	1cups refined sugar
1/3 cups margarine	1/3 cups margarine	1/3 cups margarine	1/3 cups margarine
1 tsp salt	1 tsp salt	1 tsp salt	1 tsp salt
¾ cups water	¾ cups water	¾ cups water	¾ cups water
1 cup evaporated milk	1 cup evaporated milk	1 cup evaporated milk	1 cup evaporated milk

Process Flow Chart

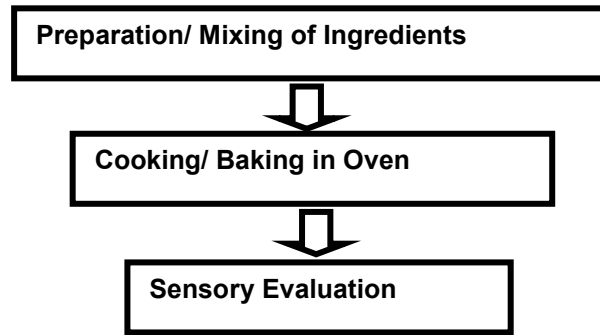


Figure 1. Schematic Diagram of the processes involved in the study.

Data Gathered

Samples were coded and were subjected to sensory evaluation. Samples were evaluated by 30 panel of examinees consisting of students, faculty members and administrators of the college. Each sample were evaluated in terms of aroma, flavor, color, texture, and overall acceptability.

Statistical Analysis of Data

Data were analyzed using 5-point likert scale for aroma, color, flavor, and texture. For the general acceptability, 7- point Hedonic Scale was used. The scales used are presented below:

Table 1. Scale and verbal interpretation of 5-point likert scale

Scale	Limits of Description	Aroma	Flavor (Sweetness)	Appearance	Texture
5	4.20-5.00	Very aromatic	Very Flavorful	Very Appealing	Very Fine
4	3.40-4.19	Aromatic	Flavorful	Appealing	Fine
3	2.60-3.39	Moderately aromatic	Moderately Flavorful	Moderately Appealing	Moderately Fine
2	1.80-2.59	Slightly aromatic	Slightly Flavorful	Slightly Appealing	Slightly Fine
1	1.00-1.79	No aroma	Not Flavorful	Not Appealing	Coarse

Table 2. Scale and verbal interpretation using 7-point Hedonic scale

Scale	Interpretation
7	Like very much
6	Like moderately
5	Like slightly
4	Neither like nor dislike
3	Dislike slightly
2	Dislike moderately
1	Dislike very much

FINDINGS

Physical Attributes of Tannia- Camote Jam

As gleaned on the Table 3, T3 was rated the highest with mean of 3.75 as aromatic. This is attributed to the sweet aroma of camote and mild aroma of Tannia. Meanwhile, T2 and T1 were rated aromatic.

In terms of Sweetness, the respondents preferred T1 compared with T2 and T3. The addition of ½ cup Tannia neutralized the sweetness of camote. The table also reflected that the more tannia puree used in the preparation of jams, the sweetness decline.

The appearance of the Camote- Tannia jam was rated the highest in T1 with mean of 4.10. The raters evaluated the treatment as appealing. The appearance of jam became cream compared to the yellow color of the camote jam. The T3 had the lowest rating with 2.25 appearing as light brown.

The control and all the three treatments were rated fine. T1 had the highest rating of 4.00. The camote puree is fine while the Tannia puree is starchy.

Table 3. Evaluation of the Physical Attributes of Tannia Camote Jam

Treatment	Attributes							
	Aroma		Sweetness		Appearance		Texture	
	Mean	Descriptive Scale	Mean	Descriptive Scale	Mean	Descriptive Scale	Mean	Descriptive Scale
Control – camote jam	3.10	Moderately aromatic	3.68	Sweet	3.80	Appealing	3.60	Fine
T1- 3 cups camote+ ½ cup tannia	3.75	Aromatic	3.88	Sweet	4.10	Appealing	4.00	Fine
T2- 3 cups camote+ 1 cup tannia	3.73	Aromatic	3.87	Sweet	3.67	Appealing	3.90	Fine
T3- 3 cups camote+ 1 ½ cups tannia	3.63	Aromatic	3.60	Sweet	2.25	Slightly Appealing	3.70	Fine

2. Overall Acceptability of Tannia- Camote Jam

The most acceptable combination is T1 (3 cups camote + ½ cup tannia) and T2 (3 cups camote + 1 cup tannia) with mean of 5.60 and 5.56 which both rated “like moderately.” T3 (3 cups camote + 1 ½ cup tannia) and control (pure camote jam) both rated “Like slightly” with mean of 5.20 and 5.00, respectively. The findings revealed that the addition of more than 1 cup of Tannia puree in the jam, the taste become bland.

Table 4. Evaluation of the Physical Attributes of Tannia- Camote Jam

	Overall Acceptability	
	Mean Rating	Descriptive Interpretation
Control camote jam	5.00	Like slightly
T1- 3 cups camote+ ½ cup tannia	5.60	Like moderately
T2- 3 cups camote+1 cup tannia	5.56	Like moderately
T3-3 cups camote+ 1 ½ cups tannia	5.20	Like slightly

3. Cost and Return Analysis

Table 5 indicates that using tannia and camote in the preparation of jam produced higher returns compared to the common method of producing the same. As more camote and tannia puree are added, the higher the net income becomes. This is because as more camote and tannia are added, more jam bottles are produced.

Table 5. Cost and Return Analysis

Item	Qty	Unit	T0	T1	T2	T3
camote puree	3	Cup	25.00	25.00	25.00	25.00
tannia puree	½	Cup		5.00		
tannia puree	1	Cup			10.00	
tannia puree	1 ½	Cup				15.00
refined sugar	1	cup	10.00	10.00	10.00	10.00
margarine	1/3	cup	5.00	5.00	5.00	5.00
Salt	1	tsp	0.50	0.50	0.50	0.50
water	3/4	cup	1.50	1.50	1.50	1.50
evapo-rated milk	1	cup	18.50	18.50	18.50	18.50
LPG			15.00	15.00	15.00	15.00
Labor			20.00	20.00	20.00	20.00
Production Cost			95.50	100.50	105.50	110.50
Gross Income (@50/ bottle)			100.00	150.00	175.00	200.00
Net Income			4.50	49.50	69.50	89.50
ROCE(%)			4.71	49.25	65.88	81.00

CONCLUSION

Based on the results of the study, it is concluded that the addition of 1 cup tannia and 3 cups camote in the regular ingredients consisting

of 1 cup refined sugar, 1/3 cup margarine, 3/4 cup water, 1 cup evaporated milk, and 1 tsp salt, in the preparation of jam effectively enhanced the acceptability of jams. Further increase in amount of tannia in the preparation would result to blandness of the product.

Moreover, using tannia and camote for jam yielded higher returns on investments.

RECOMMENDATIONS

In light of the findings and conclusion, the following are forwarded as recommendations:

1. Production of jam using tannia and Camote should be prepared with the addition of 1 cup tannia and 3 cups camote in the regular ingredients consisting of 1 cup refined sugar, 1/3 cup margarine, 3/4 cup water, 1 cup evaporated milk, and 1 tsp salt;

2. Mass production of tannia- camote jam should be done as part of the income generating activity of the college;

3. The production of Tannia- Camote Jam should be promoted as alternative livelihood and source of income for the households;

4. Further research on appropriate packaging and labeling of the product should be conducted;

5. Promotion of the developed technology to a wider range of consumers through participation in exhibits and trade fairs should be done.

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MARKETING MARGINS AND BUSINESS FUNCTIONS OF HYBRID CORN FARMERS AND MIDDLEMEN IN SABLAYAN, OCCIDENTAL MINDORO, PHILIPPINES

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ABSTRACT

This study was conducted to: (1) determine the corn farmer's socio-demographic characteristics; (2) identify the different agents/middlemen in the hybrid corn market and their characteristics; (3) identify the marketing functions performed by each key players/middlemen; (4) enumerate the different channels of hybrid corn; (5) determine the different margins and mark-up; and, (6) determine the problems encountered by the corn farmers and middlemen. Descriptive method of research was used in this study. Interview schedule using survey instrument and appropriate statistical tools were employed in data collection, analysis and interpretation.

Majority of the hybrid corn farmers are male and elementary graduates. They are middle-aged and have medium household size and farm size. They also have long farming experience and low monthly net income. Agents/middlemen in the market chain of hybrid corn are barangay traders, private traders and cooperatives. They had short business experience and sell hybrid corn to Batangas feed mills. They are also engaged on buying and selling of rice and monggo as an additional business venture. All of the barangay traders performed assembly and financing, while private traders performed negotiation and financing. Moreover, cooperatives are also performing assembly, promotion and financing. Private traders negotiated to all market players in the market chain of hybrid corn; but the cooperatives have highest marketing margins among all agents/middlemen. Main problem encountered by the hybrid corn farmers is the low price of corn in the market; while the main problems of the agents/middlemen are low price of corn on the feed mills, erratic price fluctuation and classifying.

This study recommends the following: (1) hybrid corn farmers should be organized and encouraged to access information about the different agricultural technologies to increase their production, (2) strengthen the cooperatives and barangay officials in formulating programs that will help farmers to lesser their dependence on traders and chemical companies.

Keywords-market chain; hybrid corn; market players; functions; margin

INTRODUCTION

Corn (*Zea mays L.*) is the second most important crop in the Philippines. Just like rice, it is also a staple crop for Filipinos especially those from the Southern Philippines. Some 600,000 farm households depend on corn as a major source of livelihood, in addition to transport, services, traders, processors and agriculture input suppliers who directly benefit from corn production, processing, marketing, and distribution [1].

Corn production is one main sources of income, but farmers often suffer from tremendous losses due to different problems encountered by the corn farmers which include climate change, insect pest infestation, plant disease, and the chemical dependency of farmers. According to the National Corn Program of the Department of Agriculture (DA), on a national average, the corn production in the Philippines is inefficient. Compared to Thailand, Argentina, United States, and other major corn-producing countries, the Philippines lags behind with its average corn productivity of 3.21 metric tons/ha. Despite the increasing demand for corn, overall production is low and inefficient [2].

In the Philippines, quantities of corn grains are wasted because of improper harvesting, handling, storing, and milling. These practices reduce the amount of finished products that can be utilized for food and other industrial uses [3].

Corn plays an important role in the stabilization of the Philippine economy. As a staple food, any imbalance in supply will have a cascading effect on the other sectors of the economy. Further, its importance makes it vulnerable to the exploits of groups wanting for important economic tools that would have an impact on the majority of the people [4].

The biggest demand for the yellow corn comes from the national capital region (NCR), Region IV-A (Southern Tagalog) and Region III (Central Luzon). The major reason is that most of the feed millers and the commercial livestock farms are concentrated in these areas. The associations of major users are also in NCR and the

nearby provinces [5].

Pangasinan, Isabela, Occidental Mindoro, Misamis Oriental, and Agusan del Norte were selected as the top five corn producing provinces based on the quality and quantity of corn grains produced [6].

Sablayan is traditionally an agriculture surplus area. It supplies the consumption requirements of neighboring Visayan Region and Metro Manila. The province of Occidental Mindoro is one of the island resource sub-region of the Southern Tagalog. The average yields for corn and legumes account to 6.00 and 1.25 metric tons per hectare [7].

This study was conducted to analyze the forward integration of hybrid corn in the Municipality of Sablayan, Province of Occidental Mindoro.

LITERATURE REVIEW

Corn Post Production System

Corn is considered one of the major crops in the Philippines. It is mainly used as food for human consumption, feed for animals, seeds, and in industry. The National Food Authority (NFA) reported the national production and the proportion of grain for various uses from 1992 to 1997.

Post production handling and processing of corn include harvesting, dehusking, corn ear drying, shelling, grain drying, milling, storing, and transporting. Depending on the particular use of corn, a corresponding set of unit operations is being practiced [3].

The Corn Distribution System

Corn marketing in the Philippines is a dynamic and complicated among numerous market agents in various channels of the marketing system as corn flows from the farm to consumer in urban market centers.

Although there are several traders among whom farmers may peddle their corn, a farmer's choice of traders is narrowed by the accessibility

of a trader's buying station from his farming. Roads between farms and market outlets vary from dirt to concrete. Transportation facilities are also reported to be very poor and infrequent, which could further limit the number of a farmer's market outlet [8].

Public Market Information Services and Transparency of Prices

Due to the increasing importance of corn to the economy and its critical role in the development of the poultry and livestock sector, the Philippine government has vigorously pursued sectoral and economy-wide policies that have directly and indirectly affected the corn industry.

Comparing Returns for Grain Production under Various Marketing Strategies

One of the most difficult decision that corn producers must make is how and when to market their crop to ensure that they receive prices that can enable them to be profitable, or at the very least' competitive. Marketing decisions may often be avoided or delayed due to anxiety about selling too early or too late and, in some cases, due to a lack of knowledge about appropriate strategies and tools. As a result, these decisions may not be based on sound marketing fundamentals, and may involve, for example, only making sales when necessary to meet financial obligations. Such strategies may not be effective for earning the best possible prices. Thus, without increased focus on the development of marketing strategies, it will become more difficult to be profitable, particularly in the face of increasing costs of production. Because corn prices can vary significantly throughout the year, it is important that producers implement a marketing strategy that can allow them to take advantage of periods of higher prices. However, with seemingly endless possibilities in terms of marketing tools and timing of sales, the development of a marketing strategy can be very difficult, particularly due to a lack of information on the relative effectiveness of various marketing strategies [9].

Market Chain

Market chain is used to describe the numerous links that connect all the actors and transactions involved in the movement of agricultural goods from the farm to the final consumer. Supporting these activities are services that enable the chain to operate efficiently. Agricultural goods and products flow up the chain and money flows down the chain. The efficiency of the market chain is dependent upon how well information flows between the chain actors, their level of business linkages, and the ability of services to overcome problems as they arise. Getting the balance right between production (supply) and demand (the amount required by a market) requires attention to all points in the market chain. All too often, local markets are unable to absorb rapid increases in yield from higher input farming systems and thus higher production is often translated into reduced farm gate prices [10].

OBJECTIVES

This study aimed to:

1. Determine the corn farmer's socio-demographic characteristics as to:
 - a. Sex;
 - b. Age;
 - c. Educational attainment;
 - d. Household size;
 - e. Farm size;
 - f. Number of years in corn farming;
 - g. Corn varieties; and
 - h. Monthly net income in planting hybrid corn
2. Identify the different agents/middlemen in the market chain of hybrid corn and to determine their characteristics in terms of:
 - a. Number of years in the field;
 - b. Scope/location of operation; and,
 - c. Other crops engaged on operation?
3. identify the different marketing functions performed by each key players/ middlemen in the market chain of hybrid corn.

4. identify the different channels in the market chain of hybrid corn.
5. determine the different margins and mark-up between the middlemen in the market chain of hybrid corn.
6. determine the problems encountered by the corn farmers and middlemen in marketing corn.

METHODOLOGY

Locale of the Study

This study was conducted among the top four producing hybrid corn producing barangays in the Municipality of Sablayan, namely: Claudio Salgado, Paetan, Tagumpay, and Sta. Lucia.

Research Design

This study employed the descriptive method of research. It is the most appropriate research design because it intends to analyze the market margins and business functions of hybrid corn farmers and key players in Sablayan, Occidental Mindoro.

Sampling Procedure

This study utilized the two stage sampling technique. On first stage, the four barangays in Sablayan, Occidental Mindoro was selected based on their production annually. On the second stage, the farmers who have similar characteristics in terms of number of years in corn farming and area planted with hybrid corn from four selected barangays were randomly chosen. For the middlemen engaged in the market chain of hybrid corn, snow balling technique was used.

Respondents

Respondents of this study are the agents/participants acting on the market chain of hybrid corn in Sablayan, Occidental Mindoro. This included 100 corn farmers and 14 different middlemen were the respondents of this study Farmers who are engaged in hybrid corn farming for at least three years and with at least three hectares

planted to hybrid corn were the primary respondents in this study. On the other hand, middlemen who are engaged in the marketing of hybrid corn for at least three years and above were the secondary respondents in this study.

Instrument

The data were gathered through an interview schedule using a survey instrument. Before the use of instrument, it was submitted to experts for validation. After the necessary correction had been made, instrument was used to gather the necessary data.

Statistical Tools

After all the data were gathered, sorted, and classified, mean, frequency and percentage distribution were used for the analysis and interpretation of this study. Formula for the different margins and mark up were also used in this study.

- (1) Absolute margin = selling price – buying price
- (2) Percentage margin = absolute margin/selling price x 100%
- (3) Percent mark-up = absolute margin/selling price x 100%

FINDINGS

Corn Farmers' Socio-Demographic Characteristics

Table 1 presents the distribution of corn farmers according to their socio- demographic characteristics, specifically in terms of sex, educational attainment, and variety of hybrid corn planted. Majority (71%) of the respondents were male. Moreover, the educational attainment of some (37%) of the corn farmers are elementary graduate. This is followed by those who completed high school (32%), college graduate (14%), high school undergraduate (6%), and vocational course (3%). The result shows that corn farmers are literate, since they were able to attend formal schooling.

Majority (68%) of corn farmer respondents planted DeKalb hybrid corn followed by Pio-

neer (59%), and NK Hybrid corn (57%).

Table 1. Distribution of Hybrid Corn Farmers According to their Socio-Demographic Profile

Socio-Demographic Profile	Frequency (n = 100)	Percentage (%)
Sex		
Male	71	71
Female	29	29
Educational attainment		
Elementary undergraduate	5	5%
Elementary graduate	37	37%
High school undergraduate	6	6%
High school graduate	32	32%
College undergraduate	3	3%
College graduate	14	14%
Vocational	3	3%
*Variety of corn planted		
NK	57	57%
DeKalb	68	68%
Pioneer	59	59%

*multiple responses

Table 2 presents the distribution of hybrid corn farmers according to their socio-demographic characteristics particularly, in terms of age, household size, farm size, number of years in corn farming and net income per cropping in planting hybrid corn.

Table 2. Distribution of Hybrid Corn Farmers According to their Socio-Demographic Profile		
Socio-Demographic Profile	Mean	Standard Deviation
Age (years)	45.52	11.42
Household Size	5.24	2.27
Farm Size (hectares)	5.18	9.87
Number of Years in Corn Farming	14.11	7.18
Net Income per Cropping (Php)	18,740	75,860

The mean age of the corn farmer respondents is 45.52 years with standard deviation of 11.42. In terms of household, the mean size is 5.24 with standard deviation of 2.27. Moreover, hybrid corn farmers' net income per cropping is estimated at Php 18, 740.00 with standard deviation of Php 75, 860.00.

Corn farmer planted at an average farm size of 5.18 hectares with standard deviation of 9.87. The result also shows that their mean farming experience is 14.11 years with standard deviation of 7.18. A decade of farming experience shows that they have mastered the farming system for hybrid corn. Their long farming experience made them familiar with the condition of the farm including the status of the soil, climate change, and other problems encountered specifically in terms of marketing.

Characteristics of Hybrid Corn Agents/Middlemen

Table 3 presents the distribution of agents/middlemen according to their socio-demographic characteristics, in terms of number of years in business, scope of operation, and other crop engaged on operation. Results show that their average business experience is 15.21 years with standard deviation of 7.06.

Majority (91.67%) of the middlemen sell hybrid corn to Soro-Soro Ibaba Development Cooperative (SIDC), LIMCOMA Multipurpose Cooperative (75%) and Lipa Agriculture Development Corporation (LADECO) (50%). Aside from buying and selling of hybrid corn, all of them are engaged on marketing of rice, while others on monggo (16.67%).

Table 3. Distribution of Agents/Middlemen According to their Socio-Demographic Profile		
Socio-Demographic Profile	Frequency (n = 2)	Percentage (%)
Number of years in business:		
Mean = 15.21		
Standard deviation = 6.75 years		
Scope of Operation*		
Cebu	2	17%
Iloilo	1	8%

LADECO	6	50%
Laguna	1	8%
LIMCOMA	9	75%
Maligaya	3	25%
Salonga	1	8%
San Miguel Corporation	2	17%
SIDCC	11	92%
Tesalona	1	8%
Other crops engaged on operation*		
Palay	12	100%
Monggo	2	16.67%

Marketing Functions of Hybrid Corn Key Players

Table 4 presents the marketing functions performed by each key players/ middlemen in the market chain of hybrid corn in Sablayan, Occidental Mindoro. It shows that all of the barangay traders performed assembly and financing. However, only 33.30 percent performed negotiation.

On the other hand, all of private traders performed negotiation, assembly and financing, while 60 percent are engaged on promotion and 20 percent on storage. All of the cooperatives performed assembly, and promotion (75%), while only 50 percent are engaged on financing and negotiation (25%) and grading (25%). It means that many of them wanted to promote their corn product for the continued development of their cooperatives.

Transactional function of marketing includes buying, selling and risk taking, while logistical function includes assorting, storing, sorting and transporting. Facilitating function includes financing, grading, and marketing information and research. All of the business functions are important; however, not all key players have the capability and capacity to perform some of the functions.

Table 4. Marketing Function of Middlemen in the Market Chain of Hybrid Corn in Sablayan, Occidental Mindoro

Marketing Functions	Barangay Traders	Private Traders	Cooperatives
Negotiation	33.30%	100%	25%
Assembly	100%	100%	100%
Grading			25%
Processing			
Packaging			
Storage		20%	
Financing	100%	100%	50%
Promotion		60%	75%

Marketing Channels of Hybrid Corn

Fig. 1 presents the different middlemen engaged in marketing of hybrid corn. They are barangay traders, private traders and cooperatives. Barangay traders are also retailers and wholesalers of hybrid corn. All of them buy hybrid corn from the hybrid corn farmers. All of them sell hybrid corn to private traders of Sablayan, while 33.30 percent sell hybrid corn to Batangas feed millers. Private traders (100%) which buy hybrid corn from farmers and cooperatives. After of some grain drying, they will sell it to different feed millers inside the country such as Batangas feed millers, and to Laguna, Cebu, Iloilo and San Miguel Corporation. Cooperatives commonly buy corn from hybrid corn farmers and from cooperative members. Seventy-five percent of the cooperatives are sell hybrid corn to the private traders of Sablayan, others are also sold to the Batangas feed millers (75%), Cebu (25%), and to San Miguel Corporation (25%).

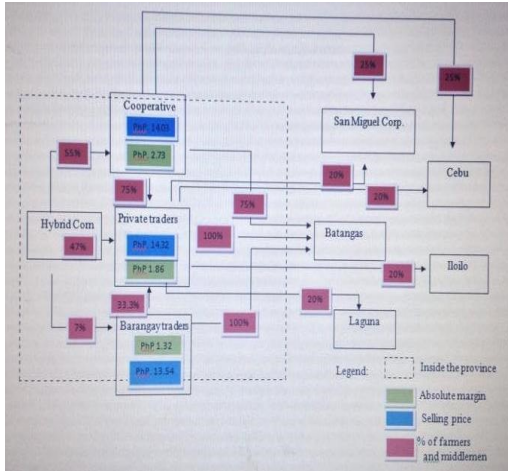


Fig. 1. Marketing channels of hybrid corn in Sablayan, Occidental Mindoro.

The market chain of hybrid corn in Sablayan, Occidental Mindoro is very complex and dynamic like other market chain for corn. Some are sold within the province but is also marketed to other processing companies or provinces with higher demand.

Marketing Margins and Mark-up of Hybrid Corn Key Players

Table 5 presents the different marketing margins of the middlemen in the market chain of hybrid corn in Sablayan, Occidental Mindoro. Barangay traders have the highest average selling price which is PhP 14.33, followed by the private traders which is estimated at PhP 14.10. Cooperatives have an average selling price of PhP 13.54. In terms of average buying price, barangay traders offer highest price which is PhP 12.33, followed by private traders at PhP 12.05 and cooperatives at PhP 11.67.

By using different formulas of marketing margin, absolute margin, percentage margin and percent mark-up were determined. Barangay traders have absolute margin of ₱ 2.00/ kl., percentage margin of 13.96 percent and percent mark-up of 16.22. Private traders have an absolute margin of ₱ 2.05/kl, percentage margin of 14.54, and percent mark-up of 17.01. Lastly, cooperatives have an absolute margin of ₱ 1.87/kl, percentage margin of 13.81, and percent mark-up of 16.02. It shows that even if the barangay traders offer the highest selling price, result shows that the private

traders earned the highest absolute margin, percentage margin and percent mark-up.

Table 5. Marketing Margin of Hybrid Corn Middlemen in Sablayan, Occidental Mindoro

Marketing Margins	Barangay Traders	Private Traders	Co-operatives
Average selling price (PhP)	14.33	14.1	13.54
Average buying price (PhP)	12.33	12.05	11.67
Absolute margin (PhP/kl)	2.00	2.05	1.87
Percentage margin (%)	13.96	14.54	13.81
Percent mark-up (%)	16.22	17.01	16.02

Problems Encountered of Hybrid Corn Farmers and Key Players

Table 6 presents the different problems encountered by the corn farmers in marketing of hybrid corn. Most (64.42%) of them have no problems encountered. This reflects that most hybrid corn farmers are satisfied with the current transactions for their product.

However, 22 percent shows they have a problem in low price of hybrid corn in the market, followed by uncalibrated weighing scale (7%), erratic price fluctuation (6%), and classification (2%). This is a common problem for almost all agricultural product. Prices for these kinds of product is directly affected by the market.

Table 6. Problems Encountered of Hybrid Corn Farmers and Middlemen in Sablayan, Occidental Mindoro

Problems Encountered	Frequency	Percentage (%)
Hybrid Corn Farmers (n=100)		
Low price	22	22
Uncalibrated weighing scale	7	7
Erratic price fluctuation	6	6
Classification	2	2
No problems	67	67
Middlemen (n=14)		
Very low price	4	28.57
Erratic price fluctuation	4	28.57
Classification	4	28.57
Delayed operation in marketing	1	7.14
Competition	1	7.14

The table also shows the problems encountered of middlemen in buying and selling of hybrid corn in Sablayan, Occidental Mindoro. Results show that the main problems (28.57%) encountered are very low price, erratic price fluctuation and classifying, followed by delayed operation in marketing and competition (7.14%). Even middlemen who have advantage of having higher margins as compared to farmers complain about the prices of their products.

CONCLUSION

This study has the following conclusions:

1. Majority of the corn farmers are male, middle-aged and were able to attend formal schooling. They have average household size and long farming experience.
2. Key players have long business experience with dispersed marketing outlets.

3. All key players in marketing hybrid corn perform transactional, logistical and facilitating functions.
4. Indirect channel is utilized in marketing hybrid corn.
5. All key players have low absolute and percentage margins, as well as percent mark-up.
6. Hybrid corn farmers have problem with the low price of their product, while agents/middlemen's problems are the low price of corn in the feed mill, erratic price fluctuation and classification of corn from farmers to feed millers.

RECOMMENDATIONS

This study recommends the following:

1. Hybrid corn farmers should be organized and encouraged to access information about the different agricultural technologies to increase their production.
2. It is recommended to strengthen the cooperatives and barangay officials in formulating programs that will help farmers to lessen their dependence on traders and chemical companies.
3. Linkages should be introduced among the hybrid corn farmers to encourage direct selling and to increase their margin.

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STRESS FACTORS AND THE TEACHING PERFORMANCE OF THE INFORMATION TECHNOLOGY FACULTY OF OCCIDENTAL MINDORO STATE COLLEGE

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ABSTRACT

Teachers are the most resourceful persons not only for schools and colleges but also for the society. They shape the society through their mighty intervention in the life of students. Stress is unavoidable part of life due to increasing workload Suganya et al [12]. The study aimed to determine the level of stress the IT faculty experienced in terms of Work related, Family related, Peer related, Economic related, School Policies-related, and Personal related stresses. It also looked into the level of effectiveness of the faculty in their teaching performance in terms of Teaching Procedure, Classroom Management and Personal Qualities. The respondents of the study were the permanent, full-time/part time IT Faculty of Occidental Mindoro State College in SY 2014-2015. It is a descriptive research study and the data were gathered using a standardized questionnaire. The data gathered were analyzed, and interpreted through Weighted Mean and Rank. Results of the study showed that majority of the faculty experienced moderate level of stress in the areas of Work related stress, Family related stress, Economic related stress, School Policies-related stress, and Personal related stresses. Most of the faculty claimed they experienced low level of stress with Peer. In general, the level of stresses as experienced by the faculty is still manageable. The overall rating of the effectiveness of the performance of the faculty in terms of Teaching Procedure, Classroom Management and Personal Qualities were Very Satisfactory.

Keywords: Stress, job stress, effectiveness, teaching performance, teaching faculty.

INTRODUCTION

Education industry is one of the business organizations that offer services in terms of molding and crafting youngsters into good citizens of the country. It is the kind of business where individuals learned good values and various techniques and strategies that they can use as they start their own personal endeavor in life. These values, techniques and strategies are usually imparted to the students in all educational institutions through teaching methods that every teacher uses when conducting the lessons. Teaching is a very challenging job in which the teachers' performance is wrapped up in her/his personality. It requires a unique talent and sense of vocation if the teacher has to perform her/his role exceptionally well as cited by Betonio [1]. Teaching is central to education. It is the act of helping someone to learn. Teachers transmit the cultural heritage—the knowledge, skills, customs and attitudes acquired over the years. They also develop in their student the ability to adjust to a rapidly changing world. Along this line, Wilson and Corlett, [4], commented that teaching is considered a process and as an interpersonal activity. They are also sometimes like candles that light the path of other individuals and they are to be instrumental in other's success, especially that of their students as given by Lardizabal in [10].

Teachers like students also undergo innumerable pressures. They should develop effective coping mechanisms to transcend these demands or changes of any sort. Public school teachers spend an average of 49.3 hours per week meeting their responsibilities, including 11.2 hours per week of non-compensated duties. Customary responsibilities for teachers include planning and executing instructional lessons, assessing students based in specific objectives derive from set of curricula and community with parents. The list of seemingly simple task belies the complexity of the job, which sometimes leads to an emotional and psycho-physiological reaction that affects their performance (Encyclopedia of Education, 2nd Edition).

It has been observed that teachers were prone to stress because of daily teaching task and other related responsibilities, particularly those who have overloaded schedules and have meager time to relax. Each profession causes a specific level of stress. However, teaching is among the professions that causes more stress compared to

other professions according to Pithers [13]. Stress affects both the teacher and learners in the learning process as cited by Forlin et al [8]. Stress is experienced by all in their everyday lives, in a wide variety of situations and settings. It is natural and unavoidable feature of life experienced at one time or another by their vast majority of those engaged in professional work. They found out that women teachers affected by stress at the age of 33. It covers the maximum age group of 37 – 48. It happened mainly due to family situation, society pressure, school administration and also from government side according to Devadoss, et al [5]. The work of teacher is physically and mentally challenging. A teacher needs to use a lot energy in daily life. Both from personal and family commitments Kaur [9]. The study focused on private medical and engineering teacher's level and perception of job stress. They found out that overall perceptions stress are based on role conflict. They provide some implications for stress management program Singh [11].

For this reason, the researcher would like to look into the level of stress and the teaching performance of the IT faculty and hope that from the output the researcher will be able to come up with ideas/strategies on how to handle stressors in ones' work or workplace and share them to her colleagues thru a forum or seminar.

LITERATURE REVIEW

Much is known anecdotally about the stressors on teachers, especially following the ever-increasing demands of change associated with developments in technology, and curriculum. There is a considerable body of literature reviewing psychological distress in the general population (Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing: Summary of Results. ABS Cat No. 4326.0. Canberra: ABS, 2007), and among university students, but these are mostly in health-related faculties (Dyrbye, Thomas, & Shanafelt, 2006; Humphris, Blinkhorn, Freeman, Gorter, Hoad-Reddick, Murtomaa, O'Sullivan, & Splieth, 2002) rather than education. Similarly, strategies for stress management have been focus in health faculties (Pritchard, Wilson, & Yamnitz, 2007). Whereas well-being studies identify teacher stresses (Montgomery & Rupp, 2005; Pillay, Goddard, & Wilss, 2005), less attention has been paid to the

demands of the practicum and the mental health and well-being of student-teachers. This paper examines 21st century psychological distress, demands associated with the student-teachers' practicum, the impact of distress, and strategies presented for coping and well-being. The review highlights the ramifications for student-teachers who may be distressed, and an overview of stress management practices offers potential directions for teacher education. Psychological distress research appears to occur primarily in health care. It is seldom defined as a distinct concept. Physician Hans Selye articulated the term distress to explain the impact on the body of arousal through stress (Selye, 1982). The term psychological distress has since been embedded within the context of strain, stress, and distress (Ridner, 2004), and incorporates anxiety and depression, as these two disorders commonly co-occur (Bultmann, Huibers, Van Amelsvoort, Kant, Kasl, & Swaen, 2005; Hirschfeld, 2001).

Too much stress can contribute to health problems. Stress can also reduce the ability to perform at the highest levels (Chan, 1998). The negative effects of stress can impact negatively on performance and quality of life. The effects of stress are unmistakably many. They include increase heart rate, speed breathing or held breath, tightens muscle to prepare to fight or to flee, directing blood to the brain and major muscles (away from digestion, hands/feet, Reproductive organs), releases stress hormones like cortisol and adrenaline, slows or stops digestion, causes the brain to be more reactive/less thoughtful, increases perspiration, reduces immune system response (Guglielmi and Tatrow, 1998). Tension headaches, neck/back/shoulder pain, tight jaw, sleeping problems, fatigue, loss of concentration, learning problems can increase, irregular or rapid heart rate, migraine headaches, poor circulation, Raynaud Syndrome, high blood pressure, sexual dysfunction (in either sex), digestive problems, upset stomach, ulcers, colitis, hormone imbalances, reduction of immune system function, over reaction by immune system (allergies or autoimmune diseases worse), increased asthma activity, increased aging rate, anxiety, depression, substance abuse, poor habit control, over-eating, low energy, prone to accidents or mistakes, can impair communication, poor performance, among others effects are characteristics of stress (Guglielmi and Tatrow, 1998).

According to TSC (2008), the significant challenge facing secondary education today is not

the shortfalls in the number of teachers in schools but teachers who have no ability to work with students to improve performance. Increased access to primary and secondary schooling has placed great demand on teachers, especially since the free primary education was introduced in 2003. Most teachers work under stress, in overcrowded classrooms and dilapidated buildings without the necessary learning resources. This aspect has escaped many stakeholders and more so the Kenya National Union of Teachers (KNUT), which has been campaigning for teacher quantity across the board. Even without the burden of having to deal with large classes and insufficient learning resources, there is need for improvements in teacher recruitment and training. Statistics from the Kenya National Examinations Council (KNEC) indicate performance in KCSE has been on a downward trend. For instance, in 2008, only 24 per cent of candidates obtained mean grades of C+ and above compared to 30 per cent the previous year and 26 per cent in 2006. The number of candidates who scored mean grade E rose to 7,067 in 2008 from 2,952 in 2007 and 3,711 in 2006. Similarly, the number of candidates who obtained grade D- cascaded to 42,084 in 2008 from 24,467 in 2007 and 27,583 in 2006 while those who scored mean grade of A went down to 817 in 2008 from 1,157 in 2007 and 1,165 in 2006. Unless there are other unexplained factors behind the picture provided by those statistics, it seems teachers' effectiveness has been on a downward trend. According to United Nations Educational, Scientific and Cultural Organization UNESCO, while financial resources invested in schools could influence learning they cannot replace the teachers. "Teacher effectiveness is a strong determinant in student learning," says Prof Lorin Anderson of the University of Carolina and a senior education consultant to United Nations Educational, Scientific and Cultural Organization UNESCO.

OBJECTIVES

The study aims to determine the level of stress and the teaching performance of the Information Technology faculty of Occidental Mindoro State College.

Specifically, it seeks to address the following questions:

1. What is the level of stresses experienced by the IT faculty members in terms of;
 - 1.1 Work-related stress
 - 1.2 Family-related stress

- 1.3 Peer-related stress
- 1.4 Economic-related stress
- 1.5 School Policies-related stress and
- 1.6 Personal-related stress
- 2. What is the level of teaching performance of the IT faculty members as assessed by the students along the areas of;
 - 2.1 Teaching Procedure
 - 2.2 Classroom Management
 - 2.3 Personal Qualities
- 3. From the result of the study, what intervention maybe designed?

METHODOLOGY

This study was conducted during the Second Semester of Academic Year 2014 – 2015. Descriptive research is used to obtain information concerning the current status of phenomena with respect to variables or conditions in a situation (Mutai, 2000). The level of stresses experienced by the faculty was in terms of Work-related stress, Family-related stress, Peer-related stress, Economic-related stress, School Policies-related stress and Personal-related stress. The level of teaching performance evaluation results of the Information Faculty was used and it was taken from the Guidance Office of Occidental Mindoro State College, during the 2nd semester of A.Y 2014-2015.

The respondents were the permanent, full-time/part time Information Technology faculty members who were currently teaching in the Second Semester of A.Y 2014-2015. A total of thirty-three (33) permanent/full-time and part-time faculty members and nine hundred (900) students were randomly selected as the respondents of this study. The standardized questionnaire was adapted from Dizon [2].

The following are the interpretation of the scores of the level of stress with the hypothetical mean range.

Scale	Hypothetical Mean Range	Description
1	1.00 -1.80	Very Low
2	1.81 – 2.60	Low
3	2.61 - 3.40	Moderate
4	3.41 - 4.20	High
5	4.21 - 5.00	Very High

RESULTS AND DISCUSSIONS

This section presents analyses and interprets the data collected in the study which refers to the different stress factors and the level of the teaching performance of the IT faculty.

1.Stress Level of Faculty

Table 1. Stress Level of Faculty on Work – Related Factor

Work-Related Stress	Weighted Mean	Interpretation
1. Lot of work responsibilities.	4.1	High
2. Dissatisfaction with the learning styles/ abilities of students.	3.3	Moderate
3. Lot of examination or paper works to check.	3.4	Moderate
4. Holding classes in poorly ventilated classrooms.	3.4	Moderate
5. Checking/ editing students' research paper.	3.6	High
6. Rush Checking of students' research paper.	3.4	Moderate
7. Handling big classes.	3.2	Moderate
8. Dissatisfaction with the attitudes of the students.	3.0	Moderate
9. Handling subjects which are not in line specialization.	2.8	Moderate
10. Rendering services.	2.9	Moderate
Over All Average	3.3	Moderate

Table 1 showed the level of stress of the faculty experienced in terms of work, obtained a rating of 3.3 with the description of Moderate level. It was noticed that item #1 – “Lot of work responsibilities” got a rating of 4.1 which equivalent to High. Followed by item #5 – “checking/editing student’s research papers” with a rating score of

3.6 which equivalent to High. This implies that the faculty experienced high stress when performing lots of work responsibilities in checking and editing student’s research papers. Whereas, the ratings of the rest of the items considered as sources of stress are moderate. With the overall mean rating of 3.3 for the work – related stress, which is equivalent to moderate level which means faculty’s experience of stress in line with the job they perform, is manageable.

Table 2. Stress Level of Faculty on Family – Related Factor

Family-Related Stress	Weighted Mean	Interpretation
1. Lots of household chores to do.	3.2	Moderate
2. Lots of personal illness or family problems.	2.8	Moderate
3. Health of family member.	3.0	Moderate
4. Family conflict.	3.0	Moderate
5. Conflict with spouse.	2.4	Low
6. Financial conflicts with the family.	3.2	Moderate
7. Conflict with the spouses’ family.	2.7	Moderate
8. Behavior of a family member.	2.6	Moderate
9. Housekeeping standards.	2.2	Low
10. Insufficient couple of time.	2.9	Moderate
11. Spousal Relationship.	2.4	Low
12. Distance of work station from the family.	2.3	Low
Over All Average	2.7	Moderate

Result showed that among the twelve (12) family- related sources of stress enumerated, only four items #5, 9, 11, 12 were both rated low, which was considered as low levels of the respondents lives. The rest of the family – related sources of stress, namely: “lots of household chores to do” (3.2); “lots of personal illness or family problems” (2.8); “health of family member” (3.0); “financial conflicts w/the family” (2.7); “conflicts w/ spouses family” (2.7); “behavior of a family member” (2.6); “insufficient couple time” (2.9) were noted as moderately parts of the respondents lives.

The overall family-related sources of stress had a mean rating of 2.7 described as moderate which implies that these sources of stress contribute moderately to the level of stress of the respondents.

Table 3. Stress Level of Faculty on Peer –Related Factor

Peer-Related Stress	Weighted Mean	Interpretation
1. Conflict with co- teachers.	2.0	Low
2. Lack of cooperation between peers.	2.2	Low
3. My superior often is not supportive.	2.6	Low
Over All Average	2.0	Low

Items on “conflict with co- teachers” were rated low (2.0). It means that the faculty were able to maintain good working relationship or able to settle conflicts with colleagues. The item – “superior often is not supportive” ranks high with a rating of 2.6 which is interpreted as low. This means that the faculty finds stressful when their immediate heads are not supportive of their activities. It implies that there is a need for superiors or immediate heads to give support their teachers so that teachers will become more motivated to do their assigned task well.

Table 4. Stress Level of Faculty on Economic – Related Factor

Economic- Related Stress	Weighted Mean	Interpretation
1. Loss of job, loss of home.	2.6	Moderate
2. Unexpected changes of the family income.	3.2	Moderate
3. I want to uplift my standard of living .	3.3	Moderate
4. I have a number of financial obligations . (Dues to attend)	3.1	Moderate
5. My take home pay can hardly provide the basic needs of the family.	3.3	Moderate
Over All Average	3.1	Moderate

Result showed that the level of economic related stress of faculty is moderate with an overall mean rating of 3.1. The rating implies that somehow along this area the stress level of the faculty is apparently felt maybe because of their intentions as stated “I want to uplift my standard of living”, “My take home pay can hardly provide the basic needs of the family” all of which are in moderate levels with a rating of 3.3, followed by “unexpected changes of the family income 3.2, and I have a number of financial obligations 3.1, loss of job, loss of home 2.6. Generally, all of these stress sources are moderate stressful to the respondents lives.

Table 5. Stress Level of Faculty on School – Related Factor

School Policies- Related Stress	Weighted Mean	Interpretation
1. Inadequate school-level discipline policy.	2.8	Moderate
2. School policies are frequently changed for no good reason.	2.8	Moderate
3. School rules and regulations are often changed without prior consultation or notice.	2.6	Moderate
Over All Average	2.7	Moderate

In terms of School Policies which is 2.7 with the description of moderate. Among the three (3) items “inadequate school –level discipline policy”, “school policies are frequently changed for no good reason” got the same mean of 2.8, interpreted as moderate, while “school rules and regulations are often changed without prior consultation or notice got the lowest mean 2.6, which interpreted as also moderate.

Table 6. Stress Level of Faculty on Personal –Related Factor

Personal Related-Stress	Weighted Mean	Interpretation
1. Too many things to do at once.	3.5	High
2. Important decisions about future career for upgrading teaching competence.	3.4	Moderate
3. Not enough leisure time.	3.1	Moderate
4. Financial burdens.	3.4	Moderate
5. Not enough time to sleep.	3.4	Moderate
6. Poor health including allergies.	2.9	Moderate
7. Time management worries.	3.2	Moderate
Over All Average	3.3	Moderate

Table 7. Summary of Computed Means for Each of the Related Stress

Indicators	Total Weighted Mean	Interpretation
1. Work-Related Stress	3.3	Moderate
2. Family- Related Stress	2.7	Moderate
3. Peer-Related Stress	2.0	Low
4. Economic-Related Stress	3.1	Moderate
5. School Policies-Related Stress	2.7	Moderate
6. Personal Related-Stress	3.3	Moderate
Grand Mean	2.85	Moderate

The summary of the overall rating of the level of stresses experienced by the faculty revealed that in general, the level of stresses as experienced by the faculty is still manageable as supported by the rating of 2.85 with the description of moderate. Out of six (6) indicators, one area were rated low level and this is on Peer-Related Stress with a total weighted mean 2.0

2. Teaching Performance of Faculty

Table 8. Summary of Teaching Performance of IT Faculty

Indicators	Total Weighted Mean	Interpretation
1. Teaching Procedure	4.42	VS
2. Classroom Management	4.35	VS
3. Personal Qualities	4.47	VS
Grand Mean	4.41	VS

In summary, the result of the study in line with the effectiveness of the teaching performance of the IT faculty in terms of Teaching Procedure,

Classroom Management and Personal Qualities obtained the highest rank with a rating of 4.41, interpreted as “Very Satisfactory” which means that the teachers’ way of reaching out to the students was appropriate and effective. This rating of “Very Satisfactory” enlightened the researcher that still there is room for change for the best to make it “Outstanding or Excellent’ rating in their future time.

FINDINGS

1. Majority of the IT faculty members experienced moderate level of stress in six (6) areas of stress factors which revealed that in general, the level of stresses as experienced by the faculty is still manageable.
2. Low level of stress was experienced by all faculty members in terms of peer – related stress.
3. The level of effectiveness of the faculty in terms of Teaching Procedure, Classroom Management and Personal Qualities were Very Satisfactory.

CONCLUSIONS

1. In general faculty members are “moderately stressed.”
2. Out of six (6) indicators, one area were rated low level and this is on Peer-Related Stress with a total weighted mean 2.0. It means that the faculty were able to maintain good working relationship or able to settle conflicts with colleagues.
3. On the other hand, teaching performance of the IT faculty in terms of Teaching Procedure, Classroom Management and Personal Qualities obtained the highest rank with a rating of 4.41, interpreted as “Very Satisfactory”.

RECOMMENDATIONS

1. Policies, rules and regulations in terms of students’ retention and promotion, grading system, co-curricular activities, duties and responsibilities of the workers, and institutional policy must be disseminated and discussions must be conducted before final implementation.
2. The school administrators should come up with program of activities like ballroom dancing, educational fieldtrip, Recollection, *Zumba*, singing and sports contest, and other get together or fellowship and social gatherings to lessen the stress of the faculty mem-

- bers.
3. Give teachers opportunities to participate in decision making and actions affecting their jobs. With regard to teacher empowerment, teachers' professional knowledge might have a great influence upon many aspect of schools, including student learning outcome, effects of classroom management, and participation in school decision making.
 4. Faculty must be encouraged to be creative in their teaching/learning process.

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BASIC OFFICE APPLICATION SOFTWARE SKILLS OF THE ELEMENTARY SCHOOLS TEACHERS IN THE MUNICIPALITY OF BALILIHAN BOHOL, PHILIPPINES

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ABSTRACT

The purpose of this study was to assess the level of Basic Office Application Software skills of the elementary teachers in the Municipality of Balilihan, Bohol, Philippines. This study also served as baseline for a proposed computer skills training program. The study employed the descriptive survey method with the aid of a modified questionnaire as data gathering tool. The respondents of this study were eighty (80) elementary teachers. For the analysis and interpretation of the data gathered, the researchers used frequencies, percentages and rank. In general, the respondents had limited ability on all the aspects of the Basic Office Application Software skills as evident by the general mean of 2.26. Although the respondents showed sufficient ability in word processing software; however, their skills level in spreadsheets, and presentations software were limited. The study suggests that the Basic Office Application Software skills of the elementary teachers are inadequate, thus the respondents are recommended to undergo computer training program to enhance their computer competencies.

Keyword: Computer skills, Elementary Schools teacher, Office application software, Training

INTRODUCTION

The rapid changes and increased complexity of today's world present new challenges and put new demands on our educational system. As it changed, new technologies are also introduced to make educational system globally competitive. Part of the new technology is the introduction of computers which has become an integral part of working life.

Nowadays, it is important for people to have knowledge about computer and the skills to utilize it. Computers have changed the way we work, be it in any profession. Thus, in the teaching profession, it is only natural that the role of computers be also given a lot of importance especially in recent years.

On the other hand, Information and Communications Technologies (ICT) education is basically our society's efforts to teach its current and emerging citizens valuable knowledge and skills around computing and communication devices, software that operates them, applications that run on them and systems that are built with them. Research on Information Communication Technology in education has documented that ICT has had the lowest effect on teachers and teaching pedagogies. In educational communities, the teachers and school administrators do not have high efficacy with the technology. Findings also indicate that teachers tend to resist the technology or quite often, they merely use the technology in the most rudimentary functions. Teachers often feel uncomfortable in using the technology; they have no mastery over the technology, thus, end up resisting it or using it for marginal purposes. (Gudmalin, 2010)

Likewise, the utilization of new technologies in the organization requires the upgrading of technical capabilities of the employees. Many personnel resist learning new technology because they are far more comfortable with their old or traditional approaches. Besides, they see no need to apply new approaches when they are successful in performing their own jobs.

The growing presence of technology demands that schools should be prepared in providing technological support and training in the use of such resources to teachers. This study is one school's journey in meeting this challenge and as such provides a model of a staff development pro-

gram assisting teachers and office staff in their own technological development and the skills for integrating technology into their classrooms and office works. (Shelley, 2010)

Therefore, BISU Balilihan with the flagship in Information and Communication Technology, aimed to provide and develop the Basic Office application Software skills among the teachers while providing them with immediate strategies and resources to enable them to utilize computers for their teaching career, for their current curriculum and classroom environment.

LITERATURE REVIEW

The educational system is regarded as the force that promotes literacy. With the installation of new technology, the training of employees needs to be at a compatible level. Education must share the responsibility of developing technologically literate people, not only to help people maintain a standard of living but also to help people create a balanced lifestyle (Moreno, 2013).

Secretary Jeslie A. Lapus (2013) emphasized that schools must become truly creative and innovative organizations so that they can become true Learning Organizations—powerful learning environments. The delivery of instruction can be transformed through technology. For this reason, teachers must take the lead in promoting the use of technology in the school.

In reality, the Philippine educational system still has a long and arduous road to take in order to provide the Filipino youth a competitive, ICT-rich learning environment. A teacher can definitely re-shape the country's education by providing a rich, exciting and motivating learning environment for his students.

A study by Hsieh (2013) on the Computer Anxiety, Computer Self-Efficacy, Computer Copying Strategies and Computer Literacy in High School Teachers, came out with the following major findings, to wit: [1] Teachers minimal contact with computers leads to anxiety about computer use and poor computer self-efficacy; [2] the performance in computer coping strategy and computer literacy is related to teachers' competence in com-

puter self-efficacy and computer anxiety. Teachers with high computer anxiety tend to show frequent avoidance of computer use and poor coping strategies in problem solving, support seeking, and self-adjustment, and a shallow understanding of computers and computer-assisted instruction. [3] Among elementary and junior high school teachers, the computer anxiety, computer self-efficacy, and computer coping strategy are significantly related to their computer literacy; [4] teachers' computer self-efficacy and computer coping strategy in solving problems and seeking support are implications for performance in computer literacy, and [5] familiarity with computers and positive experiences in computer use reduce teachers' computer anxiety and enhance computer self-efficacy.

The study conducted by Abbit, et.al (2014) on identifying the influences on self-efficacy beliefs toward technology integration among pre-service teachers at two mid-sized public institutions in the Midwest region of the United States found that perceived comfort with computer technology was found to be a significant predictor of self-efficacy beliefs towards technology integration, while perceived usefulness was not found to have a significant predictive relationship. The study also found that all of the groups demonstrated a significant increase in self-efficacy beliefs while enrolled in a course focusing on technology integration even though the courses varied in course design and weekly instructional time. The results suggest that a course design that focused more broadly on issues relating to the integration of technology into teaching was likely to have a larger positive impact on self-efficacy beliefs than a course focused primarily on developing proficiency skills with specific computer technology.

A survey conducted by Tinio (2015), on Information & Communication Technology Utilization in Philippine Public High Schools, concluded that teachers and administrators must acquire new skill sets to bring technology into the school setting. The lack of training opportunities decried by survey respondents is an indication of the need to develop a comprehensive and sustained in-service training program for teachers and administrators. Moreover, pre-service training institutions must also incorporate into their

curricula the knowledge and skills that characterize the technology-enabled teacher.

OBJECTIVES

The main goal of this study was to assess the level of Basic Office application Software skills of elementary teachers in the Municipality of Balilihan, Bohol, Philippines. This study also served as baseline for a proposed computer skills training program.

Specifically, this study sought to answer the following queries:

1. What is the profile of the Elementary Teachers in the Department of Education- Municipality of Balilihan in terms of:
 - 1.1 Age;
 - 1.2 Gender;
 - 1.3 Educational Background;
 - 1.4 Length of service;
 - 1.5 Type of Computer Access;
 - 1.6 No. of times in using the computer;
 - 1.7 Purpose of using the computer;
 - 1.8 Acquisition of Computer Skills.
2. What is the level of skills of the respondents towards Basic Office Application Software in relation to age?
3. What is the level of skills of the respondents towards Basic Office Application Software in relation to Educational Attainment?
4. What proposed training program should be designed to upgrade the level of computer skills among elementary teachers?

METHODOLOGY

Research Design and the Research Environment

This research was conducted to evaluate the knowledge and level of Basic Office Application Software skills of the Elementary Teachers in the Department of Education- Municipality of Balilihan.

The descriptive survey method with the aid of a modified questionnaire as data gathering tool was utilized to accomplish the aims of the research. Questionnaires were developed and utilized to help guide the process of developing teachers training needs. The survey consisted of two sections: Profile and the Level of Computer Skills.

The respondents of this study were the eighty (80) elementary teachers of the Department of Education-Municipality of Balilihan who were purposely selected by the researchers.

FINDINGS

**Table 1
Profile of the Respondents**

ITEMS	Frequency	Percentage	
1.1 AGE			
20-30	17	21.25	
31-40	24	30.00	
41-50	32	40.00	
51 and above	7	8.75	
TOTAL	80	100	
1.2 GENDER			
Male	4	5.00	
Female	76	95.00	
TOTAL	80		
1.3 EDUCATIONAL BACKGROUND			
Bachelor's degree	46	57.50	
Bachelor's degree with MA/MS units	33	41.25	
MA/MS degree	1	1.25	
MA/MS degree with PhD units	0	0	
PhD degree	0	0	
TOTAL	80	100	
1.4 LENGTH OF SERVICE			
1 – 5 years	19	23.75	
11 – 15 years	23	28.75	
6 – 10 years	16	20.00	
15 and more	22	27.50	
TOTAL	80	100	
1.5 COMPUTER ACCESS			
School access only	33	41.25	
Home access only	13	16.25	
School and house access	34	42.50	
No access	0	0	
TOTAL	80	100	
1.6 HOW OFTEN do you USE THE COMPUTER			
Daily	13	16.25	
Weekly	33	41.25	
1 to 2 times a week	23	28.75	
3 to 5 times a week	11	13.75	
TOTAL	80	100	
1.7 PURPOSE OF USING THE COMPUTER			
For computation of Grades	25	31.25	
For submission of reports	16	20.00	
For instructional Materials	30	37.50	
Others	9	11.25	
TOTAL	80	100	
1.8 How have you acquired or learned computer skills ?			
Formal Class	25	31.25	
Personal Trial and Error	22	27.50	
Continuing education workshop	8	10.00	
Through colleague or friend	20	25.00	
Other	5	6.25	
TOTAL	80	100	153

Profile of the Respondents

Respondent's Profile as to Age.

Table 1 indicates that the majority of the respondents ranging 41-50 years of age ranked number 1 with 40.00 percent. It shows that the respondents were all mature enough to manage different task assigned to them.

Respondent's Profile as to Gender. As revealed in Table 1 under category 1.2, it shows that seventy six (95.00 percent) out of eighty elementary teachers were females and only 4 (5.00 percent) were males. The data clearly shows that the female greatly outnumbered the male, thus, most of the teachers in elementary in the Municipality of Balilihan are female-dominated profession.

Respondent's Profile as to Educational Background. Among the elementary teachers, forty six (57.50 percent) teachers got a bachelor's degree; thirty three (41.25 percent) a bachelor's degree with masteral units; one (1.25 percent) was graduate of MA / MS degree and no one has a master's degree with doctoral units and doctoral degree. Most of them only attained the bachelor's degree.

Respondent's Profile as to Length of Service. Twenty three (28.75 percent) teachers had 11-15 years in the teaching service, twenty-two (27.50 percent) had attained 15 and more years in teaching service, nineteen (23.75 percent) had served 1-5 years and sixteen (20.00 percent) had attained 6-10 years in teaching service.

Respondent's Profile as to Computer Access. Among the teachers, thirty-four (42.50 percent) had school and house access; thirty-three (41.25 percent) school access only, thirteen (16.25 percent) home access only and none answered no computer access.

Respondent's Profile as the no. of times in using the computer. This category shows the frequency of using the computer. Thirty three (41.25 percent) of the respondents weekly used the computer. Twenty three (28.75 percent) used computer 1 to 2 times a week. Thirteen (16.25 percent) used computer daily and eleven (13.75 percent) of the respondents used computer 3 to 5 times a week.

Respondent's Profile as to Purpose of Using the Computer. For use as instructional materials got the highest rating of thirty (37.50 percent). Twenty five (31.25 percent) of the respondents

used computer for computation of grades while sixteen (20.00 percent) used it for submission of reports. The remaining nine (11.25 percent) used computer for other purposes like web browsing, chatting, games, etc.

Respondent's Profile as to Acquisition of Computer Skills. Forty one five (41.25 percent) came from formal class. Twenty two (27.50 percent) came from personal trial and error. Twenty (25.00 percent) acquired or learned through colleague or friend. Eight (10.00 percent) came from a continuing education workshop and the remaining five (6.25 percent) acquired from other sources like internet video tutorials.

Table 2
Word Processing (MS-Word)

Perform basic word processing tasks, such as:	Weighted Mean	Descriptive Value
1. Enter text	2.85	Sufficient Ability
2. Select object (e.g. text, graphics)	2.61	Sufficient Ability
3. Save document files	2.97	Sufficient Ability
4. Print document files	2.94	Sufficient Ability
5. Use document preview option	2.75	Sufficient Ability
Weighted Mean	2.82	Sufficient Ability
Perform editing tasks such as:	Weighted Mean	Descriptive Value
1. Cut and copy and paste selected object	2.54	Sufficient Ability
2. Insert and delete selected object	2.56	Sufficient Ability
3. Make corrections using spell check	2.71	Sufficient Ability
4. Make corrections using grammar check	2.65	Sufficient Ability
5. Use thesaurus	2.32	Limited Ability
Weighted Mean	2.55	Sufficient Ability

Perform formatting tasks, such as:	Weighted Mean	Descriptive Value
1. Select and change fonts	2.86	Sufficient Ability
2. Select and change styles (e.g. boldface, italics, underlining)	2.81	Sufficient Ability
3. Select and change font sizes	2.82	Sufficient Ability
4. Set line spacing (e.g. single space, double space, etc.)	2.71	Sufficient Ability
5. Insert page numbers	2.43	Limited Ability
6. Set paragraph alignment (e.g. left, right, center, justified)	2.71	Sufficient Ability
7. Set paragraph indentation (e.g. first-line indent, hanging indent)	2.45	Limited Ability
8. Create itemized lists (e.g. bullets, numbered lists)	2.43	Limited Ability
9. Set margins	2.61	Sufficient Ability
10. Set tabs	2.46	Limited Ability
11. Insert page breaks	2.25	Limited Ability
12. Create tables	2.46	Limited Ability
Weighted Mean	2.58	Sufficient Ability

Create references and citations, such as:	Weighted Mean	Descriptive Value
1. Footnotes/endnotes	1.45	No Ability
2. Works cited page	1.85	Limited Ability
3. Insert headers/footers	2.0	Limited Ability
Weighted Mean	1.70	Limited Ability
Average Weighted Mean	2.41	Limited Ability

Skills in Using the Basic Office Application Software

The computer skills of the respondents were presented in **Table 2**. It comprises of questions covering three office applications software skills, to wit: word processing, spreadsheets, and presentation software. It uses the scale values ranged from “1” (no ability) to “4” (extensive ability).

A. Word Processing. The skill on word processing includes the performance of basic word processing tasks, perform editing tasks, perform formatting tasks and create references and citations.

It was disclosed that the respondents had **limited ability** in performing word processing tasks with an average weighted mean of (2.41). In their

rank order, to name: perform basic word processing tasks (2.82), perform formatting tasks (2.58), perform editing tasks (2.55) and create references and citations (1.7). Under this computer operation, it was indicated that teachers have sufficient understanding and ability in performing basic word processing tasks, editing and formatting tasks but have inadequate skills in creating references and citations.

Table 3
Spreadsheets (MS-Excel)

Perform data entry tasks, such as:	Weighted Mean	Descriptive Value
1. Enter labels, values, headings	1.98	Limited Ability
2. Enter formulas using arithmetic operators and/or built-in functions	1.82	Limited Ability
3. Create charts and graphics from cell contents	1.87	Limited Ability
Weighted Mean	1.89	Limited Ability
Perform editing tasks such as:	Weighted Mean	Descriptive Value
1. Cut and copy and paste cell contents	2.17	Limited Ability
2. Delete cell contents	2.26	Limited Ability
3. Insert and delete rows and columns	2.31	Limited Ability
Weighted Mean	2.24	Limited Ability
Perform formatting tasks, such as:	Weighted Mean	Descriptive Value
1. Set fonts, font sizes, styles	2.21	Limited Ability
2. Apply appropriate formats for cell contents (e.g. currency, percent, etc.)	2.17	Limited Ability
3. Align cell contents (left, right, center, justify, center across columns)	2.23	Limited Ability
4. Set and change row and column width and height	2.06	Limited Ability
Weighted Mean	2.16	Limited Ability
Average Weighted Mean	2.09	Limited Ability

Perform formatting tasks, such as:	Weighted Mean	Descriptive Value
1. Set fonts, font sizes, styles	2.21	Limited Ability
2. Apply appropriate formats for cell contents (e.g. currency, percent, etc.)	2.17	Limited Ability
3. Align cell contents (left, right, center, justify, center across columns)	2.23	Limited Ability
4. Set and change row and column width and height	2.06	Limited Ability
Weighted Mean	2.16	Limited Ability
Average Weighted Mean	2.09	Limited Ability

B. Spreadsheets. Working on spreadsheets includes the tasks such as: perform data entry tasks, perform editing tasks, and perform formatting tasks. The data on the respondents' responses are shown in table 3.

Survey results indicated that the teachers had limited ability in working on spreadsheets with an aggregate mean of (2.09). In their order of rank, it follows: perform editing tasks (2.24), perform formatting tasks (2.16), and perform data entry tasks (1.89). This shows that teachers have inadequate in performing spreadsheets operations.

**Table 4
Presentation (MS-Powerpoint)**

Perform formatting tasks, such as:	Weighted Mean	Descriptive Value
1. Create presentations using wizards, design templates or blank layouts?	1.85	Limited Ability
2. Create slides using standard layouts and designs?	1.88	Limited Ability
3. Modify standard layouts and designs?	1.82	Limited Ability
4. Edit slides, insert slides from other presentations and re-sequence slide?	1.83	Limited Ability
5. Change text fonts, add bullets or numbers to slide content?	2.0	Limited Ability
6. Use spell checker to check for typos and misspelled words?	1.97	Limited Ability
7. Add objects (eg, clip art, pictures, video clips, sound) to your slide show?	1.97	Limited Ability
8. Add animations and transitions to slides?	1.93	Limited Ability
9. Include tables and charts in your slides?	1.83	Limited Ability
10. Navigate between slides and switch between different views (slide, outline, notes)?	1.77	Limited Ability
Average Weighted Mean	1.88	Limited Ability

C. Presentations. The survey pertaining to this competency were designed to determined whether the respondents have the ability to perform tasks such as: the creation of presentations using wizards, slides using standard layouts, modify standard layouts and designs, edit slides and insert slides from other, change text fonts and add bul-

lets, use spell checker, add animations and transitions, including tables and chart in slides, and navigate between slides and switch.

The data in Table 4 revealed that the average weighted mean of (1.88) indicated the limited ability of teachers could not use the computer as instructional materials in presenting their lesson due to their limited skill in performing presentation.

**Table 5
Summarized Result on the Basic Office Application Software skills of the Respondents**

Skills	WM	Desc	Rank
1. Word Processing	2.41	LA	1
2. Spreadsheets	2.09	LA	2
3. Presentation	1.88	LA	3
Weighted Mean	2.17	LA	

In general, the respondents had limited **ability** on the Basic office application software as evident by the average mean of (2.17).

**Table 6
Level of Skills of the Respondents towards Basic Office Application Software in Relation to Age**

Age	4 Extensive Ability (EA)	3 Sufficient Ability (SA)	2 Limited Ability (LA)	1 No Ability (NA)	Total
20-30	10	6	1		17
31-40	5	17	1	1	24
41-50	1	4	7	20	32
51-above	0	0	5	2	7
TOTAL	16	27	14	23	80

In table 6, majority of the respondents were at age bracket 41-50 wherein 20 had no ability in the use of the Basic Office Application Software, 7 had limited ability, 4 had sufficient ability and 1 had extensive ability. A total of 32 respondents. The least number of respondents were at age bracket 51-above wherein 2 had no ability, 5 had limited ability, none had sufficient and extensive ability. A total of 7 respondents only.

Table 7
Level of Skills of the Respondents towards Basic Office Application Software in Relation to Educational Background

Computer Skills	4 Ex- tens- ive (E)	3 Suffi- cient Ability (SA)	2 Li mit ed Ab ilit y (L A)	1 No Abil- ity (NA)	Total
Bachelor's Degree	9	20	10	7	46
Bachelor's Degree with MA Units					34
MA/MS Graduate	7	7	4	16	
MA/MS Graduate with Ph.D Units	0	0	0	0	0
Doctoral Graduate	0	0	0	0	0
TOTAL	16	27	14	23	80

As shown in table 7, there were 7 respondents who answered no ability in the use of the basic office application software, 10 had limited ability, 20 had sufficient ability and 9 had extensive ability. A total 46 respondents who were Bachelors' degree.

CONCLUSIONS

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

1. The data gathered on the profile of respondents showed that it contributed a lot to the Basic office skills of the respondents.
2. Most of the respondents aged 41-50 had a rating of "no ability" in the use of computer.
3. Most of the respondents were bachelor's degree holders with a rating of sufficient ability.
4. A computer skills training program particularly on Microsoft Word, Excel and powerpoint should be conducted.

RECOMMENDATIONS

The study recommends that:

1. A proposed computer skills training program aimed at enhancing the computer competencies should be implemented.
2. The respective schools of the respondents should provide computers to be used by the teachers in integrating ICT into their teaching-learning process.
3. A post assessment of the skills, knowledge and application gained by the teachers after the training should be undertaken.

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THE BIKOLANO SENSIBILITY IN MERLINDA BOBIS'S "WHITE TURTLE"

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Abstract

This paper attempts to resolve the questions of ten selected short stories in *White Turtle* as representation of postcolonial literature - how these stories subvert the domination of imperial culture and assert the consciousness of Bikolano sensibility thereby liberating the colonized subject from Western hegemony. The short stories are described as having emerged out of the experience of colonization and readings of the texts explore the recurrent themes of hybridity, ambivalence and displacement which foreground the tension between the colonizers and the colonized stereotypes. The abrogation and appropriation of the English language to English language, and the writer's use of magical metaphor and metonymy creatively reconstruct the identity of both the colonizer and colonized. The content – thematic and symptomatic readings reveal the different postcolonial themes that appear in different guises throughout the ten selected short stories by Merlinda Bobis – from the hybridity and language and food that emerge from the melding of different cultures through the appropriated English language as a postcolonial tool in writing back to the center. Finally, this paper posits a response to the phenomenon, which has been inaccessible to the growing introspective consciousness of the Bikolanos in liberating the Bikol aesthetics and pragmatics through mythmaking and open perception of reality.

Keywords: Bikolano sensibility, hybridity, multiplicity, abrogation and appropriation of language, postcolonialism

INTRODUCTION

The Filipino identity has been the topic of heated debate for a long time. It has proven itself elusive and difficult to define mainly because of the country's history of colonization. The hundreds of years of colonization have left the Filipinos with a hybridized existence that has seen the dominance of imperial influence on culture, practice, and mentality. Colonization has served as the great force in "othering" the indigenous practices and values of the Filipinos. The belief of the West in their superiority has led to the propagation of stereotypes that portray the colonized as inferior and strange. This is evident in television, film, and literature, where the Filipino is portrayed either as the domestic helper, factory worker or the mail-order bride. These

stereotypes have reflected the West as superior at the expense of marginalizing the colonized that even the Filipinos themselves have come to believe these stereotypes. As a result, the Filipino sensibility is silenced and challenged by these stereotypes. Seemingly, the Filipino legacy underscored by the revolt in Mactan against the Spaniards, then against the Americans is almost forgotten by the Filipinos themselves, for traces of colonization are still evident in the Filipinos in their culture, philosophy, education, literature, and the like. It is no surprise then that from the moment of its birth, Philippine Literature in English has been tested against the Anglo-American tradition and until recently, mainstream writers and critics consciously or unconsciously believed that there

was a correct literary center to follow and to learn from. "Many critics often depict Philippine writers as being initially a group of apprentices who need to learn both the language and the craft of literature and eventually a group that finally learned both language and skill while they struggled with their national and most importantly their local identity along the way". However, these same critics recalibrated their critical instruments according to alternative contemporary standards. The result, as postcolonial theorists seem to have discovered elsewhere in our emergent world, was a potentially new reading and appreciation of Philippine Literature.

One of the writers today who shares equal footing in writing on uniquely Filipino subjects, characters and themes is Merlinda Carullo Bobis, a Bikol writer who has made her name known not only in the Philippines but also outside the country. The originality of Bobis's stories cannot be overstated. Reading each one becomes an adventure of discovery, as though Bobis has given her reader a piece of fruit so delicious that in eating it, you almost forget there is a seed of truth hidden inside.

STATEMENT OF THE PROBLEM

This paper analyzes the postcolonial influences to the colonized subject. It discusses how the ten selected stories of Merlinda Bobis subvert the domination of imperial culture and at the same time asserts the consciousness of Bikolano sensibility thereby liberating the colonized subject from Western hegemony. The short stories are described as having emerged out of the experience of colonization and readings of the texts explore the recurrent themes of hybridity, ambivalence and displacement which foreground the tension between the colonizers and the colonized stereotypes. The abrogation and appropriation of the English language to English language, and the writer's use of magical metaphor and metonymy creatively reconstruct the identity of both subjects.

METHODOLOGY

To examine the postcoloniality of Bobis's texts, this study looked into both the form and content of the texts based on Homi Bhabha's concept on the hybridity of emergent culture in which he appropriates Michel Foucault's discourse as a site of struggle; Jacques Derrida's difference and

supplementarity which posits that Western culture cannot be privileged over the colonized culture because one is enabled by the other; and Jacques Lacan's notion of subjectivity on the text's content and form through the use of metaphoric and metonymic images with which the colonized persona identifies and summons the absent colonizer.

The first layer of criticism uses a content thematic approach to identify the content of Bobis's text, which discusses the central themes or prevailing issues in the text. The postcolonial themes used in classifying the texts of Merlinda Bobis are the themes of hybridity, ambivalence and displacement. The second layer, which uses symptomatic reading and deconstruction examined Bobis's style of writing which includes abrogation and appropriation of language, and her use of metonymy and magical metaphor to assert a Bikolano sensibility.

To further illustrate these postcolonial symptoms in a limited scope, this paper focuses its discussion on Bikolano sensibilities as revealed by Bobis's texts. In this part, this researcher establishes the notion of the effect of colonization to the colonizer and colonized. It also discusses how Bobis texts show rejection of the categories of the imperial culture and the assumptions of traditional and 'fixed' meaning in language to reveal the process by which language is taken and made to bear the burden of Filipino/Bikolano's hybridity, ambivalence and displacement. It posits Filipino/Bikolano's sensibility for cultural negotiation and infixity which asserts position.

Ashcroft, Griffiths, and Tiffin characterize symptomatic reading as "readings that are not directed towards totalizing interpretations but readings that may enable us to isolate and identify significant shifts in the development of postcolonial writing." In other words, these are the text's "unconscious", what is unspoken and inevitably repressed that aims to "reveal the discursive formations and ideological forces which traverse the text". Here, Bhabha's notion on emergent culture, which appropriates Michel Foucault's notion of discourse will be used. This reading will show the configurations of cultural domination that enabled the writing of the text by the writer in question (Bobis) and which, consciously or unconsciously prompted the same writer to make the characters in the text speak and act the way they do. Deconstruction will look into the metaphoric and metonymic images through which the notion of power

inherent in the model of center and margin are appropriated and so dismantled.” This tie, Jacques Derrida’s difference and supplementarity, and Jacques Lacan’s subjectivity will be used to examine the use of metaphor and metonymy to summon the absent colonizer, appropriate and abrogate his culture, and assert Bikolano sensibility. The paper ends in the analysis of how Bikolano sensibility rejects the assumptions of the colonizers about Western culture and the colonized culture.

RESULT AND DISCUSSION

In absence of the table presentation, this paper presents two (2) detailed discussion from the ten (10) selected stories to give picture how the analysis was done.

The discussion commences with the synopsis of every short story, followed by the articulation of the recurrent postcolonial themes of hybridity, ambivalence, and displacement which resurface in different guises throughout Bobis’s texts, and ends by interpellating the writing technique of the writer with her use of magical metaphor and her hybridized discourse, the abrogation and appropriation of the English language to English which asserts an enriched Bikolano culture/identity.

Text 1: White Turtle

“White Turtle” tells of a Bikol epic chanter, Lola Basyon, who came to Sydney Writer’s Festival and chanted a story of the white turtle. White turtle is a mythical tale, which ferries the dreams of the dead children in the navel of the sea. Lola Basyon was invited by the Australian anthropologist in Sydney to show her Bikol poetry in a writer’s festival. Different foreign writers participate in the writer’s festival and from among the participants, the novelist who sports a cowboy hat and snakeskin boots has disturbed Lola Basyon because he suspects that the poetry of Lola Basyon is only a pedestrian writing. Lola Basyon almost loses her confidence because aside from the scrutinizing gaze of the cowboy she has no book to read on but only stories to recount. The

applause of the audience nevertheless eases her discomfort especially when the chair of the readings approaches her to buy her book.

The giant turtle, which is only dreamt up by the Bikol epic chanter, is not white at all but begins turning white in the local seer’s consciousness and to her readers/audience. The mythical turtle keeps on transforming, becoming a funerary attendant to dreams of dead children, and changes into bone-white like the corals under the deep sea, a new patina of this mythical reptile. Lola Basyon is able to reach the reader’s/audience’s consciousness when the audience unconsciously mythologizes, and transforms the turtle into a white turtle. The readers have fleshed out an old story, giving the story an even stranger gloss, taking an old story and giving it back as something new. The Bikol chanter does not have a book, but she is invited to the festival through the Australian anthropologist. She does not quite fit in the context of the festival but her presence signifies a re-valuing of the oral tradition.

Postcolonial Symptoms in Asserting Bikolano Sensibility

The audience once thought that Lola Basyon should have attended a multicultural presentation instead of the writer’s festival but they later realized that Lola Basyon has a new story to tell. Here, Bobis introduced a new mode of story telling, hybrid in nature, for she uses a conventional mode with a newer look. Bobis has opened up a space of translation in which the construction of a political object [white turtle] is a contemporary argument to reveal the difference between the East and the West, between Filipino and English, showing that the Bikol/Filipino character is not displaced from the Sydney writer’s festival but is able to sing new songs. Lola Basyon’s creativity in her readings invokes acceptance from the audience/readers. She is able to get along with Western writers and audience because she has adapted to her new environment/culture and the same time retained her native culture. This ability of the local chanter to establish her identity in the Sydney writer’s festival to the moving of

the split subjects and differentiated social movements on two planes, is what Bhabha calls, the emergence of the interstices – in which overlap and displacement of domains of difference are negotiated. Lola Basyon's notion of displacement, because of her multicultural style, does not hinder her to narrate [Bikol] stories. Her use of Bikol language fused in English language posits a new site of struggle which demonstrates that English language could not fully express the exact dimensions of what the colonized think and believe in. Bhabha says that this is an in-between space, which provides the terrain for elaborating strategies of selfhood that initiate new sign of identity and innovative sites of collaboration and contestation, in the act of defining the idea of society itself. The Bikol chanter has articulated her ambivalence, not Self and Other but the otherness of the Self inscribed in the perverse palimpsest of colonial identity. Moreover, Bobis has also perfectly shown through the character of Lola Basyon and the image of the white turtle that even if the Bikol character has established her identity she could not really avoid the fact that her character is still displaced in a foreign land. Take note of this:

The spell was broken. Everyone started moving and speaking in unison, some in wonder, others with the deepest unnamable emotions, but a few murmured their doubts. Dreams? Dead children? Suddenly, they remembered the story. Funerals. One man contemptuously dismissed this foolishness and argued instead against cruelty to animal. ... She wanted to explain to the men in the blue that it did not mean to cause harm or any trouble⁷.

The white turtle that bore on its back the dreams of Iraya's dead children has buried the little girl and boy's dreams that later sprouted into corals which were the colors of the bones. It suggests that the mythical reptile is a transporter of dreams, dreams that had not been realized before but become true this present generation, the dreams that have been nurtured for long time by the children who are now parents of these young children. However, this bone white dreams refer also to funeral, a frustration, because of failure of not realizing the children's dreams. Here, the white turtle shows dual identity, the bone for children's dreams and funerals for death or frustration. Bobis has shown the significance of transformation. The transformation of death and grief which are told in a tale to become manageable.

She uses a hybrid writing style to express her thought, she mythologizes, re-creates stories from conventional to contemporary, appropriating another style of retelling a story, to become more than itself.

Bobis writes:

We tell stories, so we don't forget them. First we memorialize ... then we extend ourselves: we mythologize because we can't help ourselves either. What is myth then but a memorial with a strange patina? There is an other-worldliness about it or a heightened sense of the world-even loftiness, perhaps? All stories are "tall tales", because in the telling, we are transforming and hopefully transcending something⁸.

Though Lola Basyon, the Bikol character was displaced in the writer's festival she has managed to reveal her own self and gained the confidence of her readers and audience. The Bikol chanter sings [reads] the giant turtle in the writer's festival, and this white turtle materializes amidst the book signing at the writers' festival. This illustrates that colonizers [Australian readers/audience] has understood the sensibility or consciousness of the colonized.

When the mythical turtle appeared over the readers/audience, the crowd was afraid whether the white turtle was an endangered species or was not properly quarantined. It testifies that shared histories, of discrimination, the exchange of values, meanings and priorities, may be collaborative and dialogical but may also be antagonistic, conflictual and incommensurable. In this text, the Bikol chanter explains that the white turtle does not mean to cause harm or any trouble, the turtle only wants to tell stories because her stories are written on her back and only offered to Lola Basyon in a moment of music. The white turtle was just a conduit of narrating life of migrant writer, their aspirations and frustrations. This text manifests that Bobis through Salvacion Ibarra, a.k.a. Lola Basyon has transplanted her own sensibility, a new currency of Bikol which articulated that local writers could also be relative to Western writers.

The "White Turtle" is a metaphor for the source of stories, creative energy, inspiration and salvation. Bobis uses the mythical reptile to reveal her character's intention and through the lo-

cal chanter, she is able to present the struggle of Asian writers in a foreign country and contend to Western writers. Bhabha reiterates, the social articulation of difference, from the minority perspective, is a complex, on-going negotiation that seeks to authorize cultural hybridities that emerge in moments of historical transformation. And the right to signify from the periphery of authorized power and privilege does not depend on the persistence of tradition. It is resourced by the power of tradition to reinscribe through the conditions of contingency and contradictoriness that attend upon the lives of those who are in the minority". Bobis in her story, "White Turtle" freely abrogates and appropriates the literary genre and language of the colonizer. Her story fused with local color seizes the language of the center and replaces it with a discourse adapted to the colonized place to create the Other (the ambivalent, hybridized or fragmented Filipino/Bicolano identity/culture). She uses the language as site of struggle. Take note of the words "Lola", an English term for grandmother or an old woman and "Basyon" which is a local tag for Salvacion, from a colonizer's name – Spain, the use of "tapis and kimona", native Bikol garment worn by women instead of skirt and blouse, the expression, "ay Dios ko!", or Oh, My God!, are used by Bobis to emphasize an spontaneous discourse of how a local Bikol reacts to a magnificent event. Likewise, the expression of gratitude, "salamat or maraming salamat", thank you or thank you very much in English is written in Bikol instead of the colonizer's language. These are only some of the Bikol/Filipino language, which Bobis appropriates for the use of English to fully articulate the local color and meaning of the text. Consider this narration:

"Hesusmaryahosep", the Filipina journalist muttered under her breath, a miracle! The mother and daughter, and the young man gasped as the immense creature came very close, while, at the other end of the room, the anthropologist stood riveted, all movement drawn in, pushed to the back of his eyes. A hundred white turtles somersaulted there." ... "Book ..." "Yes, book ..."

"Gusto niya raw bumili ng libro mo," a shrill voice from the audience interrupted the exchange.", ... "Marhay ta enjoy ka. Su kanta mo very good." The anthropologist offered her another glass of orange juice.", ... "Kumusta, I'm Betty Manahan, a Filipina journalist originally from Manila. Ang gall-ing mo talaga – great performance!" ... "Salamat ... thank you ..." Lola Basyon bowed once more.", "Salamat ... maraming salamat ... thank you very much." They saw the white turtle after all, thank God.¹⁰

Though the narration is a fusion of three languages – the Bikol dialect, Filipino language and English, Bobis has successfully delivers her intention to her readers to make them see the "white turtle". Nevertheless, Bobis use of Bikol/Filipino language reveals that English language could not fully serve to her needs and the local language can help her best illustrate the message of the text. This consciousness sums up Bobis's sensibility and her poetics as source of stories, and conduit. Bobis recounts:

In this story, the white turtle is a metaphor for the source of stories, creative energy and inspiration, as well as salvation. As such, the white turtle is a 'precious, holy thing', as I wrote in that story. In a way, this concept sums up my philosophy or, you might say, my poetics: the author is not the ultimate source of stories, but only their conduit. And these stories are either murmurings or explosions in the air, plot lines captured by the writer's ear then telegraphed to the heart, so that it can speak or sing. I liken the process of writing to the workings of a magic cable: the story travels fluidly from the ear, the heart or the artistic sensibility, then the voice¹¹.

Bobis further argues that the author is not the ultimate source of stories but only their conduit, part of the chain. All stories are already out there, either murmurings or explosions in the air, plotlines captured by the writer's ear then telegraphed to his/her heart, so that it can speak or

sing, “a magic cable which goes first to the ear then stimulated to the heart or to the artistic sensibility and then creates the voice.¹²” The white turtle called upon by the Bikol chanter through her poem/short story is a mythic story. Her [Lola Basyon] style of narrating her story rejects the dominant way of narrating stories. Lola Basyon establishes the Bikol way of relating stories. Likewise, Lola Basyon’s Filipino outfit rejects the colonizer’s assumption over the colonized, even she looks multicultural because of her Bikol outfits she still exudes the confidence. This assertion typifies also the transformation of the writer herself when she [Bobis] migrated in Australia for her post graduate education.

Bobis transplants her Bikol sensibility in her new home, Australia which is shaped by mythologies of her first culture but Bobis is also anxious how to be fully understood in one’s original tongue in a foreign land. This is the dilemma of the migrant writer like her Bikol character [Lola Basyon] on how she could be accepted in the foreign land with her own *Bikol sensibility* which is strange to them. Bobis writes, “the migrant writer has to work extremely hard to win this faith – of the publisher, the reading public, the critic, or the writer’s festival directors, so that they finally invite you (Bikol writer) to the party¹³.”

The epic chanter did not have a book, but she was invited to the party through the Australian anthropologist. The Bikol chanter did not quite fit in the context of the festival because she could be just another exotic anthropological display evoking the orientalist gaze or maybe the anthropologist thought that her guest could bring to the festival a re-valuing of the oral tradition. Though feeling a bit lost during her co-panelists’ book signing, the chanter summoned the white turtle into being because she wanted to tell everyone that her stories were not hers but were written on the turtle’s back. Take note of the following lines:

*“Ngunian na banggi ipangaturugan
taka ki pawikan ;
duyan sa saiyang likod
kasingputi kan tulang.
Ngunyan na banggi ipangaturugan
taka ki pawikan”.*

*“I’ll dream you a turtle tonight;
cradle on her back
bone-white
I’ll dream you a turtle tonight¹⁴”.*

This is the song of the Bikol epic chanter in the story. Bobis tries to point out two arguments. One, the act of dreaming, the evocation of myth and the particular sensibility shaped by the story and the other is the writer’s act of mythologizing. The poem or novel has only been lent to the reader in various forms like in a moment of music. Such a striking configuration has been noted by Bobis in her texts which for Ashcroft, Griffiths, and Tiffin bears a crucial implication:

The ‘intersection’ of language which occurs in the literatures of formerly oral societies does not take place simply between two different ways of conceiving the practice and substance of language. One characteristic of the world-views of oral culture is the assumption that words, uttered under appropriate circumstances, have the power to bring into being the events or states they stand for, to embody rather than represent reality. This conviction that the word can create its object leads to a sense that language possesses power over truth and reality¹⁵.

In this situation, the phenomenon of two languages and cultures intersecting gives rise to syncreticism that interpellates appropriation and abrogation of language and cultural transformation. This linguistic and cultural process is very evident in this mythical tale of Merlinda Bobis. Bhabha has also asserted that the subaltern people can speak and that a native voice can be recovered. His introduction of the ideas of mimicry and parody as both a strategy of colonial subjection through reform, regulation and discipline, which appropriates the Other, and the native’s inappropriate imitations of this discourse, which has the effect of menacing colonial authority suggests that the subaltern has, in fact, spoken, and that properly symptomatic readings of the colonialist text can and do recover a native voice.

White Turtle illustrates the themes of hybridity, ambivalence and displacement. It has opened a space of translation for social and cultural negotiation between the colonizers and colonized. Bobis uses the white turtle as a metaphor for the source of stories, creative energy, inspiration and salvation to give the once colonized subject (Lola Basyon) to narrate the stories stored at the back of the mythical reptile. The Bikol character’s presence in the writer’s festival signifies dis-

displacement not only of her identity but also of her culture and context. However, her displacement did not make her inferior because she managed to show her currency. The audience love her way of storytelling which is a new mode of political signification and even her multicultural outfit which reveals her Asian culture and heritage adds to the enriched identity of the colonized. The enriched identity is a domination of the colonized of her/his hybrid identity, not Self and Other but the otherness of Self which shaped the Bikolano sensibility, the ability of the colonized to be sensitive and conscious to her/his social and cultural negotiation.

The nurtured Bikolano sensibility in the colonizer's context makes the Bikol character face the Western audience to sing her story through the mythical reptile in her own way and later gains the confidence of the audience which defies the Orientalist stereotype that Western is superior and Eastern is inferior. Bobis's use of the Bikol language fused in the English language posits a new site of struggle which demonstrates that English language could not fully express the exact dimensions of what the colonized think and believe in. moreover, Bobis has freely abrogated and appropriated the literary genre and language of the colonizer through this text. Her story mixed with local color arrests the language of the Center and replaces it with a discourse adapted to the colonized place to create the Other, the hybrid and ambivalent Bikolano. Hence, the White Turtle testifies that shared histories, discrimination, exchange of values, meanings and priorities may be collaborative and dialogical to create a new political signification and at the same time opens a negotiation between the subjected identities of the stereotypes, the colonizer and colonized.

Text 2: Fish-Hair Woman

The "Fish-Hair Woman" is based from the story narrated by an Australian academic to Merlinda Bobis who did research on Philippine militarization. It is about a particular military operation during the time of former President Corazon Aquino in 1987 when the New People's Army, a leftist group, was purged by the Philippine government in a total war. The military operation was called Lambat Bitag: Net Trap. Bobis recalls:

"If you grow up in a culture where you read about mass graves, assassinations, massacres, etc., in the papers with such

regularity, the terms denoting violence float around you like the air you breathe – you don't give it a much thought. But it shapes your mythology, which in turn shapes your (Bikol) sensibility¹⁶."

The "Fish-Hair Woman" was expanded into a novel. This has turned out to be a mythopoetic narrative – about making of the myths. The "Fish-Hair Woman" talks about the life of the people in Iraya, where the government declares total war against the rebels. Iraya is thousand miles away from civilization. Estrella, who is figured by Irayans as an icon of salvation, courage and strength, is acknowledged the "Fish-Hair Woman" because she is entrusted by the Irayans the supreme task of salvaging the body of the dead people, victims of militarization, thrown into the river.

Two men – Sergeant Ramon, a military officer assigned in Iraya, and Tony Mac Intyre, an Australian researcher, vie for Estrella's love. Tony promises deliverance from the ordeal, while Ramon reminds Estrella of her mission to the Irayans and strongly coerces her to perform her duty.

Postcolonial Symptoms in Asserting Bikolano Sensibility

The "Fish-Hair Woman" has an affirmative note about the Bikol character. In this text, Estrella demonstrates dominance and leadership, a manifestation that woman may handle greater responsibilities like man; however, the text does not equalize man over woman but only shows the assumptions that woman is relative to man who can handle greater responsibilities. This is a hybrid characteristic which may come to a new gender-woman. It is hybrid in nature because it blends the characteristics of man to a woman that a woman may reveal new characteristic/identity different from the assumptions attached to female. Bhabha defines hybridity as the construction of a new political object which is neither the one nor the other. Hybridity alienates our political expectations, and changes, as it must the very forms of our recognition of the moment of politics." In this text, Estrella is in the position of negotiation, negotiating her hybrid identity as a woman, a woman different from the patriarchal assumption. Her identity being the icon of salvation and being a woman creates a new strong hybrid identity. Bobis only presents temporal position, to conceive the articulation of contradictory elements,

which according to Bhabha is an emergence of transcendent history that opens up hybrid sites and objectives of struggle, and destroy those negative polarities between knowledge and its objects, and between theory and practical political reason.

Considering also the character's stature and complexion, she is able to attract not only the villagers but also the Australian researcher which connotes that Bikol [Filipina women] are beautiful like the mestisa, señorita or latina. This argument reveals sense of superiority of the Bikol character because of her ambivalent characteristics over that assumption which posits that it is not only the white that is beautiful but also the colored ones. Take note of this dialogue:

"I am a Filipina, tiny and dark as a coconut husk, but what red fires glint on my head! ... "Fish with your hair, woman." Always that command which summed up my life. After the government declared its total war against the rebels, I realized the purpose of my being, why I had come to be such a freak of nature, why I was more hair than body, the span of it nearly thrice my whole frame¹⁹."

Bobis's character to define and exhibit her double otherness as Bikol, deconstructs both the male/female binaries but only to reveal the ambivalent and displaced characteristic of the Bikol character, Estrella.

Estrella is a strong and brave woman, being the shaman of the villagers, she manifests bravery and strength as she trawls dead bodies from the river but she also demonstrates weakness when she [fish-hair-woman] falls in love with the Australian researcher and surrenders herself to him. The fish-hair-woman shows that even how strong a woman could be, she would reveal her true self, the assumption attached to woman by the patriarchal order, being passive and submissive to the will of man because when Estrella falls in love with Tony, she never considers her own decision and just believes on the promises of her lover. This situation articulates that woman, though she has strong characteristics, still manifests weaknesses. Thus the night before Tony leaves Iraya, Estrella surrenders herself to Tony believing that her love over the Australian researcher would release her from her task as icon of courage and salvation.

In this writing, Estrella always wants to desperately save the dead with her hair, to net them back to dry land for a decent burial. Bobis, in turn, wants to save the stories of the dead, to net them back into the consciousness and to memorialize them. Then the fish-hair woman's vocation is a netting of salvation not to trap but to help free the psyche, to bury a body, in order to find a conclusion. Bobis uses this mythical character in her negotiation in relating to Bobis's new home though she loves her new home but life in the original cultural heritage is more sentimental than the other. Bobis writes:

The myth of the Fish-Hair Woman is an old-current story. Old, because she evokes the time of larger than life heroes with magical powers. But this seemingly 'ancient' figure is only a vehicle for something ever present, never been outdated: the quest for salvation. Very close to purgation and of course, rebirth. A pattern of the psyche, again to refer to Joseph Campbell, my collective pattern. But for a while, fleshed out within my context, thus becoming a woman with twelve-meter hair. I could say I dreamt her up – or did she dream me up, so I could dream her? Were just trading time and context: her ancient world to my 21st century? Whatever happened, she is now a memorial with my own cultural patina – politics, aesthetics and all. Now transplanted into a new soil, Australia. How will she fare here? Will she have enough currency in this new trading ground with its own mythology and sensibility?²⁰

The Fish-Hair Woman articulates a partial escape from colonialism. The Fish-Hair Woman is reminiscent of the powerful female shaman, baylan or catalonan of the pre-hispanic Tagalog and Visayan speaking areas of the Philippines. For the baylan, long hair is an essential component of propitiating rituals. In Bobis's tale, the fish-hair woman uses her long twelve-meter hair to trawl dead bodies from the river and at the same time cleanses the river by trawling corpses from its depths with her powerful tresses. This story however could not silence colonial existence for it reveals the influence of Hispanic colonialism which is found in whispers of martyrdom and resurrection that trace across the pages. Nevertheless, the "Fish-Hair Woman" rejects the assumptions of the colonizers of their superiority over the

colonized when Bobis uses Estrella, the Bikol character to reveal an affirmative note about the identity of a woman, being an icon of salvation and courage. These characteristics are noted to men and now attached to the female Bikol character. However, the text does not equalize man over woman but only deconstructs the assumptions that woman is inferior to man, hence deconstructing the yoke of patriarchy. The character of Estrella emphasizes the reality confronting us in our country, that, we [colonized] could not just choose because there are no choices unlike in Tony's [colonizer] country, there are choices thus Estrella was tied to the responsibility accorded her by the villagers. Her dialogical discursive identity manifests what Bhabha calls a "negotiation of terms in the on-going present of the enunciation of the political statement." Her identification is fragmented that despite her desire to wrest herself from the duty binding her to her culture, she is torn between her love for Tony and his promise of redemption and the very redemption of her own people through her devotion in performing her duty as fish-hair woman.

The assignment provided by Bobis to Estrella is similar to the *diwatas* and *enkantadas* in our Bikol culture that deities are not only male but there are female deities, which further argues that gods are either men and women, thereby defying the Western ideology that there is one true God as proffered by the colonizers' culture represented by the Christian faith handed down to us by both Spanish and American colonizers.

Bhabha further argues that the strategic image of identity in the margin of otherness which displays identification always intensifies the edge of identification of the Other, which reveals that identity are aggressively twinned. The colonized character may negate or just simply accept the situation because denial is always a retroactive process, a half acknowledgement of that otherness may leave a traumatic mark. Estrella's character in the "Fish-Hair-Woman" does this as she demonstrates that the point of intervention should shift from the ready recognition of images as posi-

tive or negative, to an understanding of the processes of subjectification made possible and plausible through stereotype discourse. Estrella eventually succumbs to the call of duty as Fish-Hair woman despite her love for Tony as Ramon, in an act at the height of mockery and injustice, forces her to go to the river for her ultimate act of sacrifice.

Bobis has also twinned the identity of the Bikol character and the Australian journalist. Estrella, an icon of courage and salvation asserts the dominant subjectification of a man; however, despite her strength, she also manifests inferiority, the submissive characteristics of a woman when she falls in love with Tony, the Australian journalist. Here, the Bikol character unleashes her mask of strength and recalls the inferior subjectification of the dominant culture over women. Moreover, the superior identity of the Australian researcher-journalist was tainted by the effeminate tag *sissy*. It transforms the superior mark of the "white" into inferior one. Take note of the following narration:

"... Sissy Australian – bakla!" Ramon spat at Tony's back. Back. My back, most loved.", ... "He wasn't that good after all –" Ramon paused, slowing his words for effect. "Your pale sissy did not even know how to fight – like a man²²."

The colonized Bikol character side by side with the colonizer (Australian journalist) created hybridized images which both the colonizer and the colonized form part of his/her Self identity and vice versa. This text has exposed Western essentialist claims to the purity and supremacy of their own culture over Oriental culture and articulated the supremacy of the colonized over the colonizer. Through these images of identification, which Bhabha calls "dissembling" images or images of "doubling", the colonized subject has succeeded in occupying the privileged place of the colonizer, and yet has retained his own "avenging" place. This process, according to Bhabha, is situation of continuous embedding, in which it is impossible to find its origin²³.

Fish-Hair Woman shows the recurrent themes of hybridity, ambivalence and displacement. The Bikol character's hybrid identity being the icon of salvation exhibits a position of displaced political position, manifests the dominant patriarch order and is able to define her double otherness deconstructing the male/female binaries and creating a hybrid and ambivalent character. The same characteristics of the fish-hair woman articulate a partial escape from colonialism, from being a submissive and passive individual to a figure reminiscent of the powerful female shaman, baylan or catalonan of the pre-hispanic culture. This mythical character signifies that the Bikolano before colonization has already an established sensibility that shows Bikolano superiority equal to the first Catholic priest and educators of the country during the Hispanic revolution. The fish-hair woman is an icon that rejects the assumptions of the colonizers of their superiority over the colonized particularly when the Bikol character has aggressively emphasized the deconstruction of the imperial assumption that woman is inferior to man. Moreover, the same mythical character defies the Western ideology that there is one true God, as proffered by the colonizer's culture represented by the Christian faith handed down by both Spaniards and Americans, and reveals an open ended construct which both the colonized and colonizer are in continuous negotiation.

Finally, this text has exposed Western essentialist claim to the purity and supremacy of their own culture over Oriental culture when Bobis uses the female Bikol character to deconstruct the patriarch culture and combines Bikol chants and expressions in her text to articulate that English language could not fully serve the needs of the colonized culture.

The themes in Bobis's texts are so closely interwoven because each text posits parallel post-colonial symptoms from hybridity, ambivalence to displacement of characters and assertion of Bikolano sensibility. Each story articulates the hybrid nature of Bikol characters, which are not pulled apart but singing new songs, a new creation from/within the border. Bobis's characters like the local seer and fruit stall vendor prove their currency in the colonial context, the local chanter uses her multicultural characteristics in cultural negotiation, while the fruit seller uses her hybrid and ambivalent identity to mask her native mark. On the other hand, the Filipino/Bikol cook in the story "An Earnest Parable" considers each

migrant in the Bessel Street a member of the family. This is a notion of hybridity, which liberates the union of things that have been artificially separated and the Bikol migrant experience is one. The Bikol characters' displacement, by geographic separation, culture or identity speaks nourishment of their hybridity in a foreign land or man's dominated culture as a totally fragmented Self, no longer pure but already an enriched hybrid.

Considering Bhabha's notion on ambivalence, hybridity and displacement, Bobis's characters establish the Bikolano sensibility in the colonized context on how to get along with the Westerns and adapt to the new environment/culture and yet retain their local culture. Each time this encounter between Self and Other occurs at the point at which something exceeds the frame of the image (as in the case of the stories analyzed in this chapter), it evacuates the Self as the site of identity and autonomy and leaves a mark of the subject, a sign of cultural identity, the Bikolano sensibility. This becomes the moment in which the demand for identification takes the form of a response to other questions of signification and desire, culture, and politics. Bobis's use of Bikol/Filipino language in her texts asserts this question of signification which speaks against the superiority of the Westerns (colonizers) over the Third World countries (colonized).

The ten selected short stories appropriated language to "bear the burden" of the colonial experience showing that the colonized subject has altered the prevailing paradigmatic norms of standard English and has proven what Bhabha calls the "supplementarity and hybridity of cultural translation and linguistic filiation." Bobis has also summoned the absent colonizer in the presence of the colonized Bikol characters through metaphoric and metonymic images such as "*white turtle*", to signify the dreams of the dead children and an alternative way of retelling stories, "*fish-hair woman*", for an icon of salvation and courage, "*border lover*", for the Bikol character who has learned Western education and culture and yet retains her native identity, "*fruit seller*", for the Bikol character who covers her Asian identity to live in a colonizer's country, "*Mac Do*", the colonizer's burger fastfood chains, "*Manolito*", a Bikol character who once wished to become the American Peace Corps volunteer to win his desire over a canvass, "*flying cross*", which describes the futility of the natives on technology and being boxed to fanatic belief, "*Padre Biya*", a Bikol character who has an education of

the colonizer but serve in the province, “*Iraya*”, local term for province, “*Lola Basyon*”, tag name for local grandmother or elder, “*cowboy*”, which signifies colonizer or imperial culture, “*oriole*”, a multicultural local bird and may refer to beauty and sensibility of Bikolanos, “*Estrella*”, a local name for stars, “*Tony McIntyre*”, which refers to dual identities of the West, being the colonizer and an inferior character, “*banana heart*”, which connotes local culture and practices, “*stove*”, which stands for submissiveness of the colonized to dominant culture, “*feminism*”, a voice for inferiors (colonized) to speak for their sensibility and break their bondage from being inferior/weak, “*Mr Shoji X*”, which symbolizes the Japanese colonizers, “*Che-che*”, who typifies the exploited colonized character, “*Manay and Rosa*”, who symbolize the intelligent Bikolano and yet typify scarcity, “*Mac Lisa*”, a Bikol character who manifests colonial actions, “*Coke*” and *hamburgers*” signify cultural colonization and indoctrination, “*Pina*”, who symbolizes the wit and intelligence of young Bikolanos. Bobis has lots of local words and poems fused in her texts to serve her purpose of illustrating Bikolano sensibility and colonial configurations.

In consonance with Bhabha’s assertion on identification that is never a priori, nor a finished product but only a site for ambivalence, it follows that a figure of contiguity that substitutes a part for a whole must not be read as form of simple substitution or equivalence but as a double movement that follows what Derrida calls the logic or play of the ‘supplement’. Here, Bhabha stresses that the identity articulated by the colonized subject is not the single, coherent, and pure white-ideal ego proffered by the colonizer. Rather, the identity of the colonized subject articulated by the texts shows fragmentation, hybridity, multiplicity, and contradictions. And conversely, the identity of the colonizer himself is not coherent, pure, authentic, supreme Self from what he claims to be in Western discourse, but an ambivalent and fragmented identity characterized by hybridity, multiplicity, and contradictions.

The preceding texts, therefore, in abrogating and appropriating Western discursive practices and in representing and addressing the colonizer through Western images with which the Bikol character likewise identifies, interrogate not merely an image of the colonial past but the power relations that enabled the discursive and disciplinary place from which questions of Bikolano sensibility may be strategically and institutionally posed.

Bobis’s texts attempt to locate the postcolonial subject in the hybrid gap, within the play of the subaltern instance of writing. She articulates the cultural difference as an enunciative category which opposes the notion of cultural purity and supremacy and posits cultural difference and hybridity. These postcolonial symptoms are well articulated in her texts like the “white turtle” as metaphor for the source of the stories, creative energy, inspiration and salvation and “Estrella – the fish hair woman” mirrors a strong woman, being the shaman of the village manifests bravery and strength compared to man, as she trawls dead bodies from the river. The grandmother in the story “Border Lover” typifies a strong interpellation of the stereotype being submissive and boxed inside the household chores while her grandchild who finished her doctoral studies in Australia brags to her the Western cultures, which shows that both characters are in the border of either the one or the other, that both characters posit identity which has traces of colonialism which they try to eliminate and yet present in their sensibilities. Because no matter how Bobis tries to efface this cultural configuration, it evolves in her texts and no matter how she injects indigenous identity, what appears is a fragmented identity.

Bobis’s abrogation and appropriation of language to suit the needs of the situation shows that Bobis exercises a certain power that she has an access to various possibilities of using, developing and expanding the language. This further proves that English can never fully articulate the writer’s sensibility, thus the Western notion of superiority of Received Standard English could be negated. Moreover, in the story “Mac Do” Mac Lisa’s mastery of the language and the act of mimicry of Bikol siblings, “*manay*” and “*Rosa*” signifies the assertion of equality of the colonized with the colonizer in the use of the language.

The almost kissing by Manolito to the portrait recalls the act made by the volunteer American Peace Corps to Asuncion which articulates a dual signification, in which Derrida says a “double scene on a double stage” that the repetition of this act evokes and effaces an Orientalist stereotype. The use of the “flying cross” in the story “Pina and the Flying Cross” summons the colonizer through various metaphoric and metonymic signs. In the story “Before the Moon Rises” tells of militarization done through “hamletting”, a practice popularized by American troops during the Vietnam War. Through the use of metaphor and metonymy, the force of cultural

cultural difference is articulated; a force which, in itself, is a “violation of signifying limit of space, since it permits on the very level of discourse, a counter division of objects, usages and meanings.”

Indeed, Bhabha’s postcolonial framework reveals the notion of Bikolano sensibility asserted in Bobis’s text which articulates the different symptoms: hybridity, ambivalence and displacement. These postcolonial symptoms erase any essentialist claims for the inherent authenticity or purity or supremacy of cultures because one is enabled by the other. Bobis’s texts, in espousing this concept of Bikolano sensibility have succeeded in liberating the postcolonial subject from cultural hegemony.

CONCLUSION

1. What postcolonial themes emerged in Bobis’s texts?

The themes of *hybridity*, *ambivalence* and *displacement* are so closely interwoven because each text foregrounds similar postcolonial symptoms, like the sensibility of the local seer, fruit stall vendor, Bikol scholar, fish-hair woman and other characters identified in this collection. These characters prove their currency in the colonial context, as in the case of the local chanter who uses her Bikol tongue and multicultural characteristics in her cultural negotiation, while the fruit seller uses her hybrid and ambivalent identity to mask her native mark, and the fish-hair woman deconstructs her identity to portray a patriarchal order.

The Bikol characters’ *displacement*, by geographic separation, culture or identity speak nourishment of their *hybridity* in a foreign land or man’s dominated culture as the totally fragmented Self, which must not be read as a revelation of some suppressed truth of the postcolonial subject, who looks no different from the metropolitan intellectual with the *ambivalence* of his/her desire for the Other. Bhabha’s concept on *ambivalence*, *hybridity* and *displacement* is manifested in the sensibilities of the Bikolanos in getting along with the Westerns and adapting to new environment/culture and yet retaining the local culture. Each time this encounter between Self and Other occurs at the point at which something exceeds the frame of the image (as in the case of the stories analyzed in this research), it evacuates the Self as the site of identity and autonomy and leaves a mark of the

subject, a sign of a local identity - the Bikolano sensibility. This becomes the moment in which the demand for identification takes the form of a response to other questions of signification and desire, culture, and politics. Bobis’s use of Bikol/Filipino language in her texts asserts this question of subjected signification to speak against the superiority of the Westerns (colonizers) over the Third World countries (colonized).

In the ten selected short stories studied, Merlinda Bobis has attempted to liberate her Bikol characters from the subjectivity addressed to stereotype. She has also exposed the conditions of Bikol characters in the Western culture by showing in her narratives the many instances of abuse that have caused the suffering and marginalizing of Bikol characters, such as: *displacement*, *alienation*, *marginalization*, *discriminating situations of women*; for example, the way women are treated as sex objects, victimized into prostitution and overburdened with housework. This marginalization was not only caused by the imperial culture but also by the superiority demonstrated by city people over rural folk. However, Bobis has demonstrated superiority of the Bikol characters in their negotiation against imperial culture through *abrogation and appropriation of the language*. Moreover, the concurrent presence of the submission and resistance to different cultures creates a fusion of unique cultural *hybridity*, *ambivalence* and *displacement*, or what Bobis calls a “negotiation between cultures”.

This social and cultural negotiation uncovered a unique *hybrid culture* which opposes and at the same time supports the dominance of neo-colonialism and patriarchy, treading on the boundary between domination and resistance, a cultural identity which altered both subjected stereotypes (colonizer and colonized), dominant over marginalized culture because of the effect of transference. This is what Bobis has demonstrated in her texts negotiating in the border between the colonizer and colonized. The negotiation is mediated through the use of Bikolano language which Bobis herself has articulated in her negotiation with her new home, is also seen through the process of “refusal, rejection and radical questioning of the categories of the imperial culture, it’s aesthetic, it’s illusory standard of normative or correct usage and its assumption of a traditional and fixed meaning inscribed in words.” This rejection of the power of the imperial center incorporates the colonial elements with the existing postcolonial culture in order to come to terms with the post-

colonial reality. Nevertheless, *Bobis has appropriated, reconstructed, and remolded the English language to new usages as an expression of a renewed sense of Bikolano identity and self-value.*

2. How do these themes reveal configurations of cultural domination?

In contemplating and judging Merlinda Bobis works, readers are tempted to turn from the examination of her short stories mark with local color (Bikol language and myth) and the author herself as a representation of postcolonial literature and of an Asian as a whole. With the use of Bobis's *abrogation and appropriation of language*, it fulfilled the needs of the meaning of the text to which the English language could not respond or justify the criteria used by the dominant culture in understanding the colonized/subaltern literature.

The *English language*, or the so called colonized language becomes a site of struggle because it summons the absent colonizer and at the same time rejected the assumptions of traditional and fixed meaning of the subjected stereotypes, and finally asserts that regional and national literature written in various postcolonial Englishes which have questioned the claim of English to assume the dominant status of a standard code – the language of the erstwhile center.

The Bikol experience in every story traces a historical fact that Philippines is once then a colonized country that has gained independence after the three colonizers freed the Philippines from their bondage but even though colonization has already passed, the colonizer's culture comes out in the colonized subject's identity and culture.

The ten selected short stories in Bobis's *White Turtle* demonstrate how the experience of colonization had shaped the Bikolano consciousness and ideology - the *Bikolano sensibility*. The Bikolano sensibility is a currency of the Bikol character in his/her social and cultural negotiation between cultures. Bobis has *abrogated and appropriated the English language* by fusing the Bikol/Filipino language and asserted that English language could not fully appropriate the colonized meaning and language. This notion articulates the Bikol tongue/language to demonstrate the life and culture of the colonized and reveal the currency of stereotype which alters the subjective signification of the imperial culture that the colonized are inferior and the colonizers are superior. The *Bikolano sensibility* is the avenging power to show

that the colonized appear superior over the colonizer, for without the colonized, the superiority of the colonizer will be silenced by the absence of the colonized.

The conditioning that occurred in the process of colonization makes the Bikol characters speak of the power and authority of the colonizers on one hand and the colonizer on the other hand, speak the *sensibility* of the colonized, because during the colonization, the *transference of culture* takes place and creates a *border*, a border between the colonized and colonizer, that in the long run, one could not anymore speak of *pure identity/culture* because both are already *hybrid* in nature.

3. What sensibility is revealed in Bobis's texts?

Through the short stories of Merlinda C. Bobis, this paper was able to prove successfully that there is a *Bikolano sensibility* that exists beyond the stereotypes created from the fusion of the colonizers and colonized's identity and culture - a *hybrid and ambivalent identity and culture*. This is an identity that cannot be neatly defined, but the border that created the emergent hybrid culture and identity transcends this definition. The Filipino is not just brown-skinned, but may also be fair skinned. Filipinos do not only do the honest job of housekeeping, but they are also poets, writers, entrepreneurs, political leaders and the like which are also evident among the superior stereotypes. This is a *sensibility* that is continually being re-discovered by the colonized themselves, who have assimilated mentally even during and after the propagation of superiority of the colonizers.

The *fusion* of Bikol/Filipino language in Bobis's stories abrogating and appropriating the English language has enabled the colonized subject to alter the English (colonizer's language) to English (colonized language). This abrogation and appropriation of language resulted in a *hybrid identity*, which characterizes a dual signification, the superiority and inferiority of both the colonizer and colonized who are both spoken with of might and weaknesses. This is what Bhabha calls the "supplementarity and hybridity of translation and linguistic filiation". When Bobis summons the absent colonizer in the presence of the speaking subject through metaphoric and metonymic images such as "Mac Do", "Fish-Hair Woman", "Border Lover", "Flying Cross", and the like, while at the same time identifying with them as his/her own, the colonized subject has defined his/

while at the same time identifying with them as his/her own, the colonized subject has defined his/her own identity and that of the colonizer. This is the Bikolano sensibility which Bobis's texts have posited, that the colonized subject has succeeded in occupying the privileged place of the colonizer. Having an *ambivalent and hybrid self*, the colonized has an origin which is difficult to trace back, which in Bhabha's argument, the subject cannot claim a single point of origin and cannot speak of its Self without reference to its Other.

Bobis's texts therefore, agree that both the *colonizer and colonized subject* do not possess a single, coherent and pure identity but an emergent, fragmented and hybridized identity. This signification created certain equality between the colonized and the colonizer, and a commonality of identities which effaces the stereotype subjectification of the colonized and colonizer.

4. How does this sensibility reject the assumptions of the colonizers about Western culture and the colonized cultures?

Bobis has tried to efface the experience of colonization, but it naturally comes out from her texts, which reveals configurations of cultural domination. Through the content thematic, symptomatic reading, and deconstruction, the researcher has unearthed the Bikolano sensibility found in the ten selected short stories of *White Turtle*. Bobis's texts has appropriated the Bikolano sensibility by displacing the traditional and fixed meaning to the subjected colonized and colonizer, and through her Bikol characters, created a border which fused the two emergent cultures. Here, the issue of *hybridity, ambivalence and displacements* are particularly evident in Bobis's *White Turtle* short story collection because her themes resurface in different guises throughout her texts. Her use of *magical metaphor and her discourse*: abrogation and appropriation of language made her writing unique from any other contemporary writers. Bobis's language rejected the assumptions that Western language reveals concepts of truth, power and reality; however, within fusion of Bikol/Filipino language, she has been able to present emotion, and meaning which the English language alone cannot perpetuate. Bobis *appropriated the language and writings for new distinctive usages*. Her displacement due to her migration to Australia presented an effective identifying relationship between self and place, identity and culture, linguistics and language.

Moreover, in the short story studied,

Merlinda Bobis has attempted to *free her Bikol characters* especially the women characters from the yoke of patriarchy and colonization. Bobis has exposed the conditions of her Bikol characters in the liberating symbolic order, the Bikolano sensibility. This Bikolano sensibility speaks out from behind the veil of silence to create a border in which both the colonizer and colonized develop a union of an emergent hybrid identity and culture. Bobis's short stories have raised our consciousness to reclaim and liberate our stereotype identity subjected by the colonizers. Bobis's texts has documented a *hybrid approach* of interpellation from the conventional concept of articulation like that of tracing the influence of the writer to his/her texts that somehow the writer has an unconscious contribution of his/her life to the textuality of the text - a space of intervention which may establish a hybrid culture or the Other. This *hybridity* demonstrates a notion which is not an identification of binary oppositions, but rather, going beyond it by decentering the center through a fusion of cultures. This *hybrid culture* is neither the dominant nor the emergent opposition to it. It belongs to the boundary between the two. Minh-Ha argues that "the hybrid culture/individual who stands in that undetermined threshold where he/she constantly drifts in and out, which at the same time undercuts the inside/outside opposition, his/her intervention is necessarily that of both a deceptive outsider whether he/she turns the inside out or the outside in." This *hybrid culture/individual* is, like the two sides of a coin, the same impure, both in one, the insider/outsider.

RECOMMENDATIONS

With the foregoing conclusions, this study *recommends* further studies on the other works of Merlinda C. Bobis to demonstrate another territory of translation and testimony of analytical argument or framework such as:

a) works of other Bikolano writers to further validate the Bikolano sensibility;

b) other Filipino writers rejecting the assumptions of the colonizers about Western culture and the colonized cultures;

c) works of other Filipino authors belonging to other regions or cultural communities which interpellate Eurocentricism, and;

d) other writing style to unveil more com-

complex colonial configurations in the Philippine context.

Finally, this researcher hopes that this paper may open up a series of literary studies to other perspective and multidisciplinary approaches that will further establish the *Third World* claim regarding the subaltern identity subjected to us by the imperial culture especially on the identification of *Bikolano/Filipino sensibility* in Philippine fiction in English of other Bikol/regional writers, and may contribute to a fuller understanding of the different questions posed by postcolonial literature and criticism.

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