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MULTIDISCIPLINARY RESEARCH JOURNAL
CENTRAL PHILIPPINE UNIVERSITY

Patubas is an Ilonggo word for "product" or "fruit". It is a fitting description for this multi disciplinary research journal which is indeed, a product or fruit of our labors as researchers or the "seekers" of truth in its varied dimensions.

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MULTIDISCIPLINARY RESEARCH JOURNAL
CENTRAL PHILIPPINE UNIVERSITY
ILOILO CITY, PHILIPPINES

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Preface

The possession of knowledge does not kill the sense of wonder and mystery. There is always more mystery.
Anais Nin

The learning and knowledge that we have, is at the most, but little compared with that of which we are ignorant.
Plato

The word *"Patubas"* means "harvest" and as a Research Journal is now in its fourth year. Lately, the Journal was given an ISSN registration by the National Library of the Philippines. A harvest in order to be worth the efforts and finances invested on it, must be ample and relevant. Every year there is a good yield of research projects. Of course, there is always room for improvement in the research program of the university. More faculty members have to be encouraged to carry out research. More study outputs should be utilized for instruction and outreach. It sometimes happens that one man has all the toil, and another all the profit. However, most often both the active and the inactive parties can be beneficiaries of a noble endeavor. This should be the case in research.

Research is a major function of a university that faculty members are expected to be occupied with. With appropriate emphasis laid on the importance of research, a number of teachers get involved in this learning pursuit. But due to some factors, a great number of faculty members are still not into research in spite of the improved incentives given by the university.

The 4th issue of the *Patubas*: Multidisciplinary Research Journal of Central Philippine University features eight articles. They are the completed researches by faculty members from six

academic units. What we do with the research results is another task which is to be given due attention. Otherwise, the research outputs will be placed in a dormant state without being tapped for other related educational purposes.

We acknowledge the contributors to this issue for engaging in studies which are worth publishing. We also commend Dr. Randy Anthony V. Pabulayan, Director of Research and Publication, and the Research and Publication Committee members for their efforts to make the university research program further gain momentum.

Dr. Nathaniel M. Fabula
VP for Academic Affairs

THE EFFECT OF VARYING LEVELS OF SALT AND SUGAR MIXED WITH LITTER MATERIALS ON THE GROWTH PERFORMANCE OF COBB-VANTRESS BROILERS AND ON THE REDUCTION OF ODOR AND FLY INFESTATION

By Jaime C. Cabarles Jr.

ABSTRACT

This study was conducted to determine the effect of different levels of salt and sugar mixed with litter materials on the growth of broilers and on the reduction of odor and fly infestation. Treatments were laid out in a randomized complete block design (RCBD) replicated thrice. Determination of the presence of odor and flies was done by a panel of evaluators two weeks after the birds were introduced in the pen and two days before the study was terminated. Results showed that there was no significant difference (P>0.05) on the feed consumption, liveweight gain, dressing percentage, feed efficiency and water consumption of broilers on different levels of salt and sugar mixed with sawdust. The treatment with sawdust had the lowest (P<0.05) organic and moisture content but had the highest mineral matter in their feces. Furthermore, treatments with litter had no odor to undistinguishable odor with zero to less than 10 flies present as detected by the majority of the evaluators on both periods of evaluation. Most of the evaluators reported that pens without litter had recognizable to very distinct and annoying odor with significant number of flies present. Relatively, the use of pure sawdust gave a higher profit of P74.97 attributed to the production of potting materials out of the litter.

INTRODUCTION

Background and Rationale

Odor and fly infestation are the common problems in livestock industry today. Urban folks could not raise livestock in their yard because of the odor that is most likely to be emitted by the animal manure. This foul odor may create nuisance among nearby houses and trigger a malady, which maybe harmful to human health. Aside from these, the presence of flies may worsen the situation, for flies serve as carriers of various pathogens.

Studies had been conducted to solve the phenomenal problem that affects not only the local animal industry but also those in other countries that produce animals. As a result, many alternative technologies had been developed to reduce odors. Some technologies need a lot of investment while others require small investment but are labor intensive. One of these is the use of enzymes (Badi Farm, 2003; Natures Novel, 2002) which are now available in the market but are expensive.

Usage of sawdust or wood shavings as litter materials had been found to reduce odor in buildings (Bliss Haven, 2003; Badi Farm, 2003; Jacobson, Schmidt, Nicolae, Bicudo, 1998). These materials are readily available in any of the lumberyards in the city. Sawdust used as cover to poultry composting (carcasses of dead poults piled in a compost pit) effectively minimizes the odor and fly infestation (Carr, et al., 1998). Considered as the most popular broiler litter materials are the sawdust and pine shavings used to reduce odor emitted by birds during the production period (Brake, et al., 2001 & Bliss Haven, 2003).

Sawdust have an aromatic compound that absorbs ammonia present in the fecal matter (Badi Farm, 2003). The sodium and chloride present in salt at the right amount serves as bactericidal agent in the litter materials. However, the salinity brought about by salt decreases the usefulness of decomposed litter materials when used as organic fertilizer for plants. It is of general knowledge that salt increases salinity, which in high amount is harmful to growing plants.

Molasses as by-product of sugar has been also found to increase palatability of feeds; therefore, there is a possibility that broilers will eat some of their litter if it has been mixed with sugar. So far, no study had been conducted that deals with different proportions of salt and sugar in the litter material, therefore, there is a need to conduct this study.

Objectives of the Study

Generally, the objective of this study was to determine the effect of salt and sugar mixed in the litter materials on the growth performance of broilers and in controlling odor and fly infestation. Specifically, it aimed to answer the following questions:

1. What is the influence of different levels of salt and sugar on the feed consumption, feed efficiency, water intake, liveweight gain, dressing percentage and financial returns of experimental birds?
2. What are the effects of the different levels of salt and sugar in litter materials on the moisture, organic matter and mineral contents?
3. Will the mixture of salt and sugar in the litter materials effectively control odor emission and fly count?
4. Which of the two litter materials will effectively control odor, sawdust alone or sawdust added with salt and sugar?

Significance of the Study

The results of this study may give raisers and other individuals the idea of various alternative litter materials to effectively control odor emission and lessen fly infestation. The output of the study may also be used as basis for future studies to further understand the importance of sanitation and proper care of our environment without prejudice to our livelihood. For students, the results may serve as reference for their researches and studies in their respective fields.

METHODOLOGY

Research Treatments and Design

The CPU College of Agriculture Poultry Project Grower House was utilized as site during the conduct of this study from December 24, 2003 to January 25, 2004. Three days before the experiment proper, the whole premises was disinfected with Lysol.

Each pen was divided into seven compartments with an area of 6 sq ft. Electrical devices were installed to ensure that enough light and heat were provided during the brooding period.

Litter materials were mixed correspondingly based on the prescribed treatments. A mixture of sawdust and sand was used as litter materials. Varying levels of salt mixed with brown sugar were added to the litter materials as the experimental treatments of this study.

The mixture of the litter materials was comprised of 91% sawdust, 8.97% sand, and 0.30% experimental treatments (salt and molasses mixture) of total litter weight per treatment (Korea Nature Farming System, 2001). The varying levels of salt mixed with molasses were as follows: 100% salt; 75% salt with 25% sugar; 50% salt with 50% sugar; 25% salt with 75% sugar; and 100% sugar. Birds raised in pure sawdust and birds raised on slatted floor served as control.

About one-foot thick litter materials were spread on the designated compartments prior to the introduction of broiler chicks.

These treatments were arranged in a randomized complete block design (RCBD). The seven experimental treatments were replicated thrice.

Care and Management

Chicks were placed directly in the experimental pens upon their delivery. Two days later, NCD vaccine was administered to prevent the occurrence of new castle disease (NCD) in the flock. For the first two weeks, they were fed with chick booster mash after which, they were fed with broiler starter crumble until the termination of the study.

In the morning, the waterers were filled with clean water. Intermittently, water-soluble vitamins were mixed in their drinking water. Feeding was done daily; one in the morning and another at 3 o'clock in the afternoon.

Data Analysis and Presentation

All the data gathered except those on odor emission and fly count were analyzed using the analysis of variance for a randomized complete block design (RCBD). Significant differences among treatments were analyzed using the Duncan's multiple range test (DMRT). Data on odor emission and fly count were analyzed using the frequency and percentage for nominal value.

MAJOR FINDINGS

Growth Performance

Results showed that different levels of salt and sugar mixed in the litter materials have no significant (P>0.05) effect in the feed consumption (Table 1), liveweight gain (Table 2), dressing percentage (Table 3), feed efficiency (Table 4), and water consumption (Table 5) of broilers. The birds from the different treatments consumed 2.501 to

2.828 kg of feeds for the whole duration of the study, had a liveweight gain that ranges from 1.730 to 1.854 kg and had a dressing percentage of 81.83% to 89.64%. The birds required 1.481 to 1.803 kg of feeds to produce a kilogram of meat and can drink from 6.000 to 8.663 liters of water in 32 days of rearing.

Table 1. Feed Consumption per Bird

Treatment	Replication			Treatment Mean
	I	II	III	
	----------------------------kg----------------------			
100 % Salt	2.408	2.564	2.585	2.519 [ns]
75% Salt & 25% Sugar	2.294	2.591	2.618	2.501
50% Salt & 50% Sugar	2.245	2.790	2.706	2.580
25% Salt & 75% Sugar	2.585	2.516	2.625	2.575
100% Sugar	3.263	2.703	2.518	2.828
Purely Sawdust	3.060	2.688	2.650	2.799
W/out Litter	2.789	2.820	2.820	2.810

cv = 5.85%
[ns] not significant at the 5% level of probability

Table 2. Liveweight Gain per Bird

Treatment	Replication			Treatment Mean
	I	II	III	
	------------------------ in kg-----------------			
100 % Salt	1.694	1.748	1.764	1.735 [ns]
75% Salt & 25% Sugar	1.714	1.780	1.696	1.730
50% Salt & 50% Sugar	1.550	1.848	1.890	1.763
25% Salt & 75% Sugar	1.852	1.664	1.740	1.752
100% Sugar	1.795	1.858	1.908	1.854
Purely Sawdust	1.681	1.902	1.835	1.806
W/out Litter	1.815	1.780	1.670	1.755

cv = 5.60%
[ns] not significant at the 5% level of probability

Table 3. Dressing Percentage per Bird

Treatment	Replication			Treatment Mean
	I	II	III	
	------------------------ % --------------------			
100 % Salt	86.11	85.71	97.10	89.64 [ns]
75% Salt & 25% Sugar	87.62	87.32	85.51	86.82
50% Salt & 50% Sugar	85.94	88.61	83.15	85.90
25% Salt & 75% Sugar	89.47	87.88	84.93	87.43
100% Sugar	83.56	85.00	76.92	81.83
Purely Sawdust	89.32	86.08	80.26	85.22
W/out Litter	85.33	90.04	92.86	89.41

cv = 4.86%
[ns] not significant at the 5% level of probability

Table 4. Feed Efficiency per Bird

Treatment	Replication			Treatment Mean
	I	II	III	
100 % Salt	1.554	1.709	1.543	1.602 [ns]
75% Salt & 25% Sugar	0.997	1.672	1.775	1.481
50% Salt & 50% Sugar	1.633	1.594	1.463	1.563
25% Salt & 75% Sugar	1.521	1.735	1.694	1.650
100% Sugar	2.140	1.590	1.679	1.803
Purely Sawdust	1.380	1.581	1.738	1.566
W/out Litter	1.743	1.790	1.735	1.756

cv = 13.84%
[ns] not significant at the 5% level of probability

Table 5. Water Consumption per Bird

Treatment	Replication			Treatment Mean
	I	II	III	
	----------------- in li-----------------			
100 % Salt	5.955	6.525	6.562	6.347 [ns]
75% Salt & 25% Sugar	7.493	6.991	11.505	8.663
50% Salt & 50% Sugar	5.713	6.682	6.419	6.271
25% Salt & 75% Sugar	6.544	6.299	6.320	6.388
100% Sugar	8.845	6.706	6.699	7.417
Purely Sawdust	8.777	6.606	6.835	7.406
W/out Litter	6.360	5.550	6.090	6.000

cv = 17.24%
[ns] not significant at the 5% level of probability

A significant (P>0.05) difference was observed in water and feed ratio as shown in Table 6. Data revealed that broilers under 75% salt and 25% sugar drank the most volume (3.453) of water per kilo of feed consumed while the broilers in the treatment without litter drank the lowest (2.136) among the treatments but is comparable with those in the 25% salt and 75% sugar, 50/50 sugar and salt, and 100% salt.

Table 6. Water and Feed Ratio

Treatment	Replication			Treatment Mean
	I	II	III	
100 % Salt	2.473	2.545	2.538	2.519 [bc]
75% Salt & 25% Sugar	3.266	2.698	4.395	3.453 [a]
50% Salt & 50% Sugar	2.545	2.395	2.372	2.437 [bc]
25% Salt & 75% Sugar	2.532	2.504	2.408	2.481 [bc]
100% Sugar	2.711	2.481	2.660	2.617 [b]
Purely Sawdust	2.868	2.458	2.579	2.635 [b]
W/out Litter	2.280	1.968	2.160	2.136 [c]

cv = 12.85%
[bc] Treatment means with the same letter superscript are not significantly diefferent at the 5% level of probability

Moisture, Organic, and Mineral Matter Content of Litter Materials

As shown in Table 7, the excreta of broilers on slatted floor had the highest (P<0.05) moisture content of 3.325%. However, the differences on the mean moisture content of different litter were not significant. The same treatment had significantly (P<0.05) the highest organic matter content of 6.782% (Table 8) but had the lowest mineral matter content of 93.218% (Table 9). All treatments were comparable from the above-mentioned parameters.

Table 7. Percentage Moisture of Litter Materials per Treatment

Treatment	Replication			Treatment Mean
	I	II	III	
	---------------------- % ---------------------			
100 % Salt	0.858	1.180	1.373	1.137 [b]
75% Salt & 25% Sugar	0.892	1.432	0.929	1.084 [b]
50% Salt & 50% Sugar	0.965	1.231	1.544	1.247 [b]
25% Salt & 75% Sugar	1.593	1.139	0.866	1.206 [b]
100% Sugar	1.309	1.667	1.024	1.333 [b]
Purely Sawdust	1.717	1.352	1.207	1.425 [b]
W/out Litter	2.974	3.420	3.580	3.325 [a]

cv = 20.46%
[bc] Treatment means with the same letter superscript are not significantly dieffferent at the 5% level of probability

Table 8. Percentage of Organic Matter in Litter Materials

Treatment	Replication			Treatment Mean
	I	II	III	
	---------------- % -------------------			
100 % Salt	3.055	3.625	5.027	3.902 [b]
75% Salt & 25% Sugar	3.850	4.306	2.926	3.694 [b]
50% Salt & 50% Sugar	2.707	4.029	4.418	3.718 [b]
25% Salt & 75% Sugar	4.680	4.267	3.401	4.116 [b]
100% Sugar	4.575	3.571	3.804	3.983 [b]
Purely Sawdust	3.697	4.176	4.248	4.040 [b]
W/out Litter	6.046	6.870	7.431	6.782 [a]

cv = 17.21%
[bc] Treatment means with the same letter superscript are not significantly dieffferent at the 5% level of probability

Table 9. Percentage of Mineral Matter in Litter Materials

Treatment	Replication			Treatment Mean
	I	II	III	
	------------------------ % ----------------------			
100 % Salt	96.945	96.375	94.973	96.098 [a]
75% Salt & 25% Sugar	96.150	95.694	97.074	96.306 [a]
50% Salt & 50% Sugar	97.293	95.971	95.582	96.282 [a]
25% Salt & 75% Sugar	95.320	95.733	96.599	95.884 [a]
100% Sugar	95.425	96.429	96.196	96.017 [a]
Purely Sawdust	96.303	95.824	95.752	95.960 [a]
W/out Litter	93.954	93.130	92.569	93.218 [b]

cv = 0.78%
[bc] Treatment means with the same letter superscript are not significantly dieffierent at the 5% level of probability

Odor Emission and Fly Infestation

Treatments that utilized sawdust as litter materials, emitted no odor to undistinguishable odor with zero to less that 10 flies present as detected by the majority of the evaluators from two weeks after the birds were introduced in the treatments and two days before the study terminated (Table 10 - 13). On the other hand, most of the evaluators noted a recognizable odor on broilers raised on slatted floor with more than ten but less than 50 flies present. The odor became more recognizable to very distinct and annoying on the last evaluation during which more than 50 flies present to cannot be counted.

Table 10. Evaluation of Odor Two-weeks (1st evaluation) After the Start of the Study and Two-days (last evaluation) Before the Study was Terminated

Treatment	Odor Evaluation Category							
	No odor detected		Undistinguishable odor		Recognizable odor		Very distinct and annoying odor	
	1st	Last	1st	last	1st	last	1st	last
	------------ % of evaluators------------							
100 % Salt	38.89	33.33	55.56	60.00	5.50	6.60	0	0
75% Salt & 25% Sugar	38.89	40.00	61.11	46.67	0	13.33	0	0
50% Salt & 50% Sugar	33.33	6.60	50.00	73.33	16.67	20.00	0	0
25% Salt & 75% Sugar	27.78	40.00	55.56	53.33	16.67	6.60	0	0
100% Sugar	27.78	40.00	61.11	53.33	11.11	6.60	0	0
Purely Sawdust	27.78	6.60	50.00	80.00	22.22	13.33	0	0
W/out Litter	0	0	16.67	0	72.22	66.67	11.11	33.33

Table 11. Fly Count Two-weeks (1st evaluation) After the Birds were Introduced to Treatments and Two-days (last evaluation) Before the Study Terminated

Treatment	Fly Count Categories									
	No fly present		Less than 10 flies present		More than 10 flies present but less than 50		More than 50 flies present but less than 100		Cannot be counted because of large number	
	Evaluation Sequence									
	1st	Last	1st	Last	1st	Last	1st	Last	1st	Last
	--------------------------------% of evaluators----------------------------									
100 % Salt	55.56	53.33	44.44	46.67	0	0	0	0	0	0
75% Salt & 25% Sugar	72.22	73.33	27.78	26.67	0	0	0	0	0	0
50% Salt & 50% Sugar	38.89	26.67	61.11	73.33	0	0	0	0	0	0
25% Salt & 75% Sugar	44.44	80.00	55.56	20.00	0	0	0	0	0	0
100% Sugar	27.78	60.00	72.22	40.00	0	0	0	0	0	0
Purely Sawdust	50.00	86.67	50.00	13.33	0	0	0	0	0	0
W/out Litter	0	0	33.33	0	50.00	0	16.67	66.67	0	33.33

Table 12. Cross Tabulations of Percentage Evaluators who Rated Odor Emission and its Corresponding Fly Count Two Weeks after the Broilers were introduced in the Experimental Pens

Treatment	Odor emission scale	Fly count		Total
		No fly present	Less than 10 flies present	
100% salt	No odor detected	22	17	39
	Undistinguishable odor	20	35	55
	Recognizable odor	2	4	6
	Total	44	56	100
75% salt & 25 % sugar	No odor detected	28	11	39
	Undistinguishable odor	26	35	61
	Recognizable odor	0	0	0
	Total	54	46	100
50% salt & 50 % sugar	No odor detected	17	18	35
	Undistinguishable odor	19	30	49
	Recognizable odor	4	12	16
	Total	40	60	100
25% salt & 75 % sugar	No odor detected	18	12	30
	Undistinguishable odor	22	31	53
	Recognizable odor	6	11	17
	Total	46	54	100
100% sugar	No odor detected	11	17	28
	Undistinguishable odor	17	44	61
	Recognizable odor	0	11	11
	Total	28	72	100
Pure sawdust	No odor detected	9	19	28
	Undistinguishable odor	28	22	50
	Recognizable odor	13	9	22
	Total	50	50	100

		Less than 10 flies present	More than 10 flies present but less than 50	Cannot be counted because of large number	Total
W/out litter	Undistinguishable odor	0	11	6	17
	Recognizable odor	26	35	11	72
	Very distinct and annoying	7	4	0	11
	Total	33	50	17	100

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Table 13. Cross Tabulations of Percentage Evaluators who Rated Odor Emission and its Corresponding Fly Count Two Days before the Study Terminated

Treatment	Odor emission scale		Fly count scale		Total
			No fly present	Less than 10 flies present	
100% salt	No odor detected		23	11	34
	Undistinguishable odor		29	31	60
	Recognizable odor		2	4	6
		Total	54	46	100
75% salt & 25 % sugar	No odor detected		31	9	40
	Undistinguishable odor		40	9	49
	Recognizable odor		4	7	11
		Total	75	25	100
50% salt & 50 % sugar	No odor detected		11	22	33
	Undistinguishable odor		16	38	54
	Recognizable odor		0	13	13
		Total	27	73	100
25% salt & 75 % sugar	No odor detected		38	2	40
	Undistinguishable odor		38	16	54
	Recognizable odor		4	2	6
		Total	80	20	100
100% sugar	No odor detected		20	20	40
	Undistinguishable odor		7	47	54
	Recognizable odor		0	6	6
		Total	27	73	100
Pure sawdust	No odor detected		0	7	7
	Undistinguishable odor		16	64	80
	Recognizable odor		4	9	13
		Total	20	80	100

			Less than 10 flies present	>50 but <100 flies present	Cannot be counted because of large number	Total
W/out litter	Recognizable odor		7	40	20	67
	Very distinct and annoying		0	13	20	33
		Total	7	53	40	100

Financial Returns

Financial returns revealed that treatment under purely sawdust gained somewhat a higher profit of P74.97 with a slight difference of P1.86 in 75% salt and 25% sugar. Treatment without litter had the lowest profit of P41.04. The difference in peso gained between treatment with litter and without was attributed to the production of potting materials.

Table 14. Financial Returns per Bird

Treatment	Gross income				Cost of Production					Total expense	Profit
	Price/ chicken	Potting materials	Sales	Cost of chick	Feeds	Labor	Electricity	Vet drug	Other		
					P						
100 % Salt	149.63	20	169.63	28	37.79	15	10	10	15	115.79	53.84
75% Salt & 25% Sugar	168.63	20	188.63	28	37.52	15	10	10	15	115.52	73.11
50% Salt & 50% Sugar	157.54	20	177.54	28	38.70	15	10	10	15	116.70	60.84
25% Salt & 75% Sugar	148.83	20	168.83	28	38.63	15	10	10	15	116.63	52.20
100% Sugar	149.63	20	169.63	28	42.42	15	10	10	15	120.42	49.21
Purely Sawdust	174.96	20	194.96	28	41.99	15	10	10	15	119.99	74.97
W/out Litter	153.19	3	156.19	28	42.15	15	10	10	10	115.15	41.04

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, it is concluded that the use of pure sawdust as litter materials in growing broilers had no significant effect on their feed consumption, liveweight gain, feed efficiency, water consumption, and dressing percentage. Significant differences were observed in water and feed ratio, moisture content, organic matter content, and mineral matter content. The treatments significantly reduced odor and fly count.

Further study should be conducted on various alternative litter materials aside from sawdust. This is to determine further up to how many production cycle of broilers litter materials could be used without detrimental effect on birds raised on it.

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A COMPARATIVE STUDY ON THE EFFECTIVENESS OF NATURE FARMING AND CONVENTIONAL FARMING TECHNOLOGIES ON THE GROWTH AND YIELD OF DAPIT-SAKA RICE SELECTION

By Hope G. Patricio and Ma. Victoria C. Seredrica

ABSTRACT

The agronomic characteristics and yield of Dapit Saka rice selection grown using the conventional farming and nature farming methods were compared and the effect of the different nature farming concoctions against rice pests and natural enemies were evaluated from November 2002 to February 2003 in Bongco, Pototan, Iloilo. Results revealed that rice whorl maggots (*Hydrellia philippina*), white leafhoppers (*Cofana spectra*), green leafhoppers (*Nephotettix virescens*), brown planthopper (*Nilaparvata lugens*), rice stemborers (*Scirpophaga innotata*) and grasshoppers (*Oxya hyla intricata*) were found feeding on rice. Natural enemies observed included a mirid bug (*Cyrtorhinus lividipennis*), lady beetle (*Micraspis crocea*), damselfly (*Agriocnemis* spp.), ground beetle (*Ophionea nigrofasciata*), vespid wasp and spiders (Lynx spiders, *Oxyopes* spp.; dwarf spider, *Atypena formosana*; Orb spider, *Argiope catenulata*; and long-jawed spider, *Tetragnatha maxillosa*). It was noted that the use of nature farming technology and the absence of pesticides in the control resulted in more natural enemies. However, plants grown in conventional farming were significantly taller, had the most number of tillers, and heaviest panicles. These resulted in the highest grain yield of 3,466 kg/ha, a net income of P19,643.00 and an ROI of 130.80 % . These values exceeded those of plants in the nature farming technology by 1,641 kg/ha, P 5,612.65 and 25.80 %, respectively.

INTRODUCTION

Rice farmers in the Philippines generally practice the conventional method of rice farming. This method utilizes inorganic inputs like fertilizers and pesticides to increase production. Inorganic fertilizers provide plants with sufficient amounts of readily available nutrients, whereas, commercial pesticides assure effective rapid action against insect pests. However, continued dependence on these inputs had created problems like pest resurgence, health hazards from pesticides, and soil acidity and water pollution from fertilizers.

The harmful effects brought about by the use of inorganic inputs (*Far Eastern Agriculture,* March/April 2001) prompted the agriculture sector to look for alternative methods that will support the growth of crops as well as protect them without endangering the health of the farmers and without altering the balance of the ecosystem. These methods include the use of botanical pesticides (Von Der Heyde, Saxena & Schmutterer, 1983 as cited by Schmutterer, 1984; IIRR, 1987; Singh, 1996; Agriculture Magazine, December 1998 & April 2001), biological control agents (Shepard, Barrion & Litsinger, 1987) and organic fertilizers (Agriculture Magazine, August 2000; Pandey, 1991; Farming Updates, 1991; Sangatanan and Sangatanan, 1993). One of the alternative methods developed whereby we live in harmony with nature is the nature farming technology (Lim, 2002). Nature farming is a farming method developed in Korea. It utilizes beneficial microorganism and an array of indigenous plant materials which oftentimes are just left as farm residue. The Davao experience showed that old unproductive calamansi, pomelo and cacao trees were rejuvenated after three months of using the different concoctions (Lim, 2002). There had also been claims that the use of nature farming improved the growth and yield of vegetables and rice, but there are no concrete data to support these claims. It is for this reason that this study was conducted. Results from this study can show whether or not the technology can be adopted in Iloilo and whether or not it is also applicable to rice.

Objectives of the study. The objectives of this study were to:

1. Compare the agronomic characteristics and yield of Dapit Saka rice selection grown using conventional farming and nature farming methods, and
2. Evaluate the effect of the different nature farming concoctions against rice pests and natural enemies.

Time and place of the study. The study was conducted in November 2002 to February 2003 at the Jamandre farm in Bongco, Pototan, Iloilo.

MATERIALS AND METHODS

A total area of 393.68 square meters was prepared. The treatments which were composed of the conventional method of farming (using chemical inputs), nature farming (using concoctions) and the check or control (no pesticides and fertilizers) were laid out in a randomized complete block design with four replications. Nature farming concoctions such as Fermented Fruit Juice (FPJ), Fish Amino Acid (FAA) and Indigenous Microorganisms (IMO) were incorporated together with decomposing rice straws which served as organic fertilizer during plowing.

Three kilograms of seeds were soaked in tap water containing FPJ, OHN (Oriental Herbal Nutrient) and coconut vinegar before sowing.

The 22 day-old seedlings were pulled and transferred in a dry place. A day after, the seedlings in the nature farming treatment were soaked for 15 seconds in OHN, FPJ, and vinegar concoctions for seedling treatment and immediately brought to the experimental plots for planting. Three seedlings were planted per hill with the aid of a planting board with 20 cm x 20 cm markings to ensure uniform plant spacing.

Plants grown under the conventional farming were fertilized with ammonium phosphate(16-20-0), muriate of potash(60% K_2O) and urea (46%N) following a recommended rate of 120-30-30 kg of N, P_2O_5, and K_2O/ha. Insect pests and their natural enemies were monitored weekly. Pests that attacked plants grown under the conventional farming were controlled using Vexter 300 EC (Chlorpyrifos). Brown leaf spot was also observed and rated as part of data collected.

Plants grown using the nature farming technology were sprayed weekly with concoctions such as OHN, FAA, FPJ, and IMO from one week after transplanting (WAT) to seven WAT. During the change over stage, that is, when the plants were eight WAT, the plants were sprayed with concoctions such as FAA, FPJ, OHN and calcium phosphate at weekly interval until harvest.

Weed control for both farming technologies was done only once by hand pulling two WAT prior to fertilizer application. Shallow water depth was maintained three days after transplanting until hard dough stage. The field was drained for sometime to destroy the eggs of brown planthoppers (BPH) laid in the leaf sheaths (Agriculture Magazine, November 2000) and finally drained two weeks before harvesting to hasten the maturity of grains.

All data except the one on yield were gathered from ten randomly selected hills from the 14 inner rows per plot. Brown leaf spot disease was rated using the following scalar rating: 1 for resistant, 2 for intermediate and 3 for susceptible (Rice Technical Working Group, n.d.).

All data except those on actual count of insects and natural enemies were statistically analyzed using the analysis of variance for a randomized complete block design. Significant treatment mean differences were determined using the Duncan's multiple range test. Both analysis were set at the 1 % level of significance.

MAJOR FINDINGS

Periodic Count of Insect Pests and Natural Enemies.

A number of rice insect pests such as rice whorl maggot (RWM) *Hydrellia philippina*, white leafhoppers (WLH) *Cofana spectra*, green leafhoppers (GLH) *Nephotettix virescens*, rice stem borers (RSB) *Scirpophaga innotata* and grasshoppers (GH) *Oxyahyla intricata* were recorded three WAT. Along with the occurrence of these pests, the natural enemies such as the mirid bugs *(Cytorhinus lividipennis)*, damselflies *(Agriocnemis* spp.), lady beetles *(Micraspis crocea)*, and spiders namely lynx spiders *(Oxyopes* spp.), dwarf spider *(Atypena formosana)*, Orb spider *(Argiope catenulata)*, and long-jawed spider *(Tetragnatha maxillosa)* were also recorded.

The brown planthoppers appeared four WAT in addition to the other pests already mentioned with white planthoppers which although a minor pest, had the most number until the sixth WAT. Plants grown with nature farming technology and the untreated plants had the most number of natural enemies with the addition of ground beetle *(Ophionea nigrofaciata* and vespid wasps. The increase in number of natural enemies was observed following the build up of the pest population. This is the usual response of the natural enemies, that is, they will only reproduce when pest population had increased which is favorable for their future offspring to survive. Of the natural enemies, spiders on the conventional farming technology plots were the most affected by the pesticide sprayed.

Table 1. Periodic Count of Insect Pests and Natural Enemies

Three WAT

			Insect Count				Natural Enemies	
Treatments	RWM	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	2.50	1.50	0.25	0.00	0.25	0.25	0.00	3.50
Conventional	5.25	5.00	0.25	0.00	0.25	0.75	0.25	1.75
Control	6.25	5.25	0.00	0.00	0.50	0.75	0.75	3.50

Four WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	4.25	0.00	0.00	0.50	0.50	0.00	4.00
Conventional	2.00	0.25	0.00	0.00	1.00	0.00	0.50
Control	2.50	0.25	1.25	0.00	0.50	1.25	5.50

Five WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	4.75	0.00	0.50	0.75	0.50	0.50	1.75
Conventional	6.75	0.00	0.50	0.75	1.00	0.25	0.25
Control	7.00	0.00	1.50	1.25	1.00	0.25	2.50

Six WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	4.00	0.00	1.25	0.25	0.50	1.25	2.75
Conventional	15.00	0.50	0.75	0.25	1.75	0.25	2.50
Control	2.25	0.50	0.25	0.25	0.50	2.00	1.75

Seven WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	0.25	0.50	0.50	0.50	0.25	2.25	5.00
Conventional	4.75	1.25	0.25	0.00	0.00	1.50	1.00
Control	2.00	1.25	1.75	0.25	0.75	3.00	6.50

Eight WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	0.00	0.75	0.25	0.25	0.50	3.00	2.75
Conventional	1.00	0.00	0.75	0.00	1.00	5.00	0.25
Control	1.50	0.75	0.25	0.00	0.50	2.75	3.00

Nine WAT

		Insect Count				Natural Enemies	
Treatments	WPH	GLH	BPH	SB	GH	Insects	Spiders
Nature farm	0.00	0.75	0.50	0.00	0.75	4.50	2.25
Conventional	2.50	0.25	0.50	0.00	2.25	2.25	1.50
Control	0.00	0.75	0.25	0.00	0.00	5.50	3.25

Plants applied with nature farming technology and the check or the untreated plants had the most number of natural enemies.

Plant Height

Plant height (Table 2) was measured ten WAT after transplanting. This period coincided with the reproductive stage when plants are no longer increasing in height. Results revealed that height of rice ranged from 79.81 to 98.22 cm with plants grown using the conventional method being significantly (P<0.01) the highest. Plants grown using the nature farming technology had comparable height as those in the control treatment.

Table 2. Height Measurement Taken Ten Weeks after Transplanting.

Treatments	Replication				Mean
	I	II	III	IV	
	------------------------- cm -------------------------				
Nature farm	76.49	80.67	86.00	80.22	80.84[b]
Conventional	96.95	96.07	101.68	98.19	98.22[a]
Control	80.67	82.49	80.08	75.98	79.81[b]

[ab] Treatment means followed by the same letter superscript are not significantly different at the 1 percent level of probability.

Number of Tillers

Rice in the conventional method treatment produced the most (P<0.01) number of tillers at 15.50. Plants in the nature farm and control plots gave a comparable number of tillers (Table 3) at 11 and 11.75, respectively. Of these tillers, 12 turned out productive from plants in the conventional method, whereas, 8.25 and 7.75 turned out productive from the nature farm and control plants, respectively (Table 4). The data show that the number of productive tillers have a similar trend as that of the number of tillers at maximum vegetative growth, that is, the highest ((P<0.01) was obtained from plants in the conventional plots, with the number of productive tillers from plants in the nature farm and control plots being comparable.

Table 3. Number of Tillers at Maximum Vegetative Growth Taken Five Weeks after Transplanting (WAT).

Treatments	Replication				Mean
	I	II	III	IV	
Nature farm	11	10	11	12	11.00^b
Conventional	14	16	18	14	15.50^a
Control	10	12	12	13	11.75^b

[ab] Treatment means followed by the same letter superscript are not significantly different at the 1 percent level of probability.

Table 4. Number of Productive Tillers Taken Before Harvest.

Treatments	Replication				Mean
	I	II	III	IV	
Nature farm	9	8	7	9	8.25^b
Conventional	11	13	13	11	12.00^a
Control	7	8	8	8	7.75^b

[ab] Treatment means followed by the same letter superscript are not significantly different at the 1 percent level of probability.

Disease Rating

Data in Table 5 show the rating on the damage caused by brown leaf spot *(Cercospora janseana)* on rice. The result showed that plants raised under conventional method of farming were more resistant (Scale 1) to brown leaf spot than those raised under nature farming technology and the control or untreated plants which showed intermediate resistance.

Table 5. Scalar Rating of Brown Leaf Spot Taken Eleven Weeks after Transplanting.

Treatments	Replication				Mean*
	I	II	III	IV	
Nature farm	1.50	1.80	1.90	1.80	1.75
Conventional	1.10	1.00	1.00	1.10	1.05
Control	2.20	1.50	1.90	2.00	1.90

* 1 - resistant
  2 - intermediate
  3 - susceptible

Average Weight per Panicle

The panicle weight (Table 6) ranged from 16.40 to 30.80 grams. Statistical analysis revealed that the heaviest panicles (P<0.01) were harvested from plants in the conventional method plots. Panicles from these plants weighed 29.7 grams on the average. Panicle harvested from plants in the nature farm and control plots had comparable weights of 19.08 and 18.08 grams, respectively.

Table 6. Average Weight per Panicle.

Treatments	Replication				Mean
	I	II	III	IV	
Nature farm	17.80	16.90	20.70	20.90	19.08[b]
Conventional	30.30	29.90	30.80	27.80	29.70[a]
Control	16.40	19.20	18.90	17.80	18.08[b]

[ab] Treatment means followed by the same letter superscript are not significantly different at the 1 percent level of probability.

Yield

Plant yield was obtained from a 13.44 square meter effective plot area. Plot yield was corrected to 14% moisture content then converted to kilograms per hectare. Statistical analysis revealed that yield of plants in the conventional method was significantly (P<).01) the highest at 3,466 kilograms per hectare. As with the other data, yields from plants in the nature farm and control plots were comparable. Plants raised using conventional method gave a yield advantage of 1,641 kg/ha over the nature farming method and a yield advantage of 1,625 kg/ha over the control. Rice yield from the nature farm and the control differed only by 16 kg/ha.

Table 7. Corrected Yield.

Treatments	Replication				Mean
	I	II	III	IV	
	kg/ha				
Nature farm	1642	1839	1848	1970	1825[b]
Conventional	3475	3644	2998	3746	3466[a]
Control	1657	1904	1995	1806	1841[b]

[ab] Treatment means followed by the same letter superscript are not significantly different at the 1 percent level of probability.

Cost and Return Analysis

The cost and return analysis (Table 8) show that plants in the conventional farming technology gave the highest net income of P19,643.00 , followed by the control plants with P10,200.00 and the nature farming technology with P4,905.35. The area where the experiment was conducted was not cropped for several seasons, thus yield from the control plants was almost comparable to that in the

nature farm. Since no input was applied to the control plots, the resulting net income was higher in the control.

Among the two technologies, conventional farming resulted in the highest return on investment (ROI) of 130.80 %, which was 94.05 % higher than that of nature farm. The ROI from the control treatment, however, exceeded that of nature farm by nearly 90 %.

Table 8.   Cost and Return Analysis.

Treatments	Yield	Gross Income	Production Cost	Net Income	Return of Investment
	kg/ha		p		%
Nature farm	1,825	27,375	13,344.65	14,030.35	105.00
Conventional	3,466	34,660	15,017.00	19,643.00	130.80
Control	1,841	27,615	8,210.00	19,405.00	236.00

Prevailing price/kg of palay from conventional farming is P10
Prevailing price/kg of palay from nature farming and the untreated is P15

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the outcome of the short-term study, plants in the conventional technology outperformed those in the nature farming technology in terms of agronomic characteristics, yield, net income and ROI. However, it is recommended that a long term-term (2 years or more) comparative study be conducted to assess the cumulative effects of the applied organic residues under the nature farming technology.

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STATUS OF SERVICE-LEARNING (S-L) PROGRAMS AT CENTRAL PHILIPPINE UNIVERSITY

By Lynn J. Pareja

ABSTRACT

The main objective of this study was to find out the status of academic subjects with service-learning (S-L) components in the curricular offerings of the different colleges of Central Philippine University during the Academic Year of 2004-2005. A checklist was provided to identify the general characteristics, service-activities extended, and S-L models of academic subjects with S-L components. Only academic subjects with available syllabi/course descriptions during the first semester of Academic Year 2004-2005 were included in the descriptive analysis using frequency distributions. This totals to 155 academic subjects. The results and discussions were made only as far as the general characteristics, service-activities extended, and S-L models of these identified academic subjects with S-L components were concerned. Results revealed that academic subjects with S-L components contain common general characteristics of S-L. More than half of the academic subjects identified with S-L components were found in the collegiate level. Most were linked to academic content and standards and provided opportunity for students to use skills and knowledge in real-life situations and extended training beyond the classrooms and into the community. The majority of the 155 academic subjects with S-L components which provided learning through active participation in service experiences also provided structured time for students to reflect by thinking, discussing and/or writing about their service experiences. More than half of these academic subjects had extended youth/group leadership development and environment sanitation programs. Most of the academic subjects with S-L components belong to the Introductory courses for S-L, followed by the Service-Centered model, and the 4th Credit-Option model for S-L. There was no academic subject with S-L component being identified under the Problem-Based model for S-L.

INTRODUCTION

Background and Rationale

As a fresh pedagogical approach, Service-Learning (S-L) is integrating community outreach and extension into the curriculum of colleges and universities in the Philippines. McCarthy (2002) mentions that service-learning is currently gathering momentum in colleges and universities associated with the United Board for Christian Higher Education in Asia (UBCHEA) and the International Partnership for Service Learning (IPSL).

Moreover, service-learning is also offered as a tool to mold students to become good citizens (Chisholm, 2002). It is the most recognized and effective teaching method to help students become active, responsible citizens. At its best, service-learning is a powerful teaching method that allows students to reflect upon why such conditions exist and what their democratic responsibilities are in addressing them (Astin, 1996).

Chisholm (2002) further explained that the hyphen between learning and service in the word service-learning is a symbol of connection. The hyphen is a reminder that learning, however rigorous, and service, however useful, divorced one from the other do not make up program of service-learning. It is the teacher's task to help students make the connection between what they are observing and experiencing in service and what they are learning in the classroom, library, or on the internet. The hyphenation of the terms "service" and "learning" strongly suggests a balance between learning goals and service outcomes that can be achieved only through an integration of each.

Senturias (2002) also stresses that the value of service-learning is giving birth to a new way of education which is grounded in faith, service and character. It is an education that does not confine learning in the four walls of the school but that it seeks to learn from the people while being of service to the community and reflecting this back to the classroom by linking the course content to the realities of life in community. It fosters networking and relationship building with the community, thereby enhancing the generation of new insights and understanding of situations through the joint participation of faculty, students and members of the community. It enables the discovery of knowledge for transforming education and transforming communities. In return, the community serves as a laboratory for testing new ideas and actions. In this way, the educational institution fulfills its social responsibility by helping build commitment in serving and learning from the people.

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However, it should be made clear that as a teaching strategy, service-learning should not substitute classroom teaching but should rather reinforce   (cited in Oracion, 2002). Service-learning is not designed to be a substitute for classroom teaching but to reinforce the latter by providing practical meanings to the theoretical knowledge acquired by students. As a teaching-learning strategy, it pursues the growth of students' intellectual capacity along their chosen paths and aims to promote their sense of social responsibility by providing them the opportunity to serve the community. But the need for a holistic approach to community problems makes it imperative for the different academic units to pool resources human, technical and material -- and to work together in the same community as co-equals. In the second National Conference of ACFF (Asian Christian Faculty Fellowship) last April 14-15, 2004, Pullium pinpointed that the integration of service with learning objectives is what service-learning is all about. She further stressed that service-learning as an evolving approach to higher education is experimental and innovative rather than standardized. Definitions vary, but there are common characteristics to be considered. Pullium also clarified that in terms of objectives, service-learning combines the objectives of service and learning. In terms of outcomes, service-learning transforms both the service provider and the recipient. In a situational analysis, the community receives a service that addresses a real need, and opens up links to a host of faculty, students, prospective advocates, and concerned citizens.

The community is also transformed by playing a teaching role for the students by sharing skills, information, and insights. So, the community may acquire useful data, information, or recommendations.

Pullium further states that service-learning is also student-centered and learning-centered. It involves active learning, experimental learning, contextual learning, and collaborative learning. There are positive outcomes not only on the communities being served but also on all those who have extended their services to these communities. In the best-case scenarios, service-learning offers so many benefits ranging from results that make a difference in the growth and development of students, faculty and community partners to a reciprocal relationship of all who are involved. Both service recipients and service providers are benefited in this kind of activity. There's both a reaching out and a gathering in.

Gelmon (2000) points out that service-learning as a pedagogy offers multiple perspectives from which assessment can be conducted, and provides a rich opportunity for comprehensive and value-added assessment. Development of a comprehensive research agenda to build knowledge about service-learning assessment and refine concepts of best practices for assessment will provide the evidence needed to further develop and implement programs and pedagogies that fulfill the missions and expectations of service-learning.

Cognizant of the significance of service-learning as a fresh pedagogical strategy, the UBCHEA (United Board for Christian Higher Education in Asia) supports the move to broaden an understanding of the operational concepts of service-learning through the ACFF (Association of Christian Faculty Fellowship) which was initiated by the Hongkong-based Asian Christian Higher Education. ACFF-Philippines was organized as an off-shoot of the 2002 ACFF held for the first time in Changmai, Thailand. The 2004 fellowship conference of ACFF-Philippines held in St. La Salle University, Bacolod City last April 14-15, 2004 had focused on the theme "Promoting Service-Learning in Philippine Higher Education." Many schools were also asked to present their service-learning experiences. As a UBCHEA-related institution, CPU was also invited to present its own service-learning experiences.

It is precisely on this contention that there is a need to conduct a preliminary survey on the status of service-learning programs linking service with course contents across the different academic disciplines. It is a fact that service-learning activities exist in different curricular offerings at Central Philippine University, but there is no formal investigation with regards to its present status, kinds of service-learning programs extended and how they are described in terms of their course models. The absence of a research-based general information data on service-learning programs in Central Philippine University is a valid ground in conducting a formal investigation, thus this attempt to do so.

Objectives of the Study

The main purpose of this study is to find out the present status of academic subjects with service-learning (S-L) components in the curricular offerings of the different colleges of Central Philippine University.

Specifically, the study aimed to:
1) to identify the academic subjects which have service-learning components;
2) to describe the kind of service-learning activities extended by these academic subjects;
3) to classify academic subjects which have service-learning activities according to specific models for service-learning courses; and,
4) to come up with a model content format for service-learning syllabus.

Significance of the Study

This study is in congruent with instruction and research, for it shows close coordination of the three traditional functions of a university where human services education is sensitized in the academe by giving priority to an attempt to understand humans working with other humans. This confirms a learning situation where knowledge is conscientizing learning through service.

This study aims to provide a base-line information data on how academic subjects with service-learning contents can be organized in preparing syllabi for service-learning related courses and other related classroom activities which enhance or develop civic consciousness/social responsibility. A presentation of a model syllabus content format for academic subjects with service-learning components will be helpful in providing guidelines defining common elements to be included by teachers who will handle such academic subjects with service-learning components.

Results of this study will provide educational planners the opportunity to develop better curricula or improve already existing curricula relevant to community development or extension/outreach programs which incorporate service-learning activities. Hopefully, this study will convince the university's governing board to extend full institutional support and commitment that will help boost the outreach/extension function in extending quality community service through its service-learning component as demanded by accreditation requirements.

Scope and Limitations

This study utilized a descriptive survey of academic subjects with service-learning components in the different colleges/units of Central Philippine University, Iloilo City during the first semester of AY 2004-2005.

The academic subjects with service-learning (S-L) components were identified and described according to the general characteristics of service-learning, then classified according to the kind of program/service activities extended and according to how they were categorized as service-learning (S-L) courses in general. This research work also presented a suggested model syllabus content format for academic subjects with service-learning components.

An in-depth study of the learning objectives of each academic subject having service-learning component and their effects on learning outcomes of the students could have been possibly done, but time constraint prevented this intention. Notwithstanding, the researcher did her best to deliver encompassing information about the present status of service-learning programs in Central Philippine University.

METHODOLOGY

The Research Design

This study which is purely descriptive and had utilized non-experimental design to describe the academic subjects. These academic subjects which were identified as having service-learning components/contents in the curriculum. Document analysis was utilized in describing the characteristics of academic subjects with service-learning components, on the kind of service activities extended in the different program areas, and the course models of these academic subjects with service-learning components.

Data Collection

The study examined the documents of all academic subjects with service-learning components identified across curricular disciplines of colleges/units in the university during the first semester of AY 2004-2005. These academic courses were classified according to characteristics, the program areas with service activities extended, and according to the service-learning course models.

The data on the list of academic subjects identified with service-learning components were taken from the list of curricular offerings found in the prospectus of different colleges/units. This was counter-checked by an investigation of available course syllabi/descriptions of these academic subjects with service-learning (S-L) components. Proper permission, through channels, was asked from the Vice-President for Academic Affairs with regards to the inspection of course syllabi of academic subjects having service-learning components.

The academic subjects identified were classified first according to the educational level where they belong, and then according to the characteristics of subjects having service-learning components, the kind of programs areas with service activities extended, and according to the course models. The programs/activities were clustered into 6 areas namely: Health-Related Program, Education-Related Program, Society/Family/Gender-Related Program, Economic/Agriculture-Related Program, Environment/Engineering-Related Program and Legal/Peace and Order-Related Program. Each cluster program area is named to reflect the nature of the specific activities it contained.

Finally, the academic subjects with service-learning (S-L) components were classified into eight models of service-learning courses (adapted from Enos & Troppe, 1996) namely: (1) 4th Credit Option (2) Placement (3) Service-Centered (4) Service-Leadership (5) Problem Based (6) Action Research (7) Disciplinary Capstone (8). Introductory Course.

Data Processing and Analysis

The academic subjects having service-learning (S-L) components were classified and tabulated according to their educational level, characteristics, program/activity areas and according to the models of service-learning (S-L) courses using frequency distributions. Descriptive analysis on the academic subjects with service-learning (S-L) components were made as far as their characteristics, programs areas and their respective models were concerned.

MAJOR FINDINGS

Academic Subjects with S-L Components

Data on the academic subjects identified with S-L components were grouped according to the educational level where they belong. These data were taken from the matrix of the academic subjects identified with S-L components with their respective course number, descriptive title, number of units/hours/week, college/unit offering such and the term these are being offered.

Table 1 shows the distribution of academic subjects with S-L components when grouped according to their educational level (pre-collegiate, collegiate, post-collegiate). There were 155 academic subjects identified with service-learning (S-L) components. When grouped according to the educational level, more than one-half (58.7 %) of the academic subjects with S-L components were found in the collegiate level, and one-fifth (20.0 %) were found in the pre-collegiate level. A little more than that of the pre-collegiate level (21.3 %) were found in the post-collegiate level.

Table 1. Distribution of Academic Subjects with S-L Components when grouped according to Educational Level (N = 155)

Educational Level	N	%
Pre-Collegiate	31	20.0
Collegiate	91	58.7
Post-Collegiate	33	21.3
Total	155	100

These 155 academic subjects identified with S-L components were further distributed according to the college/unit where they belong as controlled by educational level. The data in Table 2 reveal that in the pre-collegiate level, more than half (51.6 %) of the 31 academic subjects with S-L components are in the High School level.

Among the 91 academic subjects with S-L components in the collegiate level, more than one fourth (28.6 %) are found in the College of Arts & Sciences and nearly one-fifth (18.7 %) are in the College of Education. Results also show that the majority (90.9 %) of the academic subjects in the post-collegiate level with S-L components are in the School of Graduate Studies. Overall, the data in Table 2 reveal that the top three colleges/units with academic subjects that are classified with S-L components are the School of Graduate Studies, College of Arts and Sciences, and the College of Education.

Table 2. Distribution of the Academic Subjects with S-L Components when Grouped According to the College/Unit

College/ Unit	Pre-Collegiate		Collegiate		Post-Collegiate		Total	
	n	%	n	%	n	%	N	%
Elementary	15	48.4	0	0.0	0	0.0	15	9.7
High School	16	51.6	0	0.0	0	0.0	16	10.3
Agriculture	0	0.0	14	15.4	0	0.0	14	9.0
Arts & Sciences*	0	0.0	26	28.6	0	0.0	26	16.8
Commerce	0	0.0	6	6.6	0	0.0	6	3.9
Comp. Studies	0	0.0	2	2.2	0	0.0	2	1.3
Education	0	0.0	17	18.7	0	0.0	17	11.0
Engineering	0	0.0	12	13.2	0	0.0	12	7.7
Nursing	0	0.0	6	6.6	0	0.0	6	3.9
Theology	0	0.0	8	8.7	0	0.0	8	5.2
Grad. School	0	0.0	0	0.0	30	90.9	30	19.3
Law	0	0.0	0	0.0	3	9.1	3	1.9
Total	31	100.0	91	100.0	33	100.0	155	100.0

Characteristics of Academic Subjects with S-L Components

When the academic subjects with S-L components were grouped according to the general characteristics of S-L, all of them (100.0%) were linked to academic content and standards, while a little more than nine-tenths (91.0%) of the subjects provided an opportunity for students to use skills and knowledge in real-life situations (Table 3).

Results also revealed that nearly nine-tenths (88.4%) of the subjects extended learning beyond the classroom and into the community while 77.4 % promoted learning through active participation in service experiences. A little less than three-fourths

(70.3 %) provided structured time for students to reflect, while more than one-half (65.2 %) benefited both the community and the service providers. More than one-half (62.6 %) of the subjects also fostered a sense of caring for others. The data in table 3 also show that only one-fifth (20.0 %) of the academic subjects with S-L components can work at all ages.

Table 3. Distribution of Academic Subjects According to General Characteristics of S-L (N = 155)

General Characteristics Showing Effective S-L Components	Yes		No		N.A.		Total	
	n	%	n	%	n	%	N	%
1. Promotes learning through active participation in service experiences.	120	77.4	35	22.6	0	0	155	100
2. Provides structured tome for students to reflect by thinking, discussing and/or writing about their service experience.	109	70.3	44	28.4	2	1.3	155	100
3. Provides an opportunity for students to use skills and knowledge in real-life situations.	14	91.0	14	9.0	0	0	155	100
4. Extends learning beyond the classroom and into the community.	137	88.4	18	11.6	0	0	155	100
5. Fosters a sense of caring for others.	97	62.6	54	34.8	4	2.6	155	100
6. Links to academic content and standards.	155	100.0	0	0.0	0	0	155	100
7. Involves young people in helping to determine and meet real, defined community needs.	89	57.4	66	42.6	4	2.6	155	100
8. Reciprocal in nature, benefiting both the community and the service providers by combining a service experience with a learning experience.	101	65.2	33	21.3	21	13.5	155	100
9. Can be used in any subject area so long as it is appropriate to learning goal.	24	15.5	131	84.5	0	0	155	100
10. Works at all ages, even among young children.	31	20.0	124	80.0	0	0	155	100

Service-Activities Extended by Academic Subjects

The data presented in Table 4 reveal the service activities extended by the academic subjects with S-L components. Each program area contains a cluster of listings on relevant services extended.

Results show that when it comes to health-related programs, more than one-fourth (26.5 %) of the subjects are engaged in training/consultancy in community health, reproductive health, family planning and other similar issues. More than one-fifth are also engaged in care giving to mothers, children elderly, sick and disabled (23.93 %), and disease prevention/immunization (22.6 %). On education-related

programs, more than one-third are doing information dissemination on current issues and problems as well as in tutorial classes/professional enrichment (37.4 % and 34.8 %, respectively).

Results further show that with regards to society/family/gender related issues, more than half of the subjects (57.4%) are engaged in youth/group/leadership development. More than four out of ten (43.2 %) are engaged in citizenship/civic consciousness program while more than one-third (36.1%) are involved in conducting family life/values/spiritual formation training or seminar. As to economic/agriculture-related programs, more than one-fifth (23.2%) are also doing economic/agriculture-related programs such as skills training in food processing, handicraft, metal craft and manufacturing.

When it comes to environment/engineering-related program, more than half of the S-L subjects (52.3%) are engaged in environmental sanitation programs and one-fourth are doing reforestation/tree planting (25.2%) and beautification/greening (24.5%). Only few subjects are involved in legal/peace and order/political programs. Taking into consideration all the service activities extended, the data show that the top three activities extended by S-L subjects are

Table 4. Distribution of Academic Subjects with S-L Components when Grouped According to Service-Activities Extended

Service-Activities Extended	YES		NO		NA		TOTAL	
	N	%	N	%	N	%	N	%
Health – Related Programs								
1. Training/consultancy in community health, reproductive health, family planning, etc.	41	26.5	1	0.6	113	72.9	155	100.0
2. Care giving to mothers, children, elderly, sick, disabled, etc.	37	23.93	7	4.5	111	71.6	155	100.0
3. Feeding, nutrition, dietetics, food preparation	19	12.3	17	11	119	76.8	155	100.0
4. Disease prevention, immunization, vaccination, deworming, first aid	35	22.6	-	-	120	77.4	155	100.0
5. Medical/Dental care, clinical/laboratory services, consultation	22	14.2	8	5.2	125	80.6	155	100.0
Education – Related Programs								
1. Adult/Non-formal/Functional Literacy classes or programs	12	7.78	2	1.3	141	91.09	155	100.0
2. Information dissemination on current issues and problems	58	37.4	13	8.4	84	54.2	155	100.0
3. Tutorial classes/professional enrichment	54	34.8	1	0.6	100	64.5	155	100.0
4. Gender-sensitivity training/sessions	26	16.8	13	8.4	116	74.8	155	100.0
5. Training in sports, theater arts, cultural performance	14	9.0	12	7.7	129	83.2	155	100.0
Society/Family/Gender Related Programs								
1. Community organizing	26	16.84	2	1.3	127	81.9	155	100.0
2. Conducting Family life/values/spiritual formation training or seminar	56	36.1	-	-	99	63.9	155	100.0
3. Traffic management, peace and order, anti drug abuse, anti-crime, anti graft campaign	56	16.8	-	-	129	83.2	155	100.0
4. Youth/group/leadership development	89	57.4	10	6.5	56	36.1	155	100.0
5. Citizenship/civic consciousness program	67	43.2	13	8.4	75	48.4	155	100.0
Economic/Agriculture Related Programs								
1. Farm classes/demonstration	26	16.8	-	-	129	83.2	155	100.0
2. Livelihood projects training	26	16.8	4	2.8	129	83.2	155	100.0
3. Economic networking/linkage	26	16.8	-	-	129	83.2	155	100.0
4. Cooperative/consumer education	11	7.1	1	.6	143	92.3	155	100.0
5. Skills training in food processing, handicraft, metal craft, manufacturing, etc.	36	23.2	-	-	119	76.8	155	100.0
Environmental/Engineering Related Programs								
1. Waste management/recycling	30	19.4	7	4.5	118	76.1	155	100.0
2. Environment sanitation	81	52.3	12	7.7	62	40.0	155	100.0
3. Beautification/greening	38	24.5	21	13.5	96	61.9	155	100.0
4. Reforestation/tree planting	39	25.2	16	10.3	100	64.5	155	100.0
5. Improvement of drainage system, water system, lighting, etc.	31	20.0	5	3.2	119	76.8	155	100.0
6. Repair and construction of infrastructures/buildings	12	7.7	-	-	143	92.3	155	100.0
Legal/Peace & Order/Political Programs								
1. Training in peace keeping	25	16.1	11	7.1	119	76.8	155	100.0
2. Leadership training for local officials	18	11.6	8	5.2	129	83.2	155	100.0

S-L Models of Academic Subjects

Shown in Table 5 is the distribution of Academic Subjects with S-L Components according to models for S-L Courses as controlled by Educational Level. Description on the general characteristics of the different models was adapted from Enos & Troppe (1996).

Results show that the majority (83.9 %) of the subjects in the pre-collegiate level can be classified under the Introductory Courses Model. It can be further gleaned from the table that in the collegiate level, three out of ten subjects (30.7 %) belong to the 4th Credit Option Model while one-third (33.3 %) of the S-L courses in the post-collegiate level are under Service-Centered Model. Considering all the 155 academic subjects identified with S-L components, one-fourth (25.2 %) can be classified under the Introductory Courses Model, nearly one-fourth (23.9 %) are Service-Centered while a little less than one fifth (19.35 %) belong to the 4th Credit Option and Disciplinary Capstone Models. It is noteworthy, however, that none of the S-L subjects identified can be classified as under Problem-Based Model.

The Service-Centered Model for S-L includes a service component which is used as the basis of presenting reports, papers and related assignments. Students get involved in any sort or variety of service work, but the focus is generally on student learning about a certain issue by reflecting on the cognitive and development aspects of the experience which must be linked with academic content rather than on what substantial outcomes are in the community. In this model, students can also write a synthesis paper narrating their actual service experience, rather than doing a research paper. The reports maybe descriptive and analytical but what is important is that they will be able to identify issues, programs and problems faced by the students as well as by the service-providers addressing the community needs.

The Fourth-Credit Option model for S-L courses enable students to add a fourth credit to a regular 3-credit course by contracting to do a significant number of hours of community services and regulating service to the course. In these subjects, learning resulted from service rather than for the service itself. This Fourth-Credit Option model also service learning internships and independent study where students serve regularly to meet certain requirements of service experiences relevant to their course. This model also focuses on the principle of reciprocity where both the community and the students are benefited equally from experience.

In the Disciplinary Capstone model, the cumulative knowledge of the students is integrated in a specific discipline by demonstrating it through a project. This approach to S-L can help students make deep and strong connections between service and their

respective discipline. Integrating service in their own chosen career will clearly define the relationship of what is scholarly learned to that of service. Academic subjects belonging to this model are generally designed for those students who take major or minor subjects in their respective disciplines. Usually, academic subjects belonging to this model are offered in the final year of study. The primary goal of this model is to synthesize students' acquired skills and knowledge in their respective disciplines.

Table 5. Distribution of Academic Subjects with S-L Components According to Models of S-L Courses and Educational Level (N=155)

Models of S-L Courses	Pre-Collegiate		Collegiate		Post Collegiate		Total	
	n	%	n	%	n	%	N	%
4th Credit Option	0	0.0	28	30.7	2	6.1	30	19.35
Placement	0	0.0	2	2.2	2	6.1	4	2.6
Service – Centered	5	16.1	21	23.1	11	33.3	37	23.9
Service-Leadership	0	0.0	4	4.4	8	24.2	12	7.7
Problem – Based	0	0.0	0	0.0	0	0.0	0	0.0
Action Research	0	0.0	1	1.1	2	6.1	3	1.9
Disciplinary Capstone	0	0.0	23	25.3	7	21.2	30	19.35
Introductory Course	26	83.9	12	13.2	1	3.0	39	25.2
Total	31	100.0	91	100.0	33	100.0	155	100

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

As a fresh pedagogical approach, service-learning offers a number of perspectives to be assessed through research opportunities so as to provide evidences needed to further develop existing curricular programs. The findings of this study undoubtedly show that there is an existence of academic subjects with service-learning components from the pre-collegiate, collegiate, and post-collegiate educational levels. This promising potential in the human service ideology of the university is a positive indicator of accomplishing the mission of social responsibility in the university's outreach function.

Since most academic subjects identified with S-L components were linked to academic contents and standards, they were further enhanced through participation of those concerned, i.e., both the faculty and students, in the activities of varied program areas for service experiences. Although not all academic subjects with S-L components extended all the services specified in the list of service-activities, many of them had extended services along youth/group leadership development and environment sanitation.

The academic subjects with S-L components were also described according to S-L models which clearly provided a vivid description of them. Although there was no academic subject identified as Problem-Based model for S-L, there were more academic subjects with S-L components which belonged to the Introductory Course model, followed by those in the Service-Centered model, and by those in the 4th Credit Option and Disciplinary Capstone models for S-L. The specifics of classifying the academic subjects with S-L components can significantly lead further to more relevant researches along S-L as a fresh pedagogical approach in teaching.

Recommendations

Based on the findings of this study, the following recommendations are given:

1. Having seminars and workshops on syllabi-making for academic subjects with service-learning components will tremendously enhance the teaching capacity of teachers who handle academic subjects with S-L components.

2. Having training workshops for using assessment tools to measure S-L activities will further develop the ability of the teachers to provide learning opportunities for students to fit in their skills and

knowledge as identified by their ability to do so.

Likewise, brain and brawn empowerment of students engaged in any S-L activity will propel his/her chance to make this world a better place nurtured in a culture of care. So, teachers handling academic subjects with S-L components must continually improve their capacity in new competencies, learning methodologies and communication and reflection techniques in S-L.

3. As an innovative pedagogical approach to learning, the service-learning activities must be efficiently monitored by teachers and supervisors in the discipline to ensure that proper procedure in handling the working relationship between service providers and the recipients of these services can be rewarding if guaranteed.

4. Since administrative structures are currently in place, the success and sustainability of service-learning programs will depend on effective administrative support. Hence, this should not be taken for granted by those in the administration. Regardless of what S-L model is adapted, it is but fitting and proper that this pedagogical approach which enhances student learning should be given a chance to be effectively implemented by committed administrators.

5. More researches on S-L in whatever mode of assessment must be encouraged.

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IDENTIFICATION AND COLLECTION OF INDIGENOUS MEDICINAL PLANTS IN BARANGAY AGSALANAN, DINGLE, PROVINCE OF ILOILO

By Ernesto S. Elefan

ABSTRACT

This botanical survey was carried-out to classify and identify the indigenous medicinal plants that thrive in Barangay Agsalanan, Dingle, Iloilo and assess their medicinal uses and conservation status. Frequency and percentage were the only statistics used in the study. Results showed that 155 plant species are under the 137 genera and 61 families of which 31.61%, 34.19%, 21.29%, 7.09%, 3.23%, 1.94%, and 0.65% were trees, herbs, shrubs, vines/climbers, grasses, palms, and a sedge, respectively. A relatively higher number of medicinal species belong to *Euphorbiaceae, Fabaceae, Asteraceae, Solanaceae, Lamiacea, Poaceae* and *Verbenaceae* families.. The medicinal uses range from treatment of a simple skin irritation to a deadly tumor and human cancer. Those reported to have anti-cancer property include, among others, Kalauag (*Curcuma longa* Linn.), Tsaang gubat (*Carmona retusa* (Vohl.) Masam), Bamban (*Donax cannaeformis* (Forst. f.) K. Schum), Rosas de Baybayon (*Catharanthus roseus* L.), Pandakaki (*Tabernaemontana pandacaqui* Poir), Lomboy (*Syzygium cuminii* (L.) Skeels), Bulubito-on (*Barringtonia asiatica* (Linn.) Kurz.), and Niyog (*Cocos nucifera* L.). At least 59 (38.06 %) were found to be endangered, threatened, depleted, or vulnerable plant species. Meanwhile, 83 (53.55%) plant species have been assessed as abundant and 13 (8.39 %) were indeterminate in terms of conservation status.

INTRODUCTION

Background of the Study

The traditional use of herbal medicine is very popular in the Philippines, especially in rural areas, because of the high cost of modern drugs and health services and the lack of medical facilities. Despite the scientific breakthroughs in medicine, 60% of the Filipino people die every year without ever seeing a doctor. In a study undertaken by researchers from the University of the Philippines-Manila (UPM), the University of the East Ramon Magsaysay Memorial Medical Center (UERMMMC), and the De La Salle University (DLSU), it has been shown that the majority of the Filipino respondents had nil or little knowledge of herbal medicine. Although 73.8 % of the respondents kept themselves informed about developments in the practice of herbal medicine, 67.7 % did not do so often enough to be truly knowledgeable about herbal medicine (PCHRD-DOST, 1996).

There are an estimated 13,500 plants species in the Philippines of which about 3,000 to 12,000 have medicinal and therapeutic properties (The Philippine Greens, 2005; Alcala, 2002; DOST-PCHRD, 1996). Of these, 10 have been officially endorsed by the DOH and at least four are being commercially manufactured into tablets and capsules after thorough clinical studies. These are lagundi (*Vitex negundo* L.), an antiasthmatic and anti-cough medicine; sambong (*Blumea balsamifera* (Linn) DC), a diuretic agent; tsaang gubat (*Carmona retusa* L.), an antispasmodic agent; and yerba buena (*Mentha cordifolia* Opiz), for headache relief. The other six medicinal plants are niyog-niyogan (*Quisqualis indica* L.), an antihelminthic; bayabas (*Psidium guajava* L.), for wound washing and diarrhea; akapulko (*Cassia alata* L.), as antifungal; ulasimang bato (*Pepperomia pellucida* (L.) HBK), for rheumatism and diabetes; bawang or ahos (*Allium sativum* L.), for hypertension and toothache; and ampalaya (*Momordica charantia* L.), for *diabetes mellitus* ((Reyala and Martinez, 2000; Quisumbing, 1978). Approximately, 70% of those found in tropical rainforests have been identified by the US National Cancer Institutute as having anti-cancer properties (The Philippine Greens, 2005).

The Philippines abounds with resources having medicinal potentials and the widespread development and use of herbal medicine can create more opportunities for employment aside from becoming another important agricultural crops supplying a growing number of government and private herbal medicine companies. A considerable number of these plant species simply grow unnoticed in the immediate surroundings and in the wild, but their medicinal values generally remain unknown to the local folks. The lack of information, or none of it, on these indigenous medicinal plants had significantly contributed to

the sufferings of the already financially-burdened ordinary Filipino people in the rural areas when members of a family get sick.

This study was carried-out to identify the medicinal plants that grow in Brgy. Agsalanan, Dingle, Iloilo, the University's model outreach and adopted barangay. It has a population of 921 persons with 170 households, of which 59.1 % households have a meager monthly family income of less than P4,000.00 which is not sufficient to meet their medical and nutritional needs especially of the children (Saquibal, 2002). The identified medicinal flora will be propagated later for conservation in a mini arboretum to be established inside the Agsalanan Elementary School campus. This will serve as an immediate source of information for the local folks on the specific medicinal uses of the indigenous plant species and their propagation. Herbaria collected were stored at the Life Sciences Department for instructional and research purposes.

Presently, there is no documented information on the indigenous medicinal plants that thrive in the study area. Therefore, the researcher found it imperative to conduct this botanical survey as an effective step to plant diversity conservation and as part of CPU's awareness campaign on both the medicinal applications of the indigenous flora and the need for their conservation especially those species with decreasing population which becomes another urgent concern to the environmentalists. Finally, the claimed folkloric medicinal uses of the listed plants in the study area can be further subjected to scientific validation so these can be included in the medical curriculum, and aggressive promotion among medical practitioners.

Objectives of the Study

The general objective of the study was to establish baseline data on the indigenous medicinal plants that thrive in Brgy. Agsalanan, Dingle, Iloilo, a model outreach and an adopted barangay of the University.

This study had the following specific objectives:

1. To classify and identify the existing indigenous medicinal plants;
2. To determine the conservation status of the indigenous medicinal plants;
3. To know the medicinal uses of the indigenous medicinal plants; and,
4. To establish an arboretum of the classified medicinal plants.

Significance of the Study

Rural folks. Information that were gathered will provide the rural people the correct identification and medicinal uses of the indigenous plants that thrive in the locality to alleviate them from the bondage of expensive commercial drugs. This will also enable them to build their own backyard herbal garden and correctly label the different plant species by themselves.

Students. Information that were gathered will become vital part of the students' reservoir of knowledge about the plant world especially those of medicinal values that would develop in them awareness on their uses and stimulate them to be active partners in the country's program toward plant diversity conservation.

Researcher. Data obtained from the study will guide the researcher in the proper identification and classification of all indigenous medicinal plants encountered in the field. Furthermore, the data will help him in determining the conservation status of these species as abundant, threatened, endangered, or rare which is significant in plant conservation strategy.

Future researchers. Results obtained can be used as bases in preparing similar research proposal in the future which may be replicated in similarly situated areas. This can also be a basis of follow-up study to determine the veracity of the reported data.

Teachers. Botanical information that can be generated will be knowledge enrichment among biology teachers so they may improve their teaching competence in the subject area. The study area can be another prospect for doing field activity in plant science and related discipline thus improving the quality of knowledge of biology students considering the existence of officially and systematically gathered floristic data.

DENR. Botanical data from the study area can be a basis for future recommendation or endorsement by the Department of Energy and Natural Resources (DENR) geared towards plant diversity, conservation and protection of the area where "endangered" or "rare" plant species thrive. Besides, data gathered form part of Information Bank that will be accessible to the public in general and be made basis for future research.

Scope and limitation of the Study.

This botanical survey was conducted to classify and identify the indigenous medicinal plants in Barangay Agsalanan, Dingle, Iloilo and its nearby surroundings; assess their medicinal values and conservation status; and collect sample herbarium specimens for instructional purposes. It was carried out employing the descriptive survey method for rapid assessment wherein every encountered plant species of known medicinal uses was listed, classified, and described accordingly. Only those medicinal plants properly classified were included in the final survey list. Data were entered into a researcher-prepared matrix before encoding and processing into the computer for analysis.

METHODOLOGY

Research Design

The study employed the descriptive survey and rapid assessment method.   Medicinal plants encountered were listed, identified, and classified and their conservation status and medicinal uses determined based on selected, scientific printed references, internet, and experts who were interviewed. The local folks were also interviewed on the local identification and traditional medicinal applications of the listed flora.

Field Survey and Collection

To assess the physical distribution of medicinal plants in the study area, a reconnaissance survey was done first. Moving around and within the study area and the nearby areas, indigenous medicinal plants encountered personally were properly identified according to their local/common names and entered into the data sheet. The local folks were also interviewed on the local names and medicinal applications of the species. Herbarium collection was also done and the specimens were preserved and deposited in the Life Sciences Department, CPU for future use.

Establishment of an Arboretum

An arboretum will be established inside the premises of Agsalanan Elementary School when funds are already available. This will be carried-out with proper consultation and coordination with the barangay officials and school authorities. Woody medicinal plants will be asexually propagated by stem cutting, grafting, or marcotting. Seeds

will also be collected and propagated in plastic pots. Herbaceous plants will be propagated using their potential vegetative propagules and seeds.

Data Gathered

Species composition. All medicinal plants encountered in Brgy. Agsalanan and nearby areas were listed, properly identified, and classified according to their growth habit as tree, palm, shrub, herb, grass, sedge, or vines/climbers.

Conservation status. The conservation status of the medicinal plants surveyed as threatened, endangered, depleted, vulnerable, rare, abundant, or indeterminate, was determined based on the available selected library references, information from the Internet, interviews with the local experts, and personal impressions.

Medicinal uses. The known medicinal uses of indigenous flora in the area were determined based on scientific research based reports, Internet source, and personal interviews with the local experts. The community folks' traditional utilization of the medicinal plants becomes a vital information in the investigation.

Data Processing

Data gathered were entered into a researcher-made data sheet specially prepared for this particular study. These were properly consolidated into appropriate format before these were encoded for computer processing.

Statistical Tools

Frequency and percentage were the only statistical tools used.

MAJOR FINDINGS

Species composition. At least, a total of 155 medicinal plant species have been listed and classified from the study area. Of these, 49 (31.61%), 53 (34.19%), 33 (21.29%), 11 (7.09%), 5 (3.23%), 3 (1.94%), and 1 (0.65%) were trees, herbs, shrubs, vines/climbers, grasses, palms, and sedge, respectively (Table 1). These plant species were classified under 137 plant genera and 61 families. A relatively higher number of medicinal plant species belong to the plant Families *Euphorbiaceae* (10), *Fabaceae* (10), *Solanaceae* (7), *Asteraceae* (6),

Lamiaceae (6), *Verbenaceae* (6), and *Poaceae* (6). The plant species included in the top plant families are shown in Table 2.

Table1. Distribution of Indigenous Medicinal Plants According To Growth Habit

Growth Habit	Number of Species	Percent
Herbs	53	34.19
Trees	49	31.61
Shrubs	33	21.29
Vines / Climbers	11	7.09
Grasses	5	3.23
Palms	3	1.94
Sedge	1	0.65
Total	155	100.00

Conservation Status

Of the 155 medicinal plant species, about 59 (38.06 %) were found in an alarming population level or less common. At least 83 (53.55%) plant species have been listed as abundant or common and 13 (8.39 %) were of indeterminate conservation status (Table3).

The highest number of medicinal plant species with alarming population level were listed as trees to include among others, anagas (*Semecarpus cuneiformis Blanco),* anino or apatot *(Morinda citrifolia* Linn.), anonang   (*Cordia dichotoma* Forst F.), bangkiling (*Phyllanthus acidus* L.), binunga (*Macaranga tanarius* (Linn.) Mueller (Argoviensis, d.d. van Aargau), bita /dita (*Alstonia scholaris* (L.) R. Br.), bignay (*Antidesma bunius* (L.) K. Spreng.), bulubitoon /botong (*Barringtonia asiatica*   (L.) Kurz.), iniam (*Antidesma obliquinervium*), kabugao (*Citrus grandis* Osbeck), kasla (*Jatropha curcas* Linn.), and narra (*Pterocarpus indicus* Willd.). Two palms, buri (*Corypha elata* Roxb.) and bunga (*Areca catechu* L.) were described as vulnerable (Table 4).

Shrubs of alarming conservation status include adgaw or alagaw (*Premna odorata* Blanco), alibutbut or pandacaqui (*Tabernaemontana pandacaqui* Poir), bunlao (*Justicia gendarussa* Burm. F.), himamalak *(Leea manilensis*), katsubong (*Datura metel* Linn.), palochina (*Cassia alata* Linn.), saling uwak (*Clerodendron quadriculare* (Blanco) Merr.), soro-soro (*Euphorbia trigona* Haw.), talong punai *(Solanum nigrum* L.), tangan-tangan (*Ricinus communis* L.), and tubang morado(*Jatropha gossypifolia* Linn.) (Table 5).

Table 2. Major Families of Indigenous Medicinal Plant Species in Brgy. Agsalanan, Dingle, Iloilo.

Plant Families	Number of Species	Identified Medicinal Plant Species
1. *Euphorbiaceae*	10	Alam, Alim (*Melanolepis multiglandulosa* Reinw. Reichb. f. and Zoll.) Bankiling (*Phyllanthus acidus* Skeels) Bugnay (*Antidesma bunius* (L.) Spreng. Binunga (*Macaranga tanarius* (Linn.)Muell.) Iniam (*Antidesma gaesimbilla* Gaertn.)) Luhang dalaga (*Pedilanthus tithymaloides* (L.) Poit. Kamoteng Kahoy (*Manihot esculenta* Crantz) Soro-soro (*Euphorbia trigona* Haw.) Tawa-tawa (*Euphorbia hirta* Linn.) Tubang morado (*Jatropha gossypifolia* Linn.)
2. *Fabaceae*	10	Balatung /Hantak (*Vigna unguiculata*) Dapdap (*Erythrina orientalis* (L.) Merr. Gaway-gaway (*Sesbania grandiflora* (Lin.) Pers.) Madre de Cacao (*Gliricidia sepium* (Jacq.)Steud) Narra (*Pterocarpus indicus* Willd..) Kabalyero (*Caesalpina pulcherrima* (Linn.) Sw.) Kadios (*Cajanus cajan* (Linn.) Millsp.) Kalaykay (*Desmodium pulchellum* Linn. Benth.) Kamantula (*Cassia tora* Linn.) Palochina (*Cassia alata* L.)
3. *Solanaceae*	7	Kamatis (*Lycopersicon esculentum* Mill.) Katsubong (*Datura metel* Linn.) Katumbal, Sili (*Capsicum frutescens* L.) Malatalong (*Solanum verbascifolium* Linn.) Malasili (*Solanum nigrum* Linn.) Tabako (*Nicotiana tabacum* Linn. Talong (*Solanum melongena* Linn.)
4. *Asteraceae*	6	Artemisa (*Artemisia vulgaris* Linn.) Bahug-bahug (*Ageratum conyzoides*, Linn.) Cosmos (*Cosmos sulphureus* Cav.) Dila-dila (*Elephantopus scaber* Linn.) Hagonoy (*Chromolaena odorata* L.)
5. *Lamiaceae*	6	Alibhon (*Blumea balsamifera* (Linn.) DC. Kalu-ui (*Ocimum basilicum* Linn.) Lampunaya (*Coleus blumei* Benth.) Loko-loko (*Hyptis suaveolens* Poir.) Oregano (*Coleus amboinecus* Lour.) Yerba Buena (*Mentha arvensis* Linn.)
6. *Verbenaceae*	6	Adgao (*Premna odorata* Blanco) Baho-baho (*Lantana camara* Linn.) Gemelina (*Gmelina arborea* L.) Lagundi (*Vitex negundo* Linn.) Saling-uwak (*Clerodendron quadriloculare* (Blanco)Merr. Sentimiento (*Stachytarpeta Jamaicensis* (Linn.) Vohl
7. *Poaceae*	6	Barire (*Andropogon aciculatus* Retz.) Dalusan (*Bambusa vulgaris* Schrad.) Kogon (*Imperata cylindrica* (Linn) Beauv. Mais (*Zea mays* L.) Palagtiki (*Eleusine indica* (Linn.) Gaertn. Tanglad (*Andropogon citratus* L).

Table 3. Distribution of Indigenous Medicinal Plants According
to Conservation Status

Conservation Status	Trees/Palms		Shrubs		Herbs		Vines/Climber		Grass		Sedge	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. Abundant	24	46.15	15	45.45	31	58.49	7	63.64	5	83.33	1	100.00
2. Depleted	15	28.85	3	9.09	0	0.00	0	0.00	0	0.00	0	0.00
3. Endangered	4	7.69	2	6.07	8	15.01	0	0.00	0	0.00	0	0.00
4. Threatened	3	5.77	13	39.39	5	9.53	0	0.00	0	0.00	0	0.00
5. Vulnerable	6	11.54	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
6. Indeterminate	0	0.00	0	0.00	9	16.98	4	36.36	1	16.67	0	0.00
	52	100.00	33	100.00	53	100.00	11	100.00	0	100.00	1	100.00

Among herbs, alobera or sabila (*Aloe barbadensis* Mill.), bamban
(Donax cannaeformis (Forst) K. Schum), bangka-bangkaan (*Rhoeo
discolor* (L) Herit Hance, kalawag or lampuyang (*Curcuma longa*
Linn.), kalu-ui (*Ocimum basilicum* L.), langkawas (*Languas
pyramidata* (Blume) Merr.), labog (*Hibiscus suratensis* Linn), lubigan
(*Acorus calamus* L.), luhang dalaga (*Pedilanthus tithymalloides*
(Linn.) Poit.), maritana/katakataka (*Bryophyllum pinnatum* (Lamarck)
Kurz., oregano (*Coleus amboinicus* Lour.), rosas de baybayon
(*Catharanthus roseus* (L.) G.Don.), tabubunglaw (*Costus speciosus*
(Koenig.) J. Smith), and talos (*Homolocasia* sp.) were of alarming
conservation status (Table 6).

Among vines or climbers, buyo (*Piper betle* L.), manunggal or
basyawan (*Samadera indica* Gaertn.), melon gubat (*Melothria
maderaspatana* (Linn.) Cogn.) and ubi (*Dioscorea alata* L.) were found
to be indeterminate in their conservation status . The rest have been
found to be abundant (Table 7). Among grasses, tanglad (*Andropogon
citratus* L.) has indeterminate status or with insufficient information
and the rest have been found to be abundant (Table 8).

Table 4. Classification and Conservation Status of Indigenous

Local Name	English/Common Name	Scientific Name
1. Agoho	1. Beach Agoho	1. Casuarina equisetifolia Lin.
2. Akasya	2. Rain tree	2. Samanea saman (Jacq.)Merr.
3. Alum, Alim	3. Croton mollucana	3. Melanolepis multiglandulosa (Reinw. Reichb. f. and Zoll.
4. Anagas	4. Euphlebia	4. Semecarpus cuneiformis Blanco
5. Anino, Apatot	5. Indian mulberry	5. Morinda citrifolia Linn.
6. Anonang	6. Soap berry	6. Cordia dichotoma Forst. F.
7. Atis	7. Sugar apple	7. Annona squamosa L.
8. Avocado	8. Alligator pear	8. Persea americana
9. Babana	9. Soursop	9. Annona muricata L.
10. Balungay	10. Horse radish tree	10. Moringa oleifera Lam.
11. Banaba	11. Queen's CrapeMyrtle	11. Lagerstroemia speciosa (L.) Pers.
12. Bangkal	12. Southern bangkal	12. Nauclea junghuhnii (Miq.) Merr.
13. Bangkiling	13. Otaheite gooseberry	13. Phyllathus acidus L.
14. Bayabas	14. Guava	14. Psidium guajava L.
15. Binunga	15. Parasol leaf tree	15. Macaranga tanarius (Linn.) Mueller Argoviensis, d.d. van Aargau)
16. Bita, Dita	16. Milky pine	16. Alstonia scholaris (L.) R. Br.
17. Bugnay	17. Bignay	17. Antidesma bunius (L.)K. Spreng
18. Bulubitoon	18. Black mangrove	18. Barringtonia asiatica (L.) Kurz.
19. Bunga(Palm)	19. Betel nut	19. Areca catechu L.
20. Buri (Palm)	20. Buri Palm	20. Corypha elata Roxb.
21. Cacao	21. Cocoa	21. Theobroma cacao Linn.
22. Dalusan	22. Spineless bamboo	22. Bambusa vulgaris Schrad.
23. Dapdap	23. Coral Tree	23 Erythrina orientalis L.
24. Datiles	24. Japanese Cherry	24. Muntingia calabura L.
25. Duldol	25. Silk cotton tree	25.Ceiba pentandra (L.) Gaertn.
26. Estiwitis	26. Lipstick plant	26. Bixa orellana L.
27. Garangan	27. Starfruit	27. Averrhoa carambola Linn
28. Gaway-gaway	28. Annato	28. Sesbania grandiflora (L.)Persoon
29. Gemelina	29. Gemelina	29. Gmelina arborea Roxb.
30. Iba	30. Cucumber tree	30. Averrhoa carambola L.
31. Iniam	31. Aniam tree	31. Antidesma gaesembilla Gaertn.
32. Ipil-ipil	32. Ipil-ipil	32. Leucaena leucocephala (Lamk.) eWitt
33. Kabugao	33. Pomelo	33. Citrus grandis Osbeck
34. Kalachuchi	34. White calachuchi	34. Plumeria obtusa L.
35. Kamunsil	35. Sweet Camachile	35. Pithecelobium dulce (Roxb.) Benth.
36. Kapayas	36. Papaya	36. Carica papaya Linn.
37. Kasla	37. Physic nut	37. Jatropha curcas Linn.
38. Langka	38. Jackfruit	38. Artocarpus heterophyllus Lamk.
39. Lubi (Palm)	39. Coconut	39. Cocos nucifera L.
40. Lomboy	40. Java plum	40. Syzygium cuminii (L.) Skeels
41. Madre de Kakaw	41. Madre de Cacao	41. Gliricidia sepium (Jacq.) Kunth ex Walt
42. Mahogani	42. Large leaf mahogany	42. Swietenia macrophylla King
43. Narra	43. Narra	43. Pterocarpus indicus Wild.
44. Neem tree	44. Phil Neem tree	44. Melia dubia Cav.
45. Paho	45. Mango	45. Mangifera indica L.
46. Saging	46. Banana	46. Musa spp.
47. Sambag	47. Tamarind	47. Tamarindus indicus L.
48. Santol	48. Santol	48. Sandoricum koetjape (Burm. F) Merr
49. Starapple	49. Star apple	49. Chrysophyllum cainito L.
50. Suha	50. Panama orange	50. Citrus microcarpa Bunge
51. Talisay	51. Talisay tree	51. Terminalia catappa Linn.
52. Tsiko	52. Chico	52. Manilkara zapota (L.) van Royen

Family Name	Conservation Status
1. Casuarinaceae	1. Vulnerable
2. Mimosaceae	2. Abundant
3. Euphorbiaceae	3. Depleted
4. Anacardiaceae	4. Depleted
5. Rubiaceae	5. Depleted
6. Boraginaceae	6. Depleted
7. Annonaceae	7. Abundant
8. Lauraceae	8. Abundant
9. Annonaceae	9. Abundant
10. Moringaceae	10. Abundant
11. Lythraceae	11. Abundant
12. Rubiaceae	12. Depleted
13. Euphorbiaceae	13. Depleted
14. Myrtaceae	14. Abundant
15. Euphorbiaceae	15. Depleted
16. Apocynaceae	16. Depleted
17. Euphorbiaceae	17. Depleted
18. Lecythidaceae	18. Depleted
19. Arecaceae	19. Vulnerable
20. Arecaceae	20. Vulnerable
21. Sterculiaceae	21. Abundant
22. Poaceae	22. Abundant
23. Fabaceae	23. Endangered
24. Elaeocarpaceae	24. Abundant
25. Bombacaceae	25. Depleted
26. Bixaceae	26. Abundant
27. Averrhoaceae	27. Endangered
28. Fabaceae	28. Vulnerable
29. Verbenaceae	29. Abundant
30. Averrhoaceae	30. Threatened
31 Euphorbiaceae	31. Vulnerable
32.Mimosaceae	32. Abundant
33. Rutaceae	33. Depleted
34. Apocynaceae	34. Abundant
35. Mimosaceae	35. Abundant
36. Caricaceae	36. Abundant
37. Euphorbiaceae	37. Threatened
38. Moraceae	38. Abundant
39. Arecaceae	39. Abundant
40. Myrtaceae	40. Depleted
41. Fabaceae	41. Threatened
42. Meliaceae	42. Abundant
43. Fabaceae	43. Vulnerable
44. Meliaceae	44. Depleted
45. Anacardiaceae	45. Abundant
46. Musaceae	46. Abundant
47. Mimosaceae	47. Abundant
48. Meliaceae	48. Abundant
49. Sapotaceae	49. Abundant
50. Rutaceae	50. Abundant
51. Combretaceae	51. Vulnerable
52. Myrtaceae	52. Vulnerable

Table 5. Classification and Conservation of Indigenous Medicinal Shrubs.

Local Name	English/Common Name	Scientific Name
1. Adelfa	1.Ceylon tree	1. Nerium oleander Blanco
2. Adgaw, Alagaw	2. Smelly Premna	2. Premna odorata Blco.
3. Alibutbut	3. Banana bush	3. Tabernaemontana pandacaqui Poir
4. Baho-baho	4. Coronitas	4. Lantana camara (Linn.)
5. Baston ni San Jose	5. Cordyline	5. Cordyline fruticosa (Linn.) A.Cheval
6. Bunlao	6. Gandarussa	6. Justicia gendarussa Burm f.
7. Himamalak	7. Leca	7. Leca manilensis
8. Kabalyero	8. Peacock flower	8. Caesalpina pulcherrima (L.) Swartz.
9. Kadios	9. Pigeon pea	9. Cajanus cajan (L.) Millsp.
10. Kamoteng kahoy	10 .Cassava	10.Manihot esculenta Crantz
11. Kalaykay	11. Wild shrimp plant	11.Desmodium pulchellum (I.) Benth.
12. Katsubong	12. Thorn apple	12.Datura metel Linn
13. Lagundi	13. Five-leaved Chaste tree	13. Vitex negundo L.
14. Lima-lima	14. Five fingers	14. Schefflera odorata(Blanco)Merr.&Rolfe
15. Loko-loko	15. Hyptis	15. Hyptis suaveolens Poir.
16. Malatalong	16. Bugweed	16. Solanum verbascifolium Linn.
17. Okra	17. Okra	17. Abelmoschus esculentus
18. Palad/ kaktus	18. Prickly pear	18. Nopalea cochenillifera (L.)Salm Dyck.
19. Palochina	19. Ringworm shrub	19. Cassia alata Linn.
20. Pasao/ Atai-atai	20. Broadleaved morado	20. Graptophyllum pictum(Linn.) Griff.
21. Platito	21. Cup-leaved papua	21. Polyscias scutellaria (Burm. F) Fosh
22. Pinion	22. Honey suckle	22. Quisqualis indica L.
23. Rosal	23. Gardenia	23. Gardenia jasminoides Ellis
24. Santan	24. Santan	24. Ixora coccinea L.
25. Saling uwak	25.. Pagoda flower	25. Clerodendron quadriloculare (Blanco) Merr.
26.Sudo-sudo	26. Candle stick	26. Euphorbia trigona Haw.
27. Tagabang	27. Jute	27. Corchorus olitorius L.
28. Talong punai	28. Black nightshade	28. Solanum nigrum L.
29. Talong	29. Eggplant	29. Solanum melongena L.
30. Tangan-tangan	30. Castor Oil plant	30. Ricinus communis L.
31 Tapulanga	31. China Rose	31. Hibiscus rosa-sinensis L.
32. Tsaang gubat	32. Tea plant	32. Carmona retusa (Vahl.) Masam.
33. Tubang morado	33. Purple Jatropha	33. Jatropha gossypifolia L.

Family Name	Conservation Status
1.Apocynaceae	1.Threatened
2.Verbenaceae	2.Threatened
3. Apocynacea	3.Vulnerable
4. Verbenaceae	4.Abundant
5. Agavaceae	5.Abundant
6. Acanthaceae	6.Threatened
7. Leeaceae	7. Threatened
8. Fabaceae	8. Abundant
9. Fabaceae	9. Abundant
10. Euphorbiaceae	10.Abundant
11. Fabaceae	11.Abundant
12. Solanaceae	12.Threatened
13. Verbenaceae	13.Abundant
14. Araliaceae	14.Vulnerable
15. Lamiaceae	15.Vulnerable
16. Solanaceae	16.Abundant
17. Malvaceae	17.Endangered
18. Cactaceae	18.Abundant
19. Fabaceae	19.Threatened
20. Acanthaceae	20.Abundant
21. Araliaceae	21.Abundant
22. Combretaceae	22.Threatened
23. Rosaceae	23.Endangered
24. Rubiaceae	24.Abundant
25. Verbenaceae	25.Threatened
26. Euphorbiaceae	26.Threatened
27. Tiliaceae	27.Abundant
28. Solanaceae	28.Threatened
29. Solanaceae	29.Abundant
30. Euphorbiaceae	30.Threatened
31. Malvaceae	31.Abundant
32. Boraginaceae	32.Threatened
33. Euphorbiaceae	33.Threatened

Trees species that registered the highest multiple medicinal applications worldwide include, among others, anino or apatot, avocado, balunggay, bayabas, bita/dita, duldol, estiwitis, garangan, iba, kapayas, kasla, kawayan tunokon, lubi/niyog, sambag, and talisay. Medicinal trees that have potential anti-cancer property include lomboy, lubi/niyog, and bulubito-on butong (Table 9).

The medicinal plants can be prepared in different methods depending on how they should be applied. These include preparations as aromatic waters of saturated aqueous solution; as poultices by grounding parts into semi-liquid and applied externally to alleviate inflammations or to re-activate a part; as decoctions by boiling plant parts in water for a period of time, then strained and cooled; as elixirs by mixing decoctions with wine and sugar for oral use; as infusions by stepping the plant in boiling water for at least 15 minutes, prepared as tea and flavored with honey; as plasters by grounding or macerating plant parts and percolate in alcohol until preparation is concentrated.

Among shrubs, bunlao, alibutbut, baho-baho, loko-loko, baston ni san jose, rosal, tangan-tangan, and tapulanga appeared to have greater medicinal uses than the rest. Alibutbut or pandakaki has also been reported to have anti- cancer property (Table 10).

Among herbs, ahos or bawang, alibhon, alom-alom/colitis, gatas-gatas/tawa-tawa, kalauag/lampuyang, kalu-ui, kusol, mansanilya, oregano, rosas de baybayon, sentimiento, tabako, and oray were found to have greater medicinal application than the other species. Only rosas de baybayon has been widely reported to have an anti-cancer property (Table 11).

All the 11 vines or climbers have multiple medicinal applications although alogbate and amargoso appeared to have more uses than the rest. Despite the abortive effect of manunggal, the plant has been effective in curing malignant fevers, rheumatism, asthma, and chest afflictions (Table 12).

Five common grasses and a sedge were found to have multiple medicinal uses but tanglad was shown to be the most prominent and is a cure for many common human illnesses. Sudsud, a common sedge, can also cure certain illnesses such as furuncle infection, painful menstruation, and chest pain (Table 13).

Table 6. Classification and Conservation Status of Indigenous Medicinal Herbs

Local /Common Name	English Name	Scientific Name
1. Ahos /Bawang	1. Garlic	1. *Allium sativum* Linn.
2. Ajos-ajos nga maputi	2. Spider lily	2. *Hymenocallis littorale* (Jacq.) Salisb.
3. Alibhon	3. Ngai Camphor	3. *Blumea balsamifera* (L.)DC.
4. Alobera, Sabila	4. Aloe	4. *Aloe barbadensis* Mill.
5. Alom-alum / Uray	5. Common amaranth	5. *Amaranthus viridis* L.
6. Amarillo	6. Marigold	6. *Tagetes erecta* Linn.
7. Alusiman	7. Common purslane	7. *Portulaca oleraceae* Linn.
8. Artamisa	8. Mugwort	8. *Artemesia vulgaris* L.
9. Asistasia	9. Asystasia	9. *Asystasia gangetica* (L.) T. Anders
10. Badyang	10. Giant taro	10. *Alocasia macrorrhiza* (L.) G. Don
11. Bahug-bahug	11. Goat weed	11. *Ageratum conyzoides L.*
12. Balatong(Hantak)	12. Bush sitao	12. *Vigna unguiculata ssp. unguiculata*
13. Bamban	13. Giant reed	13. *Donax cannaeformis* (Forst.) K. Schum.
14. Bangka-bangkaan	14. Boat of Moses	14. *Rhoeo discolor* (L. Herit) Hance
15. Dagmai	15. Taro	15. *Colocasia esculenta* L.
16. Dila-dila	16. Prickly-leaf	16. *Nopalea cochinellifera* (L).Salm Dyck
17. Gatas-gatas	17. Milkweed	17. *Euphorbia hirta* Linn.
18. Huya-huya	18. Sensitive plant	18. *Mimosa pudica* L.
20. Kalawag,Lampuyang	20. Turmeric	20. *Curcuma longa* Linn.
21. Kalu-ui	21. Sweet Basil	21. *Ocimun basilicum* L.
22. Kamantulan	22. Foetic Cassia	22. *Cassia tora* (Linn)
23. Kamatis	23. Tomato	23. *Lycopersicon esculentum* Mill.
24. Katumbal, Sili	24. Cayenne	24. *Capsicum frutescens* L.
25. Kiyapo	25. Water cabbage	25. *Pistia stratiotes* L.
26. Kolitis	26. Spiny Amaranth	26. *Amaranthus spinosus* Linn.
27. Kusol	27. Kusol	27. *Kaempferia galanga*
28. Labog	28. Rosemallow	28. *Hibiscus suratensis* Linn.
29. Lampunaya	29. Coleus	29. *Coleus blumei* Benth.
30. Langkawas	30. Red turmeric	30. *Languas pyramidata* (Blume). Merr.
31. Loko-loko	31. Bush tea-bush	31. *Hyptis suaveolens* (L) Poir.
32. Lubigan	32. Sweet Flag	32. *Acorus calamus* L.
33. Luhang dalaga	33. Slipper plant	33. *Pedilanthus tithymaloides* (Linn.)Poit.
34. Lupo-lupo	34. Prickly chaff flower	34. *Achyraranthes aspera* Linn.
35. Luy-a	35. Ginger	35. *Zingiber officinale* L.
36. Mansanilya	36. Winter aster	36. *Chrysanthemum indicum* L.
37. Maritana	37. Life plant	37. *Bryophyllum pinnatum* L.
38. Oregano	38. Spanish thyme	38. *Coleus amboinicus* Lour.
39. Pansit-pansitan	39. Shiny peperomia	39. *Pepperomia pellucida* (L.)HBK.
40. Rosas de Baybayon	40. Periwinkle	40. *Catharanthus roseus* (L.)G. Don
41. Sabilaw	41. Commelina	41. *Commelina diffusa* (Linn.)
42. Saging	42. Banana	42. *Musa spp.*
43. Sentimiento	43. Jamaican vervain	43. *Stachytarpheta jamaicensis* (L.) Vohl.
44. Solanga	44. Touch-me-not	44. *Impatiens balsamina* L.
45. Sibuyas	45. Onion	45. *Allium cepa* L.
46. Badyang nga pula	46. Giant red taro	46. *Alocasia sp.*
47. Tabako	47. Tobacco	47. *Nicotiana tabacum* L.
48. Tabubunglaw	48. Spiral ginger	48. *Costus speciosus* (Koenig) J. Smith
49. Talos	49. Red taro	49. *Homolocasia sp.*
50. Tigre-tigre	50. Bowstring hemp	50. *Sanseviera zeylanica* L.
51. Trompa elepante	51. Snakeweed	51. *Heliotropium indicum* (Linn.)
52. Yahong-yahong	52. Pennyworth	52. *Centella asiatica* (Linn.) Urb.
53. Yerba buena	53. Peppermint, Mint	53. *Mentha arvensis* L.

Table 6 Continued

Family Name	Conservation Status
1. *Amaryllidaceae*	1. Abundant
2. *Amaryllidacee*	2. Indeterminate
3. *Lamiaceae*	3. Abundant
4. *Liliacae*	4. Endangered
5. *Amaranthaceae*	5. Abundant
6. *Asteraceae*	6. Indeterminate
7. *Portulacaceae*	7. Abundant
8. *Asteraceae*	8. Indeterminate
9. *Acanthaceae*	9. Indeterminate
10. *Araceae*	10. Indeterminate
11. *Asteraceae*	11. Abundant
12. *Fabaceae*	12. Abundant
13. *Maranthaceae*	13. Indeterminate
14. *Commelinaceae*	14. Threatened
15. *Araceae*	15. Abundant
16. *Cactaceae*	16. Abundant
17. *Euphorbiaceae*	17. Abundant
18. *Mimosaceae*	18. Abundant
20. *Zingiberaceae*	20. Endangered
21. Lamiaceae	21. Endangered
22. *Fabaceae*	22. Abundant
23. *Solanaceae*	23. Abundant
24. *Solanaceae*	24. Abundant
25. *Araceae*	25. Abundant
26. *Amaranthaceae*	26. Abundant
27. *Zingiberaceae*	27. Indeterminate
28. *Malvaceae*	28. Endangered
29. *Lamiaeae*	29. Abundant
30. *Zingiberaceae*	30. Endangered
31. *Lamiaceae*	31. Abundant
32. *Araceae*	32. Endangered
33. *Euphorbiaceae*	33. Endangered
34. *Amaranthaceae*	34. Abundant
35. *Zingiberaceae*	35. Abundant
36. *Asteraceae*	36. Abundant
37. *Crassulaceae*	37. Endangered
38. *Lamiaceae*	38. Threatened
39. *Piperaceae*	39. Abundant
40. *Apocynaceae*	40. Threatened
41. *Commelinaceae*	41. Abundant
42. *Musaceae*	42. Abundant
43. *Verbenaceae*	43. Abundant
44. *Balsaminaceae*	44. Abundant
45. *Amaryllidaceae*	45. Abundant
46. *Araceae*	46. Indeterminate
47. *Solanaceae*	47. Abundant
48. Zingiberaceae	48. Threatened
49. *Araceae*	49. Threatened
50. *Liliaceae*	50. Abundant
51. *Boragianceae*	51. Abundant
52. *Apiaceae*	52. Abundant
53. *Lamiaceae*	53. Abundant

Table 7. Classification and Conservation Status of Indigenous Medicinal Vines/Climbers.

Local Name	English/Common Name	Scientific Name	Family Name	Conservation Status
1. Alugbate	1. Malabar spinach	1.*Basella alba* L.	1.*Basellaceae*	1. Abundant
2. Amargoso	2. Bitter gourd	2.*Momordica charantia* L.	2.*Cucurbitaceae*	2. Abundant
3. B?yo	3. Betle vine	3.*Piper betle* L.	3.*Piperaceae*	3. Indeterminate
4. Hagonoy	4. Devil weed	4.*Chromolaena odorata* L.	4.*Asteraceae*	4. Abundant
5. Kalabasa	5. Squash	5.*Cucurbita maxima* L.	5.*Convolvulaceae*	5. Abundant
6. Kamote	6. Sweet potato	6.*Ipomoea batatas* (L.) Poir.	6.*Convolvulaceae*	6. Abundant
7. Manunggal	7. Bitter vine	7.*Samadera indica* Gaertn.	7. *Imarubaceae*	7. Indeterminate
8. Melon gubat	8. Wild Ivy gourd	8.*Melothria maderaspatana* (L.) Cogn.	8.*Cucurbitaceae*	8. Indeterminate
9. Patola	9. Sponge gourd	9.*Luffa cylindrica* Roem.	9.*Cucurbitaceae*	9. Abundant
10. Tankong	10. Water cabbage	10.*Ipomoea aquatica* Forsk	10.*Convolvulaceae*	10. Abundant
11. Ubi	11. Purple Dioscorea	11.*Dioscorea alata* L.	11.*Dioscoreaceae*	11. Indeterminate

Table 8. Medicinal Grasses and Sedge

Local Name	English / Common Name	Scientific Name	Family Name	Conservation Status
1.Barire	1.Amorsecos	1.*Andropogon aciculatus* Retz.	1.*Poaceae*	1.Abundant
2.Kogon	2. Cogon	2. *Imperata cylindrical* L.	2.*Poaceae*	2.Abundant
3.Mais	3. Corn	3. *Zea maize* L.	3. *Poaceae*	3.Abundant
4.Mutha (Sedge)	4. Purple nutsedge	4. *Cyperus rotundus* Linn.	4.*Cyperaceae*	4.Abundant
5.Palagtiki	5. Goose grass	5. *Eleusine indica* L.	5. *Poaceae*	5.Abundant
6.Tanglad	6. Lemon grass	6. *Andropogon citratus* L.	6.*Poaceae*	6. Indeterminate

Table 9. Indigenous Trees and Palms and Their Medicinal Applications

Local/ Common Name	Medicinal Applications
1. Agoho	Diuretic, colic, astringent, emmenagogue, ecbolic, haemoptysis, arres diarrhea, dysentery, beriberi, swellings, pimples, tonic
2. Akasya	Antipyretic, Stomachic, Astringent, Antidermatoses, cures blood in the stool, dandruff, fever, snakebites, wounds, stomachache
3. Alom, Alim	Flatulence, induce sweating, poulstice for scurf; expel intestinal worms
4. Anagas	Oil as caustic or escharotic, treats indulent ulcers
5. Anino, Apatot, Noni	Promotes menstruation, cures ulcers, remedy for arthritis, fever, tuberculosis, coughs, enlarged spleen, nausea, colic, wounds, ulcers, infantile diarrhea, dysentery, pain in gout, leucorrhoea, sapraemia, dysuria, diabetes, liver disease, beriberi, haemorrhage, coughs, kidney disease, spongy gums, cleans bowels, and sore throat.
6. Anonang	Treats headache, stomach ache, fever, ulcers, coughs, gonorrhea, and ringworm, relieves colicky pain, astringent, boils, tumors, antidyseptic, coughs, laxative
7. Atis	Fainting spells, Insect bites, Head lice infestation, Gastric pain, bone fracture, dandruff, toothache, and chest pain
8. Avocado	Promote menstruation, De-worming, Toothache, Anti-rheumatism, Neuralgia, Sunburned skin, Promotes digestion, Antibacterial, Antifungal, Pectoral, Stomachic, Anti-Helminthic, Anti-periodic, Treats diarrhea, Pyorrhea, Hoarseness, Headache, Tuberculosis
9. Babana	Dysentery, Astringent, Antispasmodic, Anti-emetic, alleviates fever, treats wounds, arthritis, stomachic, gangrene, gastric distention, El Tor
10. Balunggay	Cures wounds, anemia, diarrhea, headache, abdominal pain, arthritis, toothache; purgative, diuretic, Cleans bowels, promotes lactation, reduces high blood pressure, alleviates abdominal pain and eliminates body odor.
11. Banaba	Treats diarrhea, fever, jaundice, dizziness, diabetes mellitus, headache, cough, renal discharge, wound, abdominal pain, and edema, eases urination,
12. Bangkal	Applied to boils and tumors; Decocted bark is vulnerary, antidiarhetic, and cures toothache.
13. Bangkiling	Treats bronchial catarrh, urticaria, coughs, lumbago, gonorrhea, sciatica, psoriasis, diaphoretic, demulcent
14. Bayabas	Astringent, Anti-spasmodic, Anthelminthic, Toothache, Wound cleaning, Promotes blood circulation, Cures diabetes, asthma, toothache, "alap-ap", hemorrhoids, tuberculosis, blood in the stool, gastric pain, diabetes, skin irritation, diarrhea, wound, arthritis, headache, kidney trouble, tonsillitis, cough, dandruff
16. Bugnay	Promotes appetite, Astringent, Anti-dysentery, Induces salivation, Cures sprains

Table 9. Continued

Local/ Common Name	Medicinal Applications
17. Gaway-gaway	Rheumatism, catarrh, haemopthisis, astringent, smallpox, eruptive fevers, expels worms, diarrhea, dysentery, headache, diuretic, emollient
18. Gemelina	Athritis, coughs, eczema
19. Iba	Skin itches, pimples, piles, syphilis, coughs, fever, rectal inflammation, astringent, mumps, rheumatism, thrush, stomachache, internal hemorrhoids, beriberi, biliousness
20. Iniam, Aniam	Treats tuberculosis, coughs; stimulates salivation
21. Ipil-ipil	Intestinal parasitism (Deworming), fever, colds, headache, poisoning, anti-amenorrhea, muscle pains
22. Kabugao	Nausea and fainting, Cough, Ulcers, Dyspepsia
23. Kakaw	Eczema, emmenagogue, diuretic, dilates blood vessels
24. Kalachuchi	Cure asthma. Roll 2 dried leaves and use as cigarette. One in the morning and one in the evening
25. Kamunsil	Allay pain, venereal sores, convulsions, dysentery, indigestion
26. Kapayas	Expels worms, asthma, heart tonic, laxative, antibacterial, achne and pimples, constipation, beriberi, fever, dog bite, burns, arthritis, gastric pain, tonsillitis
27. Kasla	Acute gastroenteritis, expels worms, treats paralysis, sciatica, skin diseases, "almoranas", bone fracture, asthma, malaria, headache, cough, sores, ulcers, cuts, abrasions, snakebites, sprains and dislocations, rheumatism, scabies, ringworm, bleeding, toothache, spongy gums, boils, fevers, mouthwash, jaundice
28. Langka	Skin diseases and rashes, ulcers and wounds, diarrhea fever, asthma, milky juice for glandular swelling, snake bites, abscesses, bilious colic, aphrodisiac
29. Lomboy	Diarrhea, Gum gingivitis, Astringent, blood in the stool, diabetes, cancer, toothache, stomachache, cough
30. Madre de Cacao	Leaves cure Dermatitis, Skin Itching, Rheumatic pains, Sap for, Wound healing, scabies, allergies, sprained ankle or joints, stomachache, typhoid fever
31. Mahogani	Antipyretic, tonic, astringent
32. Narra	Bladder stone, diarrhea, dysentery, boils, ulcers, prickly heat, syphilitic sores
33. Neem tree	Fruit is anthelminthic, cures scabies, skin sores
34. Niyog, Lubi	Constipation, Dandruff control, Diarrhea and vomiting, Dry skin, Anti-cancer, HIV-AIDS, diuretic, anthelminthic, astringent, eczema, skin lesions, wound, headache, constipation, ear pain, diabetes, obesity
35. Paho, Manga	Laxative, diuretic, relieves constipation, diarrhea, expels intestinal parasites, tuberculosis, cracked skin, hemorrhage, coughs, dysentery, boils, chest ailment, scorpion stings
36. Sambag	Jaundice, erysipelas, boils, chronic diarrhea, amenorrhea, indolent ulcers, asthma, rheumatism, inflammatory swellings, colic, indigestion, sore throat, apthae, laxative, anticholera, fever, astringent, asthma, skin lesions, malaria, wound, abdominal pain, cough

Table 9 Continued

Local/ Common Name	Medicinal Applications
37. Santol	Fever, Diarrhea, Tonic after birth, Ringworm, dysentery, skin lesions, astringent, stomachache, antispasmodic
47. Starapple	Dysentery, anthelminthic, cures abscess, dandruff
48 .Suha /Kalamunding	Cough , sore throat, nausea and fainting, aromatic bath, mumps, itching, antiphlogestic, expels intestinal gases
49. Talisay	Sudorific, expels worms, purgative, breast pain, astringent, gastric fever, bilious diarrhea, dysentery, leprosy, gonorrhea, astringent, leucorrhea, stomach cramps, rheumatism, scabies, headache, colic, tonsillitis
50. Tisa	Astringent, lowers blood pressure
51. Tsiko	Diarrhea, dysentery, fever, delayed menstruation, diuretic, febrifuge, tonic, biliousness, febrile attacks.

Table 10. Indigenous Shrubs and Their Medicinal Applications

Local/ Common Name	Medicinal Applications
1. Adelfa	Treats skin irritations, herpes, ringworm, leprosy, boils, hemorrhoids, malaria and dysmenorrhea, asthma, eczema, snake bites, epilepsy
2. Adgao/Alagao	Loosens phlegm, treats coughs, vaginal irritation, tuberculosis, cardiac troubles, tympanites, beriberi, expels intestinal gas
3. Agboi/ gboy	Treats snake bites, dysentery, affections of the chest and lungs, jaundice as emollient
4. Alibubut/Pandakaki	Anti-venom, Anti-cancer, inflammation of testicles, wound, pneumonia, erectile dysfunction, pyorrhea, promotes menstruation, gastric pain, eczema, nosebleed, headaches, cures affections of the stomach and intestines
5. Baho-baho/Coronitas	Influenza , Cough, Mumps, Continuous high fever, Malaria, Cervical lymph node tuberculosis, Hemoptysis, Pulmonary tuberculosis, Dermatitis, Eczema, Pruritus, Sprains, Wounds, Contusions, Stomachache
6. Baston ni San Jose	Hemoptysis, Premature abortion, Excessive menstruation, Blood in urine, Bleeding due to piles, Enteritis-bacillary dysentery, Rheumatic Bone pains, Swelling due to sprain, Asthma, Headache, Tuberculosis
7. Bunlao	Emetic in coughs and asthma, helpful in edema of beriberi, rheumatism, fevers, dysuria, carbuncles, jaundice, and diarrhea, diuretic, daphoretic, and febrifuge, glandular swelling, amenorrhea, rheumatism, eczema, cephalalgia, hemiplegia, facial paralysis, earache, hemicrania
8. Himamalak (Leea)	Decoction is considered vulnerary
9. Kabalyero	As purgative and emmenagogue, treats intermittent fever, colds, skin diseases, liver affections, erysipelas and inflammation of the eyes, diarrhea, and dysentery
10. Kadios	Blood in stool, diarrhea, coughs

Table 10 Continued

Local/ Common Name	Medicinal Applications
11. Kalaykay	Cold, fever,malaria, swelling and enlargement of liver and spleen, rheumatism, bone pains, swelling due to sprain and contusions, excessive menstrual flow
12. Kamoteng kahoy	Diarrhea, "pasma, "sikmat"
13. Katsubong	Asthma, muscle pains and cramps, gastric pains, sprains, contusions, snakebites, piles, severe cold, rheumatism, psoriasis
14. Lagundi	Fever and headache, toothache, cough, asthma, wounds and ulcers, chicken pox and measles, skin rashes
15. Lima-lima	Cures coughs, anti-scorbutic, vulnerary
16. Loko-loko	Treats fever with cold and headache, affections of the uterus, stomachache, wounds, boils, catarrh, colic, and skin diseases; flatulence, anti-rheumatic and antisuporific baths, antispasmodic, emmenagogue,
17. Malatalong	Relieves headache, treats dysentery, diarrhea, ulcers, boils, fever, vaginal discharge, and expel urine impurities
18. Okra	Root and leaf for washing and wound healing; young pods for fever, difficult urination, diarrhea, roots for headaches, varicose veins, arthritis, and fever, leaves for abdominal pain
19. Palad (Kaktus)	Poulstice relieves articular rheumatism, erysipelas, opthalmia, earache, and toothache
20. Palochina	Intestinal parasitism, purgative, cough, ringworm, tinea infections, insect bites, herpes
21. Pasao, Atai-atai	Decoctions for apthae, treats wounds and ulcers, fever
22. Platito	Induces urination, dressing for ulcers
23. Rosal	Jaundice, hepatitis, cough, fever and headache, bacillary dysentery, nephritic edema, epistaxis, mastitis, furuncle, lymph node tuberculosis, boils, snake bites, dermatitis, eczema, bed bug repellant
24. Saling uwak	Topicals for wound and ulcers, flatulence
25. Santan	Infusion for incipient tuberculosis, hemorrhage, urinary
26. Soro-soro	Treats earache, snake bites, asthma, glandular swellings, external hemorrhoids, induce urination, expels worms, prevents suppuration,
27. Tagabang, Tugabang	Purgative, Fever, Chronic cystitis, Gonorrhea, Dysuria
28. Tangan-tangan	Dried root decoction for rheumatism, arthritis, paralysis, epilepsy, distention of the uterus, prolapsus, poultice for difficult partus (non-lowering of the fetus during delivery, lymph node TB, facial paralysis, wounds, milk stimulation, seeds oil as laxative, vermicide, Cure for hardened cerumen, cure for warts, roasted seeds for hemorrhoids.
29. Tapulanga	Poulstice to boils, cancerous swellings, and mumps; decoction as emollient, for venereal diseases, fevers; antidote for poisons; treats coughs, bronchitis, paralysis, dysmenorrhea, cystitis, gonorrhea, headache, boils, carbuncles, sore eyes, regulate menstruation
30. Tsaang gubat	Colic cough, diarrhea, dysentery, mouthwash, antispasmodic, stomach and abdominal pains.
31. Tubang morado	Treats swelling mammary glands, leprosy, stomachache, fever, headache, ulcers, tongue sores, venereal diseases

The specific effects of medicinal plants and some examples, among others include: antihelminthic, like manga (*Mangifera indica*), atsuete (*Bixa orellana*), and balunggay *Moringa oleifera)* ; anti-inflammatory such as gumamela (*Hibiscus rosa-sinen*sis),   iba (*Averrhoa bilimbi*), and maritana (*Kalanchoe pinnata*); febrifuge, such as colitis (*Amaranthus* sp.), atsuete, and gaway-gaway (*Sesbania grandiflora*); anti-asthmatic, such as duldol (*Ceiba pentandra*), sambag (*Tamarindus indicus*) and manga; diarrhea and dysentery remedies, like avocado, kamunsil (*Pithecelobium dulce*), and langka (*Artocarpus heterophyllus*); diuretic, as in lomboy (*Syzygium cuminii*), luy-a (*Zingiber officinale*)and colitis; emmenagogue, such as santan (*Ixora* sp.), garangan (*Averrhoa carambola*), and tapulanga; anti-rheumatism, like sili (*Capsicum* sp.), iba, and balonggay; skin problems, like adelfa, ahos, and alugbati; anti-poisonous bites/ bruises, like adelfa (*Nerium oleander*), ahos (*Allium sativum*), and babana (*Annona muricata*); liver and gall bladder problems, such as artamisa (*Artemesia vulgaris*) and tangan-tangan (*Ricinus communis*); and toothhache, such as maritana and avocado, and gaway-gaway. Meanwhile mouth disorders can be cured by medicinal plants such as avocado (*Persea americana*), bayabas (*Psidium guajava*), gatas-gatas (*Euphorbia hirta*), and luy-a (*Zingiber officinale*); abdominal pain and stomachache cure such as estiwitis, kosol, lagundi, and herbabuena; bloody stool using bangka-bangkaan, cogon, iba and lagundi; and other common sickness such as ulcer using avocado and bayabas (Tables 9-13).

Table 11. Indigenous Herbs and Their Medicinal Applications

Ilongo /Common Name	Medicinal Applications
1. Ahos /Bawang	Cures toothache, reduces cholesterol and triglyceride levels, lowers blood pressure, promotes blood circulation; prevents cold and flu; prevents chronic yeast infection; prevents cancer, antiseptic, diuretic, anthelmithic, expectorant, diaphoretic, boost the immune system, for fat metabolism, antispasmodic, cholagogue, febrifuge, antibacterial, (staphylococcus, streptococcus, and salmonella); beri-beri, baldness, fever and flu, ringworm, old sores, bruises, falling hair, wounds, skin irritation, hoarseness, detoxifies the blood, arteriosclerosis, hemorrhoids, impotence, asthma, arthritis, anti-venom, tuberculosis, colds, bronchitis,
2. Ajos-ajos nga maputi	Bulb is used as vulnerary drug (wound-healing)
3. Alibhon	Asthma, Boils, Bronchitis, Febrifuge as bath for women after childbirth, Sinusitis Sores. Stomachache, Boils, Bad breath, Liver ailment, Beri-beri, Sore throat, Vomiting, Fainting, Paralysis, Promote menstruation, Arthritis, Fever, Cystitis, Rheumatic pains of waist, Coughs, Stimulate appetite, Wounds and cuts, Gaseous distention, Upset stomach, Diuretic, Dissolution of renal and kidney stones, Analgesic to post-operative dental pain

Table 11 Continued

Ilongo /Common Name	Medicinal Applications
4 Alobera	Baldness, Cancer, Gastric pain, dandruff
5. Alum-alom, Kolitis	Bacillary dysentery, Diarrhea Acute and Chronic gastroenteritis, Urinary tract infection, Eczema, Snake and scorpion bites, Bleeding in piles, Asthma, Beriberi, Inflammation, Bronchitis, Poor Lactation of mothers, Bleeding hemorrhoids, Sore throat, Coughs, diuretic
6. Alusiman	Beriberi , edema, Diarrhea, Eczema, Furuncles, Gastroenteritis and dysentery, Nephritis Orchitis, Poisonous boils, Pulmonary tuberculosis, Snake bites, Whooping cough,
7. Amarillo	Antiseptic; decoction of flowers as carminative; anemia, irregular menstruation and dysmenorrhea, rheumatic muscular and bone pain
8. Artamisa	Abdominal colic pains, Asthma, Convulsions, Dyspepsia, Eczema, Headache, Herpes, Inflammed dermal afflictions Induce menstruation, Purgative, Wounds and cuts, Scabies
9. Asistasia	Intestinal astringent, lightens pains of childbirth, swellings, vermifuge, rheumatism
10. Badyang	Alleviate toothache, fever; roots as application to pains in joints,; rubefacient, fever
11. Bahug-bahug or Kulong-kugon	Cough, colds, fever, furuncles, skin diseases, high blood pressure; stops bleeding due to external wounds, treats carbuncle, headache
12. Balatong (Hantak)	Skin diseases (alap-ap)
13. Bamban	Antidote for snake bites and blood poisoning; Juice from young leaves for sore eyes; anti cancer property
14. Bangka-bangkaan	Cough, Colds, Nose bleed, Bacillary dysentery, Blood in the stools (balaod)
15. Dagmai	Leprosy, Tuberculosis
16. Dila-dila (Kaktus)	Astringent, Febrifuge, Dysentery, Increases urine discharge, Anthelminthic for roundworms, Coughs, Dyspepsia, as emollient, diaphoretic, Asthenic fevers
17. Gatas-gatas /Tawa-tawa	Enteritis, dysentery, dermatitis, eczema, pruritus, poor lactation after delivery; abdominal pain, stomachache, colic, intestinal worm, parasites, impurities, asthma, cough, bronchitis, difficult urination , eye sore, mouth sore, sore throat, hoarseness, loss of voice, skin diseases, fresh wound bleeding, snakebite
18. Himag-himag	Wounds and bruises
19. Huya-huya	Cure mumps by crushing leaves to prepare paste and apply directly to swollen gland after a cold compress for 30 minutes, 3 times a day
20. Kalauag, Lampuyang	Rhizomes is stimulant. Tonic, and carminative; emmenagogue, and astringent,; prevents skin eruptions, cures sprains and bruises, facilitate scabbing of in small pox and chickenpox, cures ringworm and parasitic skin diseases, helps cure purulent conjunctivitis, neuralgia, and rheumatism; acts as stomachic, vulnerary,and anthelminthic, alleviates intermittent fevers, flatulence, and dyspepsia; useful to colic, amenorrhea, congestions, catarrh, diarrhea and dysentery
21. Kalu-ui	Fever, Colds and Influenza, Poor digestion, Nausea, Abdominal cramps, Gastroenteritis, Migraine, Insomnia , Depression, Exhaustion, Acne, Gonorrhea, Dysentery, Chronic diarrhea, Remove film and opacity from the eyes, Loss of smell, Insect sting, Snake bite, Skin infections, Skin diseases, Bowel complaints in children, Ulcers, Earache and dullness of hearing, Coughs, Diuretic, Delayed menstruation, Gonorrhea, sores and unhealthy sinuses, habitual constipation, anti-inflammation

Table 11 Continued

Local/ Common Name	Medicinal Applications
22. Kamantulan	Hepatitis, Edema due to hepatic sclerosis, Hypertension, Infantile convulsions, Night blindness due to fever, Habitual constipation
23. Kamatis	Kidney stimulant, wash away toxins, promotes gastric secretions, blood purifier, intestinal antiseptic, cures mouth sores, stimulate torpid liver, treats anotic dyspepsia, *promote flow of bile, helps alleviate bronchitis and asthma*
24. Katumbal / Siling labuyo	Cures arthritis and rheumatism, promotes digestion, rubefacient, stomachache, atonic gout, dyspepsia accompanied with tympanitis, flatulence, and paralysis, for wounds and sores, ringworm of scalp, intermittent fevers
25. Kiyapo	As laxativ, diuretic, emollient, demulcent and refrigerant; cures dysuria, coughs, asthma, dysentery, ringworm, boils, syphyllitic eruptions, and many skin complaints
26. Kusol	Mumps, Abdominal pain, stomachcic, colic, Gas in the alimentary tract, indigestion, dyspepsia, sore throat, rheumatism, furuncles, fevers, swellings, sore eyes, dandruff, scabs of head, wounds and bruises, cancerous swellings, dyspepsia, headache, malarial chills, as gargle, diuretic agent
27. Labog	Cures coughs, as emmolient, treats penile irritation, cures venereal sores, urethritis, gonorrhea, and similar complaints
28. Lampunaya	Bruises and sprains, Carminative, Headache, Mild bleeding, Sinusitis, bone fracture, swelling, wound, headache, tuberculosis, chest pain, dyspepsia, eye sores
29. Langkauas	Rhizomes are carminative and stimulative, antirheumatic and stimulant baths, "Alap-ap"
30. Loko-loko	Fever, colds, headache, cough, antipyretic, stimulates blood circulation, Flatulence, wonds, stomachache, tuberculosis
31. Lubigan	Rheumatic arthritis, lumbago, leg pains, Indigestion, Gastritis, tinnitus, Insanity
32. Luhang dalaga	Treats venereal diseases
33. Lupo nga pula	Anemia
34. Luy-a	Cough remedy, diuretic, antiemetic, nausea, motion sickness, sore throat and hoarseness, anti-inflammatory, anticoagulant, removes blood cholesterol, antifungal
35. Mansanilya	Headache due to sinusitis, fever, flatulence, boils, liver ailment, fainting spells, paralysis, diarrhea, stomachic, cough, flu, bronchitis, hypertension, snake bite, mammary carbuncle, epidemic meningitis, gas pains, eczema, boils, abscesses, rheumatism, fungal infection, abdominal pain, hysteria, dysmenorrhea, nervousness, muscle pain, sore eyes, open wounds and sores, sprains, bruises, calluses, cervical infection
36. Maritana	Poultice from fresh leaves cures sprains, eczema, infections, burns, headaches, mosquito bites, diarrhea, hypertension, skin lesions, swelling, burns, and toothache
37. Oregano	Constipation, centipede bite, burns, cough, indigestion, otalgia, asthma, dyspepsia, chronic coughs, bronchitis, colic, flatulence, rheumatism, carbuncles, boils, sprains, felons, painful swelling, sore throat

Table 11 Continued

Local/ Common Name	Medicinal Applications
38. Pansit-pansitan	Warm poulstice for abscess and boils; treats convulsions, diabetes
39. Rosas de Baybayon	Purgative in chronic constipation, Diabetes, emmenagogue, treats menorrhagia, indigestion, dyspepsia, dysentery, and toothache, expels intestinal worms, purifies blood, and treats wasp stings, anti-cancer
40. Sabilaw, Alikbangon	Fever associated with infections, mumps, snakebites, cold, difficult urination, acute gastroenteritis, tonsilitis, erysipelas, wound healing
41. Saging	Dressing for inflamed and blistered surfaces; cool applications for headaches; treats diabetes; sap for earaches
42. Sentimiento	Mump, wound, dizziness, cough, spasms, hyperacidity, ulcers, pains, indigestion, high blood pressure, poor lactation in mothers, difficult defecation, nervousness, asthma, allergy, boil, colds, constipation, neuralgia, sores, stomachache, arhritis, bronchitis, Tumors, Edema, Dyspepsia, Gastritis, Hemorrhoids, Rheumatism, Syphilis, Urinary disorders, Diabetes Inflammation, Intestinal worms, Liver ailment, Poor blood circulation, Menstrual disorders, Fever
43. Sibuyas	Anthelminthic, stomachic, and tonic; treats diarrhea, choleraic attack, pains in joints, headaches, and amenorrhea; alleviate earache and an aprhodisiac.
44. Sodo-sodo / Badyang nga pula	Leprosy, Tuberculosis
45. Solanga/ Kamantigue	Snake bite, Confusion, Painful inflammation, Carbuncles Dysmenorrhea, Lumbago
46. Tabako	Leaf poultice as sedative and maturative, decoction expels intestinal worms, as styptics, antispasmodic, purgative, helps alleviate coughs, spasmodic laryngitis, asthma, nervous irritability, sleeplessness, nasal polypi, nasal catarrh, headache, chronic giddiness, fainting, bleeding sores; relieve pain and irritation in rheumatic swelling, for syphilitic nodes, and skin diseases
47. Tabubungiaw	Rhizome forephritis, beriberi, edema, difficulty in urination, pricking pain in the urinary tract, nettle rash, whooping cough, antidote, antipyretic, antidermatosis
48. Talong	Sore throat, hoarseness, loss of voice, boils, abscesses, sore, ulcer
49. Talos	Inflammation
50. Tigre-tigre	Emollient, coughs, purgative, tonic, febrifuge
51. Trompa elepante	Treats skin pruritus, scabies
52. Yahong-yahong	Infectious hepatitis, measles, respiratory tract infections, colds, tonsilitis, aryngopharyngitis, bronchitis
53. Yerba buena	Fever, stomachache, dysmenorrhea, diuresis, toothache, insect bites, dizziness, arthritis

Table 12. Indigenous Vines./ Climbers and their Medicinal Applications

Local Name	Medicinal Applications
1. Alogbate	Rubefacient, reduces swellings, treats acne, skin irritations, diuretic, emollient, laxative, boils, ulcers, abscesses, catarrhal affections, gonorrhea, balanitis, burns and scalds, habitual headaches
2. Amargoso/mpalaya	Cures diabetes mellitus, hemorrhoids, dysentery and chronic colitis, cough, scalds, fever; antihelminthic, purgative, coughs
3. Buyo	Rheumatism gastric pain; bronchial asthma, Indigestion, antitussive, cures flatulence or tympanism
4. Hagunoy	Emmenagogue,diuretic, stomachache, vulnerary, antiscabies, fever, flatulence, venereal diseases, malaria, haematuria, purgative, vaginal disorders
5. Kalabasa	Carbuncles, boils, ulcers, venomous insect bites, intestinal worms
6. Kamote	Diabetes, boils and acne, diarrhea
7. Manunggal/Basyawan	Skin diseases, malignant fevers, febrifuge, tonic, stomachic, emmenagogue, erysipelas, rheumatism, asthma, chest affections
8. Melon gubat	Flatulence, toothache, biliousness
9. Patola	Uroemia, amenorrhea, splenitis, hemorrhoids, leprosy, conjunctivitis, sores, bites, purgative, emetic, jaundice
10. Tankong	Fresh roots as purgative, tonic, alterative, aphrodisiac, demulcent, galactagogue, liver enlargement, moderates menstrual discharge.
11 Ubi	Dysentery, syphilis, boils, diuretic, sores, diarrhea, piles

Table 13. Indigenous Grasses and Sedges and Their Medicinal Applications

Local Name	Medicinal Applications
1. Kogon	Rubefacient, reduces swellings, treats acne, skin irritations, diuretic, emollient, laxative, boils, ulcers, abscesses, catarrhal affections, gonorrhea, balanitis, burns and scalds, habitual headaches
2. Mais	Nephritic edema, urinary tract infection and lithiasis, sclerosis of the liver, biliary tract lithiasis, cholocystitis, jaunditic hepatitis, diabetes Hypertension
3. Palagtiki	Diuretic; anti-dysentery; anti-dandruff and hair loss; anthelminthic; sudorific; treats fevers and liver complaints; poulstice for sprains; infusion for haemoptysis and dislocation
4. Paray	Roots and rhizomes for anuria, emollient in diarrhea, chronic bronchitis, coughs, febrile, inflammatory diseases, dysuria, erysipelas, burns, scalds, biliousness, wounds, treats discolored teeth
5. Sudsud, Mutha	Indigestion and constipation, skin diseases, chest pain, neurogenic gastralgia, abdominal distention, acid vomiting, Irregular menstruation, Painful menstruation, sprains and bruises, furuncle infection
6. Tanglad	Diarrhea, Decoction for toothache, diuretic, promotes perspiration, emmenagogue, stomachic for children, diaphoretic in fevers, dysmenorrhea, chronic malaria, carminative, tonic, flatulence, spasmodic affections, cholera,, lumbago, chronic rheumatism, neuralgia, sprains, ringworm,

Summary of Findings

1. There was a total of 155 indigenous medicinal plant species listed under 137 genera and 61 families of which 31.61%, 34.19%, 21.29%, 7.09%, 3.23%, 1.94%, and 0.65% were trees, herbs, shrubs, vines/climbers, grasses, palms, and a sedge, respectively.
2. A relatively higher number of indigenous medicinal species belong to Plant Families *Euphorbiaceae and Fabaceae,* with 10 each; *Solanaceae* and *Poacea*e, with 7 each; and *Asteraceae, Lamiacea, Poaceae* and *Verbenaceae* having 6 plant species each.
3. At least 59 (38.06 %) of the indigenous medicinal plants have alarming population level otherwise categorized as endangered, threatened, depleted, or vulnerable plants. Meanwhile, 83 (53.55%) plant species have been assessed as abundant and 13 (8.39 %) were indeterminate in terms of conservation status.
4. The medicinal uses range from treatment of a simple skin irritation to a deadly tumor and human cancer. Those reported to have anti-cancer property include tsaang gubat (*Carmona retusa* (Vohl.) Masam), bamban (*Donax cannaeformis* (Forst. f.) K. Schum), rosas de baybayon (*Catharanthus roseus* L.), pandakaki (*Tabernaemontana pandacaqui* Poir), lomboy (*Syzygium cuminii* (L.) Skeels), bulubito-on (*Barringtonia asiatica* (Linn.) Kurz.) and niyog*(Cocos nucifera* L)

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results obtained in this study, the following conclusions are made:

1. A list of 155 indigenous medicinal plants representing at least 137 plant genera and 67 plant families that thrive in the area is a good indicator that Barangay Agsalanan has a moderate level of medicinal plant diversity.
2. Most, if not all, of the plant species identified have multiple medicinal applications aside from a good number of them that have potential anti-cancer property. This means that the place itself can rely on the already existing flora, both cultivated and growing in the wild, for its herbal medicine needs as alternative to highly-priced commercial drugs.
3. A considerable number of medicinal plants listed have an alarming conservation status many of which were categorized as endangered, depleted, threatened, or vulnerable. However, a large majority are still

thriving in abundance.

Recommendations

Based on the findings and conclusions from this study, the following are recommended:

1. Barangay Agsalanan folks should be more encouraged to establish their family medicinal garden aside from the already existing but sometimes neglected community herbal gardens sporadically located in the area. These can provide them a ready answer to health problems being aggravated by the high rising prices of commercial drugs.

2 Since a considerable number of the medicinal plants, both the domesticated species and those that grow in the wild, have alarming conservation status, it is recommended that an initiative to establish a mini arboretum in the area should be put forward. This mini arboretum can serve as GermBank and Plant Collection site where rare, endangered, depleted, threatened, and vulnerable medicinal plants will be mass propagated and temporarily allowed to grow and multiply before they will be re-established in the wild as one practical measure towards plant diversity conservation.

3. The community folks should be taught some simple but more scientific and efficient methods of propagating indigenous medicinal plants so they can better play their role as local plant conservationists in the community.

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AN ASSESSMENT OF THE ANNUAL PHYSICAL AND LABORATORY EXAMINATIONS CONDUCTED FOR STUDENTS, FACULTY AND STAFF OF CENTRAL PHILIPPINE UNIVERSITY

By. Olufunso O. Oke

ABSTRACT

This study was conducted to assess the annual physical and laboratory examinations conducted for students, faculty and staff of Central Philippine University in SY 2004-2005. Descriptive research design was used and an analysis of the responses from 293 respondents in a one-shot survey was carried out by the use of frequency and percentages. The findings of this study showed that the students, faculty and staff perceived that the physical examination conducted for them was comprehensive, while the laboratory examination for students, faculty and staff was perceived to be not comprehensive. The faculty, staff and students want laboratory examinations to be included in the annual physical examinations. The students want the additional cost of laboratory examination to be shouldered by the University while the faculty and staff are willing to pay for additional laboratory examinations.

INTRODUCTION

Background of the Study

Physical Examination is designed to determine the physical fitness of a person entering a new job, school or college or country. Some institutions like insurance companies require their clients to be medically examined by a qualified doctor to determine any pre-existing diseases or conditions. Higher Institutions of learning also require freshmen to be medically examined to determine their suitability for extra-curricular activities or find out medical history that could be a "liability" to such institution.

In an interview with the Coordinator of the Health Clinic at Central Philippine University, it was emphasized that physical examination is different from medical examination. The difference between the two examinations is that the former is routine examination while the latter involves interpretation of the laboratory examination result. Another school of thought (Potter & Weilitz, 2003) calls this Health Assessment the process of gathering, verifying, analyzing and communicating data about a client. The purpose of the initial assessment is to establish a database about the client's level of wellness, health practices, past illnesses, related experiences, and health care goals. The database is derived from a health history, physical examination, and laboratory and diagnostic test results. The information contained in the database is the basis for a client's individualized plan of care (Mosbys, 1994).

Some faculty and students maybe carriers of several and various illnesses or diseases that need proper diagnosis and monitoring because the spread of such illnesses or diseases can affect the people in the campus. Any illness or disease can be diagnosed through proper laboratory examinations.

The annual physical examination at CPU is neither diagnostic nor preventive. For example, physical examination is done by taking the blood pressure, height and weight, determining eye defects, examining the chest and the back, and a little family medical history.

The University of the Philippines System (UP) (from www.up.edu.ph), University of St. La Salle (from http://www.hsc.dlsu.edu.ph/campusandcommunity/directory.htm), and University of Sto. Tomas (from http://www.ust.edu.ph/sitelinks/insideust/departments/admindeptsdetail.asp?Id=health), require a diagnostic medical examination from the students before admission into any course. Asymptomatic (TB) could be detected early by means of X-Ray. Far more dangerous is direct contact with a person who has the disease (Shryock, 1990). The gap between the existing physical examination practices and the desired

one is very wide that calls for an empirical study to determine the examination for the faculty, staff and students of the University, hence this proposal.

Objectives of the Study

The general objective of the study was to assess the annual physical and laboratory examinations conducted for the students, faculty and staff of Central Philippine University.

Specifically, the study aimed to:

1. Determine the type of physical and laboratory examinations conducted to students, faculty and staff members;
2. Determine how comprehensive are the physical examinations conducted as perceived by the students, faculty and Staff;
3. Determine what are the additional laboratory examinations prescribed by the physician after the physical examinations; and,
4. Determine the willingness of the students, faculty and staff members to pay if there are additional laboratory examinations that will not be paid for by the University.

Significance of the Study

The result of this study will serve as an eye opener to the administration, faculty, and students on the need to have a comprehensive health care system in the University.

The findings of this study could open a new health delivery system, where those students, faculty and staff members with health problems will be regularly monitored, while those with clean health conditions might choose to undergo physical examinations every two years. If this will happen, The University Administration saves on cost of medicine and the students with clean health may not be required to pay annual medical fees.

Through the implementation of the recommendations of the study's findings, awareness from the Administration, Faculty Members and the students could be generated as to type and kind of illness and diseases common among the faculty, staff and students of this University.

Scope and Limitation of the Study

This study was concerned with determining the comprehensiveness of annual physical examination of CPU college students, faculty and staff members who do not belong to any health insurance scheme. The study involved 263 students who were enrolled during the second semester 2004-2005 in seven colleges (Agriculture, Arts & Sciences, Commerce, Education, Engineering, Nursing and theology) and 30 faculty and staff who are not members of any health insurance plan.

METHODOLOGY

Research Design

This is a descriptive research and have utilized the one-shot survey design. Descriptive research describes phenomena or characteristics associated with a subject population (the who, what, when, where and how of a topic). It estimates the proportions of a population that have these characteristics (Cooper & Schindler, 2001).

Respondents and Sampling Method

There were 263 students and 30 faculty and staff members who served as respondents of this study. Cluster sampling procedure was used to select the student respondents while purposive sampling method was used for the faculty and staff. Sample size for participating colleges was derived by proportionate computation.

Student-respondents from bigger colleges like Nursing and Commerce were drawn from two or three class sections as predetermined by the researcher based on the class schedules obtained from the University Computer Service Center. The class sections were morning, afternoon and late afternoon. All the students with odd number in a row of five students were included as respondents. This process was repeated for all the colleges until the desired sample size for the college was reached. Respondents were drawn from a single section among colleges with smaller sample size.

The faculty and staff respondents were purposively selected. This was a total enumeration of faculty and staff who are not member of any health insurance scheme, but used CPU medical laboratory and have their physical examination at the CPU College of Medicine.

Data Collection

The instrument used for data collection was a researcher made questionnaire, which was subjected to face and content validation by researchers from the College of Nursing. The same instrument was pre-tested among non-participants in the survey. This was to determine the internal consistency of the instrument. The instrument was considered consistent in measuring what was intended to be measured by the researcher.

A letter of permission duly approved by the University President and University Research Center (URC) Director was delivered to the faculty handling classes of the respondents. For example, the College of Commerce has 48 respondents. This was distributed among two sections; one in the morning and another one in the afternoon. The questionnaire was randomly distributed to male and female students. In order not to totally disrupt the classes for the day, questionnaires that were given out on Monday or Wednesday were retrieved on Wednesday or Friday.

Data Processing and Analysis

There are at least two areas of physical and laboratory examinations that can be regarded as complete to a given school system according to a medical opinion during an interview with Dr. Gallon. There are 12 possible items in physical and 4 items for laboratory examinations. Each of the items listed in the physical and laboratory examinations are defined and simplified so that the students and the faculty members could understand and comprehend the meaning of the terms used. Each item is given a weight of one (1). The total perfect score was 12, which was converted to percentage. The Student/Faculty/Staff respondents were asked to check those physical/laboratory items that he/she has undergone.

The total score was categorized as follows:

Very Comprehensive	-	93-100%
Moderately Comprehensive	-	86-92%
Slightly Comprehensive	-	80-85%
Not Comprehensive	-	0-79%

The data gathered were recorded and processed with the use of computer. Tatistical Package for Social Sciences (SPSS) software was used in the analysis of data. Since this study is descriptive in nature, descriptive statistics like frequency and percentage were used.

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MAJOR FINDINGS

Data in Table 1 show the distribution of respondents according to different classifications. The respondents were composed of 150 female students and 113 male students, and 24 female and 6 male faculty and staff. As to their distribution by college, the Colleges of Nursing with 70 or 26.6%, Commerce with 48 or 18. 3%, and Education with 46 or 17.5% registered the top three highest participation in this study. The least number of respondents came from the College of Agriculture which constitute a little over five percent (15 or 5.7%) of the total student population. Faculty and Staff were drawn purposively from the following colleges and departments: Agriculture, 1; Business Office, 6; Elementary, 2; Education, 2; High School, 2; HRD, 1; Life Sciences, 2; Medical Technology, 1; Medicine, 1; Nursing, 7; Printing Press, 1; RE, 1; Social Sciences, 2; and Theology, 1.

Table 1.Distribution of Respondents According to their Characteristics

Variable	Frequency	Percentage
Entire Group (students)	263	100
Female	150	57.0
Male	113	43.0
Entire Group (Faculty and Staff)	30	100
Female	24	80
Male	6	20
Colleges (Students)	263	100
Nursing	70	26.6
Commerce	48	18.3
Education	46	17.5
Engineering	37	14.1
Arts and Sciences	27	10.3
Computer Studies	20	7.6
Agriculture	15	5.7
Colleges and Departments (Faculty and Staff)	30	100
Nursing	7	23.3
Business Office	6	20.0
Elementary	2	6.7
Education	2	6.7
High School	2	6.7
Life Sciences	2	6.7
Social Sciences	2	6.7
Agriculture	1	3.3
HRD	1	3.3
Medical Technology	1	3.3
Medicine	1	3.3
Printing Press	1	3.3
RE	1	3.3
Theology	1	3.3

The physical and laboratory examinations performed on students, faculty and staff, and their perception on its comprehensiveness are presented in Table 2. The survey data suggested that four out of twelve physical examinations were very comprehensive, one was moderately comprehensive and two were slightly comprehensive.

Measurement of height and temperature (93.5%), blood pressure (94.7%), weight (94.3%), and pulse rate (94.7%) were the most comprehensively administered while prostate palpation for male (15.2%) and gastro intestinal auscultation (27.4%) were the least availed during the physical examination. This result showed that overall physical examinations comprehensiveness were only 58%. One would expect that physical examination for students should be comprehensive enough to include laboratory examinations because life and well being of our students were involved.

Survey results for Laboratory examinations showed that none of the examinations was perceived to be comprehensively administered to the students. Laboratory examinations like urinalysis (10.6%), fecalysis (9.1%) and CBC (44.8%) were not adequately availed of by many students as expected. Chest X-ray (10.6%), which a layman would regard as one of the best diagnostic tools, was done to only a few students. This survey result is in contrast to what was obtained in the University of the Philippines System, St. La Salle University, and the University of Sto. Tomas as discussed in the literature reviewed that "students are required diagnostic medical examinations before admission into any course".

Table 2. Physical and Laboratory Examinations Conducted for Students

Type of Examinations	Respondents		Perceived Level of Comprehensiveness
	Frequency	Percentage	
Physical			
Physical General assessment (health history interview)	222	84.2	Slightly Comprehensive
Height and Weight Measurement	248	94.3	Very Comprehensive
Temperature	246	93.5	Very Comprehensive
Pulse Rate	249	94.7	Very Comprehensive
Respiratory Rate	212	80.6	Slightly Comprehensive
Blood Pressure	249	94.7	Very Comprehensive
Examination of Visual Ability	238	90.5	Moderately Comprehensive
Cardiac Auscultation	89	33.8	Not Comprehensive
Lung Auscultation	97	36.9	Not Comprehensive
Gastro Intestinal Auscultation	72	27.4	Not Comprehensive
Breast Palpation (female)	135	51.3	Not Comprehensive
Prostate Palpation (male)	40	15.2	Not Comprehensive
Liver Palpation	77	29.3	Not Comprehensive
Laboratory			
Urinalysis	28	10.6	Not Comprehensive
Fecalysis	24	9.1	Not Comprehensive
CBC	39	14.8	Not Comprehensive
Chest X-Ray	28	10.6	Not Comprehensive

As shown in Table 3, six areas of physical examinations namely temperature measurement, pulse rate determination, prostate palpation, height or weight measurement, and blood pressure determination, were considered very comprehensive by the faculty and staff respondents, with the first three availed of by all the respondents.

All laboratory examinations for faculty and staff were perceived to be done in a very comprehensive manner except the Chest X-ray.

The survey data also revealed that the physical general assessment (health history and interview), and respiratory rate determination administered to students, faculty and staff were slightly comprehensive, although, under normal condition this should be very comprehensive. Most of these laboratory examinations were administered on "follow-up" basis.

Table 3. Physical and Laboratory Examinations Conducted For Faculty and Staff

Type of Examinations	Respondents		Perceived Level of Comprehensiveness
	Frequency	Percentage	
I. Physical			
Physical general assessment (health history interview)	24	80.0	Slightly Comprehensive
Height and Weight Measurement	28	93.3	Very Comprehensive
Temperature	30	100.0	Very Comprehensive
Pulse Rate	30	100.0	Very Comprehensive
Respiratory Rate	25	83.3	Slightly Comprehensive
Blood Pressure	29	96.7	Very Comprehensive
Examination of Visual Ability	28	93.3	Very Comprehensive
Cardiac Auscultation	15	50.0	Not Comprehensive
Lung Auscultation	14	46.7	Not Comprehensive
Gastro Intestinal Auscultation	10	33.3	Not Comprehensive
Breast Palpation (female)	20	66.7	Not Comprehensive
Prostate Palpation(male)	6	100.0	Very Comprehensive
Liver Palpation	14	46.7	Not Comprehensive
II. Laboratory			
Urinalysis	29	96.7	Very Comprehensive
Fecalysis	30	100.0	Very Comprehensive
CBC	29	96.7	Very Comprehensive
Chest X-Ray	10	33.3	Not Comprehensive

Legend:

Very Comprehensive	93-100 %
Moderately Comprehensive	86-92 %
Slightly Comprehensive	80-85 %
Not Comprehensive	0-79 %

The data in Table 4 indicates that there were laboratory examinations recommended for a few students by the physicians after the physical examinations. The top three laboratory examinations recommended were X-ray (13%), ECG (9%) and Cholesterol analysis (8%). Although the number of students who were asked to go for further laboratory examinations was very few, the number ran across the colleges.

Table 4. Additional Laboratory Examinations Recommended For Students by the Physicians (N=263)

Laboratory Examination	Frequency	Percentage
X-Ray	35	13
ECG	23	9
Echocardiogram	12	4
Ultrasound	12	4
Pap Smear	14	5
FBS	14	5
Cholesterol	22	8

Additional or further laboratory examinations were also recommended for faculty and staff. Nobody was asked for further laboratory in the colleges of Agriculture, Education and Theology, as well as in High School and Printing Press. The Business Office has the largest number of staff who were asked for further laboratory examination, particularly some of the predictive diagnostic tools like X-ray, ECG, and Echocardiogram.

Table 5. Additional Laboratory Examinations Recommended For Faculty and Staff by the Physician (N=30)

Laboratory Examination	Frequency	Percentage
X-Ray	9	30
ECG	5	17
Echocardiogram	2	7
Ultrasound	4	13
Pap Smear	3	10
FBS	4	13
Cholesterol	5	17
Others	3	10

Moreover, survey data presented in Table 6 show that students suggested additional physical examinations which are probably based on their previous ailment. Examples of such physical examinations were Cardiac Auscultation (70. 3 %), Lung Auscultation (70 %), and Liver Palpation (63.5 %).

The majority of the faculty and staff indicated their intention to include in the annual physical examinations Cardiac Auscultation (76.7%) and Liver Palpation (66.7%), among others. The survey result further revealed that the majority of the faculty and staff were in favor of expanding the current physical examinations to include those suggested.

Table 6. Additional Physical Examinations

Physical Examination	Frequency	Percentage
Suggested by Faculty & Staff (N=30)		
Examination of Visual Ability	17	56.7
Cardiac Auscultation	23	76.7
Lung Auscultation	19	63.3
Gastro intestinal auscultation	17	56.7
Breast Palpation (female)	15	50.0
Prostate palpation(male)	8	26.7
Liver Palpation	20	66.7
Suggested by Students (N=263)		
Examination of Visual Ability	154	58.6
Cardiac Auscultation	185	70.3
Lung Auscultation	184	70
Gastro intestinal auscultation	163	62
Breast Palpation (female)	108	41.1
Prostate palpation (male)	75	28.5
Liver Palpation	167	63.5

Survey data in Table 7 show that most of the students want laboratory examinations included in the conduct of physical examination. The data further reveal that regardless of the college affiliation of students, the majority were generally in favor of having laboratory examinations as part of the physical examination.

Table 7. Distribution of Students who Want Laboratory Examination to
be Included in the Physical Examination

College	Frequency	Percentage
Agriculture (N=15)	12	80
Arts and Sciences (N=27)	24	88
Commerce (N=56)	40	83
Computer Studies (N=20)	12	60
Education (N=46)	37	80
Engineering(N=37)	27	73
Nursing (N=70)	60	86

While the majority of the student respondents were in favor of the
inclusion of laboratory examinations in the physical examination,
faculty and staff were unanimous in their decision to include laboratory
examination as part of the annual physical examinations with the
exception of a staff from the College of Theology (Table 8). The
students, faculty and staff expressed their willingness to include
laboratory examination such as: X-ray, ECG, echocardiogram, FBS,
and cholesterol analyses.

Table 8. Distribution of Faculty and Staff who Want Laboratory
Examination be Included in the Physical Examination

Colleges/Departments	Frequency	Percentage
Agriculture (N=1)	1	100
Business Office (N=6)	5	83
Elementary (N=2)	2	100
Education (N=2)	2	100
High School (N=2)	2	100
Life Sciences (N=2)	1	50
Med Tech (N=1)	1	100
Medicine (N=1)	1	100
Nursing (N=7)	6	86
Printing Press (N= 1)	1	100
RE (N=1)	1	100
Social Sciences (N=2)	1	50

As shown in Table 9, 133 out of the 263 student respondents
(50.6%) wanted the University to shoulder the expenses for their
additional laboratory examinations. On the other hand, 128 out of 263
(48.7%) wanted the laboratory examination to be paid by themselves.
Only two students wanted the insurance or health care company to
finance their additional laboratory examination.

Table 9. Distribution of Student Respondents as to who should Pay the Additional Medical Examinations for Students.

College	Myself	University	Insurance	Total
Agriculture	3	12	0	15
Arts and Sciences	16	11	0	27
Commerce	19	29	0	48
Computer Studies	8	11	1	20
Education	21	24	1	46
Engineering	18	19	0	37
Nursing	43	27	0	70
Frequency	**128**	**133**	**2**	**263**
%	**48.7%**	**50.6%**	**0.7**	**100.0**

The responses by the faculty and staff reflected maturity and concern for their health when an overwhelming majority (24 out of 30 or 80%) agreed to pay for additional laboratory examination. Only 4 suggested that the University should pay while 2 or 7% suggested that the health care or insurance company handle the payment.

Table 10. Persons Responsible for Paying Additional Medical Examinations for Faculty and Staff

College	Myself	University	Insurance	Total
Agriculture	1	2	0	6
Business Office	4	0	0	2
Elementary	2	0	0	2
Education	2	0	0	2
High School	1	0	1	1
HRD	1	0	0	2
Life Sciences	1	0	1	1
Med Tech	1	0	0	1
Medicine	1	0	0	7
Nursing	7	0	0	1
Printing Press	1	0	0	1
RE	1	0	0	2
Social Sciences	1	1	0	1
Theology	0	1	0	1
Frequency	**24**	**4**	**2**	**30**
%	**80.0**	**13.3**	**6.7**	

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

From the major findings of the study, the following conclusions are drawn:

1.The physical examinations conducted were general assessment (health history interview), Height and weight measurement, Temperature, Pulse rate, Respiratory rate, Blood pressure, Examinations of visual ability, Cardiac auscultations, Gastro intestinal Auscultations, Breast palpation (female) and Prostate palpation (male), and Liver palpation. On the other hand, the laboratory examinations were: Urinalysis, Fecalysis, CBC, and Chest X-Ray.

2. Seven of the twelve physical examinations are perceived by the respondents to be comprehensive. All the four laboratory examinations are perceived to be not comprehensive.

3.The majority of the students, faculty and staff want to avail of additional physical examinations like, Cardiac Auscultation, Liver Palpation, and Lung Auscultation. They also want laboratory examinations like X-Ray, ECG, Echocardiogram, FBS and Cholesterol examinations to be included in the annual physical examination.

4. The majority of the student respondents want the University to shoulder the expenses for additional laboratory examinations, whereas, the faculty and staff are willing to pay for the additional laboratory examinations.

Recommendations

In the light of the conclusions, the following recommendations are advanced.

1. Since all the laboratory examinations conducted were not comprehensive for the students, the University should include laboratory examinations for the incoming freshmen if it is not doable for the existing students.

2. Since most of the faculty and staff were asked by the Doctor to undertake additional laboratory examinations, this would seem to show that the existing laboratory examinations are inadequate. The University should therefore encourage all the faculty and staff to subscribe for membership to any of the existing accredited health insurance, and probably increase her share of health maintenance contribution fees preferably by 50%

for the faculty and staff.

3. Since the majority of the students want the University to shoulder the cost of additional laboratory examinations, the university administration should hold dialogue with the student representatives or leaders to come up with "win-win" solutions.

4. Finally, further study is recommended to determine parents' or stakeholders' interest in the inclusion of laboratory or diagnostic medical examinations in the annual physical examinations.

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DESIGN, CONSTRUCTION AND TESTING
OF A THREE-PHASE LOW VOLTAGE
POWER SUPPLY

By Ramon Alguidano, Reylin Manajero, and Rex Rubidy

ABSTRACT

This study aimed to design, construct and test a three-phase low voltage variable power supply for EE/ECE laboratory with the following components: three-phase high voltage power supply of 220VAC, low voltage variable three-phase AC power supply with an output of 3V, 4.5V, 6V, 9V, 12V and DC output of 12V, +5V, 1.25V 12V. All outputs except the 220VAC are provided with over current circuit protection to protect the circuit and the component from overload and accidental short circuit. The parameters tested are the phase angle, (for AC output voltage only), output voltage, and maximum load current for both DC and AC output. After testing the power supply, the results show that all data have met the requirements with an acceptable level of error. This indicates that the design is valid, reliable and accurate and that the power supply was satisfactorily made and very adoptable to the needs of the EE/ECE Laboratory.

INTRODUCTION

Background of the Study

Most electronic equipment require DC voltages for their operation. These can be provided by batteries or by internal power supplies that convert alternating current available at the home electric outlet, into regulated DC voltages. The first element in an internal DC power supply is a transformer, which steps up or steps down the input voltage to a level suitable for the operation of the equipment. A secondary function of the transformer is to provide electrical ground insulation for the device from the power line to reduce potential shock hazards. The transformer is then followed by a rectifier, normally a diode. In the past, vacuum diodes and a wide variety of different materials such as germanium crystals or cadmium sulfide were employed in the low-power rectifiers used in electronic equipment. Today silicon rectifiers are used almost exclusively because of their low cost and their highreliability from(http://encarta.msn.com/encyclopedia_761566928 2/electronics.html).

Rectifiers are important because after all, the AC has to get converted to DC. They are essential elements in switching power supplies, but for regular "linear" power supplies, SLOW diodes are preferred. Slow diodes are created by placing small capacitor circuits across the diodes, which greatly reduces radiated noise from (http://www.passlabs.com/downloads/articles/powersupply.pdf).

Some companies developed power supply with similar features as this present design. Hamden developed AC, DC Power Supply model BPS 103A with the following features 0 128Vdc 6A max, 0 140Vac 6A max, 0 220 3 phase, 9A max, 220Vac 3 phase, 15A max, 0 150Vdc 1A max and 110V single phase 15A maximum. Lab Volt EMS 8621 power supply has 120/208, three phase 15A maximum, 0 120V/208V 5A maximum, three phase 0 120V, 8A DC. This power supply however, does not have the electronic over current protection and variable step voltage which are present in the developed design. The Lab Volt EMMS 8621 power supply is applicable only to a very high power voltage which is dangerous for students' use and cannot be used in low voltage application.

The design, fabrication, and evaluation of a Three-Phase Low Voltage Power Supply is designed specifically for low voltage current application suitable for laboratory experiments in Circuit 1 and 2 and in Industrial Electronics.

The College of Engineering of Central Philippine University (CPU) is composed of five departments namely: Chemical Engineering, Civil Engineering, Electrical and Electronics and

Communication Engineering, Mechanical Engineering, and Software Engineering. The college has a total enrolment of 1,250 students for First Semester School Year 20042005, with 40 faculty members; both fulltime and parttime and 4 staff members. The Philippine Accredited Association of Colleges and Universities (PAASCU) accredited the four Programs of the College as level III Center of Development 1 and were granted a 5 year accreditation status.

Recently the four programs of the college were reaccredited and one of the basic equipment required by the accreditors is the low voltage 3-phase variable power supply with complete switching and protection. Since the college does not have this equipment, a Lab Volt is used for the laboratory experiments. However, the Lab volt is very expensive; it costs about more than a million per unit which allows only one group of students to perform a specific experiment. Because of this, it was decided to design an equipment for the EE Power Laboratory. Most of the students using this equipment are in their 3rd to 5th years.

Fabrication of the equipment will not only facilitate efficient and convenient conduct of experiments but will also add equipment in the EE Power Lab thus meeting the requirements of PAASCU. Developing and fabricating a three phase low voltage power supply will provide students in Basic Electrical Engineering (Circuit I and II) and Industrial Electronics (EE512) and EE/ECE professors with a low cost power supply. Its major parts include: 220 VAC 3 phase source voltage, 220 VAC 3 phase output voltage, the low voltage 3 phase variable power supply, the DC power supply with regulated output of 5V fixed, +12V and 12V fixed and the + 1.25V to +12V and 1,25V to 12V variable, Over current circuit protection, LED display, six position selector switch, Toggle switch and variable resistor.

Objectives of the Study

The main objective of the study was to design, fabricate and evaluate of a 3 - phase low voltage power supply for EE Power Lab.
Specifically it aimed:
1. To develop the basic Block Diagram of the circuit board
2. To integrate each discrete component based on the block diagram
3. To calculate the component values, and determine the circuit and active component parameters
4. To test the designed circuit and evaluate the result and do some modification, if necessary
5. To construct the actual circuit board, and
6. To conduct final testing and evaluation of the circuit board.

Scope and Limitation of the Study

This power supply is primarily designed for electrical and electronics experiments specifically in Basic Electrical Circuit (Circuit I and II) and Industrial Electronics laboratory experiments. Power supply capacity is set to a maximum load current of 1 Ampere (both AC and DC) and the output voltage is specified depending on the availability of component. For this design, the output voltages for both DC and AC were specified and limited to its specifications. It cannot be operated beyond its maximum operating current for it will cause tripping off of the device to protect the active component inside the power supply.

The circuitry of a power supply is designed based on its specifications and limitations. The DC power supply circuit with variable output has a maximum current of 1A and has an output voltage of +1.25V-to-12V Vdc regulated, 12V fixed regulated, +5V fixed regulated. The AC inner supply circuit has a maximum output voltage of 220VAC, variable low voltage AC of 3V, 4.5V, 6V, 9V, and 12V with LED display. All output voltages have over current circuit and fuse protection.

Significance of the Study

The outcome of this study will benefit the School Administrators, EE/ECE department, teachers, students, and other schools which offer related or the same course but cannot afford to buy expensive equipment.

METHODOLOGY

Conceptualization of the Design

The design was started, by drawing the block diagram of a given system shown in Figure 1 below. The simplified block diagram of the 3 - Phase Low Voltage Power Supply are composed of eight blocks labeled with a name that corresponds to its specific function and operation.
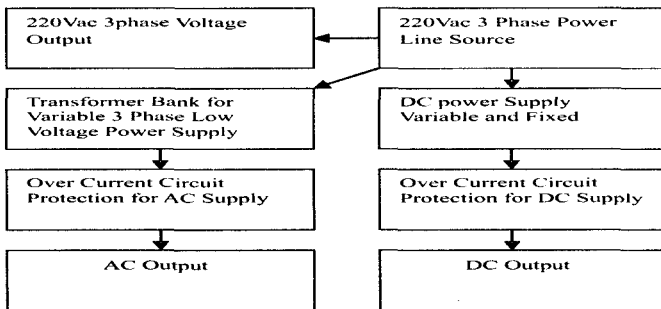
Figure 1. Block Diagram

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The block diagram has eight major components namely: the regulated power supply both fixed and variable, the transformer bank with step down voltage from 220 VAC to a variable 3V, 4.5V, 6V, 9V, and 12VAC voltage, the over current circuit protection for both AC and DC, the 220V AC output voltage directly connected to a 220VAC 3 phase line, and the low voltage DC and AC output. The regulated DC power supply design is an IC voltage regulator with variable and fixed output voltage (Figure 2).
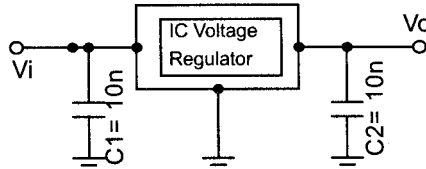
Figure 2. Fixed IC Voltage Regulator

The circuit shown in Figure 2 is a schematic diagram of a fixed IC regulator; the output voltage is depending on the IC used. A +5V regulator output only used 7805, for -12V, used 7912, for +12V, used 7812. The capacitor connected to the input and output terminals are used to filter out harmonics produced by the active component and the high frequency interference.
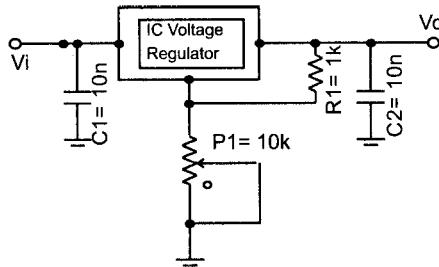
Figure 3. Variable IC Voltage Regulator

For the variable IC regulator shown in Figure 3, the output voltage is from 1.25V to 37 V with built-in over current circuit protection. For fixed IC regulator, the output voltage is being specified based on their rating and has also a built over current circuit protection.
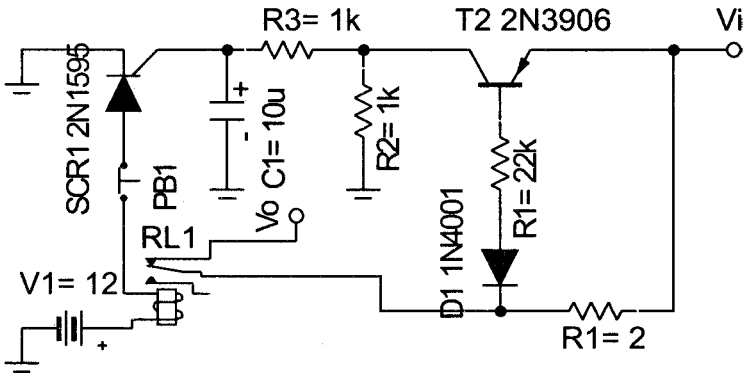
Figure 4. Over Current Circuit Protection

The over current circuit protection shown in Figure 4 is carefully designed to limit the operating current to approximately 1 ampere and for the protection of the transformer bank and the main component, specifically the active components like the transistors and IC voltage regulator.
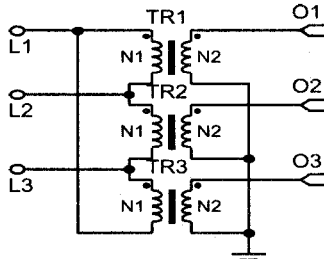
Figure 5. Three-Phase Transformer Bank

Shown in Figure 5 is the transformer bank used to step-down the voltage from 220VAC to 3V, 4.5V, 6V, 9V, and 12VAC using the Delta-to-Wye connection.
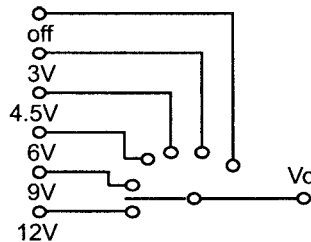
Figure 6. Six Position Selector Switch

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Shown in Figure 6 is the rotary switch used to select the variable AC supply output to 3V, 4.5V, 6V, 9V, and 12VAC, and the circuit which is the overcurrent circuit protection. Relay (RL1) is used to automatically switch on and off the output terminal, T2 is the pnp transistor used to sense the error voltage and trigger the relay on by triggering the gate terminal of SCR1, and the 2 ohm resistor R1 controls the maximum operating current. When the voltage across R1 is equal or greater than 2V, the transistor T2 will turn on thereby triggering the SCR1 to cause the relay on. The Pb1 is the push button used to reset the supply whenever there is an overload in the power supply.

MAJOR FINDINGS

The source voltage required by the design is 220VAC, however, the actual testing supply voltages were 210.8V, 211.5V, 211.3V for phase 1, phase 2, and phase 3, respectively (Table 1). The secondary AC output voltage as shown in Table 2 is slightly lower compared to the required voltage based on the design, but this is beyond the researchers' control since it is dependent on the voltage produced by the utility company. However, these values are tolerable and can be used for testing and evaluation with a minimal amount of deviation from the expected value. Since the AC voltage is not regulated, the output may vary depending on the variation of the line voltage. The output of the regulated power supply is capable of maintaining the output voltage within a tolerable limit even if the source voltage varies (Table 3). Based on the results, all data have a small variation. One reading had a 6.53% error, but this is tolerable and can be corrected if the output required is only 12V or less.

Table 1. Source Voltage Reading

Expected Value per Phase	Measured Value		
	Phase 1	Phase 2	Phase 3
220VAC/60Hz	210.8V	211.5V	211.3V

Table 2. AC Output Voltage Reading

Expected Value per Phase	Measured Value (V)			% Difference		
	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
3	3.09	3.07	3.07	−3	−2.33	−2.33
4.5	4.56	4.58	4.57	−1.33	−1.77	−1.55
6	6.06	6.08	6.07	−1	−1.33	−1.16
9	8.97	9.01	8.99	0.33	−0.11	0.11
12	11.88	11.95	11.92	1	0.42	0.66

Table 3. DC Output Voltage Reading

Expected Value		Measured Value (V)		% Difference	
	+5		5.04		−0.8
	+12		12.03		−0.25
	−12		−11.87		1.08
+1.25	15	+1.253	15	−0.24	0
−1.25	−15	−1.268	−15.98	−1.44	−6.53

The load currents of 0.6A for AC and 0.7A for DC presented in Table 4 are more than enough for the required laboratory experiments, because these laboratory experiments were designed for low current (normally from 10mA 100mA load current).

Table 4. Current Reading

Maximum Load Current	Expected	Measured	% Difference
AC	1A	0.6A	40%
DC	1A	0.7A	30%

The resulting phase angle shown in Table 5 is approximately 120 degrees for each phase, which only shows that the lines are balanced when the power supply was tested. The phasing of the three-phase low voltage power supply depends on the source voltage.

Table 5. Phase Angle Measurements

Expected Value per Phase	Measured Value		
	Phase 1	Phase 2	Phase 3
120 degrees per phase	116.47^0	121.76^0	116.47^0

CONCLUSION AND RECOMMENDATION

Conclusion

After testing different blocks, the results show that all data have met the requirements with an acceptable percentage error indicating that the design is valid, reliable and accurate. It can be concluded further that it was satisfactorily made and very adaptable to the needs of the EE/ECE Laboratory.

Recommendation

Based on the results of the test, it is recommended that the current capability of the power supply be increased. The 2 ohm resistor five Watt connected to the over current protection circuit) should be changed to less than 2 ohms and the transformer bank should be changed to 2 A rating. The load current capability of the power supply normally depends on the rating of the transformer used for AC voltage output and for DC output voltage, addition of series pass transistor and also the transformer rating must be higher depending on the maximum load current.

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FACULTY MEMBERS' LEVEL OF SATISFACTION ON THE INSTITUTIONAL SERVICES OF THE UNIVERSITY

By Merle P. Lorca

ABSTRACT

The study determined the level of satisfaction of the faculty members of Central Philippine University for the school year 2004-2005. It also determined relationships that exist between level of satisfaction and personal characteristics such as age, sex, civil status, religion, educational attainment, length of service and basic monthly income. Results revealed that faculty members were mostly "satisfied" in areas of planning and implementation of policies; communication; roles and functions; supervisory consideration; and training, career, social and spiritual development but were only "slightly satisfied" with their physical working condition and remuneration and benefits. Over-all satisfaction result shows that faculty members of Central Philippine University were "satisfied". Gamma and Chi-square tests were used to measure relationships that exist among selected variables and level of satisfaction. Of the variables involved, only educational attainment and basic monthly income have inverse significant relationships with level of satisfaction.

INTRODUCTION

Background and Rationale of the Study

Central Philippine University (CPU) is a mission school. As such, it embodies the ideals of a Christian institution that values service above gain and prestige. Its efforts are geared towards the enhancement of its services as an educational institution to ensure quality service to its clients- the students, the community, and its employees.

The question now is to what extent are the clients "satisfied" with the services of the university? Does the school provide the kind of service its clients expect? Or has it evinced enough reason for them to be satisfied?

Through the years, the university has truly manifested its utmost desire to uplift the quality of its services. With the university's quest for quality and optimum service it can offer its customers, it is presently facing the challenge of attuning to the demands of "Standardization" by submitting itself to the scrutiny of the "International Organization for Standardization (ISO)". This standardization body is concerned with "quality management" which would look into "what" the university does to enhance customer satisfaction by meeting customer and applicable regulatory requirements. This move is supported by Abraham Maslow (1954), who contends that human beings have to be satisfied of their lower needs in order for them to be motivated to seek for a higher form of need. This in turn will fully energize the individual to do his task well, wherever he may be.

Presently, there is no written evidence as to how satisfied the employees of the university are, specifically its faculty. In school year 2003-2004, a study was conducted by Armadillo but it involved only the staff and it focused more on the factors that are associated with job satisfaction and job performance of the rank and files of CPU. Nevertheless, it revealed that members of the university staff were mostly very satisfied with their working conditions, roles and functions and interpersonal relationship.

Objectives of the Study

This study aimed to determine the level of employee satisfaction of the faculty members of Central Philippine University.

Specifically, this study aimed to determine:

1. the profile of the full-time faculty members of CPU in terms of age, sex, civil status, religion, educational attainment, basic monthly income and years of employment in the university;
2. the level of employee satisfaction of the full-time faculty members of CPU in terms of planning and implementation of policies; physical working condition; employee's roles and functions; supervisory consideration; training, career, social and spiritual

development; and remuneration and benefits; and,

  3. whether or not level of employee satisfaction of the full-time faculty members of CPU is significantly related to age, sex, civil status, religion, educational attainment, basic monthly income and number of years of service in the university.

Theoretical Framework

  This study was anchored upon two behavioral theories. The first theory is that of Frederick Herzberg who proposed job factors that motivate employees. The second is that of Abraham Maslow, a behavioral scientist and contemporary of Herzberg, who developed a theory about the rank and satisfaction of various human needs and how people pursue these needs.

  Herzberg (1959) constructed a two-dimensional paradigm of factors affecting people's attitudes about work: hygiene factors and motivators. He concluded that such factors as company policy, supervision, interpersonal relations, working conditions, and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction. Motivators (satisfiers) were associated with long-term positive effects in job performance while the hygiene factors (dissatisfiers) consistently produced only short-term changes in the job attitudes and performance, which quickly fell back to its previous level.

Conceptual Framework

  This study has two major groups of variables- the independent variables which include the respondent's characteristics and the dependent variables which cover the level of satisfaction of respondents with the University's services, employee's functions, and employee's rights and privileges. The schematic diagram below shows the interplay of the variables.

Independent Variables	*Dependent Variables*
Respondent's	Level of Satisfaction

Age
Sex
Religion
Educational attainment
Length of service
Basic Monthly Income
	A. University Services
	  1) Planning and Implementation of Policies
	  2) Communication
	  3) Physical working condition
	B. Functions
	  1) Roles and functions
	  2) Supervisory consideration
	C. Rights and Privileges
	  1) Training, career, social and spiritual
	    Development
	  2) Remuneration and benefits

Figure 1. Schematic Diagram of the Relationship among Variables

Hypothesis of the Study

There is no significant relationship between the respondent's level of satisfaction and the University services, employees' functions and employees' rights and privileges and selected variables such as age, sex, civil status, religion, educational attainment, length of service and monthly income.

Significance of the Study

This study provides raw information to the administrators of the university to determine the extent of satisfaction of its employees, specifically its faculty. The result of this study delivers a successful means of measuring, and acting upon faculty member's current beliefs and concerns related to their jobs. Administrators then can design programs and create policies that will improve the satisfaction level and welfare of the faculty members, thus increasing their productivity.

The dean, principals and heads of the different departments of the university could also be benefitted by this study. Knowledge of their constituent's level of satisfaction while they discharge their duties would help them evaluate and understand their concerns and consequently build a better relationship with them. This will ultimately lead to a more improved efficiency among faculty in the discharge of their duties.

Most importantly, the faculty members would find valuable information regarding themselves, their satisfaction level, their sentiments, wants and desires so that they can better understand themselves and make necessary adjustment for a more productive working experience.

Scope and Limitation of the Study

This study covers two hundred ten (210) randomly selected faculty members coming from different departments of the university for the school year 2004-2005. Variables used were limited only to personal characteristics such as age, sex, civil status, religion, educational attainment, number of years of service and basic monthly income.

Level of job satisfaction of employees was also limited to the following areas: university services which include planning and implementation of policies, communication, physical working condition; employees' function which covers employee's role and function and supervisory consideration; and rights and privileges which include training, career, social and spiritual development and remuneration and benefits.

METHODOLOGY

This descriptive-relational study employed the survey approach. The respondents were chosen through stratified sampling. Two hundred ten randomly chosen faculty members of the university were asked to answer a researcher-made-questionnaire. This instrument was constructed basing upon the result of the focus group discussion (FGD) conducted to determine areas of concern where level of faculty satisfaction is to be measured and some articles about faculty satisfaction. For data processing, Statistical Package for Social Sciences (SPSS) for Windows was used. To describe data, frequencies and means were generated. Relationship between level of satisfaction and variables such as respondents' age, educational attainment, basic monthly income, and number of years of service was determined using the statistical tool Gamma. On the other hand, relationship between level of satisfaction and variables such as sex, civil status and religion was determined using Chi-square.

MAJOR FINDINGS

Profile of the Respondents

Table 1 presents the profile of the respondents as to their age, sex, civil status, religion, educational attainment, length of service and monthly income. More than a third (34.8 %) of the 210 respondents belong to the productive age category of 30-39 years. Slightly more than a fifth (20.5 %) are young ones who belong to the age group of 29 years and below. These perhaps represent faculty who are newly-hired by the university. Expectedly, only a small percentage (6.7 %) of the respondents belong to the retiring age of 60 years and above.

As to the respondents' sex, more than two-thirds (68.6 %) of the teachers are females. This result supports the popular notion that teaching is a female dominated field.

The data also show that the majority (66.7 %) of the teachers are married and only about a third (31.4 percent) are single with a few (1.4 percent) who are widowed.

With regards to religion, only two dominant Christian denominations are most common- Baptist and Catholic, with a very slim percentage belonging to other religions. Expectedly, the majority (56.2 percent) of the respondents are Baptists and a little less than half (42.4 percent) are Catholics.

Data as to the educational attainment of the respondents reveal that almost two-thirds had finished until baccalaureate degree only, slightly more than a fourth (28.1 %) had finished their graduate degree

and a very small number (5.7 %) had accomplished their postgraduate degrees.

For the length of service, the data show that more than half (54.3 %) of the respondent teachers are new to the university, that is, they have served the university for five years or less. Surprisingly however, those who have served for twenty-one years and more followed suit comprising 15.7 % of the respondents.

For the monthly income, the result reveals an inverse relation between the basic monthly income and the number of teachers receiving the income. That is, the lower the salary, the more number of teachers receiving it. This is clearly manifested in the table where nearly half (44.8 %) of the respondents receive less than P11,000.00 as their basic monthly income and only 7 % receive a basic monthly income of P20,000 and above.

Level of Satisfaction of the Respondents

The distribution of respondents as to their level of satisfaction to the university's services, teachers' functions as well their rights and privileges is presented in Table 2. Under the university services, data reveal that the faculty were satisfied with the university's planning and implementation of policies with a mean of 3.71 as well as with communication as shown by the mean of 3.96. However, respondents were only slightly satisfied (mean = 3.37) with the university's physical working condition.

As to the teachers' functions, it was revealed that the respondents were satisfied with their roles and functions and the supervisory consideration given them as shown by the mean of 4.14 and 4.13, respectively. Moreover, with regards to rights and privileges, teachers were also satisfied (3.99) with the training, career, social and spiritual development provided them by the university but were only slightly satisfied (3.33) with the remuneration and benefits given to them.

Table 1. Distribution Respondents According to Age, Sex, Civil Status, Religion, Educational Attainment, Length of Service, Nature of Work and Monthly Income (N = 210)

Respondents' Profile		f	%
Age			
29 or below		43	20.5
30-39		73	34.8
40-49		39	18.6
50- 59		41	19.5
60 and above		14	6.7
Total		**210**	**100.00**
Mean	**40.3**		
Sex			
Male		66	31.4
Female		144	68.6
Total		**210**	**100.0**
Civil Status			
Single		66	31.4
Married		140	66.7
Widow		4	1.9
Total		**210**	**100.0**
Religion			
Baptist		118	56.2
Roman Catholic		89	42.4
Others		3	1.5
Total		**210**	**100.0**
Educational Attainment			
Baccalaureate Degree		139	66.2
Graduate Degree		59	28.1
Postgraduate level/Post Graduate degree		12	5.7
Total		**210**	**100.0**
Length of Service			
5 years and below		114	54.3
6– 10		32	15.2
11 –15		19	9.0
16-20		12	5.7
21 and above		33	15.7
Total		**210**	**100.0**
Mean	**9.16 years**		
Monthly Income			
Below 11,000		94	44.8
11,000- 13,999		44	21.0
14,000- 16,999		46	21.9
17,000- 19,999		19	9.0
20,000 and above		7	3.3
Total		**210**	**100.0**
Mean	**Php 13,242**		

Table 2. Percentage Distribution of Respondents as to Their Level of
Satisfaction (N=210)

Indicators	Very Satisfied		Satisfied		Slightly Satisfied		Dissatisfied		Very Dissatisfied		Total		Mean
	f	%	f	%	f	%	f	%	f	%	f	%	Score
I. UNIVERSITY SERVICES													
A. Planning and Implementation of Policies	36	17.1	103	49.0	49	23.3	19	9.0	3	1.4	210	100	3.71 (S)
B. Communication	54	25.7	104	49.5	44	21.0	5	2.4	3	1.4	210	100	3.96 (S)
C. Physical Working Condition	20	9.5	87	41.4	59	28.1	38	18.1	6	2.9	210	100	3.37(SS)
II. FUNCTIONS													
A. Roles and Function	70	33.3	103	49.0	34	16.2	2	1.0	1	0.5	210	100	4.14 (S)
B. Supervisory Consideration	70	33.3	103	49.0	34	16.2	12	5.7	3	1.4	210	100	4.13 (S)
III. RIGHTS & PRIVILEGES													
A. Training, Career, Social and Spiritual Development	64	30.5	95	45.2	38	18.1	10	4.8	3	1.4	210	100	3.99 (S)
B. Remuneration and Benefits	26	12.4	75	35.7	62	29.5	37	17.6	10	4.8	210	100	3.33 (SS)
OVER-ALL SATISFACTION	55	26.2	93	44.3	54	25.7	2	1.0	6	2.9	210	100	3.92 (S)

SS Slightly Satisfied
S - Satisfied

Respondents' Level of Satisfaction According to age

As a whole, the data show that there is a very negligible relationship between level of employee satisfaction and age and expectedly, the relationship is not significant. This result is consistent with the claim of Armadillo (2003) and Señeres (1997) when they said that level of satisfaction is not related with age. This result however is contradictory with the findings of Cohen and Brawer (1982) who found out that younger faculty are less satisfied than older ones (Table 3).

Respondents' Level of Satisfaction According to Sex

Over-all satisfaction results on the level of satisfaction according to sex reveal that both female and male faculty were satisfied with the university's services. Although mean scores show that female faculty had slightly greater mean scores than males, Chi value (3.171\ and p-value (0.530) suggest that the relationship is not significant at 5 % level of probability. This result coincides with those of Seneres (1997) and Armadillo (2003) who found out that sex is not related with employee's level of job satisfaction but disagrees with that of Nieves (1976) who said in his study that females were more satisfied than males (Table 4).

Table 3. Distribution of the Respondents as to Their Level of Satisfaction and Their Age (N = 210)

Level of Job Satisfaction	Age of Respondents											
	29 and below		30-39		40-49		50-59		60 and above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
I. UNIVERSITY SERVICES												
A. Planning and Implementation of Policies:												
Very Satisfied	7	16.3	11	15.1	7	17.9	9	22.0	2	14.3	36	17.1
Satisfied	21	48.8	41	56.2	14	35.9	20	48.8	7	50.0	103	49.0
Slightly Satisfied	10	23.3	15	20.5	12	30.8	9	22.0	3	21.4	49	23.3
Dissatisfied	4	9.3	6	8.2	4	10.3	3	7.3	2	14.3	19	9.0
Very Dissatisfied	1	2.3	-	-	2	5.1	-	-	-	-	3	1.4
Total	43	100	73	100	39	100	41	100	14	100	210	100
Mean	3.67 (S)		3.78 (S)		3.57 (S)		3.85 (S)		3.64 (S)		3.71 (S)	
Gamma = 0.007^{ns}					P = 0.929							
B. Communication:												
Very Satisfied	12	27.9	18	24.7	7	17.9	13	31.7	4	28.6	54	25.7
Satisfied	22	51.2	38	52.1	15	38.5	21	51.2	8	57.1	104	49.5
Slightly Satisfied	7	16.3	14	19.2	14	35.9	7	17.1	2	14.3	44	21
Dissatisfied	2	4.7	2	2.7	1	2.6	-	-	-	-	5	2.4
Very Dissatisfied	-	-	1	1.4	2	5.1	-	-	-	-	3	1.4
Total	43	100	73	100	39	100	41	100	14	100	210	100
Mean	4.02 (S)		3.95 (S)		3.61 (S)		4.15 (S)		4.14 (S)		3.96 (S)	
Gamma =0.011^{ns}					P = 0.888							
C. Physical Working Condition												
Very Satisfied	3	7.0	9	12.3	4	10.3	4	9.8	-	-	20	9.5
Satisfied	19	44.2	31	42.5	9	23.1	19	46.3	9	64.3	87	41.4
Slightly Satisfied	13	30.2	20	27.4	15	38.5	8	19.5	3	21.4	59	28.1
Dissatisfied	7	16.3	12	16.4	8	20.5	9	22	2	14.3	38	18.1
Very Dissatisfied	1	2.3	1	1.4	3	7.7	1	2.4	-	-	6	2.9
Total	43	100	73	100	39	100	41	100	14	100	210	100
Mean	3.37 (SS)		3.48 (S)		3.23 (SS)		3.39 (SS)		3.50 (S)		3.37 (SS)	
Gamma = -0.22^{ns}					P = 0.765							
II. FUNCTIONS												
A. Employees Roles and Functions :												
Very Satisfied	14	32.6	19	26.0	13	33.3	17	41.5	7	50.0	70	33.3
Satisfied	23	53.5	42	57.5	14	35.9	19	46.3	5	35.7	103	49.0
Slightly Satisfied	5	11.6	11	15.1	11	28.2	5	12.2	2	14.3	34	16.2
Dissatisfied	1	2.3	-	-	1	2.6	-	-	-	-	2	1.0
Very Dissatisfied	-	-	1	1.4	-	-	-	-	-	-	1	0.5
Total	43	100	73	100	39	100	41	100	14	100	210	100
Mean	4.16 (S)		4.07 (S)		4.07 (S)		4.29 (VS)		4.36 (VS)		4.14 (S)	
Gamma = 0.084^{ns}					P =0.322							

^{ns} - Not significant at 5% level of probability
SS- Slightly Satisfied
S- Satisfied
VS- Very Satisfied

Table 3 Continued.

Level of Job Satisfaction	Age of Respondents											
	29 and below		30-39		40-49		50-59		60 and above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
B. Supervisory Consideration												
Very Satisfied	5	11.6	8	11.0	5	12.8	5	12.2	3	21.4	26	12.4
Satisfied	14	32.6	27	37.0	8	20.5	19	46.3	7	50.0	75	35.7
Slightly Satisfied	20	46.5	21	28.8	11	28.2	9	22.0	1	7.1	62	29.5
Dissatisfied	2	4.7	16	21.9	11	28.2	5	12.2	3	21.4	37	17.6
Very Dissatisfied	2	4.7	1	1.4	4	10.3	3	7.3	-	-	10	4.8
Total	**43**	**100**	**73**	**100**	**39**	**100**	**41**	**100**	**14**	**100**	**210**	**100**
Mean	3.42 (S)		3.33 (SS)		2.79 (SS)		3.44 (S)		3.71(S)		3.33 (SS)	
Gamma = 0.024 [ns]					P = 0.745							
III. Rights and Privileges												
A. Training, Career, Social and Spiritual Development :												
Very Satisfied	13	30.2	20	27.4	9	23.1	17	41.5	5	35.7	64	30.5
Satisfied	18	41.9	40	54.8	16	41.0	16	39.0	5	35.7	95	45.2
Slightly Satisfied	10	23.3	10	13.7	9	23.1	5	12.2	4	28.6	38	18.1
Dissatisfied	1	2.3	2	2.7	4	10.3	3	7.3	-	-	10	4.8
Very Dissatisfied	1	2.3	1	1.4	1	2.6	-	-	-	-	3	1.4
Total	**43**	**100**	**73**	**100**	**39**	**100**	**41**	**100**	**14**	**100**	**210**	**100**
Mean	3.95 (S)		4.04 (S)		3.71 (S)		4.15 (S)		4.07 (S)		3.99 (S)	
Gamma =0.039 [ns]					P = 0.643							
B. Remuneration and Benefits:												
Very Satisfied	18	41.9	27	37.0	18	46.2	18	43.9	8	57.1	89	42.4
Satisfied	15	34.9	34	46.6	12	30.8	15	36.6	2	14.3	78	37.1
Slightly Satisfied	6	14.0	8	11.0	3	7.7	7	17.1	4	28.6	28	13.3
Dissatisfied	4	9.3	3	4.1	5	12.8	-	-	-	-	12	5.7
Very Dissatisfied	-	-	1	1.4	1	2.6	1	2.4	-	-	3	1.4
Total	**43**	**100**	**73**	**100**	**39**	**100**	**41**	**100**	**14**	**100**	**210**	**100**
Mean	4.09 (S)		4.14 (S)		4.05 (S)		4.2 (S)		4.29 (VS)		4.13 (S)	
Gamma = 0.056 [ns]					P = 0.507							
IV. FUNCTIONS												
OVER-ALL SATISFACTION:												
Very Satisfied	9	20.9	18	24.7	9	23.1	13	31.7	6	42.9	55	26.2
Satisfied	22	51.2	31	42.5	15	38.5	20	48.8	5	35.7	93	44.3
Slightly Satisfied	11	25.6	23	31.5	11	28.2	6	14.6	3	21.4	54	25.7
Dissatisfied	1	2.3	-	-	3	7.7	2	4.9	-	-	6	2.9
Very Dissatisfied	-	-	1	1.4	1	2.6	-	-	-	-	2	1.0
Total	**43**	**100**	**73**	**100**	**39**	**100**	**41**	**100**	**14**	**100**	**210**	**100**
Mean	3.91 (S)		3.89 (S)		3.72 (S)		4.07 (S)		4.21 (VS)		3.92 (S)	
Gamma = 0.098 [ns]					P =0.216							

** Significant at 1% level of probability
[ns] - Not significant
S - Satisfied
VS - Very Satisfied
SS - Slightly Satisfied

Respondents' Level of Satisfaction According to Sex

Over-all satisfaction results on the level of satisfaction according to sex reveal that both female and male faculty were satisfied with the university's services. Although mean scores show that female faculty had slightly greater mean scores than males, Chi value (3.171) and p-value (0.530) suggest that the relationship is not significant at 5 % level of probability. This result coincides with those of Seneres (1997) and Armadillo (2003) who found out that sex is not related with employee's level of job satisfaction but disagrees with that of Nieves (1976) who said in his study that females were more satisfied than males (Table 4).

Table 4. Distribution of the Respondents when classified according to Their Level of Satisfaction and Sex (N =210)

Level of Job Satisfaction	Sex of Respondents					
	Male		Female		Total	
	f	%	f	%	f	%
I. UNIVERSITY SERVICES						
A. Planning and Implementation of Policies:						
Very Satisfied	9	13.6	27	18.8	36	17.1
Satisfied	36	54.5	67	46.5	103	49.0
Slightly Satisfied	13	19.7	36	25.0	49	23.3
Dissatisfied	6	9.1	13	9.0	19	9.0
Very Dissatisfied	2	3.0	1	7.0	3	1.4
Total	66	100	144	100	210	100
Mean	3.67 (S)		3.73 (S)		3.71 (S)	
Chi-square = 3.558 [ns]		P = 0.469				
B. Communication:						
Very Satisfied	14	21.2	40	27.8	54	25.7
Satisfied	36	54.5	68	47.2	104	49.5
Slightly Satisfied	14	21.2	30	20.8	44	21.0
Dissatisfied	1	1.5	4	2.8	5	2.4
Very Dissatisfied	1	1.5	2	1.4	3	1.4
Total	66	100	144	100	210	100
Mean	3.92 (S)		3.97 (S)		3.96 (S)	
Chi-square = 1.560 [ns]		P = 0.816				
C. Physical Working Condition						
Very Satisfied	3	4.5	17	11.8	20	9.5
Satisfied	26	39.4	61	42.4	87	41.4
Slightly Satisfied	21	31.8	38	26.4	59	28.1
Dissatisfied	14	21.2	24	16.7	38	18.1
Very Dissatisfied	2	3.0	4	2.8	6	2.9
Total	66	100	144	100	210	100
Mean	3.21 (SS)		3.44 (S)		3.37 (SS)	
Chi-square = 3.603 [ns]		P = 0.462				
II. FUNCTIONS						
A. Employee's Roles and Functions						
Very Satisfied	22	33.3	48	33.3	70	33.3
Satisfied	33	50.0	70	48.6	103	49.0
Slightly Satisfied	10	15.2	24	16.7	34	16.2
Dissatisfied	1	1.5	1	0.7	2	1.0
Very Dissatisfied	-	-	1	0.7	1	0.5
Total	66	100	144	100	210	100
Mean	4.15 (S)		4.13 (S)		4.14 (S)	
Chi-square = 0.860 [ns]		P = 0.930				

[ns] - Not significant at 5% level of probability
SS- Slightly Satisfied
S- Satisfied
VS- Very Satisfied

Table 4 continued.

Level of Job Satisfaction	Sex of Respondents					
	Male		Female		Total	
	f	%	f	%	f	%
B. Supervisory Consideration:						
Very Satisfied	6	9.1	20	13.9	26	12.4
Satisfied	25	37.9	50	34.7	75	35.7
Slightly Satisfied	20	30.3	42	29.2	62	29.5
Dissatisfied	12	18.2	25	17.4	37	17.6
Very Dissatisfied	3	4.5	7	4.9	10	4.8
Total	**66**	**100**	**144**	**100**	**210**	**100**
Mean	3.28 (SS)		3.35 (SS)		3.33 (SS)	
Chi-square = 1.014 [ns]			P = 0.908			
III. RIGHTS AND PRIVILEGES						
A. Training, Career, Social and Spiritual Development:						
Very Satisfied	19	28.8	45	31.3	64	30.5
Satisfied	31	47.0	64	44.4	95	45.2
Slightly Satisfied	11	16.7	27	18.8	38	18.1
Dissatisfied	3	4.5	7	4.9	10	4.8
Very Dissatisfied	2	3.0	1	0.7	3	1.4
Total	**66**	**100**	**144**	**100**	**210**	**100**
Mean	3.94 (S)		4.01 (S)		3.99 (S)	
Chi-square = 2.00 [ns]			P = 0.736			
B. Remuneration and Benefits:						
Very Satisfied	26	39.4	63	43.8	89	42.4
Satisfied	28	42.4	50	34.7	78	37.1
Slightly Satisfied	8	12.1	20	13.9	28	13.3
Dissatisfied	4	6.1	8	5.6	12	5.7
Very Dissatisfied	-	-	3	2.1	3	1.4
Total	**66**	**100**	**144**	**100**	**210**	**100**
Mean	4.15 (S)		4.13 (S)		4.13 (S)	
Chi-square = 2.427 [ns]			P = 0.658			
OVER-ALL SATISFACTION:						
Very Satisfied	14	21.2	41	28.5	55	26.2
Satisfied	32	48.5	61	42.4	93	44.3
Slightly Satisfied	17	25.8	37	25.7	54	25.7
Dissatisfied	3	4.5	3	2.1	6	2.9
Very Dissatisfied	-	-	2	1.4	2	1.0
Total	**66**	**100**	**144**	**100**	**210**	**100**
Mean	3.86 (S)		3.94 (S)		3.92 (S)	
Chi-square = 3.171 [ns]			P = 0.530			

[ns] - Not significant at 5% level of probability
SS- Slightly Satisfied
S- Satisfied
VS- Very Satisfied

Respondents' Level of Satisfaction According to Civil Status

Over-all satisfaction level result according to civil status shows a very low margin between the mean scores of statuses (3.92 for the single faculty and 3.91 for the married faculty). Both means can be considered as "satisfied". Far above were the widowed ones who got a mean score of 4.5 which indicate that they are very satisfied in this area. On the other hand, the obtained Chi-square value of 10.565 and p-value of 0.567 mean that status is not associated with level of satisfaction. This finding agrees with those of Armadillo (2003) and Seneres (1997) but disagrees with that of Roscow (1974) who said that unmarried workers tended to be less satisfied than married ones (Table 5).

Table 5. Distribution of the Respondents as to Their Level of Satisfaction and Civil Status (N = 210)

Level of Job Satisfaction	Civil Status of the Respondents							
	Single		Married		Widow		Total	
	f	%	f	%	f	%	f	%
I. UNIVERSITY SERVICES								
A. Planning and Implementation of Policies:								
Very Satisfied	10	15.2	26	18.7	-	-	36	17.1
Satisfied	29	43.9	71	51.1	3	75.0	103	49.0
Slightly Satisfied	18	27.3	30	21.6	1	25.0	49	23.3
Dissatisfied	8	12.1	11	7.9	-	-	19	9.0
Very Dissatisfied	1	1.5	2	1.4	-	-	3	1.4
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	3.59 (S)		3.77 (S)		3.75 (S)		3.71 (S)	
Chi-square = 4.96 [ns]			P = .285					
B. Communication:								
Very Satisfied	16	24.2	37	26.6	1	25.0	54	25.7
Satisfied	35	53.0	67	48.2	2	50.0	104	49.5
Slightly Satisfied	14	21.2	29	20.8	1	25.0	44	21.0
Dissatisfied	1	1.5	4	2.9	-	-	5	2.4
Very Dissatisfied	-	-	3	2.2	-	-	3	1.4
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	4.00 (S)		3.94 (S)		4.00 (S)		3.96 (S)	
Chi-square = 6.128 [ns]			P = 0.909					
B. Physical Working Condition								
Very Satisfied	7	10.6	13	9.4	-	-	20	9.5
Satisfied	22	33.3	62	44.6	3	75.0	87	41.4
Slightly Satisfied	21	31.8	38	27.3	-	-	59	28.1
Dissatisfied	12	18.2	25	18.1	1	25.0	38	18.1
Very Dissatisfied	4	6.1	2	1.4	-	-	6	2.9
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	3.24 (SS)		3.42 (S)		3.50 (S)		3.37 (S)	
Chi-square = 12.563 [ns]			P = 0.402					
II. FUNCTIONS								
A. Employee's Roles and Functions:								
Very Satisfied	24	36.4	43	30.9	3	75.0	70	33.3
Satisfied	32	48.5	71	51.2	-	-	103	49.0
Slightly Satisfied	9	13.6	24	17.3	1	25.0	34	16.2
Dissatisfied	1	1.5	1	0.7	-	-	2	1.0
Very Dissatisfied	-	-	1	0.7	-	-	1	0.5
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	4.20 (S)		4.1 (S)		4.5 (VS)		4.14 (S)	
Chi-square = 6.959 [ns]			P = 0.860					

[ns] - Not significant at 0.05 % level of probability
SS- Slightly Satisfied
S- Satisfied
VS- Very Satisfied

Table 5 continued.

Level of Job Satisfaction	Civil Status of the Respondents							
	Single		Married		Widow		Total	
	f	%	f	%	f	%	f	%
B. Supervisory Consideration:								
Very Satisfied	12	18.2	13	9.4	1	25.0	26	12.4
Satisfied	16	24.2	58	41.7	1	25.0	75	35.7
Slightly Satisfied	22	33.3	39	28.1	1	25.0	62	29.5
Dissatisfied	14	21.2	22	15.8	1	25.0	37	17.6
Very Dissatisfied	2	3.0	8	5.8	-	-	10	4.8
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	3.33 (SS)		3.33 (SS)		3.5 (S)		3.33 (SS)	
Chi-square = 29.247*					**P = 0.004**			
III. RIGHTS AND PRIVILEGES								
A. Training, Career, Social and Spiritual Development:								
Very Satisfied	21	31.8	42	30.2	1	25	64	30.5
Satisfied	28	42.4	65	46.8	2	50	95	45.2
Slightly Satisfied	14	21.2	23	16.5	1	25	38	18.1
Dissatisfied	2	3.0	8	5.8	-	-	10	4.8
Very Dissatisfied	1	1.5	2	1.5	-	-	3	1.4
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	4.0 (S)		3.98 (S)		4.0 (S)		3.99 (S)	
Chi-square = 6.572 ns					**P = 0.885**			
B. Remuneration and Benefits:								
Very Satisfied	29	43.9	57	41.1	3	75.0	89	42.4
Satisfied	25	37.9	53	38.1	-	-	78	37.1
Slightly Satisfied	8	12.1	19	13.7	1	25.0	28	13.3
Dissatisfied	4	6.1	8	5.8	-	-	12	5.7
Very Dissatisfied	-	-	3	2.2	-	-	3	1.4
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	4.20 (S)		4.09 (S)		4.50 (VS)		4.13 (S)	
Chi-square = 71.376**					**P = 0.000**			
Over-all satisfaction:								
Very Satisfied	18	27.3	34	24.5	3	75.0	55	26.2
Satisfied	27	40.9	66	47.5	-	-	93	44.3
Slightly Satisfied	19	28.8	34	24.1	1	25.0	54	25.7
Dissatisfied	2	3.0	4	2.9	-	-	6	2.9
Very Dissatisfied	-	-	2	1.4	-	-	2	1.0
Total	**66**	**100**	**140**	**100**	**4**	**100**	**210**	**100**
Mean	3.92 (S)		3.90 (S)		4.5 (VS)		3.92 (S)	
Chi-square = 10.565 ns					**P = 0.567**			

ns - Not significant at 5% probability level   VS - Very Satisfied
* - Significant at 5% probability level   SS - Slightly Satisfied
** - Significant at 1% probability level   S - Satisfied

Respondents' Level of Satisfaction According to Religion

Over-all mean level of satisfaction according to religion reveals that although Baptist respondents (3.94) had slightly higher mean scores than the Roman Catholics (3.89) Chi square value of 4.419 and p-value of 0.817 support that there is no significant association between level of satisfaction and religion. This is consistent with Armadillo's study which shows that religion is not related with employee satisfaction (Table 6).

Table 6. Distribution of the Respondents' Level of Satisfaction and Their Religion (N = 210)

Level of Job Satisfaction	Religion of the Respondents						
	Roman Catholics		Baptists		Others		Total
	f	%	f	%	f	%	f
I. UNIVERSITY SERVICES							
A. Planning and Implementation of Policies:							
Very Satisfied	14	15.7	20	16.9	2	66.7	36
Satisfied	42	47.2	60	50.8	1	33.3	103
Slightly Satisfied	23	25.8	26	22.0	-	-	49
Dissatisfied	9	10.1	10	8.5	-	-	19
Very Dissatisfied	1	1.1	2	1.7	-	-	3
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**
Mean	**3.66 (S)**		**3.73 (S)**		**4.67 (VS)**		**3.71 (S)**
Chi - square = 6.300 [ns]			P = 0.614				
B. Communication:							
Very Satisfied	20	22.5	33	28.0	1	33.3	54
Satisfied	48	53.9	55	46.6	1	33.3	104
Slightly Satisfied	18	20.2	25	21.2	1	33.3	44
Dissatisfied	2	2.2	3	2.5	-	-	5
Very Dissatisfied	1	1.1	2	1.7	-	-	3
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**
Mean	**3.94 (S)**		**3.97 (S)**		**4.0 (S)**		**3.96 (S)**
Chi-square = 1.87 [ns]			P = 0.914				
C. Physical Working Condition							
Very Satisfied	9	10.1	11	9.3	-	-	20
Satisfied	34	38.2	51	43.2	2	66.7	87
Slightly Satisfied	29	32.6	30	25.4	-	-	59
Dissatisfied	15	16.9	22	18.6	1	33.3	38
Very Dissatisfied	2	2.2	4	3.4	-	-	6
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**
Mean	**3.37 (SS)**		**3.36 (SS)**		**3.33 (SS)**		**3.37 (SS)**
Chi-square = 3.68 [ns]			P = 0.885				
II. FUNCTIONS							
A. Employee's Roles and Functions:							
Very Satisfied	27	30.3	43	36.4	3	100	70
Satisfied	45	50.6	55	46.6	-	-	103
Slightly Satisfied	16	18.0	18	15.3	-	-	34
Dissatisfied	-	-	2	1.7	-	-	2
Very Dissatisfied	1	1.1	-	-	-	-	1
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**
Mean	**4.09 (S)**		**4.18 (S)**		**5.00 (VS)**		**4.14 (S)**
Chi-square = 6.998 [ns]			P = 0.537				

[ns] - Not significant at 5 % probability level
VS - Very Satisfied
SS - Slightly Satisfied
S - Satisfied

Table 6 continued.

Level of Job Satisfaction	Religion of the Respondents							
	Roman Catholics		Baptists		Others		Total	
	f	%	f	%	f	%	f	%
B. Supervisory Consideration:								
Very Satisfied	9	10.1	17	14.4	1	33.3	26	12.4
Satisfied	29	32.6	45	38.1	1	33.3	75	35.7
Slightly Satisfied	33	37.1	28	23.7	-	-	62	29.5
Dissatisfied	13	14.6	24	20.3	1	33.3	37	17.6
Very Dissatisfied	5	5.6	4	3.4	-	-	10	4.8
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**	**100**
Mean	3.27 (SS)		3.40 (SS)		3.67 (S)		3.33 (SS)	
Chi-square = 6.06 [ns]				P = 0.641				
III. RIGHTS AND PRIVILEGES								
A. Training, Career, Social and Spiritual Development:								
Very Satisfied	28	31.5	35	29.7	1	33.3	64	30.5
Satisfied	42	47.2	52	44.1	1	33.3	95	45.2
Slightly Satisfied	15	16.9	23	19.5	-	-	38	18.1
Dissatisfied	2	2.2	8	6.8	-	-	10	4.8
Very Dissatisfied	2	2.2	-	-	1	33.3	3	1.4
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**	**100**
Mean	4.03 (S)		3.97 (S)		3.33 (SS)		3.99 (S)	
Chi-square = 26.826**				P = 0.001				
B. Remuneration and Benefits:								
Very Satisfied	33	37.1	53	44.9	3	100	89	42.4
Satisfied	38	42.7	40	33.9	-	-	78	37.1
Slightly Satisfied	12	13.5	16	13.6	-	-	28	13.3
Dissatisfied	5	5.6	7	5.9	-	-	12	5.7
Very Dissatisfied	1	1.1	2	1.7	-	-	3	1.4
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**	**100**
Mean	4.09 (S)		4.14 (S)		5.00 (VS)		4.13 (S)	
Chi-square = 4.419 [ns]				P = 0.817				
Over-all satisfaction:								
Very Satisfied	19	21.3	35	29.7	1	33.3	55	26.2
Satisfied	44	49.4	48	40.7	1	33.3	93	44.3
Slightly Satisfied	24	27.0	29	24.6	1	33.3	54	25.7
Dissatisfied	1	1.1	5	4.2	-	-	6	2.9
Very Dissatisfied	1	1.1	1	0.8	-	-	2	1.0
Total	**89**	**100**	**118**	**100**	**3**	**100**	**210**	**100**
Mean	3.89 (S)		3.94 (S)		4.00 (S)		3.92 (S)	
Chi-square = 4.419 [ns]				P = 0.817				

ns - Not significant at 5% probability level   SS - Slightly Satisfied
**- significant at 1% probability level   S - Satisfied
                                           VS - Very Satisfied

Distribution of Respondents' Level of Satisfaction According to Their Educational Attainment

Over-all satisfaction result reveals that, contrary to popular view, baccalaureate degree holders have higher percentage of very satisfied teachers than the rest of the groups. Mean scores suggest that in general, indeed, baccalaureate degree holders were more satisfied with the other two groups. Gamma value of 0.277 and p-value of 0.011 show a significant low negative relationship between level of satisfaction and educational attainment. This means that, as the educational attainment of the respondent progresses, his level of satisfaction decreases. This result does not agree with Seneres (1997) who said that educational attainment is not related with employee satisfaction (Table 7).

Table 7. Distribution of the Respondents as to Their Level of Satisfaction and Educational Attainment (N = 210)

Level of Job Satisfaction	Educational Attainment							
	Baccalaureate Degree		Graduate Degree		Post Graduate		Total	
	f	%	f	%	f	%	f	%
I. UNIVERSITY SERVICES								
A. Planning and Implementation of Policies:								
Very Satisfied	29	20.9	5	8.5	2	16.7	36	17.1
Satisfied	68	48.9	29	49.2	6	50.0	103	49.0
Slightly Satisfied	26	18.7	20	33.9	3	25.0	49	23.3
Dissatisfied	15	10.8	4	6.8	-	-	19	9.0
Very Dissatisfied	1	0.7	1	1.7	1	1	3	1.4
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	3.78 (S)		3.56 (S)		3.67 (S)		3.71 (S)	
Gamma value = -0.186 [ns]		P=0.084						
B. Communication:								
Very Satisfied	43	30.9	7	11.9	4	33.3	54	25.7
Satisfied	65	48.6	34	57.6	5	41.7	104	49.5
Slightly Satisfied	25	18.0	17	28.8	2	16.7	44	21.0
Dissatisfied	4	2.9	1	1.7	-	-	5	2.4
Very Dissatisfied	2	1.4	-	-	1	8.3	3	1.4
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	4.03 (S)		3.8 (S)		3.92 (S)		3.96 (S)	
Gamma value = -0.218 [ns]		P= 0.053						
C. Physical Working Condition								
Very Satisfied	18	12.9	1	1.7	1	8.3	20	9.5
Satisfied	64	46.0	21	35.6	2	16.7	87	41.4
Slightly Satisfied	35	25.2	20	33.9	4	33.3	59	28.1
Dissatisfied	19	13.7	14	23.7	5	41.7	38	18.1
Very Dissatisfied	3	2.2	3	5.1	-	-	6	2.9
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	3.54 (S)		3.05 (SS)		2.92 (SS)		3.37 (SS)	
Gamma value = - 0.386**		P = 0.000						
II. FUNCTIONS								
D. Employee's Roles and Functions:								
Very Satisfied	51	36.7	13	22.0	6	50.0	70	33.3
Satisfied	64	46.0	36	61.0	3	25.0	103	49.0
Slightly Satisfied	22	15.8	10	16.9	2	16.7	34	16.2
Dissatisfied	1	0.7	-	-	1	8.3	2	1.0
Very Dissatisfied	1	0.7	-	-	-	-	1	0.5
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	4.17 (S)		4.05 (S)		4.17 (S)		4.14 (S)	
Gamma value = -0115 [ns]		P= 0.336						

Table 7 continued.

Level of Job Satisfaction	Educational Attainment							
	Baccalaureate Degree		Graduate Degree		Post Graduate		Total	
	f	%	f	%	f	%	f	%
A. Supervisory Consideration:								
Very Satisfied	22	15.8	2	3.4	2	16.7	26	12.4
Satisfied	51	36.7	21	35.6	3	25.0	75	35.7
Slightly Satisfied	40	28.8	19	32.2	3	25.0	62	29.5
Dissatisfied	20	14.4	13	22.0	4	33.3	37	17.6
Very Dissatisfied	6	4.3	4	6.8	-	-	10	4.8
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	3.45 (S)		3.07 (S)		3.25 (S)		3.33 (S)	
Gamma Value = -0.231*			P = 0.023					
III. RIGHTS AND PRIVILEGES								
A. Training, Career, Social and Spiritual Development:								
Very Satisfied	48	34.5	11	18.6	5	41.7	64	30.5
Satisfied	60	43.2	31	52.5	4	33.3	95	45.2
Slightly Satisfied	22	15.8	14	23.7	2	16.7	38	18.1
Dissatisfied	8	5.8	1	1.7	1	8.3	10	4.8
Very Dissatisfied	1	0.7	2	3.4	-	-	3	1.4
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	4.05 (S)		3.81 (S)		4.08 (S)		3.99 (S)	
Gamma Value = -0.158^{ns}			P = 0.154					
B. Remuneration and Benefits:								
Very Satisfied	65	46.8	19	32.2	5	41.7	89	42.4
Satisfied	50	36.0	25	42.4	3	25.0	78	37.1
Slightly Satisfied	15	10.8	11	18.6	2	16.7	28	13.3
Dissatisfied	7	5.0	3	5.1	2	16.7	12	5.7
Very Dissatisfied	2	1.4	1	1.7	-	-	3	1.4
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	4.22 (VS)		3.98 (S)		3.92 (S)		4.13 (S)	
Gamma Value = -0.212^{ns}			P = 0.057					
Over-all satisfaction:								
Very Satisfied	45	32.4	7	11.9	3	25.0	55	26.2
Satisfied	58	41.7	30	50.8	5	41.7	93	44.3
Slightly Satisfied	31	22.3	21	35.6	2	16.7	54	25.7
Dissatisfied	3	2.2	1	1.7	2	16.7	6	2.9
Very Dissatisfied	2	1.4	-	-	-	-	2	1.0
Total	**139**	**100**	**59**	**100**	**12**	**100**	**210**	**100**
Mean	4.01 (S)		3.73 (S)		3.75 (S)		3.92 (S)	
Gamma Value = -0.277*			P = 0.011					

^{ns} -Not significant at 5 percent probability level   SS - Slightly Satisfied
* - significant at 5 percent probability level   S - Satisfied
   VS - Very Satisfied

* Respondents' Level of Satisfaction According to Income

Data on the over-all job satisfaction of respondents according to their basic monthly income show that basing upon the mean score of the groups, the most satisfied group was composed of employees eceiving the least income (below 11,000). The least satisfied employees were those belonging to group receiving 14,000-19,999 and above 20,000 pesos basic monthly income. Gamma test result (-0.179) show that, as a whole, level of satisfaction of faculty is to a low extent, inversely related to monthly income and this relationship is significant at 5% probability level as shown by its p-value of 0.039. This result is contrary to the popular notion that the higher income one receives, the more satisfied he becomes with his job. Also this study disagrees with results of Armadillo's study which show that monthly income is not related with level of employee satisfaction (Table 8).

Table 8. Distribution of Respondents as to Their Level of Job Satisfaction and Basic Monthly Income (N = 210)

Level of Job Satisfaction	Basic Monthly Income of the Respondents											
	Below 11,000		11,000-13,999		14,000-16,999		17,000-19,999		20,000-above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
I. UNIVERSITY SERVICES												
A. Planning and Implementation of Policies:												
Very Satisfied	29	22.3	1	2.2	3	23.1	3	15.8	-	-	36	17.1
Satisfied	65	50.0	21	45.7	6	46.2	9	47.4	2	100	103	49.0
Slightly Satisfied	20	15.4	20	43.5	3	23.1	6	31.6	-	-	49	23.3
Dissatisfied	15	11.5	3	6.5	1	7.7	-	-	-	-	19	9.0
Very Dissatisfied	1	0.8	1	2.2	-	-	1	5.3	-	-	3	1.4
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	3.82 (S)		3.99 (S)		3.85 (S)		3.68 (S)		4.00 (S)		3.71 (S)	
Gamma = -0.192*					P=0.046							
B. Communication:												
Very Satisfied	41	31.5	4	8.7	2	15.4	6	31.6	1	50.0	54	25.7
Satisfied	59	45.4	29	63.0	9	69.2	6	31.6	1	50.0	104	49.5
Slightly Satisfied	24	18.5	12	26.1	2	15.4	6	31.6	-	-	44	21.0
Dissatisfied	4	3.1	1	2.2	-	-	-	-	-	-	5	2.4
Very Dissatisfied	2	1.5	-	-	-	-	1	5.3	-	-	3	1.4
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	4.02 (S)		3.78 (S)		4.00 (S)		4.00 (S)		4.50 (VS)		3.96 (S)	
Gamma Value = -0.156					P= 0.139							
C. Physical Working Condition												
Very Satisfied	18	13.8	-	-	-	-	2	10.5	-	-	20	9.5
Satisfied	58	44.6	15	32.6	5	38.5	9	47.4	-	-	87	41.4
Slightly Satisfied	31	23.8	17	37.0	7	53.8	4	21.1	-	-	59	28.1
Dissatisfied	20	15.4	11	23.9	1	7.7	4	21.1	2	100	38	18.1
Very Dissatisfied	3	2.3	3	6.5	-	-	-	-	-	-	6	2.9
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	3.52 (S)		2.96 (S)		3.31 (S)		3.47 (S)		2.00 (D)		3.37 (SS)	
Gamma Value = -0.249**					P=0.008							
II. FUNCTIONS												
A. Employee's Roles and Functions:												
Very Satisfied	47	36.2	8	17.4	7	53.8	7	36.8	1	50.0	70	33.3
Satisfied	63	48.5	26	56.5	5	38.5	8	42.1	1	50.0	103	49.0
Slightly Satisfied	18	13.8	12	26.1	1	7.7	3	15.8	-	-	34	16.2
Dissatisfied	1	0.8	-	-	-	-	1	5.3	-	-	2	1.1
Very Dissatisfied	1	0.8	-	-	-	-	-	-	-	-	1	0.5
Total	136	100	24	100	20	100	17	100	13	100	210	100
Mean	4.18 (S)		3.91 (S)		4.46 (VS)		4.11 (S)		4.5 (VS)		4.14 (S)	
Gamma Value = -0.081		P= 0.449										

ns - Not significant at 5 % probability level   ** - Satisfied at 1% probability level
NS - Not Satisfied   S - Satisfied
SS - Slightly Satisfied   VS - Very Satisfied

Table 8 continued

Level of Job Satisfaction	Monthly Income of the Respondents										
	Below-11,000		11,000-13,999		14,000-16,999		17,000-19,999		20,000-above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
B. Supervisory Consideration												
Very Satisfied	21	6.2	2	4.3	-	-	3	15.8	-	-	26	12.4
Satisfied	47	36.2	15	32.6	7	53.8	6	31.6	-	-	75	35.7
Slightly Satisfied	37	28.5	15	32.6	5	38.5	4	21.1	1	50	62	29.5
Dissatisfied	19	14.6	11	23.9	1	7.7	5	26.3	1	50	37	17.6
Very Dissatisfied	6	4.6	3	6.5	-	-	1	5.3	-	-	10	4.8
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	3.45 (S)		3.04 (SS)		3.46 (S)		3.26 (SS)		2.5 (D)		3.33 (S)	
Gamma Value = -0.167[ns]					P=0.072							
III. RIGHTS AND PRIVILEGES												
A. Training, Career, Social and Spiritual Development												
Very Satisfied	44	33.8	8	17.4	5	38.5	6	31.6	1	50.0	64	30.5
Satisfied	56	43.1	24	52.2	5	38.5	9	47.4	1	50.0	95	45.2
Slightly Satisfied	21	16.2	11	23.9	3	23.1	3	15.8	-	-	38	18.1
Dissatisfied	7	5.4	2	4.3	-	-	1	5.3	-	-	10	4.8
Very Dissatisfied	2	1.5	1	2.2	-	-	-	-	-	-	3	1.4
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	4.02 (S)		3.78 (S)		4.15 (S)		4.05 (S)		4.5 (VS)		3.99 (S)	
Gamma Value = -0.64[ns]					P=0.522							
B. Remuneration and Benefits:												
Very Satisfied	63	48.5	11	23.9	6	46.2	8	42.1	1	50.0	89	42.4
Satisfied	47	36.2	22	47.8	4	30.8	5	26.3	-	-	78	37.1
Slightly Satisfied	12	9.2	11	23.9	2	15.4	2	10.5	1	50.0	28	13.3
Dissatisfied	6	4.6	2	4.3	-	-	4	21.1	-	-	12	5.7
Very Dissatisfied	2	1.5	-	-	1	1	-	-	-	-	3	1.4
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	3.25 (VS)		3.91 (S)		4.08 (S)		3.89 (S)		4.0 (S)		4.13 (S)	
Gamma = -0.228*					P=0.026							
OVER-ALL SATISFACTION:												
Very Satisfied	50	38.5	13	28.26	3	23.08	6	31.6	-	-	72	34.3
Satisfied	42	32.3	20	43.48	5	38.46	7	36.8	1	50	75	37.1
Slightly Satisfied	29	22.3	11	23.91	3	23.08	5	26.3	1	50	49	23.3
Dissatisfied	7	5.3	2	4.35	2	15.38	1	5.3	-	-	12	5.7
Very Dissatisfied	2	1.5	-	-	-	-	-	-	-	-	2	9.5
Total	130	100	46	100	13	100	19	100	2	100	210	100
Mean	4.02 (S)		3.98 (S)		3.67 (S)		3.95 (S)		3.71 (S)		3.92 (S)	
Gamma = -0.179*					P=0.039							

ns	- Not significant at 5 % probability level	*	- Significant at 5% probability level
S	- Significant	S	- Satisfied
VS	- Very Satisfied	D	- Dissatisfied

Respondents' Level of Job Satisfaction and Number of Years of Service

Over-all satisfaction level of each group reveals that those who had served the university for 16-20 years were "very satisfied" while the remaining groups of faculty were "satisfied" of the university services, their functions and their rights and privileges. Obtained Gamma and p-values of 0.088 and 0.369, respectively, show that level of job satisfaction is not significantly related with number of years of service. This study agrees with Seneres (1997) which states that length of service is not related with employee's level of satisfaction (Table 9).

Table 9. Distribution of the Respondents as to Their Level of Job Satisfaction and Number of Years in Service (N = 210)

Level of Job Satisfaction	Respondent's No. of Years in Service											
	5 and Below		6-10		11-15		16-20		21 and Above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
I. UNIVERSITY SERVICES												
A. Planning and Implementation of Policies:												
Very Satisfied	29	21.3	1	4.2	-	-	5	29.4	1	7.7	36	17.1
Satisfied	61	44.9	15	62.5	9	45.0	10	58.8	8	61.5	103	49.0
Slightly	31	22.8	5	20.8	9	45.0	1	5.9	3	23.1	49	23.3
Satisfied	13	9.6	2	8.3	2	10.0	1	5.9	1	7.7	19	9.0
Dissatisfied	2	1.5	1	4.2	-	-	-	-	-	-	3	1.4
Very Dissatisfied												
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.75 (S)		3.54 (S)		3.35 (SS)		4.12 (S)		3.69 (S)		3.71 (S)	
Gamma = -0.060 [ns]						P = 0.543						
B. Communication:												
Very Satisfied	36	26.5	5	20.8	4	20.0	6	35.3	3	23.1	54	25.7
Satisfied	62	45.6	13	54.2	11	55.0	10	58.8	8	61.5	104	49.5
Slightly	31	22.8	5	20.8	5	25.0	1	5.9	2	15.4	44	21.0
Satisfied	5	3.7	-	-	-	-	-	-	-	-	5	2.4
Dissatisfied	2	1.5	1	4.2	-	-	-	-	-	-	3	1.4
Very Dissatisfied												
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.92 (S)		3.88 (S)		3.95 (S)		4.29 (VS)		4.07 (S)		3.96 (S)	
Gamma Value = 0.103 [ns]						P = 0.297						
C. Physical Working Condition												
Very Satisfied	16	11.8	3	12.5	-	-	1	5.9	-	-	20	9.5
Satisfied	55	40.4	6	25.0	11	55.0	9	52.9	6	46.2	87	41.4
Slightly	38	27.9	9	37.5	3	15.0	5	29.4	4	30.8	59	28.1
Satisfied	23	16.9	6	25.0	4	20.0	2	11.8	3	23.1	38	18.1
Dissatisfied	4	2.9	-	-	2	10.0	-	-	-	-	6	2.9
Very Dissatisfied												
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.41 (S)		3.25 (SS)		3.15 (SS)		3.53 (S)		3.23 (SS)		3.37 (SS)	
Gamma Value = -0.073 [ns]						P = 0.428						
II. FUNCTIONS												
A. Employee's Roles and Functions:												
Very Satisfied	41	30.1	9	37.5	5	25.0	8	47.1	7	53.8	70	33.3
Satisfied	70	51.5	11	45.8	10	50.0	8	47.1	4	30.8	103	49.0
Slightly	23	16.9	3	12.5	5	25.0	1	5.9	2	15.4	34	16.2
Satisfied	1	0.7	1	4.2	-	-	-	-	-	-	2	1.1
Dissatisfied	1	0.7	-	-	-	-	-	-	-	-	1	0.5
Very Dissatisfied												
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	4.10 (S)		4.17 (S)		4.00 (S)		4.41 (VS)		4.38 (VS)		4.14 (S)	
Gamma Value = 0.147 [ns]						P = 0.164						

[ns] - Not significant at 5 % probability level   S - Satisfied
 * - Significant at 5% probability level   SS - Slightly Satisfied
                                          VS - Very Satisfied

Table 9 Continued.

Level of Job Satisfaction	Number of Years Employed										
	5 and Below		6-10		11-15		16-20		21 and Above		Total	
	f	%	f	%	f	%	f	%	f	%	f	%
B. Supervisory Consideration												
Very Satisfied	20	14.7	2	8.3	1	5.0	2	11.8	1	7.7	26	12.4
Satisfied	44	32.4	8	33.3	7	35.0	9	52.9	7	53.8	75	35.7
Slightly Satisfied	42	30.9	8	33.3	5	25.0	3	17.6	4	30.8	62	29.5
Dissatisfied	24	17.6	5	20.8	5	25.0	3	17.6	-	-	37	17.6
Very Dissatisfied	6	4.4	1	4.2	2	10.0	-	-	1	7.7	10	4.8
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.35 (SS)		3.21 (SS)		3.00 (SS)		3.59 (S)		3.54 (SS)		3.33 (SS)	
Gamma Value = 0.010[ns]							P=0.913					

III. RIGHTS AND PRIVILEGES

	f	%	f	%	f	%	f	%	f	%	f	%
A. Training, Career, Social and Spiritual Development												
Very Satisfied	41	30.1	6	25.0	4	20.0	5	29.4	8	61.5	64	30.5
Satisfied	59	43.4	13	54.2	11	55.0	10	58.8	2	15.4	95	45.2
Slightly Satisfied	28	20.6	3	12.5	3	15.0	2	11.8	2	15.4	38	18.1
Dissatisfied	5	3.7	2	8.3	2	10.0	-	-	1	7.7	10	4.8
Very Dissatisfied	3	2.2	-	-	-	-	-	-	-	-	3	1.4
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.96 (S)		3.96 (S)		3.85 (S)		4.18 (S)		4.31 (VS)		3.99 (S)	
Gamma Value = 0.094[ns]							P=0.364					
B. Remuneration and Benefits:												
Very Satisfied	61	44.9	7	29.2	5	25.0	7	41.2	9	69.2	89	42.4
Satisfied	50	36.8	10	41.7	9	45.0	7	41.2	2	15.4	78	37.1
Slightly Satisfied	16	11.8	3	12.5	4	20.0	3	17.6	2	15.4	28	13.3
Dissatisfied	7	5.1	3	12.5	2	10.0	-	-	-	-	12	5.7
Very Dissatisfied	2	1.5	1	4.2	-	-	-	-	-	-	3	1.4
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	4.18 (S)		3.79 (S)		3.85 (S)		4.24 (VS)		4.54 (VS)		4.13 (S)	
Gamma = -0.055[ns]							P=0.581					

OVER-ALL SATISFACTION:

	f	%	f	%	f	%	f	%	f	%	f	%
Very Satisfied	36	26.5	4	16.7	4	20.0	7	41.2	4	30.8	55	26.2
Satisfied	57	41.9	11	45.8	10	50.0	7	41.2	8	61.5	93	44.3
Slightly Satisfied	39	28.7	7	29.2	5	25.0	3	17.6	-	-	54	25.7
Dissatisfied	2	1.5	2	8.3	1	5.0	-	-	1	1	6	2.9
Very Dissatisfied	2	1.5	-	-	-	-	-	-	-	-	2	1.0
Total	**136**	**100**	**24**	**100**	**20**	**100**	**17**	**100**	**13**	**100**	**210**	**100**
Mean	3.90 (S)		3.71 (S)		3.85 (S)		4.24 (VS)		4.15 (S)		3.92 (S)	
Gamma = 0.088[ns]							P=0.369					

[ns] - Not significant at 5 % probability level   * Satisfied at 5% probability level
NS - Not Satisfied   S   - Satisfied
SS - Slightly Satisfied   VS - Very Satisfied

CONCLUSIONS AND RECOMMENDATIONS

In the light of the above findings, the following conclusions are drawn:

1. The majority of CPU faculty were in their early 40's, most (68.6%) of them were females, 118 out of 210 were Baptists, 42.4% were Catholics and a smaller percentage belong to other religions. Also, majority (66.2%) had finished until baccalaureate degree only, 28.1% of the respondents had earned their graduate degrees and 5.7% had their post graduate degrees. The mean length of service of respondents was 9.6 years and their mean basic m o n t h l y income was P13,242.

2. Faculty members were mostly "satisfied" in areas of planning and implementation of policies; communication; roles and functions; supervisory consideration; and training, career, social and spiritual development. They were only "slightly satisfied" with their physical working condition and remuneration and benefits. As a whole, over-all satisfaction result shows that faculty members of Central Philippine University were "satisfied" with services given by the school, their functions and their rights and privileges.

3. There is no significant relationship between faculty level of job satisfaction and selected variables such as age, sex, civil status and religion. However, there is a significant inverse relationship that exists between faculty level of satisfaction and educational attainment and basic monthly income. This means that the higher education and basic monthly income one has, the lower his level of satisfaction.

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

1. Administrators must develop sound policies to improve the physical workplace, increase benefits and ameliorate conditions of t h e faculty since they were only "slightly satisfied" in these areas.

2 . Educational attainment has been found out to have a significant inverse relationship with level of satisfaction, which means that those who had attained higher education standing and were considered "learned" were less satisfied than those who had attained lower education standing. Administrators then must give attention to the services of the university, employee's functions, and their rights and privileges and how well are these being implemented to satisfy the needs and desires of the faculty.

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3. Basic monthly income has also been found out to be significantly inversely related with level of satisfaction. This finding implies that money for this matter is not the only basis of a person's satisfaction. It is therefore recommended that administrators must look into other areas of concern of their faculty. Recognition for the good work done, pleasant and wholesome working condition, opportunities for growth and better relationships are but some of the few important areas to be considered.

4. Follow up study must be conducted yearly to determine not only the level of satisfaction of faculty but also their sentiments, opinions and reactions about matters related to their conditions.

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FACTORS RELATED TO THE UNDERSTANDING OF THE CULTURAL MANDATE IN THE CREATION ACCOUNT OF GENESIS AMONG THE CONVENTION OF PHILIPPINE BAPTIST MINISTERS IN THE PROVINCE OF ILOILO: ITS IMPLICATIONS TO CPBC MINISTERS' CURRENT PERCEPTIONS OF ENVIRONMENTAL CHRISTIAN STEWARDSHIP

By Bernabe C. Pagara

ABSTRACT

This study aimed to determine factors related to the Convention Baptist ministers' understanding of the cultural mandate in the creation account of Genesis and its implications to their current perception of environmental Christian stewardship. A one-shot population survey was used. The mean and percentage distribution, gamma, t-test and the ANOVA were used as statistical tools. Results of the study revealed no significant relationship between the respondents' understanding of the cultural mandate and their current biblical-theological, ethical-economic, socio-political, and cultural-contextual perceptions of environmental Christian stewardship. Results further revealed no significant difference in the respondents' understanding of the cultural mandate when they were classified by residence, sex, age, educational attainment, pastoral status, and length of service, married ministers, however, have significant higher level of understanding of the cultural mandate than the single minister. In the exegesis of Genesis 1:26 and 28, the study revealed that human beings have the responsibility to be good and responsible stewards of God's world and environment. The majority of the ministers are knowledgeable of the cultural mandate; however, they are behaviorally passive in environmental Christian stewardship. Ministers are called to reflect on the biblical issue of the sin of omission.

INTRODUCTION

Background and Rationale

Traditional evangelical theology has identified a three-fold mandate given to man at the very dawn of history. The first was the Sabbath ordinance, which was designed to regulate man's week after the pattern of creation itself. The second was the marriage ordinance, patterned after the nature of God. While the Church has been unanimous, until fairly recently at least, in its view of the continuance both of the Sabbath and the marriage ordinances, the third has proved to be more of a bugbear. This is man's cultural mandate, summarized in the first great commission: 'Be fruitful and multiply and fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground' (Genesis 1:28). Accordingly, Campolo observes, "There seems to be a conflict between those who emphasize saving souls and those who emphasize saving trees" (Campolo, 1992). Based on this comment, "evangelistic mandate" or "Gospel mandate" seems to have been given great importance and attention by Christians, but have failed in the practice of the so-called "cultural mandate."

This issue questions the unequal level of importance and concern given by our churches today to the evangelistic and cultural mandates. This study will serve as a corrective measure to the misconception of mission as individualistic soul-saving on the one hand, and a mere social action on the other extreme.

Background and Meaning of Cultural Mandate

Genesis 1:26-30 affirms that God gave man a "cultural mandate" which entailed certain rulership over his environment (Hesselgrave, 1992). Thus, when God created man and man's environment, He pronounced everything "very good" (Gen. 1:31). Hedlund (1985) asserts that "the concept of creation is the basis of God's sovereignty over the whole world, including its peoples." It is on this context that "Yahweh was affirmed to be the Lord of the material world and the source of its life ... Nature thus shares life with humanity" (Goldingay, 1995). Subsequently, "mankind collectively failed as miserably as Adam and Eve had failed individually with the result that God pronounced judgment upon man, beast, and land" (Gen. 6:6-7). Since the Fall, humankind has fulfilled the cultural mandate in an imperfect, fractured manner (Hesselgrave, 1982).

In the verse previous to Genesis 1:28, God is recorded as saying that He created Adam and Eve in His own image as "male and female." Thus the command "be fruitful, and multiply, and replenish" suggests

that male and female are capable of procreation to populate the world and subdue it with more humans. The mandate was given for man to "rule over the earth" in His name, as His representatives with His delegated authority (Genesis 1:3-28) (from http://www.islandcitychurch.org/resources/messages/74).

Richard Mouw explains the nature of the filling and subduing to which Genesis 1 refers:

> The command to "fill" the earth here is not merely a divine request that Adam and Eve have a lot of babies. The earth was also to be "filled" by the broader patterns of their interactions with nature and with each other. They would bring order to the Garden. They would introduce schemes for managing its affairs. To "subdue" the Garden would be to transform untamed nature into a social environment. In these ways human beings would be "adding" to that which God created (Mouw, 2003).

Man was to operate under God's authority, in God's stead, over all of God's creation. This restriction by God upon man in man's dominion means that man is always accountable to God. The Creator is always the final authority. As man obeys God's word in his dominion, all of God's creation is then used for God's glory and pleasure (from http://www.biblicalexaminer.org/m19920621.html).

Thus the phrase "subdue the earth" implies that humans have been given the resources to do it. It includes authority, intelligence and reason. To replenish and to subdue means to preserve, conserve and control the environment to maintain the ecological balance (CPBC Statement of Concern). Indeed, Genesis 1:26 and 28 remind God's people that man was created in God's image and likeness and destined for dominion over the remainder of the creation.

Objectives of the Study

The main purpose of the study was to determine factors related to understanding of the cultural mandate of the CPBC ministers in the province of Iloilo, and its implications to their current perception of environmental Christian stewardship. Specifically, this study aims to ascertain the following:

1. Profile of the CPBC ministers in the province of Iloilo in terms of residence, sex, age, marital status, educational attainment, pastoral

status, and length of serve;

2. Respondents' understanding of the cultural mandate in the creation account of Genesis;

3. Respondents' perceptions of environmental Christian stewardship;

4. Relationship between the understanding of the CPBC ministers in the Province of Iloilo of the cultural mandate in the creation account and their current perceptions of environmental Christian stewardship; and,

5. Difference in the respondents' understanding of the cultural mandate of Genesis in the creation account when they are g r o u p e d according to their residence, sex, age, marital status, educational attainment, pastoral status, and length of serve.

Theoretical Framework

Creation is God's handiwork. Participation of man in the cultural mandate means development and conservation, not exploitation, of earth's resources. "The Lord God took the man and put him in the Garden of Eden to till it and take care of it" (Gen. 2:15). Hedlund asserts, "Man is responsible for his orderly behavior in society and for productive use of earth's resources" (Hedlund, 1974). Thus, the natural environment would be preserved for the good of God's people (Deut. 22:6; Ex. 23:11).

Conceptual Framework

Every society has its experience or share of environmental problems. What must the Christian minister's attitude toward environmental concerns and issues be? Lotz asserts that "true evangelists are also true ecologists" (Campolo, 1992). However, Church's theology has not offered appreciable resources to counteract a merely exploitative approach to nature. The Church needs no less urgently than society as a whole to hear anew the message of Genesis.

Below, the figure presents independent and dependent variables of this study. The following schematic diagram exemplifies the flow of relationship among the given variables:
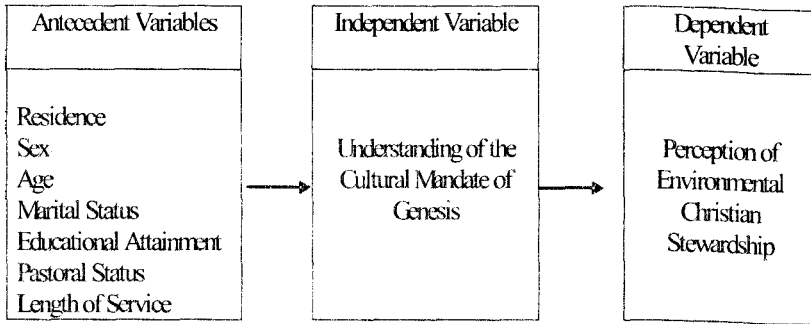
Antecedent Variables	Independent Variable	Dependent Variable
Residence Sex Age Marital Status Educational Attainment Pastoral Status Length of Service	Understanding of the Cultural Mandate of Genesis	Perception of Environmental Christian Stewardship

Figure 1. Assumed Relationships of Variables Influencing the CPBC Ministers' Understanding of the Cultural Mandate in the Province of Iloilo.

Hypotheses

1. There is a relationship between the understanding of the CPBC ministers in the Province of Iloilo of the cultural mandate in the creation account and their perceptions of environmental Christian stewardship.

2. There is a difference in the respondents' understanding of the cultural mandate of Genesis in the creation account when they are classified according to antecedent variables.

Significance of the Study

The critical study of the theology of Genesis in the creation account about the cultural mandate is helpful and important because of some major reasons:

1. This study helps to clarify and identify the contemporary attitude and expression in the "involvement" and "engagement" of the present-day ministers on environmental issues.

2. The result of this study benefits the said ministers as key persons as it will serve as the basis in educating the members on environmental awareness.

3. This research provides a biblical model for social awareness on the care of environment gleaned from the theology of Genesis in

the creation account of the cultural mandate.

4. The study will encourage Christian institutions to reevaluate their philosophy, broaden their perspective and methodology concerning environmental issues and concerns.

Scope and Limitation

This research was limited to the factors related to the CPBC ministers' understanding of cultural mandate and the critical study of Genesis' theology in the creation account of the cultural mandate and its implications to the current perception of environmental Christian stewardship among CPBC ministers in the province of Iloilo.

METHODOLOGY

Research Design

This is a descriptive study that used the one-shot population survey. It described the current understanding of CPBC ministers of the cultural mandate in the book of Genesis, whether or not it is influenced by the given variables as reflected in the conceptual framework.

The Study Respondents

The respondents of this study were the selected local church ministers [n=70] of the Convention of Philippine Baptist Churches in the province of Iloilo. The convenient-purposive sampling was employed in the selection of the subjects of the study. This study was based on the data provided by 70 respondents who answered and returned the questionnaires.

Data Gathering Instrument

The researcher employed a self-made questionnaire. The respondents' level of knowledge of the cultural mandate is categorized as high, average, and low. The scoring system arbitrarily used was (1) 0-3 = "Low," (2) 4-5 = "Average," (3) 6-7 = "High," (4) 8-9 = "Very High." The respondents were asked to respond to statements related to the environmental Christian stewardship by choosing one of the following options: (1) SA = "Strongly Agree," (2) A = "Agree," (3) NO "No Opinion," (4) D = "Disagree," (5) SD = "Strongly Disagree." In the discussion of results, "Strongly Agree" and "Agree" were converted to "Very Favorable" and "Favorable" while "Disagree" and "Strongly Disagree" were converted to "Unfavorable" and "Very Unfavorable."

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Data Processing and Analysis

The data from the accomplished questionnaires were tallied, then the responses were tabulated into frequency tables. The statistical tools used to test the research hypotheses were gamma, t-test and the one-way analysis of variance (ANOVA). Statistical computations were computer-processed using the 0.05 level of significance.

MAJOR FINDINGS

Personal Profile

The place of the church served by the ministers is classified into two, rural and urban. The data reveal that the majority (60%) of the ministers of CPBC in the province of Iloilo are working in rural churches (Table 1).

The results also show that most of the respondents are male (67.1 %) and are married (65.7 %). Only 32.9% and 34.3 % are female and are single, respectively. While CPBC believes that there is the equality of exercising gifts bestowed by God to every member whether male or female, relatively speaking, the figure implies that leadership office in the CPBC is made up of predominantly mature male individuals.

The age range is from 29 and below to 60 years old and above. The result of the survey shows that 34.3% of the respondents belong to the 40-49 years age bracket, 25.7% belong to the 30-39 years age bracket, 15.7% belong to 29 years old and below, 12.9% belong to 50-59 years of age and 11.4% belong to 60 years old and above. The survey reveals that the highest percentage of the CPBC ministers are 40-49 years old.

About 73% have attained college education, 18.5% obtained masteral degree, 5.7% elementary and secondary education, and only 2.9% obtained doctorate's degree.

The survey results also show that the great majority (77.1%) of the respondents are non-ordained but trained ministers, 20% are ordained and trained ministers, while 2.9% are layman pastors.

The data also reveal that the majority of the respondents had been serving the church for 6 to 15 years. Among the 70 respondents, most of the pastors (47.2%) who stay in the ministry are 40-49 years old.

Table 1. Distribution of CPBC Ministers When Grouped According to Their Personal Profile (N=70).

Respondents' Profile	f	%
Residence		
Rural	42	60.0
Urban	28	40.0
Total	**70**	**100.0**
Sex		
Male	47	67.1
Female	23	32.9
Total	**70**	**100.0**
Age		
29 and below	11	15.7
30 – 39	18	25.7
40 – 49	24	34.3
50 – 59	9	12.9
60 and above	8	11.4
Total	**70**	**100.0**
Marital Status		
Single	24	34.3
Married	46	65.7
Total	**70**	**100.0**
Pastoral Status		
Ordained and Trained Minister	14	20.0
Non-ordained but Trained Minister	54	77.1
Layman Pastor	2	2.9
Total	**70**	**100.0**
Educational Atainment		
High School and below	4	5.7
College	51	72.9
Master's degree	13	18.5
Doctoral degree	2	2.9
Total	**70**	**100.0**
Length of Service (Local Church)		
5 years or less	19	27.1
6 – 10 years	20	28.6
11 – 15 years	20	28.6
16 years and above	11	15.7
Total	**70**	**100.0**

CPBC Ministers' Knowledge of the Cultural Mandate

As shown in Table 2, 55.7% of the respondents have average level of understanding of the cultural mandate while 44.3% have high level of understanding of the same. None of the respondents have low level of knowledge. The data reveal that the respondents' level of understanding of the cultural mandate was from average to high.

Table 2. Respondents' Level of Knowledge of the Cultural Mandate

Level of Knowledge	f	%
Average (3-5)	39	55.7
High (6-8)	31	44.3
Total	**70**	**100.0**

Respondents' Perceptions of Environmental Christian Stewardship

On the issue of the respondents' level of perception of the environmental Christian stewardship, data in Table 3 reveal that the majority of the ministers affirmed the statements on the different perception categorized. Results indicate that they have a strongly favorable biblical-theological perception (92.9%), ethical-economic perception (68.6%), and cultural-contextual perception (90%) of environmental Christian stewardship.

Table 3. Distribution of Respondents According to Their Perception of Environmental Christian Stewardship

Perception	f	%
Biblical-Theological		
Very Favorable	65	92.9
Favorable	5	7.1
Total	**70**	**100.0**
Ethical-Economic		
Very Favorable	48	68.6
Favorable	22	31.4
Total	**70**	**100.0**
Socio-Political		
Very Favorable	21	30.0
Favorable	33	47.1
No-Opinion	14	20.0
Very Unfavorable	2	2.9
Total	**70**	**100.0**
Cultural-Contextual		
Very Favorable	63	90.0
Favorable	7	10.0
Total	**70**	**100.0**

Cultural Mandate and Biblical-Theological Perception on Environmental Christian Stewardship

Majority of those with average (92.3%) and high (93.5%) level of understanding of cultural mandate have a very favorable biblical-theological perception of environmental Christian stewardship. When the relationship between the respondents' level of understanding of the cultural mandate and their current perception of the environmental Christian stewardship on the basis of theological-biblical perspective was determined, a computed gamma value of -0.094 with a significance level of 0.840 was obtained. This indicates a non-significant relationship between these two variables.

Table 4. Distribution of the Respondents According to Their Understanding of the Cultural Mandate and Their Level of Understanding of the Environmental Christian Stewardship in the Biblical-Theological Perception

Biblical-Theological Perception	Level of Understanding of Cultural Mandate			
	Average		High	
	f	%	f	%
Very Favorable	36	92.3	29	93.5
Favorable	3	7.7	2	6.5
Total	**39**	**100.0**	**31**	**100.0**

Gamma value = .094
ⁿˢ Level of significance = 0.840
Statistically not significant at the 0.05 level of probability

Cultural Mandate and Ethical-Economic Perception on Environmental Christian Stewardship

As shown in Table 5, majority of those with average (61.5%) and high (77.4%) level of understanding of cultural mandate have also a very favorable ethical-economic perception on environmental Christian stewardship. Statistical analysis with a computed gamma value of -.364 and a level of significance of 0.143 shows no significant relationship between the respondents' level of understanding of the cultural mandate and their perception of the environmental Christian stewardship in the ethical-economic perspective.

Table 5. Distribution of the Respondents' Understanding of the Cultural Mandate and Their Ethical-Economic Perception of Environmental Christian Stewardship

Ethical-Economic Perception	Level of Understanding of Cultural Mandate			
	Average		High	
	f	%	f	%
Very Favorable	24	61.5	24	77.4
Favorable	15	38.5	7	22.6
Total	**39**	**100.0**	**31**	**100.0**

Gamma value = -.364
Level of significance = 0.143
[ns] not significant at the 0.05 level of probability

Cultural Mandate and Socio-Political Perception on Environmental Christian Stewardship

More than half (51.3%) of those with average level of understanding of the cultural mandate have a favorable socio-political perception on environmental Christian stewardship. More than one-fourth (28.2%) of the ministers with this level of understanding have indicated a very favorable perception. On the other hand, most of the ministers (41.9%) with high level of understanding have a high socio-political perception on environmental Christian stewardship. When the relationship between the respondents' level of understanding of the cultural mandate and their current perception of the environmental Christian stewardship on the basis of socio-political perspective was determined, the computed gamma value obtained was 0.009 (P=0.965). Again, this result indicates that there is no significant relationship between these two variables.

Table 6. Distribution of the Respondents' Understanding of the Cultural Mandate and Their Socio-Political Perception of Environmental

Socio-Political Perception	Level of Understanding of Cultural Mandate			
	Average		High	
	f	%	f	%
Very Favorable	11	28.2	10	32.3
Favorable	20	51.3	13	41.9
No Opinion	7	18.0	7	22.6
Very Unfavorable	1	2.5	1	3.2
Total	**39**	**100.0**	**31**	**100.0**

Gamma = .009
Level of significance = 0.965
[ns] statistically not significant at the 0.05 level of probability

*Cultural Mandate and Cultural Contextual Perception on
Environmental Christian Stewardship*

Similar to other results, majority of the ministers with average
(87.2%) and high (93.5%) level of understanding on the cultural
mandate have a very favorable contextual-cultural perception on
environmental Christian stewardship. As presented in Table 7,
statistical analysis with a gamma value of -0.362 and a level of
significance of 0.359 show that there is no significant relationship
between the respondents' level of understanding of the cultural
mandate and their current perception of the environmental Christian
stewardship on the basis of contextual-cultural perspective.

Table 7. Distribution of the Respondents According to their
Understanding of the Cultural Mandate and their Level of
Understanding of the Environmental Christian Stewardship in the
Contextual-Cultural Perception

Contextual-Cultural Perception	Level of Understanding of Cultural Mandate			
	Average		High	
	f	%	f	%
Very Favorable	34	87.2	29	93.5
Favorable	5	12.8	2	6.5
Total	**39**	**100.0**	**31**	**100.0**

Gamma value = -.362
Level of significance = 0.359
ns - not significant at the 0.05 level of probability

*Difference in the Respondents' Understanding of the Cultural
Mandate in the Creation Account of Genesis*

The data in Table 8 show no significant difference in the
respondents' level of understanding of the cultural mandate when they
were grouped according to age, sex, residence, educational attainment,
length of service, and pastoral status. This means that the above
variables did not affect their understanding of the cultural mandate. On
the other hand, result shows that married CPBC ministers have higher
mean level of understanding of the cultural mandate than the single
ministers.

Table 8. Difference in the Respondents' Understanding of the Cultural Mandate in the Creation Account of Genesis When Grouped According to their Personal Characteristics

Personal Characteristics	cal t/F Value	Level of Significance
Residence	0.038^{ns}	0.847
Sex	0.009^{ns}	0.926
Age	0.378^{ns}	0.824
Marital Status	5.805^{*}	0.019
Educational Attainment	0.308^{ns}	0.0819
Pastoral Status	3.104^{ns}	0.051
Length of Service	0.936^{ns}	0.428

ns - Not significant at the 5% level of probability
* - Significant at the 5% level of probability

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the above findings, the following conclusions are drawn.

1. Most of the member-churches of the CPBC in the province of Iloilo served by the ministers are located in rural areas.

2. The majority of the respondents are male, 40-49 years old, married, college graduate, trained but non-ordained, with an average of 6-11 years length of service rendered under the denomination.

3. The majority (55.7%) of the respondents have an average level of understanding of the cultural mandate in the creation account of Genesis, while 44.3% have high level of understanding.

4. A great majority of the ministers have a very favorable biblical theological perception, ethical-economic perception, and cultural-contextual perception on environmental Christian stewardship.

5. There is no significant relationship between the respondents' understanding of the cultural mandate and their current perceptions of environmental Christian stewardship in the biblical theological, ethical-economic, socio-political, and cultural-contextual aspects.

6. There is no significant difference among the respondents' understanding of the cultural mandate in the creation account of Genesis when they were classified by age, sex, residence, educational attainment, length of service, and pastoral status.

7.There is a significant difference among the CPBC Ministers' understanding of cultural mandate in the creation account of Genesis when they were grouped according to their marital status. Married CPBC Ministers have higher level of understanding of the cultural mandate than the single ministers.

Recommendations

Based on the findings and conclusions, the following recommendations are advanced:

1.There should be a personal commitment of every Christian to the responsibility and accountability for ecology and environment.
2.Disseminate informational and educational material on environment conservation within individual and collective spheres of influence.
3.There should be continuing education for the church members o n ecology and environment through regular seminars, workshops and literatures.
4.The present findings of this research study should be circulated to different Convention Baptist local churches.
5.Due to scarcity of materials as reflected in the Bibliography, Protestant theologians should be encouraged to do more   r e s e a r c h and writing in this area of study.

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