

SILLIMAN JOURNAL

A JOURNAL, PUBLISHED TWICE YEARLY, DEVOTED TO
DISCUSSION AND INVESTIGATION IN THE HUMANITIES
AND THE SCIENCES

Volume 53 Number 1 | January to June 2012



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ISSN 0037-5284



SILLIMAN JOURNAL



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Volume 53 Number 1 2012





The SILLIMAN JOURNAL is published twice a year under the auspices of Silliman University, Dumaguete City, Philippines. Entered as second class mail matter at Dumaguete City Post Office on September 1, 1954.

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ISSN 0037-5284

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Cover and book design by Ian Rosales Casocot
Cover painting, "Sabong 3" by F. Jordan Carnice, courtesy of the artist.
Printing by SU Printing Press, Dumaguete City

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NOTICE TO AUTHORS

PUBLICATION GUIDELINES

SILLIMAN JOURNAL welcomes submission of scholarly papers, research studies, brief reports in all fields from both Philippine and foreign scholars, but papers must have some relevance to the Philippines, Asia, or the Pacific. All submissions are refereed.

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SILLIMAN JOURNAL likewise welcomes submissions of "Notes," which generally are briefer and more tentative than full-length articles. Reports on work-in-progress, queries, updates, reports of impressions rather than research, responses to the works of others, even reminiscences are appropriate here.

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SILLIMAN JOURNAL





“‘Faith’ is a fine invention/When Gentlemen can
see—/But Microscopes are prudent/
In an Emergency.”

Emily Dickenson

c. 1860

“A teacher is better than two books.”

German Proverb

“To teach is to learn twice over.”

Joseph Joubert

Pensées (1842)



EDITORIAL NOTES

Welcome to this issue of the *Silliman Journal*, a familiar mix of science and the humanities. Mix? *Ouch*, the scientists might say. To distinguish science from the humanities is a “tired old point,” says blogger Greg Frost-Arnold (2007), continuing: *Both the sciences and the humanities seek understanding; both offer explanations of various bits of the world. At a very abstract level, though, the kind of things each tries to explain is different.* Obviously, for example, piano pedagogy is a very different kind of thing than pest incidence and certainly, for example,

emancipation psychology is very different from *E. coli*. But we have all these in this issue, and more.

We begin with two papers from scientists—the first on pests in vegetables, the other on peanut extract. First, the agricultural chemist Prof. Susan Calumpang and colleagues at the National Crop Protection Center in Los Baños, Laguna, Philippines investigate the incidence of pests and natural enemies in rice-tagbak and vegetable cropping systems, without the use of insecticides, with the premise that indigenous cultural practices in pest management provide a valuable resource for sustainable agriculture.

In the second paper, Jonathan Barcelo of Saint Louis University in Baguio, Philippines also has some good news, finding specifically that “peanut anthocyanin extract reduces cell surface hydrophobicity and inhibits the hemagglutination of *E. coli* in a time-dependent and dose-dependent mechanism through nonspecific interaction with the bacterial cell membrane.”

Our third piece of research is by the social psychology professor Eric Manalastas who studies nationwide cigarette smoking among lesbian, gay, and bisexual Filipino youth and strongly recommends a gender x sexual orientation intersectional analysis of health risk behaviors such as cigarette smoking, after finding that young lesbian and bisexual Filipina women had higher rates of ever-trying tobacco, had higher prevalence of current smoking, and smoked more cigarette sticks per day, compared to heterosexual women. Eric also found that Filipino gay and bisexual youth had the highest cigarette smoking prevalence of all four subgroups and discusses possible implications for tobacco use intervention.

This research is followed by two papers related to the academe—one on the use of e-learning tools among faculty members and the other paper on an alternative approach to teaching piano. College of Computer Studies Dean Dave Marcial finds a high level of familiarity with e-learning tools, but that integration of these into teaching is rare. College of Performing and Visual Arts Dean Sue Suarez samples eight piano students who are on probationary status and suggests that a practice before theory approach provides better learning than does the more traditional theory before practice model.

Then, Filipino philosopher Jeffry Oca “revolutionizes Freud” in analyzing Herbert Marcuse’s ideas on domination, resistance, and emancipation. Jeff argues that “Freud’s theory of instincts provided Marcuse with a model for a psychology of domination and resistance, and a model to think anew the philosophical conditions

of emancipation: the agent of social transformation is the biological individual” and that Marcuse’s appropriation of Freud’s theory of instincts explained why the transition from capitalism to socialism did not happen, why, especially in the 1930s, the revolutionary class had been dissolved and became conformist, and how this conformism was even extended into the postwar era. I invite readers to consider Jeff’s arguments.

Finally, historian Prof. Regan Jomao-as analyzes the Roman Catholic Church in a Philippines under Spanish rule and speaks of the “discontents” of Philippine society. Regan also cites Freud, particularly his views of religion and theories of aggression.

NOTES SECTION

The notes section has an essay also by a historian, Michael Hawkins of Creighton University, who examines justice as documented in the local press when the Philippines was under American military rule during the period from 1898 to 1913. Michael gives an interesting analysis, but the accounts are graphic—parental guidance needed.

BOOK REVIEW

Our lone book review is by English teacher Lady Flor Partosa of colleague Ian Casocot’s *Heartbreak & Magic: Stories of Fantasy and Horror* (2011). In reviewing Ian’s stories, Parts says that “history ceases to become a list of cold facts and becomes a backdrop of his narratives,” making Ian himself the magician.

ACKNOWLEDGMENTS

I would like to thank our many contributors to this issue of Silliman Journal who have all made it a truly multidisciplinary one. I also acknowledge with gratitude our reviewers, editorial board, and editorial staff. Special thanks go to poet and creative writing program alumni F. Jordan Carnice for giving *SJ* permission to use “Sabong 3” for the cover art for this issue. I leave you all with the words of La Bruyère in *Characters* (1688): “A mediocre mind thinks it writes divinely; a good mind thinks it writes reasonably.”

Margaret Helen F. Udarbe
Editor







Incidence of Arthropod Pests and Natural Enemies in Rice-Tagbak (*Alpinia Elegans* (Presl.) Schum.) and Vegetable Cropping Systems Without Insecticide Application

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Indigenous cultural practices in pest management provide a valuable resource for sustainable agriculture. Farmer observations provide the clues for management of the agricultural ecosystem which is balanced and sustainable. Rice farmers of Infanta, Quezon use tagbak (*Alpinia elegans* (Presl.) Schum.) stalks for insect pest management thus this practice was validated in field trials conducted at the Central Experiment Station, University of the Philippines Los Baños during the wet season 2005 and the dry season 2006. The use of one-meter tagbak stalks in rice paddies during the dry season reduced green leafhopper and brown planthopper populations by 27% and 40%, respectively. Green leafhopper, the most predominant insect pest and total whitehead count were significantly the least in the tagbak treatment over 4 weeks. However, tagbak stalks were not quite effective in repelling whorl maggots in the dry season. More importantly, tagbak stalks did not reduce the natural enemy populations. During the wet season, tagbak treatment had the highest count of beneficial

arthropods. Yield during the dry season was 19% (tagbak) and 36% (chemical) higher than control. These results validate the farmer practice of using tagbak stalks in rice production and can be a complementary pest strategy for IPM in low input or organic rice production. Population densities of arthropods were monitored on cauliflower intercropped with dill and celery, without any insecticide use in experimental fields in 2003. The insect pests included: flea beetles, leafhoppers and mealy bugs as well as beneficial arthropods: ants, dragon flies, spiders and coccinellid beetles. Diamond back moth counts, a major insect pest of crucifers, were very low. However, this cropping system was not adequate to address the cutworm population. For squash, there was greater diversity of beneficial insects under organic culture where there was an apparent early control of leafhopper populations by spiders, which however did not affect the whiteflies population. The level of aphid infestation was low and its decline coincided with the initial appearance of ants. There is a need to validate the results in the mixed herb-vegetable and organic squash cropping systems in field trials.

KEYWORDS: Organic agriculture, habitat management, field borders, natural enemies, intercropping, polyculture

INTRODUCTION

Indigenous cultural practices in pest management provide a valuable resource for sustainable agriculture. Farmer observations provide the clues for management of the agricultural ecosystem which is balanced and sustainable. The wealth of indigenous knowledge includes not only botanical insecticides but also the role of plants, such as weeds or companion plants, which are part of the design of their farms. Insect behavior is affected to a certain extent by chemical cues it perceives in the environment. Volatile compounds are continuously emitted by plants into the air and these may be utilized by herbivores to locate their food plants.

The influence of three-lobed morning glory, *Ipomoea triloba* L. on the population density of the Asian corn borer is an example of common farmer knowledge in some corn producing areas in the Philippines, notably in Negros Oriental and Negros Occidental. Corn borer damage is reduced whenever *I. triloba* is present in corn fields, thus farmers allow this weed to grow at densities which they estimate

will not affect yield (Medina et al, 1996; Napao, personal comm.) This was validated by several researchers who determined that there was a statistical significance between weed density and corn borer damage (Magalit, 1983) and low egg mass counts were observed in corn where *I. triloba* was grown as a border (Magsino, 1995). This was due to the emission of a repellent volatile organic chemical, 1-methylethyl propyl disulfide, from both corn and *I. triloba*, which increased when corn was entwined by the weed or metal wire. Field and laboratory trials also showed a reduction in corn borer oviposition, 81–91% whenever *I. triloba* entwined corn (Calumpang et al, 2000).

Rice farmers in Infanta, Quezon use tagbak (*Kolowratia elegans* Presl. or *Alpinia elegans*) for insect pest management. Stalks are positioned vertically in the rice fields as it is believed to repel whorl maggot, stemborer and other flying insects (Magsino, 2005). *A. elegans* Presl, known locally in Tagalog as “tagbak,” is a perennial herb found in many tropical countries. Tagbak is a Philippine medicinal plant (BPI, 2010; Oliveros and Bruce, 1991). Two endemic genera, *Adelmeria* and *Kolowratia* are now lumped among the biggest genus *Alpinia* (Funakoshi & Fujiyama, 2004).

An organic vegetable garden consisting of several vegetables, herbs and marigold was established at the Vegetable Division of the Institute of Plant Breeding, UPLB. This included crucifers such as cabbage (*Brassica oleracea* Linn.), Chinese cabbage (*Brassica rapa*), cauliflower (*Brassica oleracea*) and broccoli (*Brassica oleracea* var. *botrytis*) as well as solanaceous vegetables such as eggplant (*Solanum melongena* var. *esculentum*) and sweet pepper (*Capsicum annuum*.), cucurbits such as ampalaya or bitter gourd (*Momordica charantia* L.), cucumber (*Cucumis sativus* L.), patola or ribbed gourd (*Luffa acutangula* Linn.) and upo or white gourd (*Lagenaria siceraria* (Mol.) Standley), as well as legumes: cowpea (*Vigna unguiculata*), pole and bush sitao (*Vigna unguiculata* (L.) Walp.cv.group *Sesquipedalis*). Herbs such as mint (*Mentha spicata* L.), several varieties of basil (*Ocimum basilicum*) and lemon grass (*Cymbopogon citratus* (DC.) Stapf) were grown as strips or borders. It was observed that the damage due to the diamond back moth, cabbageworm, fruitflies and eggplant fruit/shoot borer was reduced significantly. This cropping system did not use commercial pesticides, relying purely on some botanical water extracts (Maghirang, R. personal communication). It was noted that there was a need to document the population dynamics in this organic vegetable garden.

Farmers can also exert some degree of control over insect

colonization by managing the immediate field surroundings, using border strips that attract beneficials or repel pests which slow, delay or prevent colonization (Gleissman, 2000). Intercropping fits into environmentally acceptable and sustainable vegetable-producing practices. Both economic and ecological conditions must be fulfilled before intercropping-based commercial production methods can be developed (Theunissen, 1994). In Mindanao, radish is planted for pest management in crucifers, that is to attract the parasitoid *Diadegma* to manage the diamond back moth (Remotigue. 2004). It has been demonstrated that interplanting of non-host plants drastically reduced colonization efficiency and substantial population density of the specialized herbivore *Phyllotreta cruciferae*. Diversified systems have taxonomic diversity with relatively complex associated patterns of microclimate which are governed to a certain extent by chemical cues. Thus, insects may experience further difficulty in locating spots of favourable microclimatic conditions that result in associational resistance (Tahvanainen & Root, 1973).

This study sought to verify farmer practice on the use of tagbak stalks in rice insect pest management as well as determine the plant-insect interaction in vegetable cropping systems without insecticide use, by documenting the insect infestation cycle in an established organic vegetable garden so that scientists can further integrate the findings into scientific and technical knowledge for more basic studies and for better understanding and utilization by farmers.

MATERIALS AND METHODS

Rice with Tagbak Stalks in Paddy

Experimental Design, Crop Establishment and Management

The study was conducted in the Central Experiment Station of the University of the Philippines Los Baños from August to November 2005 during the wet season and from January to April 2006 during the dry season. Nine plots were laid out where a standing rice crop (PSB RC18) had already been established. There were three treatments and each was replicated three times (Table 1). For treatment 1 during the wet season, seven one-meter tagbak stalks were positioned in eleven rows (3m x 3m distance) throughout the treated area. During the dry season, five one-meter tagbak stalks were placed in fifteen rows at

Table 1.

Treatments Used in the Tagbak Verification Trial. Wet Season 2005 and Dry Season 2006.

[1] Tagbak	1m stalk at 3m x 3m or 1.5m x 1.5m distance, biweekly replacement
[2] Lambda	cyhalothrin at the recommended rate of 25 ml per 16 lL water every week
[3] Control	untreated

1.5m by 1.5m distance (Figure 1) The old, dried stalks were removed at a biweekly interval and replaced with fresh ones gathered from the hilly terrain of Nagcarlan, Laguna. Insecticide application (Treatment 2) was carried out weekly after monitoring the arthropods. Other agronomic practices in transplanted rice, like disease, weed, water and nutrient management, were performed regularly and uniformly in all treatments.

Insect monitoring

The arthropods present in all treatments were monitored and recorded before the initial lambda-cyhalothrin insecticide application in Treatment 2 and weekly thereafter for 6 and 4 consecutive weeks during the wet and dry season, respectively. The presence of stemborer was accounted through their damage, the whitehead, at 11 and 14 weeks after treatment (WAT) during the wet and dry season, respectively. Sampling was done randomly in ten and twenty hills of each plot during the wet and dry seasons, respectively.

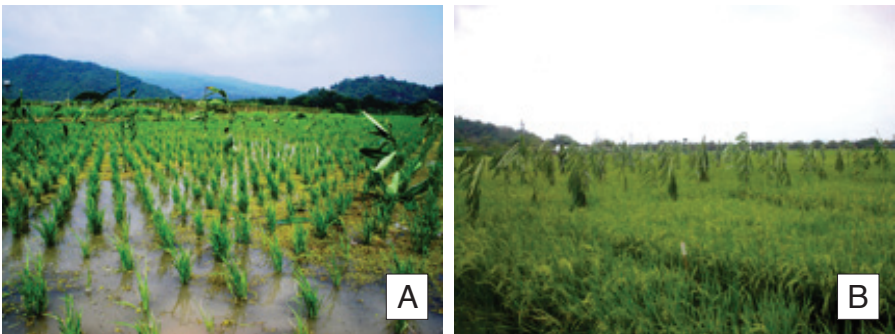


Figure 1. Rice with tagbak stalks at vegetative stage (A) and fruiting stage (B).

Statistical Analysis

Treatments were replicated four times using Randomized Complete Block Design (RCBD) and the data were averaged per hill. The data was processed using the square root ($\text{SQR } x + 0.5$) or logarithmic ($\text{LOG } x$ or $x + 1$) transformation. Differences between the treatments were determined at the 5% level of significance by the Fisher's Least Significant Difference Test.

Cauliflower Intercropped with Celery and Dill*Experimental Design, Crop Establishment and Management*

An organic vegetable garden has been cultivated at IPB, UPLB. The area has been maintained for organic vegetable production previously planted with various vegetables intercropped with different herbs such as onion (*Allium cepa*), garlic (*Allium sativum*), oregano (*Origanum vulgare*) and marigolds (*Tagetes* sp.). The pest and natural enemies population was monitored in cauliflower (*Brassica oleracea*) intercropped with celery (*Apium graveolens*) and dill (*Anethum graveolens*) grown in approximately 1000 m², without pesticides and synthetic fertilizer in the wet season 2003. Sunflower (*Helianthus annuus*), cosmos (*Cosmos bipinnatus*) and marigolds (*Tagetes* sp.) were maintained as a border. Ten bags of chicken manure were scattered in the area before planting and Hecari, an organic fertilizer was sprayed on the furrows as additional basal fertilizer.

Insect monitoring

Insect pests and natural enemies were monitored using visual and sweeping activities, using an insect net, done on the same day with visual counts done before sweeping. Visual counts were done for 10 plants in half of the plot so as not to disturb the whole plot. Ten sweeps were likewise made in the other half of the plot. Samples from sweeping were sorted, identified and presented as total insect counts. Some sweepings were done in the surrounding, uncultivated area where weeds were present. Aphids were assessed according to the standard aphids assessment: 0 = no aphids, 1 = 1-3 individuals, 3 = 1-3 colonies, 5 = 4-6 colonies, 7 = 7-9 colonies, 9 = more than 9 colonies. (Taylor 1970)

Organic Squash

Experimental Design, Crop Establishment and Management

Organic squash, Sorsogon variety, was grown in the IPB experimental area for seed production purposes in approximately 1000 m², without pesticides and synthetic fertilizer on January 25, 2005. This was intercropped with cowpea, which were planted along the rows at a distance of 0.50 m with 2-3 seeds per hill. Yield was not determined as seeds were gathered as planting materials. The area was maintained for about 6 years and was previously planted with various crucifers intercropped with different herbs such as onion, garlic, oregano and marigold for organic vegetable production. Ten bags of chicken manure were scattered in the area before planting. Hecari, a liquefied waste product of Ajinomoto, was sprayed on the furrows as additional basal fertilizer.

To validate organic agriculture practices in squash production in comparison with conventionally grown squash, a second field study was conducted in NCPC, UPLB from March 24 to June 2011. Thirty marigold (*Tagetes erecta*. L.) and 15 lemon grass (*Cymbopogon citratus* (DC) Stapf) plants were grown along the borders of the organic

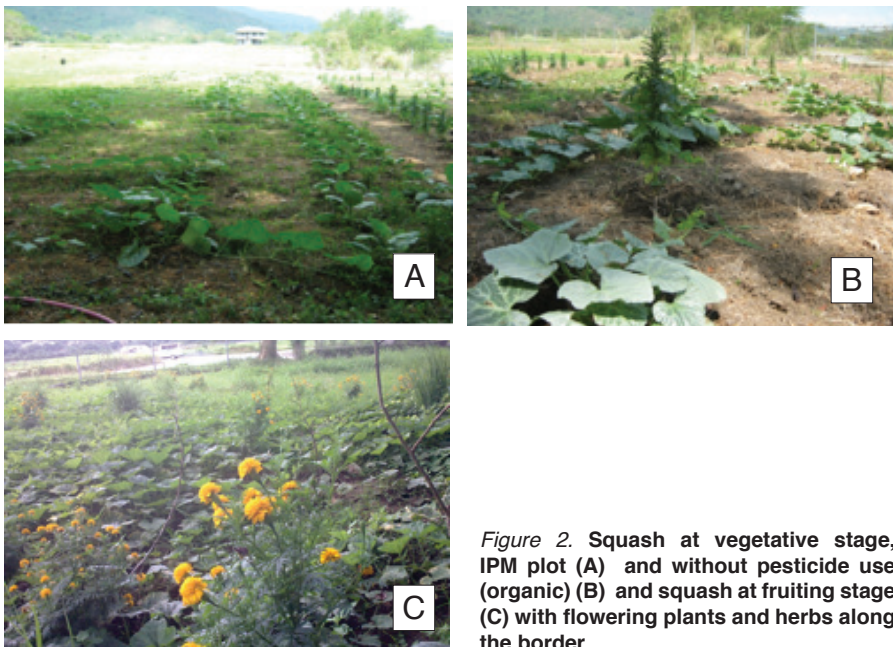


Figure 2. Squash at vegetative stage, IPM plot (A) and without pesticide use (organic) (B) and squash at fruiting stage (C) with flowering plants and herbs along the border.

treatment one month before planting squash, to give advance growth to marigold and lemon grass (Figure 2). To control weeds, glyphosate was sprayed a week before planting squash. *Ageratum conyzoides*, *Cleome rutidosperma* (DC), *Vernonia cinerea* L., cosmos (*Cosmos* sp.) and 3-lobed morning glory (*Ipomoea triloba* L.) were planted in the border simultaneously with squash. A total of 200 m² area was used during the conduct of the study. Twenty five squash seedlings were planted per treatment. Two kilograms of chicken manure in treatment 1 (Organic) and 25 grams of complete fertilizer (14-14-14) was applied in treatment 2 (IPM) 15 days after transplanting. Methomyl was applied at 13 days after transplanting at the recommended rate of 2.5 grams per ha. in treatment 2 (IPM). A 3 x 20 meter strip of eggplant served as a barrier between the two treatments. Top dressing was done 35 days after planting using urea (45-0-0) in IPM at 25 grams per hill and 1 kilogram of chicken manure in the organic treatment.

Insect monitoring

Monitoring of insect commenced when the squash canopy was about to close in. The furrows were divided into five (5) rows for observation of pests and natural enemies populations. The rows were further divided into two for visual and sweeping activities. Ten (10) tips of squash (up to ten leaves from the tip) were counted visually in the 2005 study while five plants were sampled per replicate in the 2011 study. Sweeping of the other half was done using 10 sweeps per sample row. The level of aphid infestation was based on a rating scale of 0 (no aphids) to 9 (very heavy/overlapping colonies).

Samples from sweeping were sorted, identified and presented as total insect counts. Visual counts were also tabulated and shown as total of insect pests and natural enemies. Some sweepings were done in the surrounding, uncultivated area where the weeds present were predominantly *Imperata cylindrica*, *Mimosa pudica*, *Commelina benghalensis*, and *Rottboellia cochinchinensis* and a mixture of different grasses. On one side, pandan herb mixed with marigold were considered as a refuge of pests and natural enemies. It was swept to compare insect populations with the area where squash was grown.

Population densities were monitored starting two weeks after planting (WAP). Actual count was accomplished at weekly intervals. Treatments were replicated four times using Randomized Complete Block Design (RCBD). Data were analyzed for differences between treatments using F-test at the 5% level of significance.

Table 2.

Total arthropod counts (per plant) in three different treatments and the weeks the arthropods were monitored in trans planted rice during the Wet Season 2005 and the Dry Season 2006.

INSECT PESTS	WET SEASON 2005				DRY SEASON 2006			
	TREATMENTS			Weeks Monitored (in weeks after treatment)	TREATMENTS			Weeks Monitored (in weeks after treatment)
	Tagbak	Lambda cyhalothrin	Control		Tagbak	Lambda cyhalothrin	Control	
1. Green leafhopper	7.27	8.74	13.66	1-6	1.63	1.67	2.89	1-4
2. Brown planthopper	3.27	1.86	1.0	1-6	0.2	0.12	0.5	1-4
3. Whitebacked planthopper	0.64	0.67	0.86	2-4	0.2	0.97	0.36	1-3
4. Stem borer*	9.87	10.3	14.27	11	6.65	4.3	14.08	12
5. Semilooper	0.13	-	-	1, 5 and 6	-	-	-	none
6. Rice bug	-	0.03	-	4	-	-	-	none
7. Cutworm	-	-	0.03	2	-	-	-	none
8. Whorl maggot	-	-	-	none	0.05	0	0.03	1 and 3
9. Leaf folder	-	-	-	none	0.22	0	0	2 and 3
10. Whitefly	-	-	-	none	0	0.87	0.1	1, 3 and 4
11. Zigzag leafhopper	-	-	-	none	0.02	0	0	1
12. Grasshopper	0.53	0.2	0.21	1, 3-6	0	0	0.02	2
13. Cricket	0.03	-	-	6	0.02	0	0	1
Overall Total (excluding whitehead count)	11.87	11.57	15.76		2.34	3.63	3.90	

Continued to the next page....

Table 2. (Continued...)

Total arthropod counts (per plant) in three different treatments and the weeks the arthropods were monitored in trans planted rice during the Wet Season 2005 and the Dry Season 2006.

INSECT PESTS	WET SEASON 2005				DRY SEASON 2006			
	TREATMENTS			Weeks Monitored (in weeks after treatment)	TREATMENTS			Weeks Monitored (in weeks after treatment)
	Tagbak	Lambda cyhalothrin	Control		Tagbak	Lambda cyhalothrin	Control	
BENEFICIAL ARTHROPODS								
1. Spider	13.24	4.56	7.13	1-6	1.33	1.04	2.53	1-4
2. Coccinellid beetle	0.52	1.43	1.86	1-6	0.32	0.09	0.34	1-4
3. Cyrtorhinus	0.3	0.74	0.23	2-6	0.22	0.98	0.28	2-4
4. Damselfly	0.17	0.1	0.1	2, 3 and 6	0.02	0	0	1
5. Wasp	0.03	0.13	0.1	6	0	0	0.02	4
6. Ophionea ground beetle	0.13	-	-	6	0.08	0.02	0.2	1-4
7. Dragonfly	0.03	-	-	6	0.02	0.05	0.1	3 and 4
8. Millipede	-	0.07	0.07	3	-	-	-	-
9. Tachinid fly	-	-	0.17	3	-	-	-	-
10. Mirid bug	-	-	-	none	0.31	0.4	0.37	3 and 4
11. Earwig	-	-	-	none	0	0.02	0	4
Overall Total	14.42	7.03	9.66		2.30	2.6	3.86	

*Counted as whiteheads

RESULTS AND DISCUSSION

Rice with Tagbak Stalks in Paddy

Farmers claim that the use of tagbak stalks staked in transplanted rice paddies repel stemborer, whorl maggot and the flying insect pests. Our field monitoring involved population counts of arthropods.

Effect on the insect pests

There were 18 and 19 arthropods recorded in all three treatments, with seven and eight insect pests during the wet and dry seasons, respectively (Table 2). Only four insect pests were common during the two seasons, green leafhopper (GLH), brown planthopper (BPH), whitebacked planthopper (WPH) and stemborer. Three insect pests (i.e. semilooper, rice bug and cutworm) were found during the wet season only, while four (i.e whorl maggot, leaf folder, whitefly and zigzag leafhopper) during the dry season only. Although it was observed that there were less number of insect pests during the dry season compared to the wet season, the tagbak treatment consistently had the least total count of insects for both cropping seasons. (Table 2).

GLH (not considering the whitehead) had the highest count in all three treatments during both seasons (Table 2). During the wet season, GLH was significantly controlled by the tagbak treatment by 47% as against the control and by 9% when compared with the chemical treatment. Significant reduction was noted in the same treatment during the dry season, 42% and 4% lower than the control and the chemical treatment, respectively.

Whorl maggot was not observed during the wet season, but was counted only at 1 and 3 WAT in the dry season (Table 2). At one WAT, whorl maggots were significantly higher in tagbak treatment than control; none were observed in lambda-cyhalothrin treatment. However, tagbak treatment was statistically the same as control at 3 WAT (Table 3).

In addition, the whitehead damage caused by stemborer, was lowest in the tagbak treatment when monitored at 11 WAT when it is expected to occur (Table 4), however, the differences between treatments were not significant.

Table 3.
Weekly Counts¹ (per plant) of Different Arthropods in Transplanted Rice During the Wet Season 2005.

TREATMENTS	GREEN LEAFHOPPER Weeks After Treatment						BROWN PLANTHOPPER Weeks After Treatment						ALL INSECT PESTS Weeks After Treatment					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
1. Tagbak	1.37a	2.03b	1.93b	1.37b	0.5c	0.07c	1.77a	0.03b	0b	0b	1.3a	0.17a	3.17a	2.23b	2.4ab	1.37a	1.87a	0.27a
2. Lambda cyhalothrin	2.1a	1.6b	1.07b	2.07a	1.5b	0.4a	1.3ab	0.23a	0.03a	0b	0.1b	0.23a	3.37a	2.13b	1.47b	2.1a	1.67a	0.63a
3. Control	2.33a	4.73a	2.5a	1.97a	1.9a	0.23b	0.7b	0.1b	0b	0.03a	0.1b	0.07b	3.03a	4.99a	3.2a	2.03a	2.0a	0.3a

TREATMENTS	SPIDER Weeks After Treatment						COCCINELLID BEETLE Weeks After Treatment						ALL BENEFICIALS Weeks After Treatment					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
1. Tagbak	2.1a	2.3a	0.47b	0.87a	4.3a	3.2a	0.03a	0.03b	0.03b	0.13a	0.17b	0.13b	2.2a	2.4a	0.8a	1.03a	4.57a	3.98a
2. Lambda cyhalothrin	0.53b	1.73a	0.73ab	0.2b	1.3b	0.07c	0a	0.30a	0.37a	0.23a	0.10b	0.43a	0.53b	2.13a	1.27a	0.5a	1.6b	1.2a
3. Control	0.73b	1.63a	1.5a	0.7ab	1.1c	1.47b	0.03a	0.23ab	0.30a	0.30a	0.57a	0.43a	0.76b	1.86a	2.14a	1.17a	1.74b	2.2a

¹Means in a column followed by the same letter are not significantly different at the 5% level of significance by Fisher's Least Significant Difference Test.

Table 4.

Mean Whitehead Counts (per plant) at 11 WAT in Transplanted Rice During the Wet Season 2005.

TREATMENTS	MEAN ¹
1. Tagbak	9.87a
2. Lambda cyhalothrin	10.03a
3. Control	14.27a
cv (%) = 17.2	

¹ Means in a column followed by the same letter are not significantly different at the 5% level of significance by Fisher's Least Significant Difference Test.

Effect on the beneficial arthropods

Eleven beneficial arthropods were monitored during both cropping seasons in all three treatments (i.e. spiders, coccinelid beetles, *Ophionea* ground beetles, *Cyrtorhinus*, dragonflies, damselflies, grasshoppers and wasps). Millipede and *Tachinid* flies were only observed during the wet season while mirid bugs, crickets and earwigs only during the dry season. The tagbak treatment had the most kinds (9) of beneficial arthropods or an average of about 15 per plant while the chemical treatment had the least (7) numbers reflecting an average count of 7 per plant which was lesser than counts on control plots (10 per plant) in the wet season. Spiders were the most predominant beneficial arthropod followed by coccinelid beetles throughout the 14 weeks period of data gathering. The tagbak treatment had the highest number of beneficials for the wet season (Table 2). Enhanced natural enemy abundance has been reported on organic rice systems (Hesler et al 1993), tomato (Drinkwater et al, 1995) and apple orchards (Wyss et al, 1995).

The weekly count of the first two most abundant insect pests and beneficial arthropods during the wet season are presented in Table 3. Green leafhopper count, at 1 week after treatment (WAT), was statistically the same in all treatments. At 2 and 3 WAT, significant reductions from those of the control were noted in the tagbak and lambda-cyhalothrin treatments for both seasons (Tables 3 and 5). From 4 to 6 WAT, green leafhopper became significantly the least in the tagbak treatment (Table 3). The treatments did not establish a reduction in brown plant hopper populations. Tagbak caused no difference from the control at 2 and 3 WAT, a significantly greater

Table 5.

Weekly Counts¹ (per plant) of Different Arthropods in Transplanted Rice During the Dry Season 2006.

TREATMENTS	GREEN LEAFHOPPERS				BROWN PLANTHOPPERS				ALL INSECT PESTS			
	Weeks After Treatment				Weeks After Treatment				Weeks After Treatment			
	1	2	3	4	1	2	3	4	1	2	3	4
1. Tagbak	0.37 b	0.95 a	0.18 b	0.13 b	0.05 b	0.08 b	0.07 a	0 b	0.57 a	1.13 a	0.49 a	0.13 a
2. Lambda cyhalothrin	0.37 b	0.5 b	0.38 ab	0.42 a	0.10 ab	0.02 b	0 b	0 b	0.72 a	1.48 a	0.90 a	0.52 a
3. Control	0.82 a	0.72 ab	0.83 a	0.52 a	0.13 a	0.25 a	0.05 a	0.07 a	1.23 a	1.05 a	1.01 a	0.59 a

TREATMENTS	SPIDERS				COCCINELID BEETLES				ALL BENEFICIALS			
	Weeks After Treatment				Weeks After Treatment				Weeks After Treatment			
	1	2	3	4	1	2	3	4	1	2	3	4
1. Tagbak	0.05 b	0.08 b	0.07 a	0 b	0 a	0.10	0.12	0.10	0.42 b	0.75 a	0.51 a	0.64 b
2. Lambda cyhalothrin	0.10 ab	0.02 b	0 b	0 b	0.02 a	0	0.07	0	0.87 ab	0.14 b	0.52 a	1.07 ab
3. Control	0.13 a	0.25 a	0.05 a	0.07 a	0.02 a	0.10	0.07	0.15	1.19 a	0.52 ab	0.75 a	1.40 a

¹ Means in a column followed by the same letter are not significantly different at the 5% level of significance by Fisher's Least Significant Difference Test.

Table 6.

Counts and Differences Between the Insect Pests and Beneficial Arthropods in Transplanted Rice During the Wet Season 2005.

TREATMENTS	INSECT PESTS		BENEFICIAL ARTHROPOD		
	Counts (per plant)	Reduction (%)	Counts (per plant)	Difference (%) From the Control	From the Other Treatment
1. Tagbak	11.31	27	14.8	50↑*	97↑
2. Lambda -cyhalothrin	10.57	32	7.5	24↓	-
3. Control	15.55	-	9.87	-	-

*↑Means higher than, ↓ means lower than.

count than the control at 1, 5 and 6 WAT and a significantly lower count than the control at 4 WAT. Lambda cyhalothrin caused no difference in the brown plant hopper count when compared with tagbak and control at 1 WAT, a significantly higher count than tagbak and control at 2 and 3 WAT, a significantly lower count than the control but the same as tagbak at 4 WAT, a significantly lower count than tagbak but the same as the control at 5 WAT and a significantly higher count than the control and the same as tagbak treatment at 6 WAT.

Spider counts were higher in the tagbak treatment compared with those of control and lambda cyhalothrin at 1, 2, 4, 5, and 6 WAT during the wet season (Table 3). It peaked in the tagbak treatment at 2 WAT. Coccinelid beetle count was highest in the control followed by lambda cyhalothrin and tagbak treatments. The use of tagbak reduced the insect pest population by 27% and harbored the highest number of beneficial arthropods, 33% and 49% higher than that of the control and lambda cyhalothrin treatments, respectively. This is consistent with observed enhanced beneficial populations in soybeans (Altieri, et al 1981) and corn (Turlings et al, 1990). Lambda-cyhalothrin reduced the population of the target organisms the most (32%) but, also destroyed the beneficial arthropods that parasitize or prey on those insect pests (Table 6).

Effect on Yield

Yield during the dry season was computed at 5.8 tons ha⁻¹ in the

Table 7.

Arthropod diversity in organically grown cauliflower intercropped with dill and celery at head development stage, based on actual count and sweep net monitoring methods, IPB, UPLB.

	Cauliflower + Dill + Celery			
	1 week	2 weeks	3 weeks	4 weeks
Insect Pests				
HOMOPTERA				
Whitefly				
<i>Bemisia tabaci</i> (Gennadius)	47	359	45	42
COLEOPTERA				
Fleabeetle				
<i>Phyllotreta striolata</i> (Fabricius)	0	0	1	1
LEPIDOPTERA				
Cutworm, larvae				
<i>Spodoptera litura</i>	8	28	461	76
Semi-looper				
<i>Trichoplusia ni</i>	2	0	0	0
Diamond back moth				
<i>Plutella xylostella</i> (Linnaeus)	0	4	0	2
Cabbage moth, larvae				
<i>Mamestra brassicae</i>	0	110	41	16
HEMIPTERA				
Aphids				
<i>Aphis gossypii</i> Glover	0	2	2.5	3
Leafhoppers				
	1	0	0	2
Ichneumonid				
	0	0	1	0
Natural Enemies				
Coccinellids				
	0	0	0	0
Bees				
	0	0	1	0
Spiders				
	5	2	1	7
Ants				
	0	0	1	0
Pentatomids				
	1	0	0	0

Aphid data is based on a rating scale (0—no aphids; 1—few individuals; 3—one to three colonies; 5—four to six colonies; 7—seven or more distinct colonies; 9—very heavy colonies with overlaps).

tagbak treatment and 7.3 tons per hectare in the chemical treatment, 19% and 36% higher than that of the control, respectively.

Intercropping effects, which lends associational resistance, is demonstrated in terms of suppression of oviposition and larval populations of various pests (Theunissen et al 1995; Perrin and Philips 1978; Togni et al, 2010). Mechanisms accounting for herbivore responses to plant mixtures in diversified agricultural systems include reduced colonization, reduced adult tenure time in the marketable crop, and oviposition interference (Hooks and Johnson, 2003). The reduction in the insect pest counts are most likely affected by the volatile chemicals emitted by the stalks in the atmosphere. Regulation of insect populations may be due to complex interacting factors such as associational resistance (Root, 1973; Buranday and Raros, 1975), reduction of crop apparency (Feeny, 1976).

The insecticidal activity of *A. elegans* has not been demonstrated despite extensive literature search. It appears that the practice of using tagbak as an insect pest management strategy may be undocumented. While, tagbak is not intercropped with rice, the volatile organic chemicals emitted from the stalks may cause changes in the chemical cues that insects can perceive in this particular ecosystem. Our data suggests that chemicals emitted by tagbak affect insect behavior with the ultimate result of reducing pest populations while increasing natural enemy populations. Repellency of volatile plant chemicals have also been observed for certain insects (Tawatsin et al 2006; Garboui et al 2007). The pungent principal of tagbak stalks could be due to limonene, α -pinene, and β -pinene, chemicals found in its essential oil (Oliveros and Bruce, 1991).

Cauliflower Intercropped with Celery and Dill

A mixed herb (dill and celery)-cauliflower cropping system with sunflower, cosmos and marigold borders, negatively affected the major insect pests of cauliflower such as diamond back moth and cabbage moth (Table 7). During the first 6 weeks vegetative and heading stage, there were no insect pests observed. Interestingly, diamond-back moth counts were very low for the 4 weeks observation period.

During the first week at head development stage, only whiteflies, leafhoppers and cutworms were observed in cauliflower. No natural enemies were counted. In the second week, whiteflies were more predominant than in the first week of counting. Cabbage moths were

also observed. Cutworm larvae followed by whitefly, cabbage moth larvae and aphids were the dominant insect pests on the third week. In the last week of counting, cutworm was still the dominant insect followed by whitefly, cabbage moth and leafhoppers.

The intercropped herbs (celery and dill) and border herbs (marigold, lemon grass and basil) did not reduce the cutworm population. Insect counts showed heavy infestation by whiteflies and cutworm during the head development and maturity stages (2-3 weeks) although it was observed that the counts dropped significantly at 3-4 weeks. Cabbage moth, aphids, and some spiders were also observed. Natural enemies were very low during the season but spiders were observed on cauliflower.

Intercropping effects in terms of suppression of oviposition and larval populations of various pests have been demonstrated by other researchers. The quality of the cabbages intercropped with clovers lead to a better profits compared to the monocropped cabbage crop (Theunissen et al. 1995). Radish yield was higher when intercropped with lettuce (Resende et al. 2001). Plant volatiles were major factors in *P. xylostella* host preference. (Badenes-Perez et al., 2004). *P. xylostella* laid nearly twice as many eggs per plant in the high planting densities of glossy collards intercropped with yellow rocket (Badenes-Perez et al. 2005).

The presence of wildflowers in the borders can serve as nectar sources for the parasitoid *Diadegma insulare* (Hymenoptera: Ichneumonidae), a parasitoid of diamond back moth (Idris and Grafius, 1995). Crop and noncrop habitats provide resources to natural enemies either directly through floral nectar and pollen, indirectly by increased host or prey availability, or through emergent properties of the habitat such as by moderating the microclimate (Landis et al. 2005).

Arthropod Populations in Organic Squash

A. First Cropping 2005, IPB, UPLB

During the vegetative stage (33-47 DAP), the dominant pests were whiteflies, squash beetles, pentatomid bugs, melon moth larvae, leafhoppers and flea beetles (Table 8). Thrips were monitored only at 33 DAP. At the flowering and fruiting stages (61-75 DAP) pentatomid bugs were still the dominant pests followed by whiteflies which declined at 68 DAP and increased again at 75 DAP. Other pests

Table 8.
Arthropod Diversity in Organically Grown Squash, Intercropped With Cowpea, Based on Actual Count and Sweep Net Monitoring Methods, IPB, UPLB, January-April 2005.

Arthropod	VEGETATIVE STAGE					REPRODUCTIVE STAGE				
	33	40	47	Days After Planting (DAP)			61	68	75	Total
				54	54	54				
<i>A. Pests</i>										
HEMIPTERA										
Aphids (<i>Aphis gossypii</i> Glover)	2.2	1.0	3.5	1.0	1.0	1.0	1.0	1.0	3.0	12.7
Leafhoppers (<i>Empoasca ricei</i> Dworakowska and Pawar)	4	0	0	18	2	11	2	11	3	38.0
Pentatomids, various species	7	21	10	38	87	43	87	43	15	221.0
HOMOPTERA										
White fly (<i>Bemisia tabaci</i> Gennadius)	17	7	26	42	28	13	28	13	46	179.0
Melonworm moth larvae (<i>Diaphania indica</i> Saunders)	7	8	1	5	4	0	4	0	1	26.0
COLEOPTERA										
Squash Beetle (<i>Aulacophora indica</i> Gmelin)	13	9	6	11	4	3	4	3	4	50.0
Flea Beetle (<i>Phyllotreta striolata</i> Fabricius)	0	2	3	10	3	5	3	5	4	27.0
DIPTERA										
Fruit fly	0	0	0	0	0	3	0	3	2	5.0
THYSANOPTERA										
Thrips, various species	3	0	0	0	0	0	0	0	0	3.0
<i>B. Natural enemies</i>										
ARANEAE										
Spiders, various species	3	4	3	14	17	29	17	29	12	82.0
COLEOPTERA										
Mirid bug (<i>Cyrtorhinus lividipennis</i> Reuter)	0	0	1	7	2	10	2	10	7	27.0
Coccinellid (<i>Menochilus sexmaculatus</i> Fabricius)	0	0	1	0	0	1	0	1	0	2.0
ODONATA										
Dragon fly, various species	1	1	2	0	0	0	0	0	0	4.0

Continued to next page...

Table 8. (Continued...)

Arthropod Diversity in Organically Grown Squash, Intercropped With Cowpea, Based on Actual Count and Sweep Net Monitoring Methods, IPB, UPLB, January-April 2005.

Arthropod	VEGETATIVE STAGE				REPRODUCTIVE STAGE			
	33	40	47	54	Days After Planting (DAP)			
					61	68	75	Total
HYMENOPTERA								
Ants (<i>Solenopsis geminata</i> Fabricius)	0	0	0	6	5	19	5	35.0
Bumble bees, various species	0	4	0	1	7	0	0	12.0
Hymenopteran, various species	2	2	5	0	0	0	0	9.0
Hemiptera, various species	3	2	5	0	0	0	0	10.0
Diptera, , various species	2	1	5	12	15	7	6	48.0
C. <i>Refugia</i>								
DIPTERA								
Fruit fly, various species	-	-	-	-	-	0	2	2.0
Diptera, various species	-	-	-	-	-	0	8	8.0
COLEOPTERA								
Flea Beetle (<i>Phyllotreta striolata</i> Fabricius)	-	-	-	-	-	3	1	4.0
Squash Beetle (<i>Aulacophora indica</i> Gmelin)	-	-	-	-	-	2	0	2.0
HEMIPTERA								
Pentatomid, various species	-	-	-	-	-	16	5	21.0
Leafhoppers (<i>Empoasca rizi</i> Dworakowska and Pawar)	-	-	-	-	-	2	1	3.0
ARANEAE								
Spiders, various species	-	-	-	-	-	12	11	23.0
HYMENOPTERA								
Ants (<i>Solenopsis geminata</i> Fabricius)	-	-	-	-	-	3	6	9.0

Aphid data is based on a rating scale (0—no aphids; 1—few individuals; 3—one to three colonies; 5—four to six colonies; 7—seven or more distinct colonies; 9—very heavy colonies with overlaps)

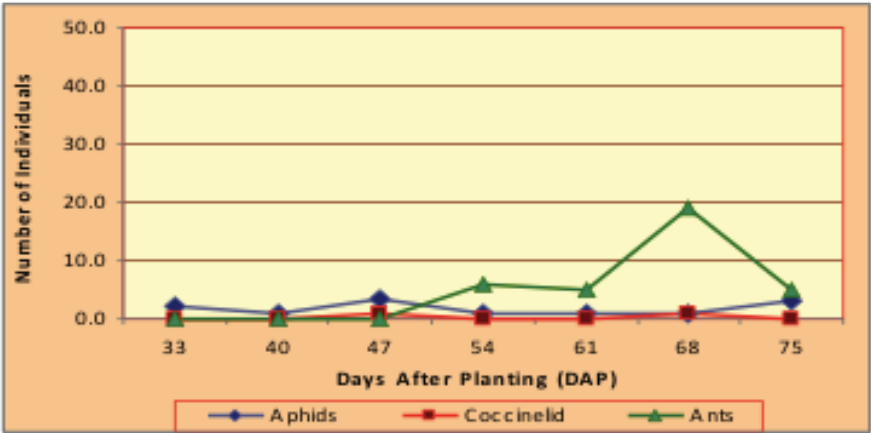


Figure 3. Weekly counts of aphids vs coccinellids and ants in organic squash field trial, 2005.

remained visible during this stage but populations were low.

Natural enemies like spiders, ants, bumble bees, and mirid bugs were low during 33-47 DAP (Table 8), but increased at 54 DAP, indicating that as the crop approaches the reproductive stages, the natural enemy populations begin to rise. During the flowering and fruiting stages, the natural enemies (spiders, mirid bugs and ants) counts increased and peaked at 68 DAP.

The level of aphid infestation, ranged from 1 (few individuals) to 3.5 (1-3 colonies) (Figure 3). There is a decline of the aphid population at 54 DAP, which coincided with the initial appearance of ants. The ants are apparently influential in the recovery of the aphid population at 68 DAP. However, it was observed that aphid population declined at 75 DAP while ant population increased slightly. Coccinellid beetle predators apparently did not play a major role in affecting the population fluctuations of aphids as the population density of the predator remained negligible (0-1 individuals) throughout the observation period.

Leafhoppers were affected by the presence of spiders during the 40 and 47 DAP period (Figure 4). From 54 DAP onwards (reproductive stages), there was a build- up of aphid populations which caused the decline in leafhoppers populations. Spiders did not affect the whiteflies population in the vegetative stage (Figure 5). Low levels of spiders caused whiteflies to surge up, and conversely, an increase of spiders at 68 DAP resulted in a decline in whiteflies populations. Hymenopterans do not affect populations of whiteflies

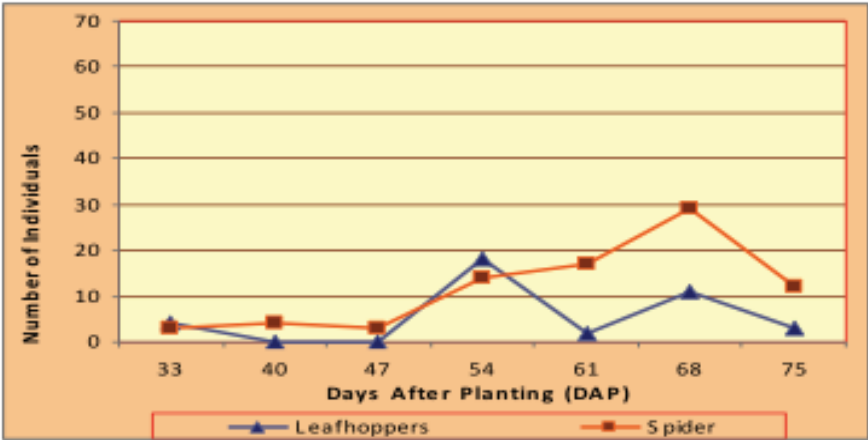


Figure 4. Weekly counts of leafhopper vs. spiders in organic squash field trial, 2005.

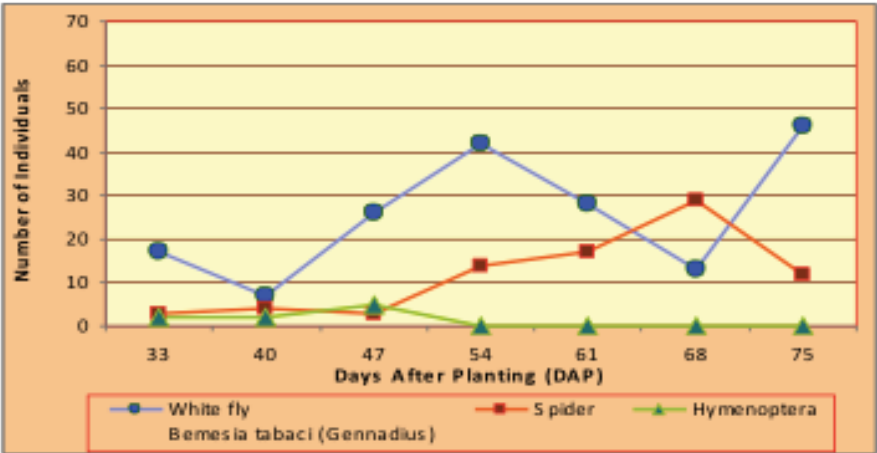


Figure 5. Weekly counts of whitefly vs. spiders and hymenoptera in organic squash field trial, 2005.

as it was monitored in low populations. During the vegetative stage, squash beetle populations were not affected by the presence of very low populations of spiders (Figure 6). However, during the flowering and fruiting stages, squash beetle declined in numbers as the spiders increased. This indicates that spider per se, is not a deterrent to the squash beetle population. The decline of the squash beetle population during the latter stages could be attributed to the lack of younger leaves which the insect prefers. There is a direct relationship between pentatomid pests and spiders in organic squash. However, due to the high populations of the pentatomid pest, spiders are not effective

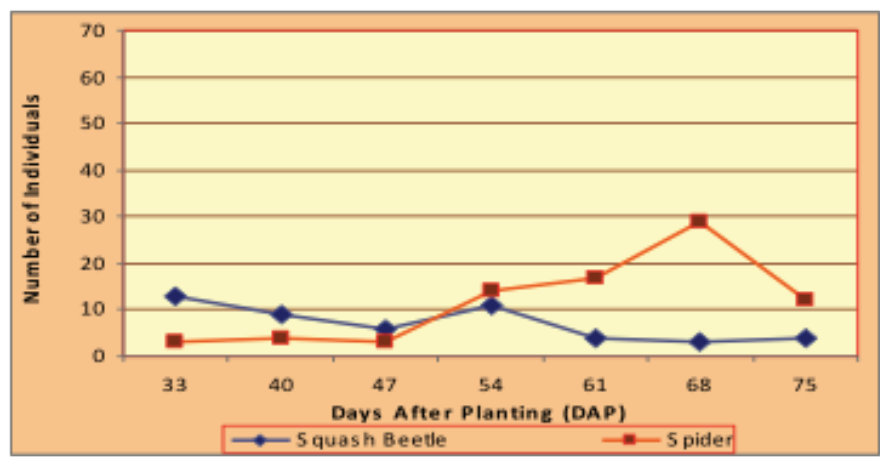


Figure 6. Weekly counts of squash beetle vs. spiders in organic squash field trial, 2005.

biocontrol agents against it (Table 8).

The surrounding border of the squash area served as refugia for pentatomid bug while other pests like leafhopper, squash beetle, flea beetle, grasshopper and fruit fly larvae occurred at low populations. The pests were swept in *Roettboellia cochinchinensis* (itch grass), *Imperata cylindrica* (cogon), *Mimosa pudica* (sensitive plant), *Commelina* spp. and a mixture of different grasses. Of the natural enemies only spider, ants, and some dipterans were swept in the surrounding area. Dipterans were observed at 75 DAP when the crop was at fruiting stage (Table 8). Floral volatiles are known to attract both floral herbivores and pollinators (Theis 2006).

The organic squash showed 90 or more percent of mosaic like viruses during the fruiting stage. The viruses were not identified but it might be transmitted by insects or some way of transmittal like mechanical means.

Weeds were not a constraint during seedling stage even though the area was unweeded; it is probably due to the polyethylene plastic mulch on the furrows. It becomes critical when the crop is about to close in up to fruiting stage. The weeds present in the area were *Cyperus rotundus*, *Cyperus iria*, *Digitaria setigera*, *Amaranthus spinosus*, *Trianthema portulacastrum*, *Celosia argentea*, *Eclipta alba*, *Synedrella nodiflora*, *Cleome ruidosperma*, *Euphorbia hirta*, *Mimosa pudica*, *Bracharia mutica*, *Eluesine indica*, *Poa annua*, *Physalis angulata*, and *Dactelactenium aegyptium*.

Table 9.

Arthropod Diversity in Organic and IPM Plots Based on Actual Count and Sweep Net Monitoring Methods. NCPC, March-June 2011.

Arthropod		VEGETATIVE STAGE					REPRODUCTIVE STAGE							Total
		Treatments		Days After Planting (DAP)										
		27	33	40	47	54	60	68	75	83	89			
<i>A. Pests</i>														
HOMOPTERA														
White fly	Organic	14	16	4	11	48	50	59	78	43	—	323 a		
<i>Bemisia tabaci</i> (Gennadius)	IPM	20	33	8	12	31	38	48	84	39	—	313 a		
LEPIDOPTERA														
Cutworm	Organic	0	0	0	0	0	0	0	0	0	—	0 a		
<i>Spodoptera litura</i> (Fabricius)	IPM	0	0	0	0	2	0	0	0	0	—	2 a		
Cutworm	Organic	0	0	0	0	0	0	0	0	0	—	0 a		
(egg mass)	IPM	0	0	0	0	1	0	0	0	0	—	1 a		
Melonworm moth	Organic	24	4	1	0	0	0	0	0	0	—	29 a		
<i>Diaphania indica</i> (Saunders)	IPM	15	6	0	0	0	0	0	0	0	—	21 a		
COLEOPTERA														
Flea Beetle	Organic	0	0	0	0	1	1	1	0	0	0	3 a		
<i>Phyllotreta striolata</i> (Fabricius)	IPM	0	0	1	1	0	1	1	1	0	0	5 a		
Squash Beetle	Organic	3	4	4	5	99	7	12	22	12	7	175 a		
<i>Aulacophora indica</i> (Gmelin)	IPM	9	2	2	4	5	6	8	10	11	5	62 b		
HEMIPTERA														
Leafhoppers	Organic	2	0	1	3	2	1	0	0	0	0	9 a		
<i>Empoasca ricei</i> Dworakowska and Pawar	IPM	3	0	4	3	6	2	1	0	0	0	19 a		
Aphids	Organic	3	6	0	0	0	0	0	0	0	—	9 a		
<i>Aphis gossypii</i> Glover	IPM	8	3	0	0	0	0	0	0	0	—	11 a		
ORTHOPTERA														
Katydid	Organic	0	0	0	1	0	0	0	0	0	0	1 a		
<i>Planeroptera furcifera</i> Stål	IPM	0	0	0	0	0	0	0	0	0	0	0 a		

Continued to the next page...

Table 9. (Continued...)

Arthropod Diversity in Organic and IPM Plots Based on Actual Count and Sweep Net Monitoring Methods. NPCC, March-June 2011.

Arthropod	Treatments	VEGETATIVE STAGE					REPRODUCTIVE STAGE								Total
		27	33	40	47	54	Days After Planting (DAP)								
							60	68	75	83	89				
<i>B. Natural enemies</i>															
ARANEAE															
Spiders, various species	Organic IPM	1	1	0	3	3	2	4	0	1	0	15 a			
		2	0	2	0	6	1	3	0	0	1	15 a			
DIPTERA															
Wasp	Organic IPM	0	0	0	0	0	1	0	0	0	0	1 a			
		0	0	0	0	3	0	0	0	0	0	3 b			
Diptera, various species	Organic IPM	0	0	6	2	2	3	2	1	2	0	18 a			
		0	0	0	1	1	1	2	1	0	0	6 b			
ODONATA															
Dansel fly, various species	Organic IPM	0	0	0	0	1	0	0	0	0	0	1 a			
		0	0	0	0	0	0	0	0	0	0	0 a			
HYMENOPTERA															
Ants	Organic IPM	0	0	0	0	0	0	0	0	0	0	0 a			
		0	0	0	1	1	0	0	0	0	0	2 a			
<i>Solenopsis geminata</i> (Fabricius)	Organic IPM	0	0	0	0	1	0	0	0	0	0	1 a			
		0	0	0	0	0	0	0	0	0	0	0 a			
Hymenoptera, various species	Organic IPM	0	0	0	2	1	2	1	0	1	1	8 a			
		0	0	1	0	0	0	0	1	1	1	4 a			
COLEOPTERA															
Ladybird Beetle	Organic IPM	0	1	0	0	0	0	0	0	0	—	1 a			
		0	0	0	0	0	0	0	0	1	—	1 a			
Mirid bug	Organic IPM	0	3	1	1	2	0	0	0	0	0	7 a			
		0	1	0	0	2	0	0	0	0	0	3 a			

For each arthropod, treatments having the same letter are not significantly different based on F-test (F Prob. <= 0.05)

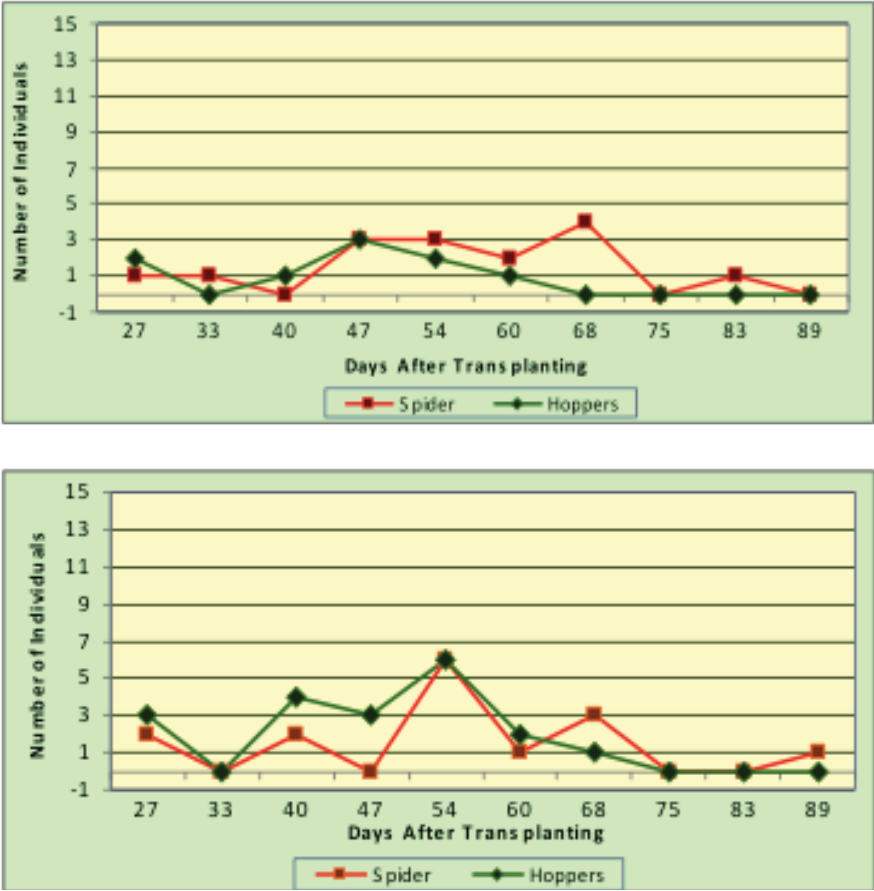


Figure 7. Weekly counts of leafhoppers vs spiders in squash field trial(A- Organic; B- IPM), 2011.

B. Second cropping, NCPC, UPLB 2011

A total of 18 different species of arthropods were observed in the experimental plots (Table 9). Except for squash beetles, all other pest species did not differ significantly in terms of total population in both the Organic and IPM plots. Cutworm was not recorded to attack organic squash plants; it only attacked IPM plants. Aphids and Diaphania were more numerous during the vegetative stage while squash beetle peaked at the reproductive stage. Whiteflies were always present in every monitoring period (Table 9). Ants were not observed in organic plots while Cotesia, katydid and damsel fly

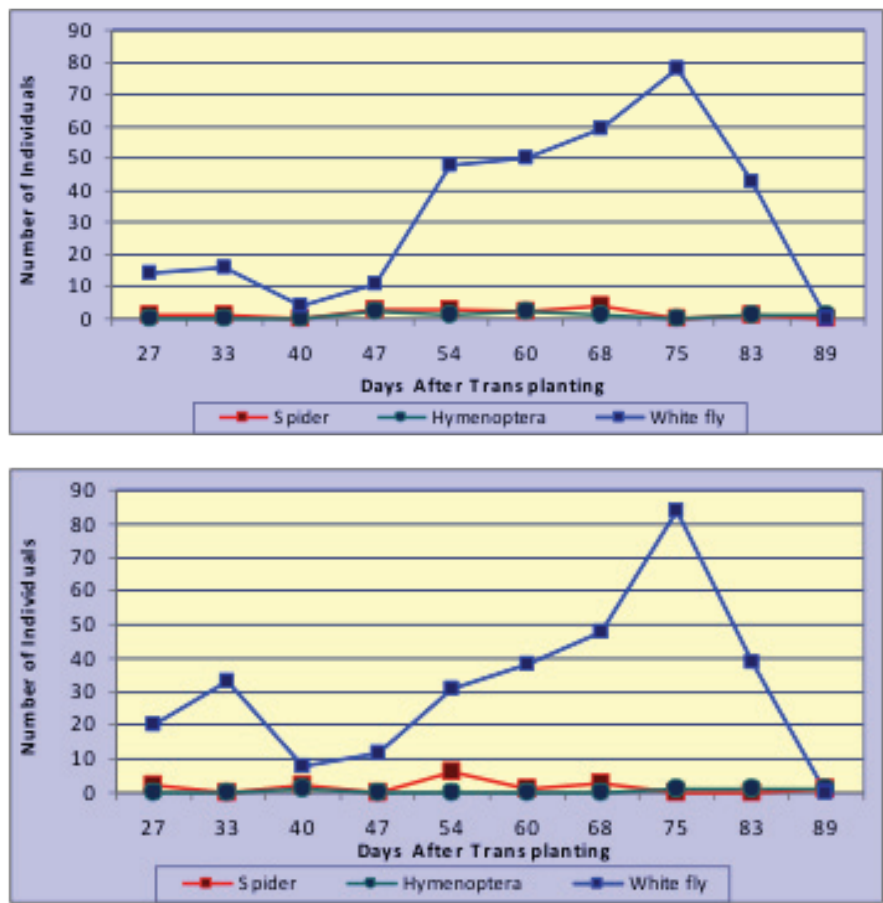


Figure 8. Weekly counts of whitefly vs. spiders and hymenoptera in squash field trial (A- Organic; B- IPM), 2011.

were absent in the IPM plots. In addition, significantly higher diptera populations were observed in organic than in IPM treatment plots. This is an indication of greater diversity of beneficial under organic culture. Notable also were the numerically higher number of mirid bugs and hymenoptera individuals in the organic plots. The aphid population occurred more during the vegetative stage of the squash plants. There is no indication of direct relationships between the aphid, ant or ladybird beetle population fluctuations.

In organic squash, there is an apparent earlier control of leafhopper populations by spiders from 47 DAP onwards (Figure 7a) than in the IPM plots (from 68 DAP) (Figure 7b). Spiders are predators and are

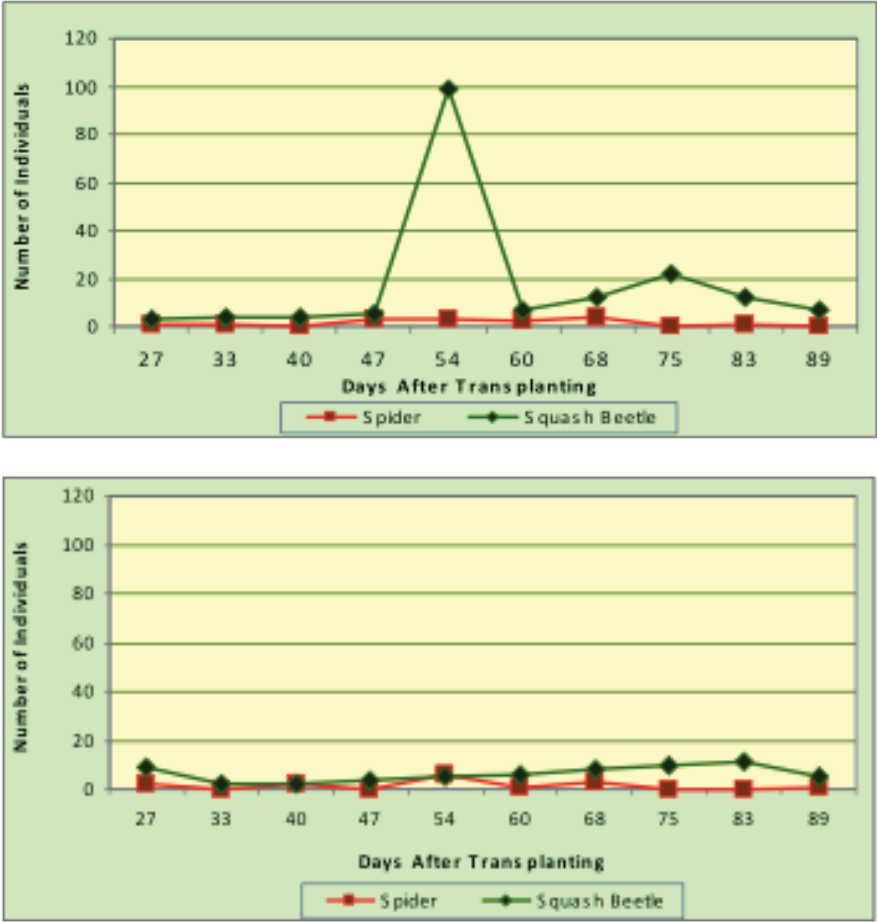


Figure 9. Weekly counts of squash beetles vs. spiders (A- Organic; B- IPM) in organic squash field trial, 2011.

able to reduce leafhopper populations (Kiritani et al, 1972 Riechert and Bishop, 1990). Insecticide spraying in the IPM plot at 13 days after transplanting could have reduced spider populations making the predator unable to rebound in sufficient numbers to inflict sufficient control against the pest.

Spiders and hymenoptera did not affect the whiteflies population (Figure 8a and 8b). Low count of spiders and hymenoptera compared with the high whitefly population counts in all monitoring periods indicates that they are not effective during high population surges or do not attack the pest at all. Spiders were not able to prey sufficiently on squash beetle individuals in organic squash plants (Figure 9a). A

high spike of squash beetle population density at 54 DAP signified that under favorable conditions, spiders cannot effectively check the squash beetle population increase. Under IPM plot conditions, however, squash beetle populations hover below the 20 individual mark- fluctuating in a similar manner with the spider population (Figure 9b).

Yield

Although our initial results show the organic plot producing more squash fruits than the IPM plot, the total yield was not computed as heavy rains in the later part of the season destroyed the fruits.

Our results are very similar to the pest populations observed in a previous study on squash which looked at the impact of intercropping squash with sorghum-sudangrass. This cropping system resulted in spill-over of natural enemies, predatory Coleoptera, into the neighboring crop squash. Border crops did not influence the movement of thrips and whiteflies, however in situ aphid counts were lower on squash bordered by sorghum-sudangrass than in the control. Flea beetles (*Altica* spp.) were consistently most abundant in the bare ground border, but many arthropod groups were unaffected by the treatment. None of the border treatments could prevent a heavy infestation of melonworm (*Diaphania hyalinata* L.) (HansPetersen et al. 2010).

CONCLUSIONS

Our results validate the farmer practice of using tagbak stalks in rice production to manage insect pests for integrated pest management (IPM) in low input or organic rice production..

Intercropping of herbs and vegetables can reduce some insect pest populations in the field. We demonstrated that a mixture of dill, celery and lemon grass grown together with cauliflower could result in very low diamond back moth populations in the field. However, this cropping system was not adequate to address the cutworm population. The results support the view that greater diversity of beneficial arthropods can reduce certain pest populations. Spiders and ants play an important role in the control of leafhopper and aphid populations.

There is a need to validate the results in the mixed herb-vegetable

and organic squash cropping systems in field trials. The usefulness of incorporating biological control measures, into integrated pest management systems, will surely benefit farmers through reduced dependence on commercial inputs.

ACKNOWLEDGEMENTS

This research was funded in part by DA-BAR and NCPC, UPLB Core Funds in 2008 to 2011. The authors also acknowledge the assistance of Ms. Gloria Rodolfo who maintained the organic herb-vegetable garden at IPB, UPLB.

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Effect of Peanut (*Arachis hypogaea* L.) Anthocyanin Extract on Cell Surface Hydrophobicity and Hemagglutination of *Escherichia coli* in Acidified Buffer Solution

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The effects of peanut anthocyanin extract and commercial cranberry juice on the hydrophobicity and hemagglutination of *Escherichia coli* (ATCC 25922) in acidified buffer solution was investigated. Pure cranberry juice and peanut anthocyanin extracts containing >108.55 mg/mL cyanidin-3-glucoside (cyd-3-glu) equivalents significantly reduced the hydrophobicity of 2.78×10^9 CFU/mL *E. coli* after 8, 20 and 30 hours ($p < 0.01$) compared to lower concentrations while a concentration of 144.73 mg/L cyd-3-glu equivalents resulted in the best hemagglutination inhibition of the same bacterial density of *E. coli* in less than 8 hours. The results show that peanut anthocyanin extract reduces cell surface hydrophobicity and inhibits the hemagglutination of *E. coli* in a time-dependent and dose-dependent mechanism through nonspecific interaction with the bacterial cell membrane.

KEYWORDS: cell surface hydrophobicity, *Escherichia coli*, mean hydrophobicity index, minimum hemagglutinating concentration, peanut anthocyanin extract, pH differential method, solid phase extraction

INTRODUCTION

The membrane surface of eukaryotic and prokaryotic cells carries a net hydrophobic character which is usually associated with the fatty acid chains of the amphipathic phospholipid bilayer. In aqueous solutions, the hydrophobic and hydrophilic domains self-associate to become energetically stable. In *Escherichia coli*, cell surface hydrophobicity is a determinant of epithelial adhesion, infection (Doyle, 2000) colonization and biofilm formation which

causes pathogenic strains of *E. coli* to outlast the host's immune response (Suman et al., 2005) and potentiate antibiotic resistance. The hydrophobicity of the surface of *E. coli* is attributed to Type 1 fimbriae (Otto et al., 1999), P-fimbriae (Uberos et al., 2011), curli fimbriae (Patel et al., 2010) and (C – (C, H)) functional groups on the bacterial cell surface (Hamadi et al., 2008) such as palmitic acid and cis-vaccenic acid (Yuk & Marshall, 2004) of phosphatidylethanolamine and phosphatidylglycerol (Simon & Sampaio, 2011).

Prokaryotic and eukaryotic cell membranes have patches which yield a net negative charge. Raicu and Propescu (2008) reported that the eukaryotic cell membrane generates mainly negative charges due to carboxyl group (COO^-) of sialic acid, while both prokaryotic and eukaryotic cells generate dihydrogen phosphate (H_2PO_4^-), hydrogen phosphate or biphosphate (HPO_4^{2-}), and phosphate (PO_4^{3-}) from the polar head of the phospholipids. With these premises, compounds which are hydrophilic and positively charged can potentially bind to the negative patches on the cell membrane and reduce the hydrophobicity of *E. coli*.

Anthocyanins carry a net positive charge on the pyran ring (Giusti et al., 1999; Gallik, 2011) which is responsible for their pigmentation at acidic pH and a potent hydrogen-donating activity. Anthocyanins contain polyphenolic structure and a formal charge on the oxygen of the benzopyrilium ring. At very low pH, anthocyanins have positive charge but at pH 4.5, the positive charge is lost (Gallik, 2011).

Anthocyanin-rich cranberry (*Vaccinium macrocarpon*) products have been reported to decrease the surface hydrophobicity of *E. coli* (Uberos et al., 2011; Wojnicz et al., 2012) and limit biofilm formation. However, most studies focused on the effect of proanthocyanidins on cell adhesion and hemagglutination of the *E. coli*. Prior and Lee (2005) reported that proanthocyanidins found in cranberries are also found in plums, avocado, peanut, curry and cinnamon. Their study also revealed that the linkages of proanthocyanidins in cranberry closely matched the linkages in the proanthocyanidins in peanuts. Peanuts have been described to contain the proanthocyanidins catechin and epicatechin in the monomeric, dimeric, trimeric and tetrameric forms, most of which are located in the peanut skin. Aside from proanthocyanidins, peanuts are also rich with anthocyanins, causing variations in the colors of peanut seed coats ranging from light brown to deep red, purple and blue (Chukwumah et al., 2009).

Sobolev and Cole (2004) reported that peanut skins are usually consumed with some peanut based products including in-shell

peanuts and specialty types of peanut butters. However, most of the peanut skins are removed during processing. It is estimated that world production of peanut skins is on the magnitude of 750,000 tons annually, and the current market is confined to low value animal feed applications. The use of peanut seed coats as sources of pharmaceutical compounds could potentially raise the market value of peanut seed coats.

Despite previous studies on determining the type of anthocyanins in peanuts (Cheng et al., 2009; Rongfeng et al., 2011), similarities of proanthocyanidins in peanuts and cranberries (Prior & Lee, 2005) and measuring the antioxidant capacities (Nepote et al., 2005; Shemtov et al., 2012), there have been no studies done to investigate the effect of peanut anthocyanins on the surface characteristics of bacteria in acidic pH. Hence, this study was conducted to compare the effects of peanut seed coat anthocyanins and cranberry juice on the cell surface hydrophobicity and hemagglutination of *E. coli* in acidic pH. Specifically, the study aimed to determine the phytochemical components of cranberry juice and peanut anthocyanin extract, determine the total monomeric anthocyanin content of peanut anthocyanin extract, and determine the time and concentration required to reduce the hydrophobicity and inhibit the hemagglutination of the minimum hemagglutinating concentration of *E. coli*.

MATERIALS AND METHODS

Plant Material

The peanut cultivar (*Moket* variety) was obtained from Rosario, La Union. Raw peanut pods were manually shelled and oven dried at 105°C. Seed coats were manually removed from the peanut kernel, coarsely pulverized, and extracted with 85% methanol solution (1:4 w/v) at room temperature for 72 hours, filtered thrice using Whatman No. 1 Filter paper (0.45µm pore size) in a Soxhlet apparatus attached to a vacuum and defatted thrice using n-hexane. The extract was stored at 4°C until used.

Determination of Total Anthocyanin Content

The defatted seed coat extract was placed in a clean boiling flask,

evaporated at 40°C using a rotatory evaporator and passed through C18 Sep-Pak SPE cartridges (500 mg sorbent) which was previously activated with methanol followed by 0.01% aqueous HCl according to a modified methodology of Giusti et al. (1999) and Mc Donald (2001). Anthocyanins and other phenolic compounds were adsorbed onto the mini-column while sugars, acids, and other water-soluble compounds were removed using two column volumes of 0.01% aqueous HCl solution. Polyphenolic compounds were separated from anthocyanins using two column volumes of ethyl acetate. Anthocyanins which were adsorbed onto the column were subsequently eluted with methanol containing 0.01% HCl (v/v), placed in a rotatory evaporator at 40 °C to remove methanol and stored -20°C until used.

Total anthocyanin content (TAC) was determined using pH differential method (AOAC Official Method, 2005). Absorbance (A) was measured at 520 and 700 nm using five replicates. The unit for TAC was expressed as mg/L cyanidin-3-glucoside equivalents (cyd-3-glu eq, molar extinction coefficient of 26,900 L x cm⁻¹ x mol⁻¹ and molecular weight of 449.2 g x mol⁻¹). Buffer solutions (pH 1.0 and 4.5) were prepared for determining the absorbance of anthocyanins. Spectrophotometric readings were measured at pH 1.0 and 4.5 according to the following equation:

$$A = (A_{520} - A_{700})_{pH\ 1.0} - (A_{520} - A_{700})_{pH\ 4.5}$$

$$TAC\ (mg/L) = \frac{A \times MW \times DF \times 1000}{\epsilon \times l}$$

Preparation of Bacterial Suspensions

American Type Culture Collection *E. coli* strain 25922 was obtained from the Department of Science and Technology in La Trinidad, Benguet. The bacterium was reported to be hydrophobic and exhibited positive hemagglutination of guinea pig and human red blood cells (Mythreyi et al., 2011). The stock culture was prepared by inoculating a static Luria Broth medium (10.0 g tryptone, 5.0 g yeast extract and 10.0g NaCl in 1000mL distilled water; pH = 7.2) at 37°C for seven days. The test organism was initially evaluated for its hydrophobicity and hemagglutination.

Bacterial pellets were prepared from the stock sample by obtaining

5 mL, centrifuged for 15 minutes at 5000 rpm, washed three times with Phosphate Buffered Solution (PBS; 16.0 g NaCl, 0.4 g KCl, 0.4 g KH_2PO_4 , and 2.3 g $\text{NaH}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$ in 1000 mL distilled water; pH = 7.1) until the supernatant was clear. The final suspension was prepared by adding 5mL of PBS to the bacterial pellets. Bacterial density was estimated using the absorbance of the suspension at 510 nm using a Vis spectrophotometer (PD 303) using PBS as the blank solution. The absorbance of the minimum hemagglutinating concentration (MHC) was 0.6438 AU corresponding to a bacterial density of 2.78×10^9 CFU/mL. Using sterilized glass test tubes, three replicates were prepared for each control (cranberry juice) and experimental groups (25%, 50%, 75% and 100% anthocyanin extracts).

Phytochemical Analysis of Cranberry Juice and Peanut Anthocyanins

Phytochemical analysis was performed to determine the compounds in cranberry juice and peanut anthocyanin extract according to the methodology published by Aguinaldo, Espeso, Guevara and Nonato (2005). The cranberry juice and peanut sample used in the control group and experimental groups were chosen from five cranberry juice and six peanut cultivars based on their ability to inhibit hemagglutination of 2.78×10^9 CFU/ mL *E. coli* after 30 minute incubation at 37°C. The commercially available cranberry juice cocktail (Ocean Spray Cranberries, Inc., Lakeville-Middleboro, MA) was used. According to Liu et al, (2006) Ocean Spray cranberry cocktail (pH=2.3) contains 27% (w/w) cranberry juice.

Preparation of Treatment and Control Groups

Bacterial suspensions from Luria Broth were centrifuged for 15 minutes at 5,000 rpm to obtain bacterial pellets. Bacterial pellets were washed three times using PBS and adjusted to a density of 2.78×10^9 CFU/ mL using the identified spectrophotometric absorbance. After the final wash, 0.5 mL of commercial cranberry juice cocktail was used to suspend the bacterial pellets in the control group. For the experimental groups, 25%, 50%, 75% and 100% concentrations (v/v) of peanut anthocyanin extracts were added to bacterial suspensions in PBS and incubated for thirty hours at 37°C. The pH values in all treatment groups were maintained adjusted to 2.3 using 6N Hydrochloric acid.

Hydrophobicity Assay

The aqueous-aqueous partition method described by Perez et al. (1998) was modified in the hydrophobicity assay. Bacterial pellets were suspended in 3 mL of PBS and adjusted to a density of 2.78×10^9 CFU/ mL using a Vis spectrophotometer (PD 303). An equal amount of n-hexane was added to the test tube, vortexed for one minute then kept still for thirty minutes to allow the two aqueous phases to separate. After separation of the two phases, n-hexane was removed using a micropipette and transferred to a clean quartz cuvette. The absorbance of n-hexane was determined at 410 nm and recorded as OD_a (Optical Density After). The absorbance was compared to the optical density of pure hexane at 410 nm, which was referred to as OD_b (Optical Density Before). A lesser absorbance value of hexane implies a decreased hydrophobicity of *E. coli*. Hydrophobicity difference in all samples was expressed as hydrophobicity index (HI) using the following formula:

$$\text{HI (\%)} = \frac{\text{OD}_b - \text{OD}_a}{\text{OD}_b} \times 100$$

Hemagglutination Assay

The protocol described by Adebayo (2004) was modified to prepare 10% and 0.5% red blood cell suspensions. Blood sample was collected from healthy guinea pigs via cardiac puncture, mixed with EDTA and placed in sterile glass test tubes. The blood samples were centrifuged for 15 minutes at 3,000 rpm to separate red blood cells and plasma. Blood plasma was discarded through the use of micropipette. The red blood cells were washed three times using PBS (pH = 7.1).

The weight of the packed red blood cells was obtained and suspended in PBS nine times greater than the packed cell mass to yield a 10% mass to mass blood suspension. In a separate test tube, 0.5 mL of the 10% suspension was mixed with 9.5 mL of PBS to prepare a 10 mL 0.5% working suspension. A small sample of the 0.5% suspension was viewed under light microscope to evaluate cell integrity. Five replicates were prepared per control and treatment groups. The suspensions were stored in the refrigerator (4°C) until

used.

The protocol of Adebayo (2004) was used to determine the hemagglutination of *E. coli*. In a sterilized test tube, 400 μ L of bacterial cell suspension was added with an equal volume of working erythrocyte suspension, mixed in a vortex for one minute, and incubated at 37°C for 30 minutes. A negative control (red blood cell suspension) and a positive control (untreated *E. coli* in red blood cell suspension) were prepared to serve as basis for positive hemagglutination. The results were visually evaluated by comparing the results with the positive and negative control groups. A drop of the suspension was viewed under oil immersion (1000x magnification) to characterize red blood cell and bacterial morphology after positive hemagglutination result. Hemagglutination was expressed using the symbols (+++) for strong reaction, (++) for moderate reaction, (+) for weak reaction and (–) for a negative reaction.

Statistical Analysis

Data were analyzed using the statistical software SPSS 18.0. Two-way Analysis of Variance was used to compare the mean hydrophobicity indices of between and within groups in hydrophobicity assay and interaction effects of peanut anthocyanin concentration and time of exposure in reducing hydrophobicity of *E. coli*. Post hoc Tukey Honestly Significant Difference (HSD) was used to determine where the significance lies among the mean hydrophobicity indices among different treatments and time of exposures. Means were considered to be significantly different when the *q* value is less than 0.01 ($q < 0.01$).

RESULTS AND DISCUSSION

Description of the Crude Peanut Extract

Out of 200 g of dried seed coats, 35 g of peanut crude extract was obtained using methanolic extraction (17.5% yield). The peanut extract was slightly viscous and appeared dark reddish brown. After Solid Phase Extraction, the resulting total anthocyanin extract was 10 g (5.0% yield). The anthocyanin extract was stored in a clean Erlenmeyer flask sealed with paraffin film at -20°C until used. The extraction process was repeated based on the amount needed in the study.

Total Monomeric Anthocyanin Content of Peanut Anthocyanin Extract

Using pH differential method, the total monomeric anthocyanin content of peanut seed coats (*Moket* variety) was determined to be 144.73 ± 0.42 mg/L cyd-3-glu equivalents or roughly 0.72 mg /g peanut seed coat (n=5). The result was lower compared to the study of Rongfeng et al. (2011) and Cheng et al. (2009) which are 1.16 mg /g and 11.0 mg /g, respectively. The lower monomeric anthocyanin content of peanuts used in the study could be attributed to the different variety of peanut used and the method of extraction. Cheng et al. (2009) used Black Kingkong peanut varieties, used deionized water for extraction and stirred the peanut seed coats during extraction while the present study extracted anthocyanins from dark pink *Moket* variety using methanol without stirring or shaking.

Phytochemical Analysis of Cranberry Juice and Peanut Anthocyanin Extract

Table 1 shows that the commercial cranberry juice used in the study was positive for gums and mucilages, reducing sugars, phenolic compounds, 2-deoxysugars, leucoanthocyanins, cyanidins, and tannins. The peanut anthocyanin extract was positive for leucoanthocyanins and cyanidins only. The results imply that solid phase extraction efficiently isolated the anthocyanin pigments from peanut seed coats.

Table 1.

Summary of Phytochemical Analysis of Commercial Cranberry Juice and Peanut Anthocyanins*

Name of Test	Test for	Cranberry Juice	Peanut Anthocyanin Extract
Lead Acetate Test	Gums and mucilages	(+)	(-)
Fehling’s Test	Reducing sugars	(+)	(-)

Continued to next page...

Table 1. (Continued...)

Summary of Phytochemical Analysis of Commercial Cranberry Juice* and Peanut Anthocyanins

Name of Test	Test for	Cranberry Juice	Peanut Anthocyanin Extract
Ferric chloride Test	Tannins	(+)	(-)
Millon's Test	Phenolic compounds	(+)	(-)
Dragendorff Test	Alkaloids	(-)	(-)
Mayer's Test	Alkaloids	(-)	(-)
Keller-Killiani Test	2-deoxysugars	(+)	(-)
Leibermann-Burchard Test	Unsaturated Steroids, triterpenes	(-)	(-)
Borntrager's Test	Anthraquinones	(-)	(-)
Modified Borntrager's Test	Anthraquinones	(-)	(-)
Bate-Smith and Metcalf Test	Leucoanthocyanins	(+)	(+)
Wilstatter Cyanidin Test	γ -benzopyrone nucleus	(+)	(+)
Froth Test	Saponins	(-)	(-)
Gelatin Test	Tannins	(-)	(-)
Guignard Test	Cyanogenic glycosides	(-)	(-)

*Ocean Spray Cranberry Juice Cocktail

Effect of Time of Exposure and Concentration of Peanut Anthocyanin on Hydrophobicity of *E. coli*

At pH 2.3, the minimum hemagglutinating concentration (2.78×10^9 CFU/mL) of *E. coli* (ATCC 25922) showed a mean hydrophobicity index of 33.73 ± 3.59 (n=5). The net hydrophobicity of *E. coli* could be a result of the self-association of polar and non-polar components of the bacterial cell membrane. The cell membrane of *E. coli* was reported to carry a weak negative charge (Raicu & Propescu, 2008) and net hydrophobicity. This explains why *E. coli* displayed affinity towards n-hexane.

Cranberry juice and peanut anthocyanin extract decreased the hydrophobicity of *E. coli* in a time dependent and concentration dependent fashion (Figure 1). The results showed that 100% anthocyanin extract (144.73 mg/L cyd-3-glu eq) required the shortest time (20 hours) to decrease the hydrophobicity of *E. coli* compared

to lower concentrations of peanut anthocyanins and pure cranberry juice cocktail. The lowest possible mean hydrophobicity index in anthocyanin extract and cranberry was 1.43 even after 30 hours of exposure.

In the study, *E. coli* and peanut anthocyanins were placed in acidic buffer solutions (pH = 2.3). An increased acidity of the buffer solution may have increased the hydrophobicity of *E. coli*. Moorman et al. (2008) reported that a significant increase in the hydrophobicity of *Listeria innocua* and decrease in membrane fluidity are adaptation mechanisms to an acidic environment. When the cell membrane is exposed to an acidic environment, there is an increase in the synthesis of saturated fatty acids and decrease in the unsaturated fatty acid synthesis to prevent the flow of protons into the cell.

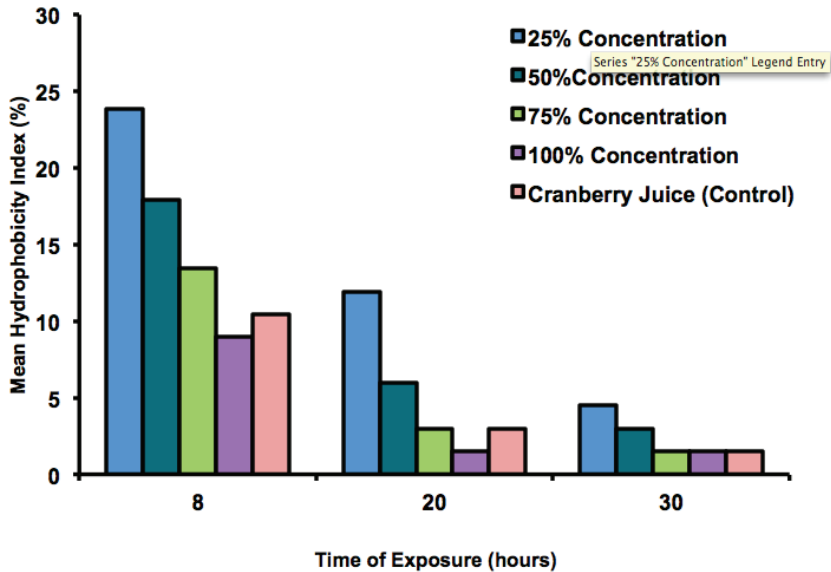


Figure 1. Effect of Peanut Anthocyanin Extracts and Cranberry Juice on Mean Hydrophobicity Index of *E. coli* after 8, 20, and 30 Hours

Yuk and Marshall (2004) reported that acid adaptation increases palmitic acid and decreases *cis*-vaccenic acid in the membrane lipids of *E. coli* ATCC 43895 and ATCC 25922. Higher amounts of long branched saturated fatty acids increase hydrophobicity of the cell membrane but decrease in membrane fluidity. In early studies, cranberry juice was thought to decrease epithelial adhesion of *E. coli*

due to its ability to acidify the urine. This study, however, suggests that acidification of urine may promote increased hydrophobicity and consequently, higher bacterial adhesion of *E. coli*.

On the other hand, peanut anthocyanin molecules could have existed as flavylium cations at the same acidic buffer solution (pH = 2.3) where the bacteria have been immersed (Figure 2) (Brouillard et al., 1999). This cation is characterized to bear a positive charge on the benzopyrylium moiety. The positively charged moiety may have interacted with the negatively charged patches on the bacterial cell membrane, causing a shift in the net charge of the cell surface of the bacteria. In addition, anthocyanin molecules at pH 2.3 may have caused self-association of anthocyanin molecules especially on the hydroxyl-bearing catechol group of the molecule, resulting in a stack-like formation of anthocyanin molecules (Rein, 2005). The net hydrophobicity of the bacterial cell membrane may have decreased due to the formation of anthocyanin complexes with each other, causing polar moieties to attach to the bacterial cell membrane while exposing other polar moieties on the cell surface.

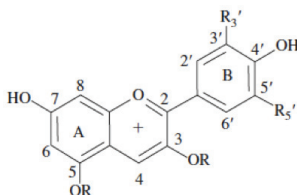


Figure 2. Cation Form of Anthocyanin Molecule

Retrieved from Brouillard, R., Figueiredo, P., & George, F. (1999). Malvin Z-chalcone: An unexpected new open cavity for the ferric ion. *Phytochemistry*, 50, 1391-1394. Retrieved from <http://repositorio-cientifico.ualantica.pt/bitstream/10884/503/1/phyto2.pdf>

Brouillard et al. (1999) also discussed that in strongly acidic aqueous solutions, the flavylium cation is highly stable at acidic pH. The positive charge is delocalized through all the pyrylium moieties but carbons 2 and 4 are more positively charged. At pH 4, one of the OH group loses a proton producing a quinoid base. Since the pH of the medium was acidic, the anthocyanin molecule is expected to be protonated and stable. This explains why the results were already observed after 8 hours of exposure.

Cranberry juice cocktail may have reduced the hydrophobicity of *E. coli* in a different mechanism because it contains hydrophilic

proanthocyanidins (Liu et al., 2008). Aside from its anthocyanins, other compounds such as proanthocyanidins and reducing sugars may also have reduced the hydrophobic character of other structures of *E. coli*. Based on the results, the inability of cranberry juice and peanut anthocyanins to completely reduce the hydrophobicity of *E. coli* implies that the bacterial cell membrane has other hydrophobic structures that promote its affinity towards hydrophobic compounds; however, this was not further investigated in the study.

Interaction Effects of Time of Exposure and Concentration of Peanut Anthocyanin Extract on Mean Hydrophobicity Index of *E. coli*

Based on the results of Two Way Analysis of Variance (Table 2), simple main effect analysis revealed that time of exposure caused significant effects on the mean hydrophobicity indices, ($F(2, 74) = 514.913, p < 0.01$). The concentration of peanut anthocyanin also caused significant differences on the mean hydrophobicity indices ($F(4, 74) = 109.550, p < 0.01$). There was also a significant interaction effect between time of exposure and concentration of peanut anthocyanin on the mean hydrophobicity indices ($F(8, 74) = 14.829, p < 0.01$).

Table 2.

Two Way Analysis of Variance of Effects of Time of Exposure and Concentration of Peanut Anthocyanin on Mean Hydrophobicity Index

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	0.002 ^a	14	0.000	113.333	0.000
Intercept	0.386	1	0.386	388804.35	0.000
Time of Exposure	0.001	2	0.001	514.913	0.000
Concentration	0.000	4	0.000	109.550	0.000
Time of Exposure *Concentration	0.000	8	1.47E-005	14.829	0.000
Error	5.96E-005	60	9.93E-007		
Total	0.388	75			
Corrected Total	0.002	74			

* R squared = 0.964 (Adjusted R squared)

* $\alpha = 0.01$

A post hoc Tukey Honestly Significant Difference test was employed to determine where the significant differences lie among the different concentrations and time of exposure. Among the different concentrations of peanut anthocyanins (Table 3), the greatest reduction in mean hydrophobicity index was caused by 100% peanut anthocyanin extract. The result showed no significant difference with 75% anthocyanin extract and cranberry juice. Among the time of exposure, a 30 hour exposure caused the greatest reduction in the mean hydrophobicity indices of all treatments. The result shows significant difference to a 20-hour exposure and 8-hour exposure.

Table 3.

Comparison of Mean Hydrophobicity Indices in Different Concentrations of Peanut Anthocyanins and Time of Exposure

Treatment	Time of Exposure			
	8 hours	20 hours	0 hours	Mean
25% Anthocyanin Concentration	23.88	11.94	4.48	13.43 ^a
50% Anthocyanin Concentration	17.91	5.97	2.99	8.96 ^b
75% Anthocyanin Concentration	13.43	2.99	1.49	5.97 ^c
100% Anthocyanin Concentration	8.95	1.49	1.49	3.98 ^c
Cranberry Juice	10.45	2.99	1.49	4.98 ^c
Mean	14.93 ^a	5.07 ^b	2.39 ^c	

*Means indicated by different letters indicate significant difference at $\alpha=0.01$

Commercial cranberry cocktails contain 13.6 mg/L cyd-3-glu equivalents based on the study of Barnes et al. (2005), which is higher compared to the results in the study. Other studies reported that cranberry juice cocktails contained 1.08 mg/100 mL (Lee et al., 2008) to 2.5 mg/100 mL anthocyanins (Cunningham et al., 2004) which is estimated to be within the range of 12 to 25 mg/L anthocyanin concentration. In the study, peanut anthocyanin extract contains lesser monomeric anthocyanin content compared to cranberry. This explains why a higher concentration of peanut anthocyanins is required to reduce the hydrophobicity of *E. coli*.

Effect of Time of Exposure and Concentration of Peanut Anthocyanin Extract on Hemagglutination of *E. coli*

The hemagglutinating ability of *E. coli* (ATCC 25922) was evaluated upon the addition of 200 μ L of bacterial suspension in PBS (pH=7.1) to an equal volume of 0.5% guinea pig RBC suspension after 30 minute incubation at 37°C. Upon microscopic observation in 1000x magnification, red blood cells appeared clumped together. Clumping of bacterial cells was also observed near the red blood cells. Morphologically, the surface of red blood cells appeared uneven (Figure 3).

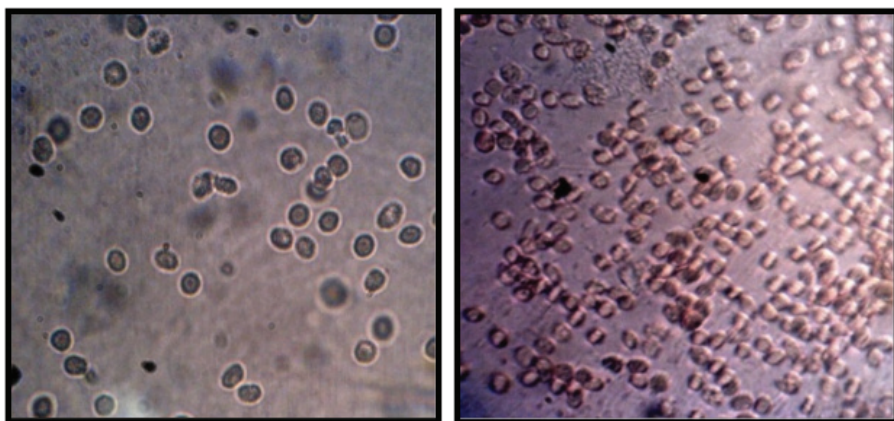


Figure 3. Morphology of Guinea Pig Erythrocytes in Negative Control and Positive Control with *E. coli* (1000x magnification)

Higher concentrations of anthocyanin extract inhibited hemagglutination of *E. coli* (2.78×10^9 CFU/mL) after 8, 20 and 30 hours (Table 4). Lower concentrations of anthocyanin extract did not inhibit hemagglutination of *E. coli* even after 30 hours of exposure.

Hemagglutination occurs when bacterial cells attach to the receptor sites in red blood cells, forming cross-links and visible clumps (Mithreyi et al., 2011). According to Turner et al. (2005), *E. coli* strain ATCC 25922 possesses Class II P-fimbriae which are also found in uropathogenic *E. coli* strains. This indicates that *E. coli* (ATCC 25922) could adhere to uroepithelial cells. Positive hemagglutination therefore indicates the presence of P-fimbriae in *E. coli*. Bacterial pellets were suspended in

peanut anthocyanins and cranberry juice prior to hemagglutination assay, suggesting that the inhibition of peanut anthocyanins and cranberry juice may have acted on hemagglutinating structures in *E. coli*, preventing its ability to react with the receptor sites in guinea pig red blood cells during the hemagglutination assay.

Prior and Lee (2005) reported that cranberry juice cocktails contain proanthocyanidin aside from other compounds reported in this study. Apparently, proanthocyanin seems to be absent in the peanut anthocyanin extract since the use of solid phase extraction was able to isolate anthocyanin pigments only. This claim is supported by the results from the phytochemical analysis (Table 1), since cranberry juice is positive for reducing sugars, tannins, phenolic compounds, gums and mucilages, cyanidin-based compounds and deoxysugars. These compounds could have influenced the ability of cranberry juice to reduce hydrophobicity and inhibit hemagglutination of *E. coli*. Flavonoids and reducing sugars were previously reported to alter the cell surface and fimbriae of *E. coli* (Mulvey 2002; Beecher 2004; Howell et al., 2005) although the mechanism was not clearly understood. In this study, the mechanism of action of peanut anthocyanins on P-fimbriae was not further investigated.

Table 4.

Hemagglutination by E. coli as Affected by Duration of Exposure and Concentration of Anthocyanins

Treatment	Length of Exposure		
	8 hours	20 hours	30 hours
25% Anthocyanin Concentration	++	++	++
50% Anthocyanin Concentration	++	++	++
75% Anthocyanin Concentration	+	+	-
100% Anthocyanin Concentration	-	-	-
Cranberry Juice	-	-	-

According to Uberos et al. (2011), the incubation of *E. coli* with cranberry syrup in the same concentration significantly reduced hydrophobicity but not hemagglutination but the study revealed a different result. Cranberry juice reduced hemagglutination first before reducing the hydrophobicity of *E. coli*, suggesting that compounds in

the cranberry such as proanthocyanidins may have caused changes in P-fimbriae conformation of *E. coli* while cranberry anthocyanins may have reduced cell membrane surface hydrophobicity at a later time. The combination of different compounds in cranberry juice seems to exert different mechanisms in altering the surface properties of *E. coli*.

In the study, a 75% anthocyanin extract (108.55 mg/L cyd-3-glu eq) reduced hydrophobicity first before inhibiting hemagglutination after 20 hours while a 100% anthocyanin extract (144.73 mg/mL cyd-3-glu eq) had the same effect with cranberry juice. Liu et al. (2006) suggested that proanthocyanidins change the conformation of fimbriae. This could explain why cranberry juice inhibited hemagglutination better than pure anthocyanin extract. The result (Table 3) suggests that anthocyanins could also inhibit hemagglutination more effectively in concentrations greater than 108.55 mg/L cyanidin-3-equivalents. However, inhibition of hemagglutination by anthocyanins might be a result of electrostatic alteration of P-fimbriae, not because of conformational change. It is highly likely that the effects of peanut anthocyanins on the cell surface properties of *E. coli* are based on non-specific interactions with the molecules of the bacterial cell membrane.

CONCLUSION

Peanut seed coats contain lower anthocyanin content than commercial cranberry juice but exhibit the same activity in reducing hydrophobicity and inhibiting hemagglutination *E. coli*. Apparently, cranberry juice inhibits hemagglutination better than peanut anthocyanins but both can reduce the hydrophobicity of *E. coli* despite the lower anthocyanin content of peanut seed coats. At acidic pH, peanut anthocyanin extract reduces the cell surface hydrophobicity of *E. coli* in a time-dependent and dose-dependent manner through non-specific binding to the cell membrane surface. Further studies are recommended to optimize the extraction of anthocyanin from peanut seed coats, and determine the effects of peanut anthocyanins on other microorganisms at various pH levels, temperature and concentrations.

ACKNOWLEDGEMENTS

The author would like to acknowledge Saint Louis University Natural Research Science Unit (SLU-NSRU) and University of Santo Tomas Thomas Aquinas Research

Complex (UST-TARC) for allowing the researcher to use the facilities, Department of Science and Technology Benguet for providing the test organism, and Dr. Evelyn Oda, Ms. Stephanie Chua and Mr. Jenner Butlong for their assistance.

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Cigarette Smoking Among Lesbian, Gay, and Bisexual Filipino Youth: Findings From a National Sample

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Global research on lesbian, gay, bisexual, and transgender (LGBT) health has shown that sexual and gender minorities have significantly higher rates of smoking than heterosexuals, using population-based surveys (Tang et al., 2004; Gruskin & Gordon, 2006; Gruskin et al., 2007) and meta-analysis (Ryan et al., 2001; Marshal et al., 2008; Lee, Griffin, & Melvin, 2009). This paper is the first to explore the prevalence of tobacco use among Filipino lesbian, gay, and bisexual youth using nationally representative data. Findings from the Young Adult Fertility and Sexuality Survey (YAFS3) show that young lesbian and bisexual Filipina women had higher rates of ever-trying tobacco, had higher prevalence of current smoking, and smoked more cigarette sticks per day, compared to heterosexual women. While sexual orientation did not appear to be associated with smoking among men across three measures of tobacco use, Filipino gay and bisexual youth had the highest cigarette smoking prevalence of all four subgroups. The value of a gender x sexual orientation intersectional analysis of health risk behaviors such as cigarette smoking, as well as possible implications for tobacco use intervention, is discussed.

KEYWORDS: cigarette smoking, tobacco use, LGBT health, health disparities, sexual minority youth

Cigarette smoking is one of the leading preventable causes of morbidity and mortality worldwide (Baker, Brandon & Chassin, 2004). Cigarette smoking, the most common form of tobacco use, has been shown to cause a variety of medical conditions, including cardiac disease, pulmonary disease, vascular disease, and a range of cancers. In addition, habitual cigarette smoking,

from psychological and mental health perspectives, is a particularly common, high base-rate substance use disorder. Nicotine, the chemical substance underlying tobacco dependence, produces all the markers of addictive drugs. These include: [1] tolerance, the decrease in drug effects after repeated use; [2] withdrawal, the physical symptoms produced by the discontinuation of the drug including dysphoria, anxiety, inability to concentrate, weight gain, and sleep disruption; and [3] continued use despite knowledge of its harmful effects and despite efforts to quit.

Because of its role in physical and mental health, cigarette smoking is considered a critical global health issue. In the Philippines, the impact of cigarette smoking on health has been recognized in state policies like the Tobacco Regulation Act of 2003 (RA 9211) which aims to promote Filipino public health by restricting smoking in public spaces, regulating tobacco promotion and advertising, and requiring labels on all tobacco products such as the well-known "Government warning: Cigarette smoking is dangerous to your health." Despite such policies (which have not gone uncriticized; see Alechnowicz & Chapman, 2004), cigarette consumption in the Philippines is linked to levels of poverty, with research commissioned by the World Health Organization (Baquilod et al., 2008) showing that for poor Filipinos, tobacco expenditures (comprising 2.5% of monthly household expenses) exceed their spending on clothing (2.3%), education (1.4%), and ironically, health care (0.9%).

Cigarette Smoking Among Filipino Youth

Initiation to tobacco has been found to commonly begin in adolescence and young adulthood, when individuals have heightened vulnerability to nicotine's dependence potential (Baker, Brandon, & Chassin, 2004). This points to the importance of reliable information regarding the prevalence of cigarette smoking among young people.

Population-based findings about cigarette smoking among young Filipinos are available in the third Young Adult Fertility and Sexuality Survey (Cruz & Berja, 2004; Cabigon, 2004; Virina, 2010). Results from this nationally representative study of Filipinos ages 15 to 24 years old indicate that 47% of Filipino youth have tried smoking. About one in five young Filipinos (21%) self-identified as being a current smoker at the time of the study.

Differentials in cigarette smoking behavior have also been

explored in the original analysis of the YAFS3 data. In particular, the researchers examined disparities along nine variables: [1] gender, [2] age, [3] marital status, [4] schooling status, [5] educational attainment, [6] work status, [7] religion, [8] ethnicity, and [9] region. In addition, one analysis of intersectionality, i.e., gender x age, was conducted to determine if the two variables interacted with respect to cigarette smoking prevalence.

Among the most salient findings were disparities in terms of gender, age, marital status, schooling status, education, and work status. Cigarette smoking among Filipino youth is a highly gendered behavior, with 64% of men having tried smoking, compared to only 30% of women. Similarly, one out of three young Filipino men (37%) currently smokes, a much higher proportion than among women, only 6% of whom are current smokers. These findings show that the most striking disparity in cigarette smoking among Filipino youth is structured along gender—that for every young Filipina smoker, there are six young Filipino men currently smoking with her.

Disaggregating along the remaining status variables yielded other notable, but smaller, disparities. Older respondents, those from 20 to 24 years, were more likely to be current smokers (27%) than respondents still in their teens (17%). Smoking was also disproportionately lower among those who are married (only 16% currently smoking), and among those still in school at the time of the survey (only 14% currently smoking). Finally, Filipino youth with only elementary-level education attainment or lower, and those currently working had disproportionately higher prevalence rates of cigarette smoking (both 33% and 33%). (For a more extensive discussion of these associations at the national level, see the original YAFS reporting; Cruz & Berja, 2004).

A Lesbian, Gay, Bisexual, and Transgender Health Lens

The examination of gender disparities in health, typically by demonstrating significant statistical differences between women and men in terms of prevalence of health risk outcomes, is an important development in social and public health research (Bird & Rieker, 1999). However, an exclusive emphasis on gender differences fails to consider the interplay of gender with other status variables, implicitly framing women and men as distinct, homogeneous categories of individuals who engage in uniformly distinct behaviors and are at uniformly distinct levels of risk. That is, when evidence for gender

differences in health behaviors is found (as in the case of cigarette smoking), variations within groups come to mind less easily and it is tempting to think that men simply just smoke more than women. The analysis of *intersectionality*—the notion that statuses, identities, and category memberships are multiple and intersect to form relations and outcomes beyond their univariate origins (McCall, 2005)—challenges these conclusions by sensitizing researchers to questions such as who is included in this category of “women” and in this category of “men”? (Cole, 2009).

An important but traditionally overlooked variable in health social research is sexual orientation (Institute of Medicine, 2011; Mayer, et al., 2008; Meyer, 2001). Gender disparities in health are increasingly well known; however, it was only at the beginning of the century that the intersections of gender and sexual orientation were being analyzed in order to examine the issues, dynamics, and politics of lesbian, gay, bisexual, and transgender (LGBT) public health (Boehmer, 2002). This growing body of research has begun to provide empirical evidence that though LGBT populations worldwide are diverse in terms of gender, age, class, ethnicity, religion, and nationality, there are significant patterns of disparities in LGBT health outcomes vis-à-vis the general population (Institute of Medicine, 2011; Mayer et al., 2008). This has been shown in health outcomes such as breast cancer among lesbians, HIV infection among gay and bisexual men, and infectious diseases in general (Dean et al., 2004), mood affective disorders among lesbian and gay adults (Meyer, 2003), depression among same-sex attracted Hong Kong Chinese youth (Lam et al., 2004), substance abuse among bisexually attracted adolescents in the US (Russell, Driscoll, & Truong, 2002), alcohol use among Thai women who have sex with other women (German et al., 2008), and suicide risk among young adult lesbian, gay, and bisexual Filipinos (Manalastas, 2008, 2009).

Smoking Among Lesbian, Gay, and Bisexual Populations

One stream of research in LGBT health has focused on the disparities in tobacco use among lesbian, gay, and bisexual populations, relative to the general population. There is now growing empirical evidence, at least in the West, that sexual-minority (i.e., lesbian, gay, and bisexual) populations have significantly higher smoking rates than heterosexual counterparts. Although initial studies were limited by the use of non-representative samples, usually focusing on urban gay

men (e.g., Stall et al., 1999), recent work has utilized more rigorous methods, including multiple measures of sexual orientation and tobacco use, population-based sampling techniques that include and allow for comparison among gay, lesbian, bisexual, and heterosexual respondents (Tang et al., 2004; Gruskin & Gordon, 2006; Gruskin et al., 2007), and most importantly, meta-analysis (Ryan et al., 2001; Marshal et al., 2008; Lee, Griffin, & Melvin, 2009). The overall robust finding across all these studies is that lesbian, gay, and bisexual adults and adolescents are indeed at higher risk for cigarette smoking, compared to the general population (Sell & Dunn, 2008).

Although research on smoking among transgender populations is still lacking (Dean et al., 2004; Grossman & D'Augelli, 2006), the current findings on LGB tobacco use and other disparities in LGBT well-being sensitize us to health concerns of sexual and gender minorities, as well as the subsequent implications for intervention and public health promotion beyond simplistic comparisons between men and women. Methodologically, investigation of LGB health disparities vis-à-vis general populations requires research designs that incorporate between-groups comparisons (i.e., LGB individuals versus non-LGB counterparts in the general population). In addition, despite the overall disparity in smoking as a health risk behavior found in the global LGB health literature, the diversity within LGB populations should not be glossed over either, lest LGB populations become essentialized as a homogenous set of "victims" defined primarily or solely by their sexual orientation, without taking into account intersections with gender, age, class, and other variables. Methodologically, this requires collecting data from samples large enough to permit within-group comparisons (Mayer et al., 2008).

In this paper, I re-analyze nationally representative data in order to determine any disparities in cigarette smoking among young adult LGB Filipinos as well as possible correlates of such health risk behaviors, using both between-groups and within-groups analyses.

Problem

The goals of this study are twofold: [1] to determine the prevalence of tobacco use in the form of cigarette smoking among Filipino lesbian, gay, and bisexual young adults using available nationally representative data, and [2] to examine any disparities in cigarette smoking among sexual minority Filipino youth versus the general population. In addition, I explore possible correlates of cigarette smoking among the LGB Filipino

young adult population available in the dataset.

METHOD

Dataset

The Young Adult Fertility and Sexuality Study (YAFS3) is a nationally representative interview-based survey of $N = 16,963$ Filipino young adults (8,041 men and 8,922 women) ages 15 to 24 years old conducted by the University of the Philippines Population Institute in 2002. This dataset remains the most comprehensive source of information on Filipino young adults that combines measures of sexual minority status and indicators of health behaviors, including those related to sexual and physical health, based on a national sample.

Measures

Sexual Orientation. Status as lesbian, gay, bisexual, or heterosexual was assessed in three ways in the survey: [1] same-sex attraction, [2] same-sex sexual behavior, and [3] same-sex romantic relationships. No self-identification items (i.e., asking respondents if they considered themselves to be “gay,” “heterosexual,” or whatever sexual identity label) were available in the data. Because of extremely low affirmative responses for same-sex romantic relationships item for both women (2%) and men (2%), for the sexual behavior item for women (<1%), and for the attraction item for men (4%), sexual minority status was operationalized using the attraction item for female respondents and the sexual behavior item for male respondents. Specifically, the attraction item asked respondents “With which sex did you ever have a crush on?” with response options “exclusively opposite sex,” “exclusively same sex,” or “both sexes.” In order to achieve statistical power, female respondents who answered the second and third options were combined and classified as sexual minority respondents, i.e., lesbian/bisexual. On the other hand, the sexual behavior item asked male respondents who were sexually active “Was any of your sexual contact with another man?” Men who answered yes were classified as sexual minority men, i.e., gay/bisexual. In the final analytic samples, 998 women reported same-sex attractions and were classified as lesbian/bisexual (12% of the Filipina women), while 359 men reported same-sex sexual behavior and were classified as gay/

bisexual (15% of the Filipino men).

Cigarette smoking. Three measures related to cigarette smoking were examined. The first item asked respondents if they had ever tried smoking cigarettes (yes or no). A second, follow up item probed into self-reported status as a smoker by asking “Are you currently smoking cigarettes regularly?” (yes regularly, yes sometimes, and no). The third measure asked current smokers to estimate how many sticks on average they consumed in a day. In addition, one item asked respondents who were currently or formerly smoking at what age they first tried cigarettes, to provide information on the developmental onset of this health risk behavior.

Demographic variables. Other background variables included in this analysis include age (a continuous variable, measured in years), student status (if respondent’s main activity in the past three months was studying), and marital status (married or single).

Other factors. In addition to sociodemographic variables, I explored the possible impact of risk factors that may serve as drivers of substance use behaviors such as cigarette smoking, as outlined in the minority stress model (Meyer, 2003). According to this framework, minority groups such as LGBT youth and adults experience two classes of stress that impact on their health and well-being: minority stress (e.g., from lived experiences of stigma and discrimination) and from normative stressors (i.e., factors that are not specific to the minority group but may be experienced by all individuals, such as major life events, hassles, conflict, etc.). Stressful experiences such as being bullied or harassed for one’s sexual orientation are hypothesized to be linked to risk behaviors such as cigarette smoking, which may serve as a means of mitigating stress, a way to bond and seek social support and acceptance in light of social marginalization (Remafedi, 2007). Thus in this analysis, I looked into three stress-related predictors of smoking: [1] feeling unsafe in the past three months, [2] experiences of being threatened in the past three months, and [3] experiences of violence (i.e., physically assaulted by someone) in the past three months.

ANALYSIS

Descriptive and cross-tabulation analyses were conducted in order

to test the hypothesis of differences in cigarette smoking in Filipino LGB versus heterosexual populations. Between-groups comparisons were gender-disaggregated (i.e., lesbian/bisexual women were compared to heterosexual women, gay/bisexual men to heterosexual men) following canonical practice in LGBT health research (Institute of Medicine, 2011). Separate logistic regression models to determine odds ratios (ORs and 95% confidence intervals), with ever-smoking and current smoking as binary outcome variables, were ran to examine differences in cigarette smoking among lesbian/bisexual women versus heterosexual women, after controlling for possible confounding demographic variables. Similar regression models were constructed for the gay/bisexual versus heterosexual men. In addition, I explored possible correlates of ever-smoking and current smoking among sexual-minority youth in gender-disaggregated logistic regressions, using a within-groups design (i.e., excluding non-LGB respondents and focusing only on the lesbian/bisexual female and gay/bisexual male subsamples). For all logistic regression analyses, Wald χ^2 tests were used to determine statistical significance of predictors.

RESULTS

Cigarette Smoking Prevalence

Lesbian, gay, and bisexual Filipino youth had significantly higher cigarette smoking prevalence than their heterosexual counterparts (see Figure 1). More than a third of lesbian and bisexual Filipinas had tried smoking (36%), significantly higher than heterosexual women who had a rate of ever-smoking of 27%, $\chi^2 = 37.5$ ($df = 1$), $p < .001$, $\phi = .06$. Gay and bisexual Filipino men had an ever-smoking prevalence rate of 88%, not significantly higher than heterosexual counterparts (86%).

Among those who had tried smoking, a quarter of lesbian and bisexual women were current smokers (24%), disproportionately higher compared to 17% of heterosexual women who self-identified as current smokers, $\chi^2 = 11.2$ ($df = 1$), $p < .001$, $\phi = .07$. In contrast, both gay/bisexual and heterosexual men had similar, high rates of current smoking, 71% versus 69%, respectively (see Figure 2).

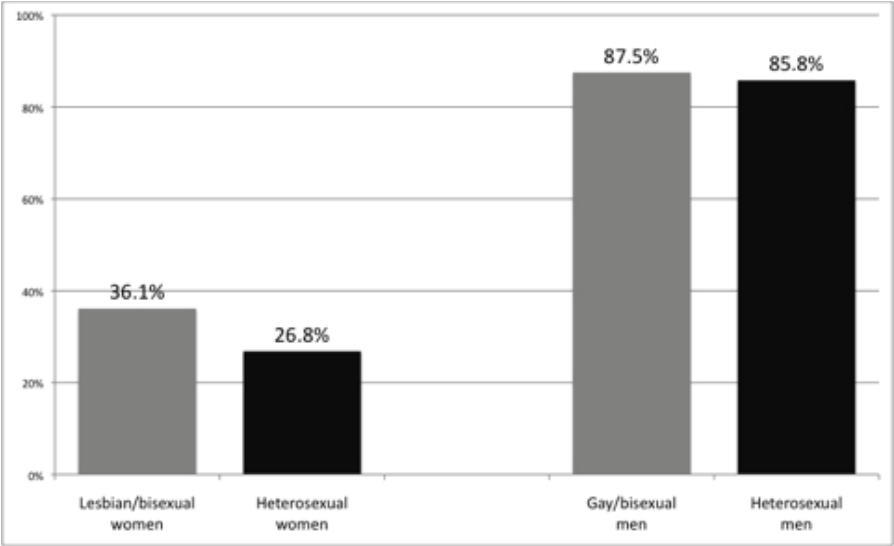


Figure 1. Rates of ever-tried smoking among Filipino young lesbian, gay, and bisexual women and men versus heterosexual counterparts.

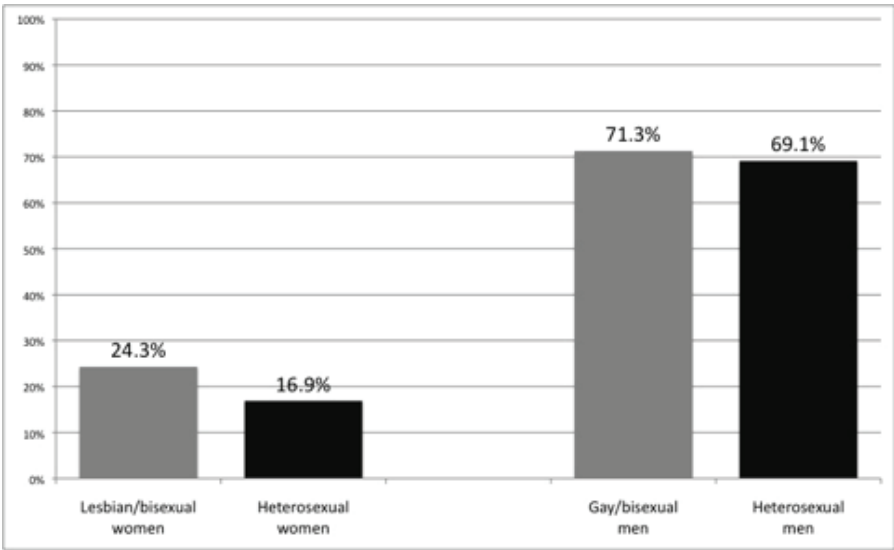


Figure 2. Rates of current smoking among Filipino young lesbian, gay, and bisexual women and men versus heterosexual counterparts.

Currently smoking lesbian and bisexual women also reported consuming more sticks per day ($M = 5.2$ sticks, 95% CI = 3.5-6.9) than heterosexual women ($M = 3.9$ sticks, 95% CI = 3.4-4.5). Men who were current smokers reported even higher numbers of sticks consumed, whether they were gay/bisexual ($M = 7.8$ sticks, 95% CI = 6.9-8.8) or heterosexual ($M = 7.6$, 95% CI = 7.3-8.0).

Finally in terms of age of first trying smoking, lesbian and bisexual women did not differ significantly compared to heterosexual counterparts. Lesbian and bisexual women reported beginning smoking at a mean age of 16.2 years (95% CI = 15.9-16.6), while heterosexual women first tried smoking at a mean age of 16.5 years (95% CI = 16.4-16.7). In contrast, gay and bisexual men had their first cigarette at mean age of 15.8 (95% CI = 15.5-16.1), slightly earlier than heterosexual men, who reported having theirs at mean age of 16.2 (95% CI = 16.1-16.3).

The disparities in cigarette smoking based on a sexual orientation x gender intersection were confirmed by logistic regression analysis. After controlling for age, marital status, and student status, being lesbian/bisexual was associated with higher likelihood of ever-trying to smoke (OR = 1.61, 95% CI = 1.40-1.86). That is, Filipina youth who reported same-sex attractions had 61% higher odds of having tried smoking. Lesbian and bisexual women were also more likely to be current smokers than heterosexual counterparts who had also tried smoking (OR = 1.61, 95% CI = 1.23-2.11), even after controlling for background variables.

Correlates of Smoking Among LGB Youth

I explored a number of correlates of cigarette smoking among lesbian, gay, and bisexual youth by running further regression analyses using only the lesbian/bisexual female and the gay/bisexual subsamples and excluding non-LGB respondents. Predictors included were: age, student status, marital status, feelings of being unsafe, experiences of threat, and experiences of violence.

Logistic regression indicated that increasing age (OR = 1.17, 95% CI = 1.05-1.32) and experiences of violence (OR = 1.66, 95% CI = 1.15-2.39) were significantly associated with having tried cigarette smoking among lesbian and bisexual Filipina youth. Likewise, being older (OR = 1.17, 95% CI = 1.05-1.32) and having experienced violence (OR = 2.21, 95% CI = 1.21-4.03) were also predictors of current smoking among lesbian and bisexual Filipina youth.

Parallel regression runs for the gay/bisexual male subsample did not indicate any significant associations between cigarette smoking (ever or current) and the predictors, suggesting that other factors need to be investigated to account for tobacco use among young Filipino gay/bisexual men.

DISCUSSION

Nationally representative data showed that sexual orientation is a significant factor in disparities in cigarette smoking among Filipino youth. In particular, lesbian and bisexual Filipina women smoke at significantly higher rates than the general population of young women. Filipina lesbian and bisexual young adults were more likely to have ever-tried smoking, to be current smokers, and among current smokers, to smoke more sticks per day than heterosexual counterparts.

Likewise, young gay and bisexual Filipino men had very high rates of cigarette smoking comparable to heterosexual men, and were the group in the gender x sexual orientation intersectionality analysis that had the highest rates of ever-smoking (88% of gay/bisexual youth had tried smoking) and of current smoking (72% of ever-smoking gay/bisexual youth are current smokers). Young Filipino gay/bisexual smokers smoked their first cigarette at the earliest age of all the sexual orientation subgroups (before age 16) and smoke the most number of sticks per day (an average of almost eight sticks daily).

These findings provide first evidence from the Philippines for what has been shown in the global LGBT health literature—that cigarette smoking is a significant health issue for sexual-minority populations (Clarke et al., 2010; Gruskin et al., 2001, 2007). Lesbian, gay, and bisexual Filipino youth are at significant risk for tobacco use. Young lesbian and bisexual Filipinas smoke at disproportionately higher levels than heterosexual women, while young gay and bisexual Filipinos comprise a critical subgroup with extremely high cigarette smoking prevalence. And because cigarette smoking is a causal factor in a number of diseases in later life, we can expect to see further disparities in health outcomes and disease burden among lesbian, gay, and bisexual Filipinos as they move from youth to adulthood and midlife (Baquilod et al., 2008).

Intersections and Interventions

Many strides have been made in the recognition of gender as a variable that structures public health outcomes, and the examination of gender disparities and differences in health is now common practice in health research. However, a next important step is to unpack social categories like the binary of gender by addressing intersectional questions (McCall, 2005). More concretely, intersectionality can be analyzed by answering three questions as suggested by Cole (2009): [1] who are included in this category?, [2] what role does inequality play?, and [3] where are there similarities?

Cigarette smoking among Filipino youth has been shown to be highly gendered (Cruz & Berja, 2004; Virina; 2010); young Filipina women smoke less than young Filipino men. Findings from the current analysis, however, indicate that within the category of young Filipina women, lesbian and bisexual women have significantly higher smoking rates. That is, it is young *heterosexual* Filipina women who are smoking *least*, compared to men and other women. Likewise, young Filipino men have very high rates of cigarette smoking, *including* young gay and bisexual Filipino men. Through the examination of disparities along sexual orientation, research focusing on LGBT health can be one way of unpacking dominant modes of social categorization like gender, to identify who are being included (implicitly and explicitly) in traditional analytic categories we use.

The succeeding question of inequality is more difficult to answer, but previous work in LGBT health provides initial insight into how gender and sexual orientation interact to structure groups' access and use of social, economic, and political resources that can promote health and well-being. For instance, LGBT populations often face disproportionate levels of stressors in the form of social stigma, prejudice, and discrimination at both structural (e.g., absence of protections against discrimination, denial of rights like marriage) and personal levels (e.g., violence, anti-LGBT harassment, name-calling, and negative stereotyping). These stressors produce minority stress (Meyer, 2003) and join the normative stressors of daily life and have been associated with increased cigarette smoking (Ryan et al., 2001). Historically important social spaces for LGBT communities may also be linked to the practice of smoking, such as lesbian and gay bars where LGBT people go with less fear of exclusion and discrimination (Lee, Griffin, & Melvin, 2009). Because of restrictive gender norms that frame tobacco use as an "unfeminine" behavior, some lesbian

and bisexual women may also view cigarette smoking as a form of resistance to heterosexist male control over the female body (as suggested by Remafedi, 2007). Finally, there is evidence, at least in developed countries, that the tobacco industry specifically targets the LGBT market via advertising, corporate sponsorships, and promotional events (Ryan et al., 2001; Washington, 2002). Though these factors remain speculative and cannot be established definitively by the present analysis, they provide testable hypotheses for further empirical work.

The last intersectionality question, that of similarities, is no less important because it permits the departure from viewing social categories as fundamentally defining certain groups (for instance, minorities like LGBT populations) and from framing—and reifying—them as homogenously disadvantaged others. The present findings, for example, indicate that Filipino sexual-minority youth are not uniform when it comes to smoking prevalence: Filipino gay and bisexual male youth still out-smoke their lesbian and bisexual female counterparts. In fact, the results suggest that young gay and bisexual Filipino men have more in common with heterosexual men than with lesbian and bisexual women when it comes to smoking.

This finding implies that interventions for smoking prevention and cessation targeted toward young Filipino men should also take into account the diversity in sexual orientation among male youth and be cautious not to exclude gay and bisexual youth (Meyer, 2001). Likewise, women's health promotion efforts would do well to systematically address disparities experienced by lesbian and bisexual women, including health risks associated with higher tobacco use.

Caveats and Next Steps

Limitations in the current analysis should be kept in mind. First, measurement of sexual orientation status was limited to single-item self-report measures. The differential operationalizations—attraction for women and sexual behavior for men—were used in light of statistical power issues (i.e., inadequate response distributions for a single common measure of sexual orientation). Future studies should consider recent advances in assessing sexual orientation in large-scale surveys (Sell & Dunn, 2008; SMART, 2009). Similarly, more standardized measures of cigarette smoking can be used to allow for comparability and trends analysis with global health data (e.g., the CDC definition of “current smoking” as having smoked at least 100

sticks in one's lifetime *and* currently smoking every day or on some days).

Second, the current study focused on health disparities across sexual orientation. Limitations in the dataset did not permit analysis of cigarette smoking among transgender youth, who are still largely invisible in systematic health research even within the global LGBT health research agenda (Dean et al., 2004; Grossman & D'Augelli, 2006; Ryan, 2003). And though population-based surveys such as YAFS3 provide for nationally representative data on prevalence rates, the relatively small size of LGB subsamples still limit the kinds of statistical analysis that can be performed, e.g., disaggregating and comparing gay versus bisexual men as well as lesbian versus bisexual women (SMART, 2009). More directed studies on LGBT smoking, using targeted oversampling, designs that explore disparities among lesbian, gay, and bisexual subpopulations, and more in-depth, qualitative methods (Clarke et al., 2010; Horn, Kosciw & Russell, 2009), can provide us with more nuanced information about the contexts, intersections, and inequalities associated with cigarette smoking among LGBT Filipinos.

CONCLUDING NOTE

Much of what has been studied in the literature on lesbian, gay, bisexual, and transgender health in the past has focused almost exclusively on sexual health, particularly sexually transmitted infections (Boehmer, 2002). If health is truly a state of overall well-being, then research on Filipino LGBT health should now expand to include domains such as mental and physical health going beyond HIV or STIs, including critical behaviors such as cigarette smoking and even smoking cessation (Remafedi & Carol, 2005; Sussman, Sun & Dent, 2006), to enable evidence-based promotion of well-being for Filipinos of all gender identities and sexual orientations.

NOTE

A previous version of this paper was presented at the 30th International Congress of Psychology in Cape Town, South Africa. Acknowledgements go out to Salvatore D'Amore, Allan Bernardo, and Jay Yacat for comments and feedback on the research, as well as to Maria Paz Marquez, Ryan Descallar, and the UP Population Institute for assistance with the YAFS dataset. Correspondence may be addressed to Eric

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The Familiarity and Degree of Integration of E-Learning Tools Into the Teaching Instruction of Non-Information Technology Faculty at a Philippine University

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This paper investigates the level of familiarity and degree of integration of information and communication technology (ICT) tools into the teaching instruction of non-ICT faculty at a Philippine university. All non-ICT fulltime faculty members in the undergraduate, graduate and post graduate programs teaching in the 1st Semester of School Year 2009-2010 were included in this study. A self-constructed survey questionnaire was used for data gathering. The results show that the respondents have high level of familiarity with ICT tools but ICT integration by respondents from Social Sciences and Humanities, and Natural Sciences, Mathematics and Engineering, are rare. The Health Sciences group has the highest aggregate mean degree of integration. The significance value comparing the groups of respondents by discipline is .023. The non-ICT faculty at this Philippine university is technologically challenged with the use of the ICT tools into their teaching instruction. Their level of familiarity requires help from experts for them to work and use ICT tools. Likewise, their degree of integration of ICT tools is alarming given the fact that they rarely use and integrate the tools into their teaching. The primary reason for technology diffusion among the non-ICT faculty in this university is the lack of hardware and software resources installed in these academic units.

KEYWORDS: Information and Communication Technology, ICT in Education, eLearning

BACKGROUND OF THE STUDY

Information and communication technology (ICT) refers to information-handling tools that are used to generate, store, process, distribute and share information (UNDP, 2001). The Philippines' Commission on Information and Communications Technology defines ICT as the totality of electronic means for end-users such as computer systems, office systems and consumer electronics, as well as networked information infrastructure, the components of which include the telephone system, the Internet, fax machines, and computers. ICT is considered by UNDP as enabler of development in education. Rodrigo (2001) asserts that the use of ICT in education provides positive pedagogical, social and economic benefits. Arguably, teens are born into a digital world where they expect to be able to create, consume, remix, and shape material with one another through computer and video games (Lenhart, Kahne, Middaugh, Macgill, Evans & Vitak, 2008). This may explain why students are now labeled as digital learners.

For schools in developed countries, ICT in education has undeniably produced significant positive impacts. Maryska, Doucek, and Kunstova (2012) conclude that all of developed countries are depending on ICT because of the increasing investment into ICT and increasing required number of ICT specialists. "ICT is changing the developed world's attitudes and approaches to education" (Loxley, 2004). Education in these countries becomes more flexible and accommodating, increasing its reach to potential learners. E-learning, blended learning, open and distance learning, learner-centered environment, mobile learning, intelligent tutoring systems, games, simulations, and microworlds are just the few dramatic changes in education of these countries. Practices of ICT integration in education in developing countries are different. Peeraer and Petegem (2012) conclude that integration of ICT in education in developing countries is a "slow process and observations bring to light a number of steps to be taken in the process." It is often included in national reforms agenda for the betterment of teaching-learning process.

Silliman University is one of the many educational institutions in Asia that aims to promote the use of modern ICT to expand its commitment to attain human development for the well-being of society and environment. It launched the Silliman Online University Learning (SOUL) system in 2008. Ultimately, the system aims to acquire and deliver learning and trade products remotely, mainly through

cyberspace while maintaining and upholding Silliman University's mission and vision (Marcial, 2010). It is remarkable contribution to the teaching and learning experience of ICT faculty members and students. Unfortunately, records show that few non-ICT teachers utilized the system—a challenge for the College of Computer Studies and the SOUL team.

This paper studies the level of familiarity and degree of integration of ICT into the teaching instruction of non-ICT faculty (grouped according to discipline) in Silliman University. The reasons that hindered the respondents/faculty in integrating ICT into their teaching were identified. ICT tools evaluated during the study were limited to basic tools such as the use of office productivity tools, Internet, and social networking.

REVIEW OF RELATED LITERATURE

The Asian Development Bank (ADB) reported that innovative ICT has potential in reducing poverty in Asia and the Pacific (ADB, a). ADB's ICT initiatives in education highlight projects for improving skills training in poor rural areas. Specifically, it includes ICT components like assessment, training, and e-learning systems development, among others (ADB, b). Similarly, the World Bank promotes access and use of ICT to stimulate sustainable economic growth, improve service delivery, and promote good governance and social accountability. World Bank's program on ICT focuses on three pillars: infrastructure, skills development, and the use of ICT applications in specific sectors and contexts like education (World Bank). Moreover, UNESCO believes that ICT can address the challenges faced in teacher education (UNESCO, 2011). UNESCO has initiatives related to the use of ICT in teacher education by supporting existing teacher development communities of practice, multi-stakeholder partnerships, capacity building of policy-makers and the development of international standards on ICT competencies for teachers.

E-mail, listservs/discussion boards, video-conferencing, whiteboards, smartphones, and mobile technologies are some of the many ICT tools that are widely used today. Fink (2006) enumerated the five uses of computers in education: Enhanced Audio-Visual Presentations, New Forms of Communication, Access to New Forms of Information, Pre-Packaged Learning Programs, and Course Management Programs. Each use has associated tools (Table 1).

Moreover, these tools are all designed not only for ICT teachers, but generally for all teachers. Nowadays, there have been researchers across disciplines focusing their study on the effective use of ICT in the teaching and learning, e.g. Espinosa and Caro (2011) about ICT integration in basic education; Vinluan (2011) on school guidance; Kamei (2010) about out-of-school youth; Bernal, Tolentino, Gavino, and Fontelo (2008) on nursing; Ramos, Nangit, Ranga, and Triñona (2007) on distance education; and Carbonell, Tabamo, Guevara, and Javier (2003) on engineering mathematics. All of these studies pointed to the use of ICT in the teaching and learning process. Other fields like Liberal Arts, Broadcasting and Journalism, and Humanities hope also to improve teaching and learning experiences through ICT tools. Goliath Business Knowledge, an online journal on the integration of technology into learning and teaching in the liberal arts, states: “Well-educated citizens need to understand technology and how to communicate within new media effectively in the same way that they need to be able to write.”

Table 1.
Uses of ICT and Associated Tools.

Uses	Associated Tools
1. Enhanced Audio-Visual Presentation	Using computers to supply Audio-Video material simply requires one of several presentation software programs, e.g., Microsoft's Power Point, Adobe's Persuasion, Harvard Graphics, RealPlayer. The material created with these programs is most commonly shown in a classroom by using a portable laptop computer that has been connected to a classroom video projector. However, presentation software can also be stored on a series of web pages and accessed by students through the Internet with their computers.

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Table 1. (Continued...)

Uses of ICT and Associated Tools.

Uses	Associated Tools
2. New Forms of Communication	Course-specific web pages and electronic communication, e.g., email, listservs, chat rooms, bulletin boards, wikis, blogs, newsgroups, etc.
3. Access to New Forms of Information	They key technologies here are websites, web browsers, and the Internet. Information (all forms: words, pictures, numbers and sound) can be stored on a webpage at a website, and accessed with a web browser, e.g., Mozilla Firefox, or Microsoft Internet Explorer, through the Internet.
4. Pre-Packaged Learning Programs	Such programs are usually made available to learners in two forms: on a CD-ROM or on a website. Both offer the opportunity for storing extensive amounts of information and the opportunity for learners to interact with that material.
5. Course Management Programs	Basically this function depends on nothing more than having a course management software program that has been designed for this purpose. Some of the popular examples at the present time are Moodle, ModX, Accutrack, GradeQuick, and MicroGrade and among others.

Adopted from *Five Fundamental Uses of Computers in Teaching and Learning* by Fink (2006)

Researches show several significant positive impacts on the teaching-learning process in many universities. However, technology alone does not guarantee improvement in the teaching-learning. An article published by Glencoe Online on "Teaching Integration Strategies," states that technology has a positive impact on student's learning only when effectively applied and utilized. Strategies include:

increase student motivation for learning, improve communication of learning goals, facilitate higher-order thinking skills, build valuable skills that students will use in college and in the workplace, and expand students' understanding from novice to mastery. Further, Chickering and Ehrmann argue that "if the power of the new technologies is to be fully realized, they should be employed in ways consistent with the Seven Principles for Good Practice in Undergraduate Education." These practices that can be augmented with use of ICT are: [1] Good Practice Encourages Contacts Between Students and Faculty, [2] Good Practice Develops Reciprocity and Cooperation Among Students, [3] Good Practice Uses Active Learning Techniques, [4] Good Practice Gives Prompt Feedback, [5] Good Practice Emphasizes Time on Task, [6] Good Practice Communicates High Expectations, and [7] Good Practice Respects Diverse Talents and Ways of Learning. Other benefits of ICT integration in education include provision of a qualitative access to education (Boyanova & Filipova, 2008); cost reduction, self-paced training, knowledge consistence, time and place independence and access to global audience (Anido, et al., 2004); and valid sustainable strategy (Hickey & Whitehouse, 2010). Carvalho de Sousa, Sevilla-Pavón, and Seiz-Ortiz (2012) also concluded that ICT brings about a change in attitudes, values and behaviours, for both mental and perceptive processes, demanding new methodologies and pedagogical approaches in accordance with the needs of new generations. Likewise, Akhondi (2011) asserts that there is a meaningful relation among virtual teaching and learning-teaching process.

While it is true that ICT can support changes in pedagogy and improvements in teaching-learning, providing computers in the classroom does not improve outcomes. Larry Cuban, a well-known researcher on school reform and classroom practices using ICT, said that technology's role in today's classroom is not to motivate, instead, it gives students opportunities to efficiently and effectively participate in motivating activities built around individuals and ideas that matter to them. ICT integration in school should be well-planned. An education policy for ICT in education should be the primary policy in any institution (World Bank, 2003). Absence of these complementary reforms may result in slow infusion of ICT in education. Affordability, lack of infrastructure, inadequate funding and scarcity of qualified human resources are among the many reasons for the diffusion of ICT in education (Loxley, 2004). Moreover, common barriers in adopting ICT in the teaching of non-ICT faculty include dissatisfaction among

the faculty (Al-Senaidi, Lin & Poirot, 2009) and insufficient knowledge, lack of time and lack of technical competency (Hus, 2011). Grazzi and Vergara (2012) also say that traditional socioeconomic variables such as income, education and urban/rural areas are relevant determinants of computer adoption.

A study conducted by del Rosario (2007) on "Technology Integration in Teacher Education Programs in the Philippines," revealed the complexity of integrating technology because a host of variables, that are by themselves complex, impact technology integration. Accordingly, these variables include national, state and school policies, state and local technology plans or lack thereof, funding or lack thereof, teacher skills or lack thereof, the rapidly changing nature of technology, learning goals and objectives, teacher training and professional development, and technology support or lack thereof vis a vis the number of students in a school. The results of del Rosario's study also point to emerging themes found to be attendant in technology integration, to wit: within the context of developing countries, the influence of modernization and the desire of these countries to become modernized and developed by using ITs as strategic tools; whether IT is introduced as an added course or infused in the curriculum; and the evolving nature of technology, in particular the emerging trend of mobile technology and how this impacts technology use.

The use of ICT tools is a shared responsibility among teachers and learners. Ismail, Norbaya, and Azman (2011) conclude in their study that teachers' perceptions on their own literacy in ICT play an important role in determining the success of ICT integration in schools. ICT tools like online learning can lead to a disaggregating of the traditional role of teachers. It alters the role not only of the institution but, potentially of the teacher, as well (Maeroff, 2003). Further, García-Valcárcel, and Tejedor (2009) recommend three primary actions for a successful ICT integration in higher education: infrastructure development, teacher training and that of students, and institutional support.

METHODOLOGY

This study covered all non-ICT fulltime faculty members in the undergraduate, graduate and post graduate programs in the university. Only those fulltime faculty members teaching in the First

Semester of SY 2009-2010 were included in the study. However, faculty from the College of Computer Studies and allied courses of IT Education offered in the university such as BS in Computer Engineering, BS Physics and Bachelor of Science in Business Computer Application were excluded in the conduct of this study mainly because these courses are computer-related and emphasize the use of digital technologies in their curriculum. Likewise, the School of Basic Education and Medical School are not included in the study primarily because of the nature of their teaching and the main focus of this study is all faculty members in the tertiary level.

Moreover, this is a descriptive-correlative research and utilized a survey method. The respondents of the study are all fulltime faculty members of colleges mentioned earlier. Using the formula

$$n = \frac{N}{1 + Ne^2}$$

the sample size of the respondents was determined, where n is the sample size, N (260) is the total population and e (5%) is the margin of error. Using the stratified sampling procedure ($\% = \frac{n}{N}$), a total of 158 non-ICT faculty members in SU were included in the conduct of the survey. Respondents from each department were identified using a fish-bowl technique. A retrieval rate of 87% (137) was achieved in the study (see Table 2). Therefore, the interpretation of data is limited to the returned survey questionnaires during the period June 2009 to 30 May 2010.

Table 2.

Distribution of Respondents by Discipline, n = 137.

Discipline	Number of Respondents
<i>Health Sciences</i>	
Nursing	39
Clinical Laboratory Sciences	4
Rehabilitative Sciences	2
<i>Social Sciences and Humanities</i>	
Business Administration	10
Education	10
English & Literature	9
Anthropology/Sociology	4
Divinity School	4
Law	4
Performing Arts	4
Filipino and Foreign Languages	3
Religious Studies	3
Agriculture	3
History and Political Science	2
Philosophy	2
Psychology	2
Mass Communication	2
Public Affairs and Governance	1
Social Work	1
<i>Natural Sciences, Mathematics, and Engineering</i>	
Biology	9
Chemistry	8
Mechanical Engineering	4
Mathematics	3
Foundation Engineering	3
Civil Engineering	1
Total	137

The instrument used in data gathering to accomplish the specific objectives of the study was the survey questionnaire. It was composed of two interrelated parts. Part I was designed to gather the personal data of the respondents for the purpose of classifying them according to their college, gender, status, age bracket and other pertinent data.

Part II is subdivided into three sections. The first section was designed to determine the level of familiarity of the respondents in integrating ICT tools while the second section was designed to determine the level of integration of the respondents on the available ICT tools into teaching. ICT tools included in the survey are only limited to the basic tools such as the use of office productivity tools, Internet, and social networking. It is also based on the associated tools introduced by Fink (2006). Lastly, the third section was designed to identify the problems encountered by the respondents that kept them from integrating digital learning technologies into their teaching.

RESULTS AND DISCUSSION

Profile of Respondents

Majority of the respondents are married (72.99%), female (62.04%), have a master’s degree (56%), are ranked assistant professor (53%) (Table 3).

Table 3.
Demographic Profile of Respondents, n=137.

Profile	f	%
<i>Status</i>		
Married	100	72.99
Single	33	24.09
Widow	1	0.73
No Response	3	2.19
Total	137	100.00
<i>Gender</i>		
Female	85	62.04
Male	47	34.31
No Response	5	3.65
Total	137	100.00
<i>Highest Educational Attainment</i>		
Master’s Degree / LLB	77	56.20
Bachelor’s Degree	26	18.98
Ph.D. / Doctor’s Degree	17	12.41

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Table 3. (Continued...)

Demographic Profile of Respondents, n=137.

Profile	<i>f</i>	%
No Response	17	12.41
Total	137	100.00
<i>Academic Rank</i>		
Assistant Professor	72	52.55
Instructor	53	38.69
Associate Professor	8	5.84
Full Professor	3	2.19
No Response	1	0.73
Total	137	100.00

ICT Literacy of the Respondents

Almost 90% of the respondents (Table 4) have an email account and 42% of this figure said that they open their email account at least once a day, 36% once a week, 9% at least once a month, and 2% at least once a semester. Ninety-three percent have a personal computer at home but only 75% have Internet connection at home. Meanwhile, almost 71% have social networking accounts and others own a Facebook account (32.85%).

The result of the ICT literacy provides a positive indication that the non-ICT teachers in Silliman University possess the very basic Internet skills. Ownership of an email account as well as subscription to social networking sites (SNS) may imply that they have access to the new form of communication and information. It is also noted in the result that email ownership is not statistically associated with the status, gender, educational attainment and academic rank of the respondents. However, age is statistically significant at 0.05 level with email ownership. This clearly means that email ownership is influenced by age of the respondents. However, the study also reveals that age doesn't influence the frequency in opening the email account.

Status and academic rank are statistically significant at 0.05 level with the subscription to SNS (e.g., Facebook). The data reveals that faculty members who are single are inclined to have an SNS account more than those who are married. The result also reveals that age is statistically significant at 0.01 level with SNS subscription. This means

Table 4.

ICT Literacy of the Respondents by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i> %
<i>Email Account</i>							
With Email	57	89.06	25	89.29	40	88.89	122 89.05
Without Email	5	7.81	1	3.57	5	11.11	11 8.03
No Response	2	3.13	2	7.14	0	0	4 2.92
Total	64	100.00	28	100.00	45	100.00	137 100.00
<i>Number of times that the respondents open their account</i>							
At least once a day	30	46.88	11	39.29	17	37.78	58 42.34
At least once a week	20	31.25	11	39.29	18	40.00	49 35.77
At least once a month	5	7.81	3	10.71	4	8.89	12 8.76
At least once a semester	1	1.56	1	3.57	1	2.22	3 2.19
No Response	8	12.50	2	7.14	5	11.11	15 10.95
Total	64	100.00	28	100.00	45	100.00	137 100.00
<i>Personal Computer (PC) at home</i>							
With PC at home	61	95.31	26	92.86	40	88.89	127 92.70
Without PC at home	2	3.13	2	7.14	5	11.11	9 6.57
No Response	1	1.56	0	0	0	0	1 0.73
Total	64	100.00	28	100.00	45	100.00	137 100.00

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Table 4. (Continued...)

ICT Literacy of the Respondents by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	f	%	f	%	f	%	f	%
<i>Internet connection at home</i>								
With connection at home	49	76.56	22	78.57	32	71.11	103	75.18
Without connection at home	10	15.63	4	14.29	11	24.44	25	18.25
No Response	5	7.81	2	7.14	2	4.44	9	6.57
Total	64	100.00	28	100.00	45	100.00	137	100.00
<i>Social Network Sites (SNS)</i>								
With SNS account	40	62.50	19	67.86	38	84.44	97	70.80
Without SNS account	20	31.25	9	32.14	6	13.33	35	25.55
No Response	4	6.25	0	0	1	2.22	5	3.65
Total	64	100.00	28	100.00	45	100.00	137	100.00
<i>Social Networking Site Accounts</i>								
Facebook	25	39.06	8	28.57	12	26.67	45	32.85
Facebook and Friendster	12	18.75	10	35.71	1	2.22	23	16.79
Facebook and Twitter	0	0	0	0	13	28.89	13	9.49
Facebook, Friendster and Twitter	1	1.56	0	0	2	4.44	3	2.19
Friendster	0	0	1	3.57	1	2.22	2	1.46
Facebook, Twitter and Others	1	1.56	0	0	1	2.22	2	1.46

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Table 4. (Continued...)

ICT Literacy of the Respondents by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Facebook, Friendster and Others	0	0	0	0	1	2.22	1	0.73
Facebook, Friendster, Twitter and MySpace	2	3.13	0	0	1	2.22	3	2.19
Facebook and Others	1	1.56	0	0	2	4.44	3	2.19
Facebook, Friendster and MySpace	0	0	0	0	3	6.67	3	2.19
Facebook, Friendster, Twitter and Others	0	0	0	0	1	2.22	1	0.73
Facebook, Friendster, Twitter, MySpace and Others	0	0	0	0	1	2.22	1	0.73
No Response	22	34.38	9	32.14	6	13.33	37	27.01
Total	64	100.00	28	100.00	45	100.00	137	100.00

that subscription to SNS is influenced by age of the respondents. Likewise, the study reveals that 45 (90%) of the instructors have an SNS account and 4 (100%) full professors indicated that they have at least one SNS account (Table 3). The result may imply that there is a greater potential for Facebook—a networking and social communication facility—to be easily integrated into their classes. Although Facebook is not designed to be a virtual learning management system, it generally captured the interest of many students. It is supported by Muñoz and Towner (2009) that pointed out that Facebook provides an alternative way of managing an online classroom, and it increases teacher-student and student-student interaction.

Ownership of a PC with Internet connection suggests a greater opportunity for the respondents to acquire additional skills not only on the Internet but other basic computer skills as well. This implies that there is an increasing opportunity for teachers to improve their confidence in ICT integration in education (Ismail et al, 2011). However, the data on the extent of accessibility to the new forms of communication may not be a guarantee that these faculty members efficiently maximize the use of these technologies. Likewise, it is surprising to discover that there are faculty members in the University who do not have an email account. Moreover, the study reveals that age is not statistically significant with PC ownership, and Internet connectivity. Likewise, the result reveals that the ICT literacy of the respondents is not affected by their status, gender, educational attainment and academic rank.

Level of Familiarity of ICT Tools in Teaching Instruction by Discipline

Social Sciences and Humanities. An aggregate mean of 3.42 which has the description of “high” is reflected in the level of familiarity of ICT tools among the respondents from the Social Sciences and Humanities (Table 5), signifying that these faculty members can work with the ICT tools but need help from the expert. This means that the level of their familiarity is only limited to the basic components of the tools such as the basic operations, functions, and procedures, among others. Thus, help from experts are asked whenever complicated functions and operations in the ICT tools occur.

Specifically, there is a very high level of familiarity on word processing (\bar{x} = 4.61) and email (\bar{x} = 4.54). This indicates that this group of respondents can work on the tools alone without any help from

Table 5.
Level of Familiarity of ICT Tools in Teaching Instruction by Discipline.

ICT Tool	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	x	Description	x	Description	x	Description	x	Description
1. E-Mail	4.54	Very High	4.72	Very High	4.70	Very High	4.62	Very High
2. Word Processing (e.g., MS Word)	4.61	Very High	4.83	Very High	4.48	Very High	4.60	Very High
3. Portable External Storage Devices (e.g. flash disks)	4.07	High	4.82	Very High	4.66	Very High	4.36	Very High
4. Presentation Software (e.g., MS Powerpoint)	3.93	High	4.78	Very High	4.61	Very High	4.27	Very High
5. Electronic Projection Devices (e.g., LCD/DLP Projector)	4.06	High	4.33	Very High	4.25	Very High	4.16	High
6. Web Browsers (e.g., Internet Explorer, Mozilla)	4.04	High	4.53	Very High	4.19	High	4.15	High
7. Social Networking (e.g., Facebook, Friendster)	3.79	High	4.29	Very High	4.52	Very High	4.10	High
8. Online News	3.94	High	4.27	Very High	3.95	High	3.98	High
9. Instant Messaging (e.g., YM, MSN, Skype)	3.63	High	4.12	High	4.25	Very High	3.90	High
10. Spreadsheet (e.g., MS Excel)	3.64	High	4.50	Very High	4.07	High	3.90	High
11. Internet Music Videos	3.62	High	4.41	Very High	4.05	High	3.86	High
12. CD-ROM Materials	3.73	High	4.06	High	3.93	High	3.84	High
13. Imaging Devices (e.g. scanners)	3.61	High	4.22	Very High	3.88	High	3.79	High

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Table 5. (Continued...)

Level of Familiarity of ICT Tools in Teaching Instruction by Discipline.

ICT Tool	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description
14. Multimedia	3.38	Moderate	4.12	High	3.75	High	3.60	High
15. Online Groups, Forums, and Discussions	3.24	Moderate	3.44	High	3.23	Moderate	3.27	Moderate
16. Charting/Graphing	3.06	High	3.94	High	2.98	Moderate	3.16	Moderate
17. Video Conferencing	3.00	Moderate	3.41	High	3.32	Moderate	3.16	Moderate
18. Audio Conferencing	3.01	Moderate	3.12	Moderate	3.16	Moderate	3.08	Moderate
19. Digital Libraries	3.03	Moderate	3.33	Moderate	3.07	Moderate	3.08	Moderate
20. Virtual Video Games	3.00	Moderate	3.56	High	3.02	Moderate	3.08	Moderate
21. Web Blogs	2.90	Moderate	3.38	Moderate	3.23	Moderate	3.07	Moderate
22. Wikis	2.89	Moderate	3.24	Moderate	2.79	Moderate	2.90	Moderate
23. Web Publishing and Development	2.64	Moderate	3.35	Moderate	2.64	Moderate	2.73	Moderate
24. Databases (e.g., MS Access)	2.49	Fair	3.06	Moderate	2.91	Moderate	2.71	Moderate
25. Silliman Online University Learning (Soul)-Virtual Classroom	2.53	Fair	3.20	Moderate	2.58	Fair	2.63	Moderate
26. Course Management	2.42	Fair	3.00	Moderate	2.33	Fair	2.46	Fair
Aggregate Mean	3.42	High	3.92	High	3.64	High	3.56	High

others. On the other hand, a “fair” level of familiarity is reflected in SOUL–Virtual Classroom (\bar{x} = 2.53), Databases (\bar{x} = 2.49) and Course Management Tools (\bar{x} = 2.42). This suggests that these respondents have just read about the tools from a book or heard about the tools from others and do not understand its functionalities.

A “moderate” level of familiarity is reflected also in ICT tools such as Multimedia (\bar{x} = 3.38), Online Groups, Forum and Discussion (\bar{x} = 3.24), Digital Libraries (\bar{x} =3.03), audio conferencing (\bar{x} = 3.01), Video Conferencing (\bar{x} = 3.00), Virtual Video Games (\bar{x} = 3.00), Web Blogs (\bar{x} = 2.90), Wikis (\bar{x} =2.89), and Web Publishing and Development (\bar{x} = 2.64). This suggests that this group of faculty members can understand the functionalities of the tools but do not know how to apply these tools in practice.

A “high” level of familiarity is also reflected in Portable External Storage Devices (\bar{x} = 4.07), Electronic Projection Devices (\bar{x} = 4.06), Web Browsers (\bar{x} = 4.04), Online News (\bar{x} = 3.94), Presentation Software (\bar{x} = 3.93), Social Networking (\bar{x} = 3.79), Spreadsheet (\bar{x} = 3.64), Instant Messaging (\bar{x} = 3.63), Internet Music Videos (\bar{x} = 3.62), Imaging Devices (\bar{x} = 3.61), and Charting/Graphing (\bar{x} = 3.06). The result implies that this group of faculty members can use these tools but with help from an expert.

Natural Sciences, Mathematics and Engineering. Similarly, the level of familiarity of the ICT tools among the respondents from the Natural Sciences, Mathematics and Engineering disciplines shows a highest aggregate mean of 3.92 with a description of “high” compared to the other two groups of respondents (see Table 5). The result implies that this group of faculty members can work with the ICT tools but they need help from an expert. These results confirm a case study among mathematics professors by Yushau (2006) where more than 80% of the faculty were at least good in word-processing—the most commonly used software for writing memos, exams, and most journal publications.

In particular there is a “very high” level of familiarity (Table 5) of Word Processing (\bar{x} = 4.83), Portable External Storage Devices (\bar{x} = 4.82), Presentation Software (\bar{x} = 4.78), E-Mail (\bar{x} = 4.72), Spreadsheet (\bar{x} = 4.50), Web Browsers (\bar{x} = 4.53), Internet Music Videos (\bar{x} = 4.41), Electronic Projection Devices (\bar{x} = 4.33), Imaging Devices (\bar{x} = 4.22), and Online News, Social Networking (\bar{x} =3.44). This group of teachers is better in terms of the number of ICT tools with a “very high” level of familiarity compared to those teachers in the Social Sciences and Humanities with only word processing (\bar{x} = 4.61) and email (\bar{x} = 4.54).

Table 6.

Degree of Integration of ICT Tools into Teaching by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description
1. Using word processing in encoding test papers and other classroom handouts	4.31	Always	4.84	Always	4.35	Always	4.40	Always
2. Using external storage devices like diskettes and flash drives to save personal computer files related to classroom instructions	3.90	Very Often	4.16	Very Often	4.27	Always	4.06	Very Often
3. Using LCD projector during classroom lectures and discussions	3.13	Sometimes	3.68	Very Often	4.39	Always	3.63	Very Often
4. Using presentation software like MS Powerpoint during lectures and discussions	2.99	Sometimes	3.79	Very Often	4.48	Always	3.60	Very Often
5. Lecturing, reading and researching information on the internet	3.57	Very Often	3.17	Sometimes	3.45	Very Often	3.48	Very Often

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Table 6. (Continued...)

Degree of Integration of ICT Tools into Teaching by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total
	x	Description	x	Description	x	Description	
6. Downloading reference content materials from digital libraries	3.29	Sometimes	3.44	Very Often	3.19	Sometimes	Sometimes
7. Using spreadsheet applications in doing basic mathematical operations like student's grade computation	2.68	Sometimes	3.56	Very Often	3.47	Very Often	Sometimes
8. Scanning pictures, diagrams, figures and images for better illustration with the use of an electronic scanning device	2.56	Rarely	3.37	Sometimes	3.57	Sometimes	Sometimes
9. Get updated with the latest news, events and updates of the university through www.su.edu.ph	2.94	Sometimes	2.78	Sometimes	2.81	Sometimes	Sometimes

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Table 6. (Continued...)

Degree of Integration of ICT Tools into Teaching by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description
10. Playing cd/dvd in delivering course content and topic for lectures and discussions	2.66	Sometimes	2.39	Rarely	3.23	Sometimes	2.81	Sometimes
11. Using database in saving any student-related works & activities (e.g. class record)	2.71	Sometimes	3.26	Sometimes	2.70	Sometimes	2.79	Sometimes
12. Downloading music or video or graphics related to classroom lectures and discussions	2.52	Rarely	2.58	Rarely	3.18	Sometimes	2.75	Sometimes
13. Social networking through online groups, fora, discussions	2.44	Rarely	1.94	Rarely	2.56	Rarely	2.42	Rarely
14. Developing audio and video application to support topic discussions	2.10	Rarely	2.26	Rarely	2.81	Sometimes	2.36	Rarely

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Table 6. (Continued...)
Degree of Integration of ICT Tools into Teaching by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	x	Description	x	Description	x	Description	x	Description
15. Using email in communicating with your students for further instructions, offline discussions and feedbacking	2.36	Rarely	1.94	Rarely	2.45	Rarely	2.34	Rarely
16. Connecting with students through a social networking site	2.09	Rarely	1.65	Never	2.51	Rarely	2.17	Rarely
17. Using graphical or charting software in presenting statistical data	1.90	Rarely	2.94	Sometimes	2.16	Rarely	2.13	Rarely
18. Connecting online with students via instant messaging for further instruction and discussion	1.97	Rarely	1.89	Rarely	2.02	Rarely	1.98	Rarely
19. Using wikis to collaborate online information, references, links, etc	1.94	Rarely	1.78	Never	1.86	Rarely	1.89	Rarely

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Table 6. (Continued...)

Degree of Integration of ICT Tools into Teaching by Discipline.

Item of Integration	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		Total	
	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description	<i>x</i>	Description
20. Composing video for lectures and discussions	1.38	Never	1.83	Rarely	2.09	Rarely	1.68	Never
21. Blogging to keep and share personal thoughts, and journals	1.46	Never	1.76	Never	1.77	Never	1.61	Never
22. Developing web pages for course outline, content and materials		1.39	Never	2.00	Rarely	1.59	Never	1.53
23. Conducting audio conferencing	1.51	Never	1.50	Never	1.55	Never	1.52	Never
24. Managing an online course	1.38	Never	1.71	Never	1.59	Never	1.50	Never
25. Conducting video conferencing	1.09	Never	1.42	Never	1.26	Never	1.19	Never
26. Conducting online classes at the Virtual Classroom of the SOUL System	1.04	Never	1.56	Never	1.24	Never	1.18	Never
Aggregate Mean	2.36	Rarely	2.58	Rarely	2.71	Sometimes	2.51	Rarely

Further, the lowest level of familiarity in this group is “moderate,” implying they can at least understand the functionalities of ICT tools: Web Blogs ($\bar{x} = 3.38$), Web Publishing and Development ($\bar{x} = 3.35$), Digital Libraries ($\bar{x} = 3.33$), Wikis ($\bar{x} = 3.24$), SOUL– Virtual Classroom ($\bar{x} = 3.20$), Audio Conferencing ($\bar{x} = 3.12$), Databases ($\bar{x} = 3.06$), and Course Management Tools ($\bar{x} = 3.00$).

The tools that are rated “high” (meaning, faculty members can work with the tools but need help from an expert) are: Instant Messaging ($\bar{x} = 4.12$), Multimedia ($\bar{x} = 4.12$), CD-ROM Materials ($\bar{x} = 4.06$), Charting/Graphing ($\bar{x} = 3.94$), Virtual Video Games ($\bar{x} = 3.56$), Online Groups, Forum and Discussion ($\bar{x} = 3.44$), and Video Conferencing ($\bar{x} = 3.41$).

Health Sciences. The aggregate mean on the level of familiarity of the ICT tools among the respondents from the health sciences is 3.64 with a description of “high” (Table 5). Similar to the other two groups of respondents, this implies that the respondents cannot work with the ICT tools without the help of an expert. Although high in their extent of familiarity, the results may suggest that their familiarity is inadequate to perform complicated operations and functions in the ICT tools. Thus, help from experts are asked whenever complicated functions and operations in the ICT tools occur.

The list shows that the tools rated “very high” includes E-Mail, Portable External Storage Devices, Presentation Software, Social Networking, Word processing, Electronic Projection Devices, and Instant Messaging with a weighted mean of 4.70, 4.66, 4.61, 4.52, 4.48, 4.25, and 4.25, respectively. This data may imply that the faculty members in this group can work with the tools alone even without help from others. However, they do not understand the functionalities of tools such as Course Management ($\bar{x} = 2.33$) and SOUL-Virtual Classroom ($\bar{x} = 2.58$) all rated “fair” (Table 5).

Highly familiar ICT tools by this group of faculty members include Web Browsers ($\bar{x} = 4.19$), Spreadsheet ($\bar{x} = 4.07$), Internet Music Videos ($\bar{x} = 4.05$), Online News ($\bar{x} = 3.95$), CD-ROM Materials ($\bar{x} = 3.93$), Imaging Devices ($\bar{x} = 3.88$), and Multimedia ($\bar{x} = 3.75$). This implies that the respondents of this group cannot work on these tools without the assistance and help from an expert. Lastly, moderately familiar tools include Video Conferencing ($\bar{x} = 3.32$), Web Blogs ($\bar{x} = 3.23$), Online Groups, Forum and Discussion ($\bar{x} = 3.23$), Audio Conferencing ($\bar{x} = 3.16$), Digital Libraries ($\bar{x} = 3.07$), Virtual Video Games ($\bar{x} = 3.02$), Charting/Graphing ($\bar{x} = 2.98$), Databases ($\bar{x} = 2.91$), Wikis ($\bar{x} = 2.79$), and Web Publishing and Development ($\bar{x} = 2.64$).

Degree of Integration of ICT Tools into the Teaching Instruction by Discipline

Social Sciences and Humanities. The aggregate mean of the degree of integration of ICT tools into teaching among the faculty from the Social Sciences and Humanities (Table 6) is 2.36 with the description of “rarely”. This implies that this group of faculty integrates the ICT tools at least once a semester.

The group always uses word processing in encoding test papers and other classroom handouts with a weighted mean of 4.31 (Table 6). This reveals that this group integrates the tool at least once a day. On the other hand, items 20, 21, 22, 23, 24, 25 and 26 are never integrated, implying that these items are not done by the faculty. These include composing video for lectures and discussions (\bar{x} = 1.38), blogging to keep and share personal thoughts and journals (\bar{x} = 1.46), developing web pages for course outline, content and materials (\bar{x} = 1.39), conducting audio conferencing (\bar{x} = 1.51), managing an online course (\bar{x} = 1.38), conducting video conferencing (\bar{x} = 1.09), and conducting online classes at the virtual classroom of the SOUL system (\bar{x} = 1.04).

Likewise, results show that using external storage devices like diskettes and flash drives to save personal computer files related to classroom instruction and lecturing, reading and researching information on the Internet are integrated very often. It implies that this group of faculty integrates the tools at least once a week. Items 3, 4, 6, 7, 9, 10 and 11 are integrated “sometimes.” It signifies that this group performs at least once a month the following eLearning activities: using LCD projector during classroom lectures and discussions, using presentation software like MS Powerpoint during lectures and discussions, downloading reference content materials from digital libraries, using spreadsheet applications in doing basic mathematical operations like student’s grade computation, get updated with the latest news, events and updates of the university through www.su.edu.ph, playing cd/dvd in delivering course content and topic for lectures and discussions, and using database in saving any student-related work and activities. Rarely integrated ICT tools (Table 6) indicating that faculty of this group integrate the tools at least once a semester include items 8, 12, 13, 14, 15, 16, 17, 18 and 19.

Natural Sciences, Mathematics and Engineering. A 2.58 aggregate mean of the degree of integration of ICT tools into the teaching instruction among the faculty from the Natural Sciences, Mathematics

and Engineering (Table 6) is described as “rarely”. The result shows a similar degree of integration among the faculty from the Social Sciences and Humanities, implying that the integration of the ICT tools is done at least once a semester.

Specifically, word processing in encoding test papers and other classroom handouts is always integrated, with a weighted mean of 4.84. This reveals that all groups of respondents integrate word processing at least once a day. Items 16, 19, 21, 23, 24, 25 and 26 are never integrated. These are: social networking (\bar{x} = 1.65), collaborating through wikis (\bar{x} = 1.78), blogging (\bar{x} = 1.76), audio conferencing (\bar{x} = 1.50), online course management (\bar{x} = 1.71), video conferencing (\bar{x} = 1.42), and SOUL online classes (\bar{x} = 1.56).

A description of “very often” (Table 6) implies that integration is done at least once a week. The items include: using external storage devices like diskettes and flash drives to save personal computer files related to classroom instructions, using LCD projector during classroom lectures and discussions, using presentation software like MS Powerpoint during lectures and discussions, downloading reference content materials from digital libraries, and using spreadsheet applications in doing basic mathematical operations like student’s grade computation.

Items 5, 8, 9, 11 and 17 are described as “sometimes” integrated, implying that the faculty in this group perform at least once a month the following activities: lecturing, reading and researching information on the Internet, scanning pictures, diagrams, figures and images for better illustration with the use of an electronic scanning device, get updated with the latest news, events and updates of the university through www.su.edu.ph, using database in saving any student-related works & activities (e.g. class record), and using graphical or charting software in presenting statistical data. Items 10, 12, 13, 14, 15, 18, 20 and 22 are described “rarely” which implies that ICT integration is done only at least once a semester into their teaching.

Health Sciences. An aggregate mean of 2.71 (Table 6) with a description of “sometimes” reflects the respondents’ degree of integration of ICT tools into teaching. This signifies that the faculty from the Health Sciences integrates the ICT tools at least once a month. The result shows that this group of faculty is better in their degree of integration compared to the other groups of respondents.

There are four tools that are integrated at least once a day. This integration includes the following activities: using word processing

in encoding test papers and other classroom handouts, using external storage devices like diskettes and flash drives to save personal computer files related to classroom instructions, using LCD projector during classroom lectures and discussions, and using presentation software like MS Powerpoint during lectures and discussions.

On the other hand, items 21, 22, 23, 24, 25 and 26 are described “never”, suggesting that ICT integration never takes place in these tools: blogging to keep and share personal thoughts, and journals (\bar{x} = 1.77), developing web pages for course outline, content and materials (\bar{x} = 1.59), conducting audio conferencing (\bar{x} = 1.55), managing an online course (\bar{x} = 1.59), conducting video conferencing (\bar{x} = 1.26), and conducting online classes at the virtual classroom of the SOUL system (\bar{x} = 1.24). The result also shows that this group of respondents is almost the same to the respondents from the Social Sciences and Humanities except for composing video for lectures and discussions which is described as “rarely” for Health Sciences. The result further reveals that there are five tools that are never integrated among the three groups of respondents: blogging to keep and share personal thoughts, and journals, conducting audio conferencing, managing an online course, conducting video, and conducting online classes at the virtual classroom of the SOUL system.

Likewise, activities such as lecturing, reading and researching information on the Internet, and using spreadsheet applications in doing basic mathematical operations like student’s grade computation are integrated very often (Table 6) or at least once a week. This is a similar degree of integration with the group of respondents in the Natural Sciences, Mathematics and Engineering in using spreadsheet application. Likewise, this group of respondents has a similar degree of integration with the group of respondents in the Social Sciences and Humanities in lecturing, reading and researching information on the Internet.

Items 6, 8, 9, 10, 11, 12 and 14 are described as “sometimes” integrated, suggesting that the faculty in Health Sciences performs at least once a month the following: downloading reference content materials from digital libraries, scanning pictures, diagrams, figures and images for better illustration with the use of an electronic scanning device, get updated with the latest news, events and updates of the university through www.su.edu.ph, playing cd/dvd in delivering course content and topic for lectures and discussions, using database in saving any student-related work and activities, downloading music or video or graphics related to classroom lectures and discussions, and

developing audio and video application to support topic discussions. There are two items described as “sometimes” integrated common to the three groups of respondents. These are getting updated with the latest news, events and updates of the university through www.su.edu.ph and using database in saving any student-related work and activities.

Rarely integrated ICT tools were items 13, 15, 16, 17, 18, 19 and 20, indicating that this group integrates the tools at least once a semester. There are three tools described “rarely” which are also common to the three groups of respondents. These are social networking through online groups, fora, discussions, using email in communicating with your students for further instructions, offline discussions and feedbacking, and connecting online with students via instant messaging for further instruction and discussion.

Differences in the Level of Familiarity and Degree of Integration of ICT Tools Among Disciplines

The significance value comparing the groups of respondents by discipline is .023 (Table 7), implying there is a disparity or significant difference in the mean level of familiarity among the three groups of respondents. Specifically, there is a significant difference between the level of familiarity for the respondents from the Social Sciences and Humanities and Natural Sciences, Mathematics and Engineering and the respondents from the Health Sciences, $F = 3.968$, $p < .05$. On the other hand, the *p-value* between discipline and degree of integration is 0.338, which is higher than 0.05 significance value. This suggests that there is no gap or no significant difference in the mean level of degree of integration among the three groups of respondents, $F = 0.960$, $p > .05$.

Table 7.

Test of Differences Between the Level of Familiarity and Degree of Integration of ICT.

Variable	F	q	Remark
Discipline and Level of Familiarity	3.968	.023	Significant
Discipline and Degree of Integration	.960	.338	Not Significant

Relationship Between Discipline and the Level of Familiarity and Degree of ICT Integration

The data reveals that discipline is not statistically associated with level of familiarity. This implies that the level of familiarity of the ICT tools is not affected by the discipline of the faculty. On the other hand, discipline and degree of integration are statistically associated with each other at 0.05 level. A positive evidence of relationship where the computed value (23.700) is higher than the tabular value shows that the degree of integration of ICT tools is influenced by the discipline of the faculty. In this study, the Health Sciences group demonstrates the highest level of integration.

Reasons Hindering the Integration of ICT Tools into Teaching

The primary reason that hinders the respondents in the Social Sciences and Humanities from integrating ICT tools in their teaching is the inadequate number of electronic audio and visual equipment (73.4%). For the Natural Sciences, Mathematics and Engineering, the major reasons include the following: inadequate number of electronic audio and visual equipment, limited number of Internet-connected PCs at the faculty room, and unavailability of software applications installed in the computer for faculty use (75.9%). The limited number of Internet-connected PCs at the faculty room (84.8%) is also the number one reason that hinders the respondents in the Health Sciences from integrating ICT tools. The last two reasons that hinder all the groups of respondents from integrating ICT tools (Table 8) are being afraid to use computers and other electronic equipment and being used to a traditional mode of instruction. This implies that all groups of respondents are willing to learn and be trained on the use of ICT tools.

Table 8.

Reasons That Hinder the Integration of ICT Tools Into Teaching Instruction.

Reason	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		All Disciplines	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1.Limited number of Internet-connected PCs at the faculty room.	41	64.1	22	75.9	39	84.8	103	75.2
2. Inadequate number of electronic audio and visual equipment	47	73.4	22	75.9	27	58.7	97	70.8
3. Limited bandwidth that results to slow internet connection for online activities.	37	57.9	19	65.5	37	80.4	94	68.6
4.Inadequate number of computers available at the faculty room.	42	65.6	16	55.2	29	63	88	64.2

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Table 8. (Continued...)

Reasons That Hinder the Integration of ICT Tools Into Teaching Instruction.

Reason	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		All Disciplines	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
5. Lack of knowledge and training in using the available e-learning tools.	42	65.6	12	41.4	29	63	84	61.3
6. No enough time to develop e-learning materials for classroom instruction.	35	54.7	13	44.8	30	65.2	79	57.7
7. Get used and contented with the traditional mode of instruction.	19	29.7	6	20.7	9	19.6	34	24.8
8. Afraid to use computers and other electronic equipment.	1	1.96	2	6.9	2	4.3	5	3.6

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Table 8. (Continued...)

Reasons That Hinder the Integration of ICT Tools Into Teaching Instruction.

Reason	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		All Disciplines	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
9. Unavailability of software applications installed in the computer for faculty use.	41	64.1	22	75.9	36	78.3	100	73

The other reasons that hinder the social sciences and humanities from integrating ICT tools include the following: inadequate time to communicate with students because of heavy schedules and full loads; and highly specialized field-auditing and outdated facilities and equipment. Likewise, the respondents from the natural sciences, engineering and mathematics indicated also other reasons of not integrating the ICT tools such as outdated facilities, and installation of software to department's pc's are controlled by the computer center. Further, the respondents from the health sciences indicated additional reasons for not integrating the ICT tools such as: cheating during online exams; lack of time for preparing such since their load requires all of their working time; no unlimited internet connection; conferencing, assignment giving with students over the net is somewhat informal and may be a source of leakage and intellectual property rights will be compromised; and lack opportunities for training. Correct integration of ICT tools comprises a major change in the teaching and learning process. ICT integration is a complex phenomenon that involves understanding teachers' motivations, perceptions, and beliefs about learning and technology (Keengwe, Onchwari & Wachira, 2008).

Willingness to Integrate and To Be Trained

There is a bigger percentage among all groups of respondents who are willing to integrate ICT into their teaching instruction (Table 9) and are willing to be trained in using ICT tools in the teaching-learning process. This is a positive indication that teachers from the three disciplines are open and ready to learn the ICT tools. This means that the idea and principle of integrating ICT in the University is already an acceptable mode in the teaching and learning process.

Salient Findings

All of the ICT tools are highly familiar to all groups of respondents, suggesting that they can work with the ICT tools but need help from an expert. Specifically, ICT tools such as e-mail and word processing are very highly familiar to all groups of respondents. This implies that the respondents can work alone without help from an expert. CD-ROM materials are highly familiar to all groups of respondents, indicating that the respondents can work but need help from an expert. Audio

Table 9.

Willingness to Integrate and To Be Trained in Using ICT Tools

Willingness	Social Sciences and Humanities		Natural Sciences, Mathematics and Engineering		Health Sciences		All Disciplines	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Willing to integrate ICT into Teaching Instruction								
Yes	60	93.8	26	89.7	44	95.7	130	93.53
No	2	3.1	0	0	0	0	2	1.44
No Response	2	3.1	3	10.3	2	4.3	7	5.04
Total	64	100	29	100	46	100	139	100.00
Willing to be trained								
Yes	60	93.8	25	86.2	43	93.5	128	92.09
No	2	3.1	0	0	0	0	2	1.44
No Response	2	3.1	4	13.8	3	6.5	9	6.47
Total	64	100	29	100	46	100	139	100.00

conferencing, digital libraries, web publishing and development, web blogs, and wikis are moderately familiar to all groups of respondents. This implies that the respondents can understand the functionalities of the ICT tools but they do not know how to apply it. None of the ICT tools are not familiar to all groups of respondents.

The faculty members in the Health Sciences are better in terms of the degree of integration of the ICT tools compared to the other non-ICT faculty in the university. They have integrated the ICT tools at least once a month compared to other non-ICT faculty that rarely integrate the ICT tools at just a minimum of at least once a semester.

All non-ICT teachers in the university never conduct audio and video conferencing; manage an online course; blog to keep and share personal thoughts, and journals; and conduct online classes at the Virtual Classroom of the Silliman Online University Learning (SOUL) System. At the very least, however, all non-ICT teachers in the university use word processing in encoding test papers and other classroom handouts. Database and online news are the ICT tools that are integrated at least once a month into the teaching instruction of non-ICT teachers in the university.

Aside from the use of word processing, external storage devices are the most used ICT tools into the teaching instruction of the faculty in the Social Sciences and Humanities, and Natural Sciences, Mathematics and Engineering. The teachers in the Health Sciences always use presentation software like MS Powerpoint during lectures and discussions. Conducting online classes is at the bottom among the ICT tools that are never used by the Social Sciences and Humanities, and Health Sciences while conducting video conferencing is the least integrated ICT tool by the Natural Sciences, Mathematics and Engineering.

There is a significant difference in the mean level of familiarity of the ICT tools among the three groups of respondents. However, there is no significant difference in the mean level of degree of integration among the three groups of respondents. Further, the level of familiarity of the three groups of respondents has a correlation with their degree of integration of the ICT tools into their teaching.

The primary reason that hinders the respondents from integrating ICT tools in their teaching is the limited number of Internet-connected PCs at the faculty room. There is a bigger percentage among all groups of respondents who are willing to integrate ICT into their teaching. It also shows that all groups of respondents are willing to be trained in using ICT tools in the teaching-learning process.

CONCLUSIONS AND RECOMMENDATIONS

As technology advances very rapidly, educational institutions like Silliman University are trying to embrace the new trends in the teaching-learning process. However, these new and emerging technologies challenge the traditional process of teaching and learning, and the way education is delivered.

The non-ICT faculty members in Silliman University are technologically challenged in the use of ICT tools in their teaching. Their level of familiarity requires help from an expert for them to work and to use ICT tools. It is particularly alarming that they rarely use and integrate the tools into their teaching, for the reason of lack of hardware and software resources installed in academic units.

ICT integration in education is a shared responsibility. It requires dedication and participation among the stakeholders in the academe. All stakeholders should always remember that technology alone does not guarantee motivation and improvement in teaching-learning. There should be policies, guidance, and training on the appropriate use of these tools in the teaching-learning activity in the classroom. It is highly recommended that school administration seriously take part in promoting innovative learning experience. Factors to consider for successful and sustainable ICT integration in teaching and learning include [a] availability of ICT infrastructure; [b] technical support and maintenance options; [c] pedagogical support; [d] availability of ICT-related courses; [e] teachers' self-perceived confidence in accomplishing certain tasks involving the use of ICT; [f] principals' visions regarding pedagogy and ICT; [g] pedagogical practices using ICT; and [h] teachers' perceptions about the positive impact of ICT (Blignaut, Hinostroza, Els & Brun, 2012). They should also consider offering incentives for faculty who use online learning methodologies on a consistent basis, and include online learning use and competencies in the faculty evaluation.

Specifically, the Office of the Vice President for Academic Affairs in Silliman University through the Office of Instruction should call for and organize IT Enhancement trainings relative to the needs of each discipline. The College of Computer Studies and the SOUL team should develop capability-building and design

training programs suited to the needs of each discipline. Faculty from the College of Computer Studies and other computer-related academic units should actively assist in delivering the enhancement training. The Office of the Vice President for Finance and Administration through the office of the Management Information Systems should strategically review and revisit its policy of responding to the barriers to technology integration. Procurement of ICT tools should be carefully done per discipline in order to maximize the resources of the university. Non-ICT colleges and departments should also revisit their tactical plans to incorporate need-based ICT-training. It is also recommended that the non-ICT faculty seriously participate in any training and take responsibility for integrating ICT tools to promote innovative teaching experience in classroom instruction. Lastly, it is recommended that a similar study be to focus on mobile tools such as smart phones, tablets, notebooks and other tools that are transformative format.

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Practice Before Theory: An Alternative Approach to Piano Pedagogy

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This paper investigates whether or not there is a difference in learning the mechanics of piano playing between students exposed to “theory before practice” (traditional) and the “practice before theory” (new) approaches. The study was done within one semester where the performances of eight participants who were of probationary status divided into two groups were rated after a semester by their piano teacher, her teaching assistant, sixteen faculty jurors and three junior piano pedagogy students. The results suggest that the ‘practice before theory’ approach to teaching produced a considerable difference in the technical areas of piano study as compared to the older approach, ‘theory before practice.’ Moreover, musical backgrounds and attitudes towards learning of the participants are factors that affected learning. It is recommended that music departments adapt the “practice before theory” approach when teaching entrants who are *On Probation* and to further monitor the difference in the learning of these students exposed to different piano pedagogy. It further recommends the use of the ‘practice before theory’ approach for other performing disciplines in music such as vocal, instrumental, dance, speech, and theatre; for other learning disciplines in nursing and medicine when learning ‘procedure’; and in different subjects on other learning levels such as early childhood, elementary and high school.

KEYWORDS: piano, theory, practice, pedagogy, traditional approach, alternative approach, piano students, *On Probation*

“Read nothing; discover everything; prove all things.”

Johann Heinrich Pestalozzi

(Choksy, 1986)

INTRODUCTION

Traditionally, up to a decade or two ago, the optimum beginning age for piano study was considered to be seven or nine (Skaggs 1981, p. 247). This idea is supported by psychologist Jean Piaget's Stage Theory when he says that “children at this age and stage of development (concrete operational) have a greater capacity to perform complex actions” (Abeles, Hoffer & Klottman, 1994, p. 198). Madeline Carabo-Cone, music educator and pedagogue based her teaching method on Jean Piaget's views on stages of development, a sensorimotor method where the teacher determines the readiness for formal piano study. Cone's method of readiness to learn music for pre-schoolers includes singing and enjoying listening to music, going to the piano to pick out little tunes previously heard, or improvise, shows an interest in learning and knows how to learn, and concentrates long enough on the piano for about ten minutes at a time (Skaggs.1981, p. 251).

The adult piano beginner would generally be ready to learn this skill based on the criteria of readiness that Carabo-Cone used for pre-schoolers. The adult, based on Kolb's Learning Cycle, learns through experiencing, processing, generalizing and then applying (Ortigas 1999, p. 34). Hadassah Sahr (1981), a piano pedagogue in the 20th century says,

for many students, playing the piano and reading music are two separate activities. The muscular skills involved in playing the piano are distinct from the intellectual understanding necessary to read music. Often a student must concentrate on reaching some degree of muscular control before turning his attention to various aspects of reading skill. This often causes considerable frustration, since the adult student is usually capable of understanding much more about music more quickly than he or she can develop the skills necessary to produce it. (p. 255)

Chappell (2000) in her article on developing the complete pianist through giving importance to the whole-brain approach to piano teaching says that the modern trend of piano lessons tend to lean on an over emphasis on learning notation, and neglects the nurturing need for developing the creative spirit and sensitive ears that lead to

expressive music making. Studies point to the need for using multiple approaches in learning musical skills that engage both sides of the brain in order to develop the analytical and the intuitive skills for students to master all aspects of playing (http://en.wikipedia.org/wiki/Piano_pedagogy).

Furthermore, Burrows (2011) explains a music method called Rote Teaching. This method involves initially presenting music without notation and listening to what is being played without the distraction of notation. Singing, thinking in tones, is of primary importance for musicianship (<http://pianoeducation.org/pnotroti.html>). With this method, the student becomes familiar with the keyboard before reading from the staff. The student's call for concentration is in his/her hearing, thinking, seeing intervals and harmony on the keyboard and noting phrasing. This gives the student an easier and better start (Burrows & Ahearn, 2011).

This paper shares the findings of a quasi experimental multiple case study that tests an alternative approach to teaching piano (practice before theory) to the already existing approach (theory before practice). The former approach gives the learner first shot at "reaching some degree of muscular control before turning his/her attention to various aspects of reading skills" (Sahr, 1981, p. 255) in contrast to the latter where the learner's first shot is at reading musical notation.

CONTEXT OF THE STUDY

The College of Performing and Visual Arts (COPVA) at Silliman University houses a Music Department that offers several programs for Bachelor of Music degree. Aside from the degree in piano performance all other majors require piano as a minor instrument. This is because the piano is an able assistant to the musician in all kinds of musical activities like teaching songs, assisting in academically related ceremonies, worship services and accompanying singing and dancing regardless of whether they are teachers, choral trainers, church conductors, or accompanists.

Students at the grassroots level of music literacy are accepted at COPVA. The College accepts entrants who audition with no background in music theory or piano playing. These entrants are accepted into the music program on a probationary (*On Probation* or OP) status where they are prepared to reach the acceptable level of

the piano minor or Music 11. Lessons include theory, technique, and musicianship. The aspect of theory includes reading musical notation on a prescribed standard repertoire level. Technique includes posture, hand position, finger facility, touch, and articulation. Musicianship includes the understanding of the style of a piece and the ability of the player to play a piece of music in its specific style. These three aspects are integral to musical performance and in this case, for piano playing performance.

On Probation (OP) students in the past have qualified for entrance into Music 11 level but have been found to be lacking in the technical area of performance. This lack is attributed to observations that during the process of learning, the technical requirements for playing the piano take a back seat to the students' effort to read and count (theoretical part of learning). Thus forms the rationale for doing this research that aimed to find out whether there is a difference between piano performance results among students taught by two different approaches, the "practice before theory" approach and the "theory before practice" approach. The idea that the entrance of knowledge (approach) as initially presented to the learner is crucial in its effects on learning how to play the piano was tested.

PROBLEM

This study states that initial approach to learning the basic mechanics of piano playing is of great importance to the overall performance of an *On Probation* music degree entrant on the tertiary level. The study tested the learning sequence of two teaching approaches called the 'theory before practice' approach (traditional) against the 'practice before theory' approach (new). The problem is guided by the following questions:

1. What teaching approaches were tested?
 - A. Theory before practice approach (traditional/ old)
 - B. Practice before theory approach (new)
2. What areas of piano playing mechanics were tested?
 - A. Theory
 - 2.A.1 Sight reading
 - 2.A.2 Scale knowledge
 - 2.A.3 Rhythm knowledge

- 2.A.4 Memorization
 - 2.A.5 Level of Piece
 - B. Technique
 - 2.B.1 Posture
 - 2.B.2 Hand position
 - 2.B.3 Finger facility
 - 2.B.4 Articulation
 - 2.B.5 Performance Execution
 - C. Musicianship
 - 2.C.1 Understanding style
 - 2.C.2 Fidelity to style
 - D. Attitude
 - 2.D.1 Punctuality
 - 2.D.2 Willingly listens to instruction.
 - 2.D.3 Willingly follows instruction.
 - 2.D.4 Practices after piano lesson.
 - 2.D.5 Seems to enjoy lesson learning.
3. What learning sequence did the 'theory before practice' approach use?
 - 3.A.1 Theory
 - 3.A.2 Technique
 - 3.A.3 Musicianship
 - 3.A.4 Attitude
 4. What learning sequence did the 'practice before theory' approach use?
 - 4.a.1 Technique
 - 4.a.2 Theory
 - 4.a.3 Musicianship
 - 4.a.4 Attitude
 5. What possible recommendations can be made?
 - A. Use of the 'practice before theory' approach for *On Probation* music degree entrants at the College of Performing and Visual Arts.
 - B. Use of the 'practice before theory' approach for other performing disciplines in music:
 - 5.B.1 Vocal
 - 5.B.2 Instrumental

- 5.B.3 Dance
- 5.B.4 Speech
- 5.B.5 Theatre

- C. Use of the 'practice before theory' approach in other learning disciplines:
 - 5.C.1 Nursing procedures
 - 5.C.2 Medical procedures

- D. Use of practice before theory' approach in teaching different subjects across learning levels:
 - 5.D.1 Early childhood
 - 5.D.2 Elementary
 - 5.D.3 High school

- 6. A longer time for testing might bring in even more conclusive results.

THEORETICAL CONSIDERATIONS

The discussion in this paper is anchored on Jean Piaget's theory that the developing child builds cognitive structures or mental maps, schemes, or networked concepts for understanding and responding to physical experiences within his or her environment (<http://www.funderstanding.com/content/piaget/>). It identifies the developmental stages by which children progress through them. Piaget's theory lends insight to this research as it impacts learning through both curriculum and instruction. Educators must plan a developmentally appropriate curriculum that enhances their students' logical and conceptual growth. The kind of instruction they provide must emphasize the critical role that experiences or interactions with surrounding environment play in student learning. This means that knowing the developmental stages can aid in properly categorizing appropriate learning material and activities.

What's more, Albert Bandura, a leading proponent of the Social Learning Theory says that learning occurs within a social context. It considers that people learn from one another, including such concepts as observational learning, imitation, and modeling (Ormrod, 1999).

This paper also benefits from David Kolb's model theory of experiential adult learning or the four stage cycle as theoretical

support of this study (Ortigas, 1999, p. 35). The four stages include the concrete experience stage, the reflective observation stage, the abstract conceptualization stage, and the active experimentation stage. These stages lend insight to the manner by which learning occurred among the participants of this research. Kolb defines the learning styles as diverging, assimilating, converging and accommodating.

There are volumes of literature on piano pedagogy, pedagogical methods and the different approaches of music educators who advocate for this approach to education. The integration of as many aspects of music-making as possible would result in more effective piano teaching. One of the important education reformers is Swiss born Johann Heinrich Pestalozzi. In the 1900's he rejected the school practices of memorization and recitation that were common, and substituted them with observation, experimentation, and reasoning. He was the first to attempt to link the educational process to the natural development of the child. His dictum was "read nothing; discover everything; prove all things." He believed in the "harmonious development of all the faculties of the child, the whole child: mentally, physically and morally." He believed in "training the head, hand and heart." Education, according to Pestalozzi, should be so sequenced and structured that each stage should grow naturally out of the preceding and into the succeeding stage (Choksy, Abramson, Gillespie, & Woods 1986, p.5-6).

Another important educator Hungarian Zoltan Kodaly developed the Kodaly Method around the 1940's and 1950's. Kodaly combined the goals, philosophy and principles of the Italian *solfa*, the *tonic solfa*, from England, rhythm and syllables from Cheve in France, *solfa* techniques from Dalcroze, hand signing from John Curwen's approach in England and the teaching process was Pestalozzian. The uniqueness of his approach is in the uniting of all these separate techniques into a unified philosophy of music education (Choksy, et al., 1986, p. 70). Kodaly believed that only music of the highest artistic value, both folk and composed, should be used in teaching. He says, "Children, open minded and impressionable learn first by imitation and example. If music offered to them has intrinsic value, if it is from the heritage of good music, they will learn to value good music." His theoretical contribution to music education supports this research when he says that learning occurs first by "imitation and example" (Choksy et al., 1986, p.71).

The Music Learning Theory called Skill Learning Sequence by Edwin Gordon, researcher and theoretician, is a helpful contribution

to this study. Music Learning Theory has many characteristics in common with rote-first methods such as those developed by Suzuki, Dalcroze, Kodaly, and Orff. Students build a foundation of aural and performing skills through singing, rhythmic movement, and tonal and rhythm pattern instruction before being introduced to notation and music theory. Music Learning Theory uses three basic learning sequences, skill learning, tonal content, and rhythm content. As a method of instruction, the learning sequences are combined in various learning sequence activities which, in turn, can be combined with classroom activities. In this method a skill level cannot be achieved except in combination with a tonal or rhythm content level (http://en.wikipedia.org/wiki/Gordon_Music_Learning_Theory).

Both Kodaly and Gordon use sequencing as a tool for musical learning and both begin with the experience of listening and singing to begin the process of learning. Meanwhile, Shin'ichi Suzuki, a Japanese music educator like Kodaly and Gordon begins music learning through listening and singing in teaching one to play the violin. The Suzuki Method or the mother Tongue Method is based on the principle that all children possess ability and this ability can be developed and enhanced through a nurturing environment. Suzuki called the whole system of pedagogy Talent Education (<http://internationalsuzuki.org/method.htm>).

Piano pedagogy in the professional field of music education pertains to the teaching of music in school classrooms or group settings focusing on the teaching of musical skills to piano students on the level of the individual. An author of books on piano method warns that "competent instruction is not always assured by the number of years one has taken lessons" (Bastien, 1988). Inasmuch as focus is given to skills of the student, the piano teacher must be given importance as a major player in the teaching-learning forum. Bastien continues to say that the "factors that affect the professional quality of a piano teacher include the following : one's competence in musical performance, knowledge of musical genres, history, and piano repertoire, experience in teaching, ability to adapt one's teaching method to students of different personalities and learning styles, education level, and so on" (Bastien, 1988).

In the book *Teaching Piano: A Comprehensive Guide and Reference Book for the Instructor*, Margit Varro states, "Music is here so people may enjoy it. Performers and teachers are called upon to transmit this joy. The pedagogue who forgets this aim, or worse—lets his student forget it, has failed in the proper exercise of his calling" (cited in Agay

1991, p. 5).

All teaching methods involve compromises. Not every method works well for every student. Zeigler and Ostromencki (2011) state that one should evaluate these methods in light of one's own needs and choose a teacher whose personal choice of a method or methods is consistent with one's needs, wishes, and the way in which one learns most efficiently. Ziegler and Ostromencki go on to say that:

One of the approaches to teaching piano is called the Rote Teaching Method which is done where the student becomes familiar with the keyboard before reading from the staff. Hearing, thinking, seeing intervals and harmony on the keyboard and noting phrasing gives the student an easier and better start. Concentrating on the keyboard opens up more opportunities for improvising and composing, and, ultimately, easier sight reading with a better understanding of music.

Meanwhile, piano pedagogue Bryanskaya (2007) believes that the first important task for piano teachers at the onset of a students' time of study is to introduce a habit of listening to quality performances of "descriptive and strikingly expressive music," as a means for "sensitizing (the student) to the meaning of music." She further explains that good piano playing technique involves the simultaneous understanding in both the mind and the body of the relationships between the elements of music theory, recognition of musical patterns in notation and at the fingertips, the physical landscape of the entire range of the keyboard, finger dexterity and independence, and a wide range of touch and tone production for a variety of emotional expressions. Skills in all these areas, she says, should always be nurtured and developed for the sake of expressing oneself more effectively and naturally through the sound of the piano, so that the elements of technique would sound alive with musicality.

There are quite a number of existing Piano Method Books, mostly for children, in the market today. One of these books is the *Alfred Basic Piano Method Book*. Piano is taught gradually, including important musical issues like expression, dynamics which are just as important as plain notes reading. Its concentration is moving through different hand positions. This means that all the melodies contain five notes in the grasp of your hand. The big advantage of this is that the student will slowly learn to tell the difference between the different intervals and recognize the intervallic relationship between the notes (<http://www.piano-play-it.com/piano-method-books.html>).

Another book, *Bastien Piano Method Book for Children*, encourages the student and the piano teacher to focus on technique. "One of the

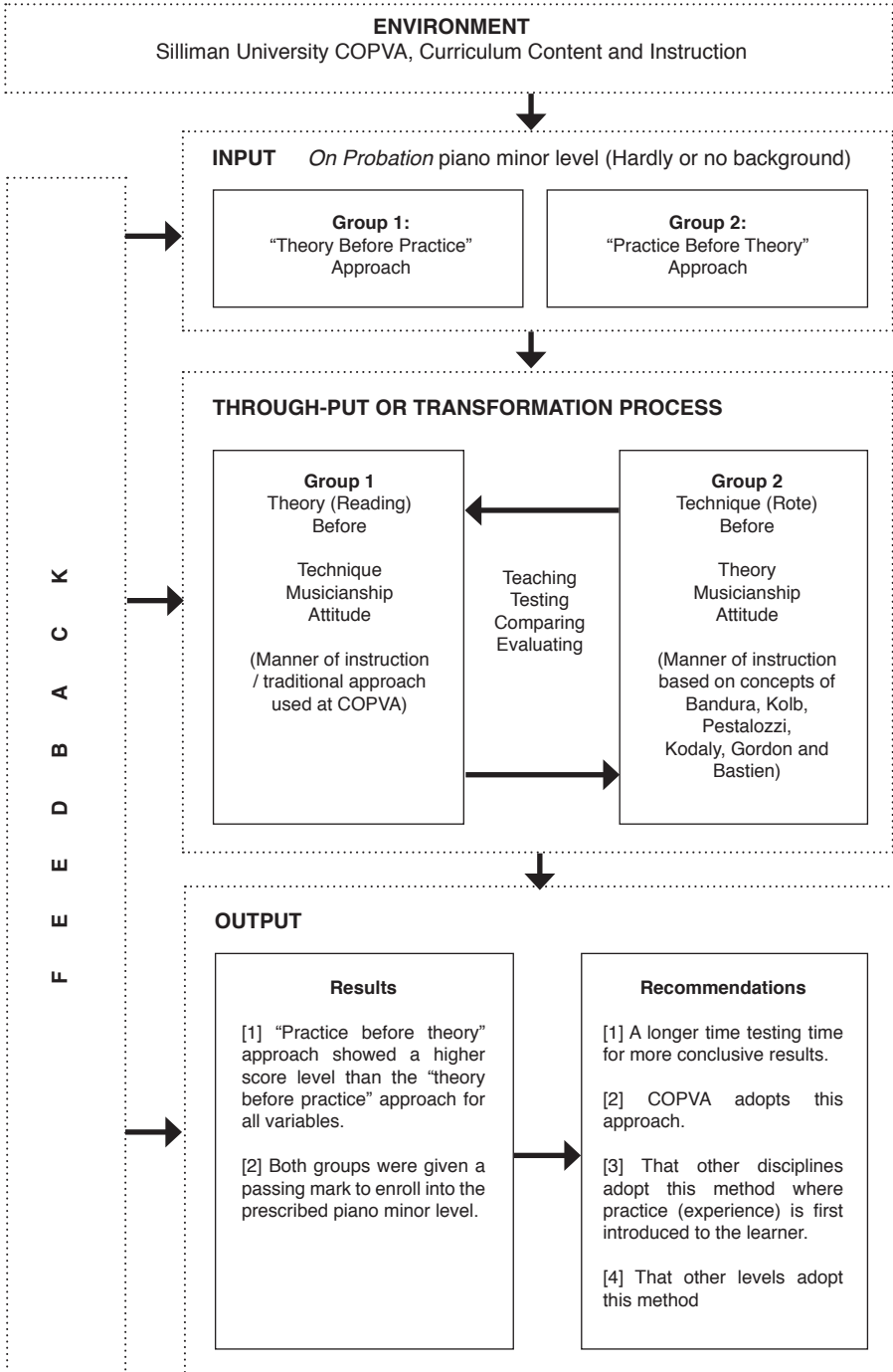


Figure 1. Conceptual Framework

first subjects to be dealt with is how to place your hand properly on the piano and by that I mean that I show my students how to keep the first knuckle of the finger round and the arch high when dropping to the key instead of pushing" (Bastien cited in <http://www.piano-play-it.com/piano-method-books.html>). The *Thompson Piano Method Book* contains simplified arrangements of the standard classical repertoire (<http://www.piano-play-it.com/piano-method-books.html>).

Peter Senge's System's Model (Figure 1) is the basis for the research flow. This model includes the environment, the input, through-put, output and feedback boxes. Perforated lines are used to show movement in a reciprocal manner.

The **Environment** includes the Silliman University College of Performing and Visual Arts (COPVA), the place where the research is undertaken; *curriculum content* includes piano playing assigned as a minor instrument, with *instruction* as the area of testing.

The **Input** introduces the two approaches to be tested against each other with entrants who were accepted with hardly or no piano background. Group 1 uses the usual mode of instruction at the COPVA called "Theory before practice" approach, and Group 2, the approach to be tested called "Practice before theory" approach on *On Probation* piano minors with hardly or no background in piano playing.

The **Through-put or Transformation** process shows the division of groups exposed to the different approaches. Group 1: 'Theory before practice approach' is where the theoretical instruction takes precedence over technical instruction, musicianship and attitude where students are first taught to read musical notation and this knowledge applied to playing the piano.

Group 2: "Practice before theory" approach begins instruction of technique before theory, musicianship and attitude. This approach bases itself on the concepts of "rote" playing where the student is allowed to get to know the instrument (piano) before actual "note reading" (theory) is taught. This approach gives the learner first shot at "reaching some degree of muscular control before turning his/her attention to various aspects of reading skills" (Sahr, 1981, p. 255). The "practice before theory" approach is constructed on the theories and methods of Bandura, Kolb, Pestalozzi, Kodaly, Gordon and Bastien. There are arrows between the two approaches that undergo teaching, testing, comparing and evaluating.

The **Output** presents the results and recommendations for an alternative approach 'practice before theory' to piano instruction. Results show that both groups that were tested were given marks

acceptable for the first year required piano level. The “practice before theory” approach showed a higher score level than the “theory before practice” approach on all areas of testing. Recommendations include the adoption of this approach to other disciplines in the performing field for vocal, instrumental, speech, theater and dance. It could be done in nursing or other medical procedures and in different subjects across grade levels as early childhood, elementary and high school.

The **Feedback** illustrates a relationship between the environment, the input, the through-put and the output where communication is made open throughout the process. The boxes are perforated to signify constant movement between them.

METHODS

Study Participants

The participants in this study are those who auditioned into the music program at the College of Performing and Visual Arts in June of school year 2011-2012. They were auditioned on piano level skills and music reading abilities to reach Level 1 or Music 11. There were eight who did not reach Level 1 and were put on an *On Probation* status. These OP students became the participants of this study. They were randomly grouped into two. The first group or Group 1 with four members were taught using the traditional “theory before practice” approach while Group 2, also with four members, was taught using “practice before theory” as an alternative.

Each group met on separate days, once a week for one hour. All the participants were interviewed and asked specific questions regarding age, interest in music, and musical background to establish their profile when classes began. They were also required to write a short essay about themselves and why they wished to take music. Both groups were taught by one piano teacher and a teaching assistant. Each of the participants’ progress was recorded.

The overall requirement for the participants included playing two pieces by memory, one for recital and one for practical examination. On the practical examinations, scale knowledge was checked.

The activities of each group differed only on the first meeting day. Group 1 was first introduced to music theory and note reading while Group 2 was introduced to the piano, its mechanism and touch.

Group 1 'Theory Before Practice' Approach

The *first day sequence* of activities include [1] introducing the student to musical signs and symbols; [2] teaching students how to sit, how to touch, how to use the fingers; [3] teaching finger number piano placement; [4] teaching the notation and hand placements on the piano; [5] teaching students to read and play the first three pages of the book with correct finger placement and counts; [6] assigning two pieces of music each so that they may practice reading on their own; and [7] letting students memorize assigned pieces, if possible.

On the *second day* and succeeding meetings, assignments were checked, hand positions corrected, reading and memorization skills tested. Upon readiness, a higher level piece was given, taught, and assigned for practice until the next lesson. The major scales were taught by rote (or practice before theory) to meet the practical examination deadline. This sequence continued until the end of the semester. Recital pieces and practical examination pieces were assigned within that given period of time. The recital piece was assigned before the middle of the first semester and the practical examination piece, after the recital.

Group 2 'Practice Before Theory' Approach

The *first day sequence* of activities include [1] introducing the students to the piano by allowing them to sit at it, make it sound by pressing whole hands on the keyboard, then individual fingers, one at a time; [2] teaching them how to play the C Major Scale by imitation; [3] assigning finger patterns on the right hand; [4] asking the students to imitate the teacher by playing the scale using the right hand; [5] asking the students to imitate the sound of C Major scale with the left hand with finger numbers using their listening skills and memory of the sound of the scale as a guide; [6] asking the students to play G Major Scale; [7] when students have difficulty, asking them to sing the scale while finding the notes on the piano; and [8] assigning the students to play other scales beginning with the tonic on the white keys for practice after the lesson.

It is on the *second day* that the students begin music theory and note reading. Before they are taught to read, assignments of the first day are checked. They then follow the process of Group 1's first day with the additional assignment of continuing to practice the major scales on the white keys. On the third day onward, the students follow the sequence of day two activities of Group 1.

The participants were primarily evaluated on two performances. The first evaluation was a recital done in August of SY 2011-12 (mid-semester). The recital is a public performance, a time where the students play one memorized piece on a stage. They were graded by a jury composed of 18 faculty members including the teacher and the teaching assistant. The participants were rated according to the following skill-based criteria which equaled 100%: 5% posture, 5% hand position, 10% finger facility, 10% articulation, 5% level of piece, 10% understanding of style, 15% fidelity to style, 20% memorization and 20% execution. The jury then made a rating of Pass (P) or Fail (F) based on the criteria.

The second evaluation was a practical examination (closed door examination) that was held at the end of the term. Three groups of evaluators rated the participants on this day, consisting of a jury of 16 faculty members, the piano teacher, and the assistant teacher. On the week after practical examinations, they were evaluated by three pedagogy students. All these evaluators rated the participants using the same instrument with criteria equaling 100%: 5% posture, 5% hand position, 10% finger facility, 10% articulation, 5% level of piece, 5% sight reading, 5% scale knowledge, 5% rhythmic knowledge, 10% understanding of style, 10% fidelity to style, 10% memorization, 10% execution and 10% other skills (rated by the teacher based on profiles).

The participants were also evaluated by their teacher and the assistant teacher on their attitudes to learning and rated Good (G) or Needs Improvement (NI) based on the following instrument with questions that read as follows:

1. Does the student come to class on time?
2. Does the student willingly listen to instruction?
3. Does the student follow instruction?
4. Does the student find time to practice after piano lesson?
5. Does the student seem to enjoy lesson learning?

RESULTS AND DISCUSSION

Profile and Music Background of Participants

The eight participants of age range 16 to 26 years old come from the Luzon, Visayas and Mindanao regions of the Philippines. The specific places are Panabo City in Davao del Norte, Maasin City,

Southern Leyte, Lamitan in Basilan, Puerto Princesa City in Palawan, Cagayan de Oro City, and Bayawan and Dumaguete City in Negros Oriental. All of them had zero or very little reading ability in music notation. They were able to follow rhythms and sing by rote. Some could play the piano by ear but could not play the piano by reading musical notation. Each of their exposures to the piano differed in the way that some have never touched a piano in their lifetime as others have taught singing, and accompanied themselves as they sang even without the reading abilities.

Theory Before Practice Group

One participant in Group 1 was enrolled in Music Education. She said that she belongs to a musical family but could read very little notes. She began to learn how to play the piano two weeks prior to the audition date in June, 2011. She liked music because making music, she says, allows her to express her feelings and it is a way to worship God.

The other Music Education enrollee in Group 1 says that her parents play the guitar and her mother sings. She cannot read notes but likes music. Because she is an only child, music has become her brother and sister at home. She says it gives her happiness and comforts her when she is sad.

The third participant in Group 1 is a Voice Major. None in his family has any musical talent. He has never played the piano but likes music because he loves to sing and in singing, he can express what he really feels. He says, this gives joy to his heart.

The last participant, in the group started to learn how to play the piano when he was 9 years old and was taught by his father to play chords. He could play one piece on the right hand entitled, "Twinkle, Twinkle, Little Star." As a young child, he played the piano for at least two to three months before shifting to sports. He lost interest in playing the instrument because his fingers were too small to reach one octave. Later in his life, he learned to play the guitar by himself and played for bands around the city. Yes, his family is musical and No, he could not read notes upon entrance to the college. He says that he likes music because it makes him feel alive.

There are two in Group 1 who come from families with no music background and two who do come from a family with musical background. Those with musical backgrounds have an edge of learning music faster. They showed more interest and are not so

afraid of making mistakes.

The last participant in this group was elevated to a much higher level music piece towards the end of the semester because of his interest and motivation. The ones with no music background tried their very best to do their work but had difficulty at having to read and play despite the fact that they really enjoy music. This is what Sahr (1981, p. 255) means in the book *Teaching Piano*, when she says:

For many students, playing the piano and reading music are two separate activities. The muscular skills involved in playing the piano are distinct from the intellectual understanding necessary to read music. A student must concentrate on reaching some degree of muscular control before turning his attention to various aspects of reading skill.

Practice Before Theory Group

The first participant in Group 2 was a Music Education student who chose music because her passion is in this course. She thought it was easy but was wrong and her being in it is a challenge. She does not belong to a musical family and came to the college not being able to read notes. She was able to have piano lessons for a short time when she was in elementary school but had forgotten how to read notes. She likes music because it is “food for the soul.”

The second participant in Group 2 took up bandurria when she was in grade two. She loved playing in the rondalla. She also learned to play the xylophone and drums when she joined the school band. She liked to join competitions of bands in the high school against her parents’ wishes. She says these events “stir up music within her and her music keeps getting better and better.” Her love for music became more intense when she joined an international rondalla event. She was initially enrolled in civil engineering but when she failed two subjects, she enrolled in music. Her family is musical in that her grandfather plays string instruments and her father sings. She could read notes on the right hand a little bit upon entrance into the school. When asked, do you like music? Her answer was, “no words can really explain how much I like music other than the different emotions/ feelings I get every time I’m into making music.”

The third participant has a handicap. She can barely see. Her major is in Voice performance. Music, she said, has always been a part of her life. She learned to sing on her own. Her mother, after discovering her desire to sing bought her a keyboard so she could accompany herself. She took piano lessons for a short time but could

play the melody with only one hand. She enrolled at COPVA to fulfill her dream of becoming a professional singer. She says her family is musical as her brother plays the guitar and the drums. When asked if she could read notes, she says, "not quite." She has been playing her keyboard since high school. When asked if she likes music she says, "Yes, because music can make me happy and it shows me different feelings and emotions that I can express myself as I am."

The last participant in this group has a Bachelor of Arts Degree and is an ex-seminarian. He is enrolled in Music Education. When he was a child, he used to lay on the floor listening to his mother while she played the guitar and sang to him. She used to tell him about the song "Baleleng." When he was a child, it was only this song that could stop him from crying. When he was 7 years old, he used to watch and listen to his mother and uncle play the keyboard and he tried to imitate them. He then played keyboard most of the time after school. Then he got "addicted" to playing the guitar. He also joined the choir in school. During college at seminary, he was assigned to play the *bajo de arco*. He taught other seminarians to play musical instruments. This is where his knowledge of music grew. After his seminary days, he played in bands and won in several competitions which earned him invitation to participate as the sound and music director and conductor during their graduation. His family is musical. He could read notes but very, very slowly. He has played the piano for 15 years solely by ear. When asked if he likes music, he says, "Yes, because music is part of my life. Music is where I can express my feelings."

In Group 2, three participants belonged to musical families and one did not. Those who belonged to musical families were seen to have a great interest in learning. It is the one who belongs to the family with no musical background that had more of a difficult time learning. This student had some absences and often did not come on time.

Performance ratings of participants. As previously indicated, there were several people who rated participants based on aforementioned criteria. Rating average was used to measure the quality of the performance of the participants according to the group they learned with (or the teaching approach they were exposed to). Ratings according to the raters are based accordingly on the performances of participants in recital and practical examination (see Table 1).

In general, the jury gave a rating of *passed* in the recital performance of all the participants of the study regardless of their exposure to the traditional or new approaches. This means that the participants were

doing well in all the criteria for the recital performances. Meanwhile the average ratings the participants earned from the jury in their practical examination show that those exposed to the new approach scored higher (72.1%) as compared to those under the traditional approach (70.3%). Based on the suggested differences on the scores given, the participants under the new approach were found by the jury to have performed a little better in posture, hand position, articulation, level of piece, scale knowledge, understanding of style, fidelity to style, memorization and other related styles.

Similarly, for practical examinations, the teacher gave a higher average score to the new approach (76.00%) in comparison to the traditional approach (67.25%) and also gave a *passing* mark to all the participants for recital (Table 1). The assistant teacher awarded the new approach (69.75%) higher rating than the old approach (66.25%). On the 'execution' criterion, both the teacher and the assistant teacher gave a higher score to the traditional approach which could be credited to the wide difference of individual scoring.

Meanwhile, the pedagogy students who were asked to rate only the practical examination revealed a wide difference between the two groups. The participants under the traditional approach were given an average rating of 68.0% while those under the new approach enjoyed a higher rating of 75.3%, thereby reinforcing the observations of the other raters regarding the better performance of the latter group. The pedagogy students were impressed by the new approach commenting on the hand position and finger facility as 'amazing' in comparison to the traditional approach.

There is a marked difference in approaches as revealed by the scores. All the raters gave a higher score to the new approach with an average of 72.6% in comparison to the traditional 67.8%. The consistent higher ratings of the new approach show a considerable difference in approaches.

Comparing Attitudes of Participants

The evaluation on attitudes was done only by the piano teacher and her assistant teacher. They were the ones who had hands-on experience with each single participant. The comparison was done by summing up scores for each question by counting each student's rating by both evaluators. Participants who got Good (G) or Needs to Improve (NI) were tallied against each approach. In terms of good attitude towards learning, the new approach holds a slightly higher

Table 1
Summary of Performance Ratings

Criteria for Rating Performance	Juror		Teacher		Assistant Teacher		Pedagogy Students		Average of All Raters	
	Old	New	Old	New	Old	New	Old	New	Old	New
Posture (5%)	4.0	4.1	4.0	4.5	4.5	5.0	3.9	3.8	4.1	4.3
Hand position (5%)	3.7	4.0	3.25	4.0	4.0	4.25	3.3	3.9	3.5	4.0
Finger facility (10%)	6.9	6.9	6.25	7.5	5.75	6.0	7.3	7.3	6.5	6.9
Articulation (10%)	6.7	7.1	4.5	7.5	5.75	5.5	6.1	8.1	5.7	7.0
Level of piece (5%)	3.8	4.0	4.5	4.0	4.0	4.0	4.3	4.2	4.1	4.1
Sight reading (for teachers, 5%)	4.3	4.3	4.5	4.5	2.75	4.0	4.2	4.3	3.9	4.2
Scale knowledge (5%)	3.7	4.3	4.5	4.5	4.0	4.0	4.0	4.3	4.0	4.2
Rhythm knowledge (for teachers, 5%)	4.3	3.9	4.5	4.5	3.25	4.25	4.3	3.9	4.0	4.1
Understanding style (10%)	7.4	7.6	6.5	7.25	6.5	6.75	6.3	6.7	6.6	7.0
Fidelity to style (10%)	7.2	7.3	6.5	7.5	6.25	6.5	6.1	6.7	6.5	7.0
Memorization (10%)	7.5	7.6	7.5	8.0	8.75	8.0	6.6	9.0	7.5	8.1
Execution (10%)	7.0	7.0	7.25	7.0	8.0	7.0	7.3	8.1	7.3	7.2
Other skills (10%)	3.8	4.0	3.5	4.75	2.75	4.5	4.0	5.0	3.5	4.5
Total Rating	70.3	72.1	67.25	76.0	66.25	69.75	67.7	75.3	68.0	72.6

score but it is the traditional approach that comes to class on time. Each group shows a few who need to improve in each area but the difference is slight (Table 2).

Table 2.

Attitudes of Participants

Evaluation Criteria	Theory Before Practice Approach		Practice Before Theory Approach	
	Good	Needs Improvement	Good	Needs Improvement
Punctuality during class	6	2	5	3
Willingness to listen to instruction	7	1	7	1
Obedience to instruction given	7	1	8	0
Time management to practice	6	2	7	1
Enjoyment in learning piano	6	2	6	2

Observed Differences in Performance For Practical Examinations

Comments of the performances were recorded by the jury, teacher and assistant teacher and comparisons on approaches made. The comparisons were based on the following technical areas of study: posture, hand position, finger facility, articulation, level of piece, scale knowledge, and understanding of style. Other pertinent comments were included in the discussion to create a more holistic view of the observations.

There were more comments on ‘good posture’ for the new approach compared to the traditional (Table 3). New approach descriptions on posture include relaxed, and natural, in comparison to the participants in the traditional approach: tense, problems with thumb, fourth and fifth fingers need strengthening. Both approaches had more or less the same comments for finger facility and articulation, except that the new approach participants had a comment on having ‘clear musical phrases.’ This observation lends insight to the musicality of the participant and shows a potential that teachers can work with for improvement. Piano piece levels were more or less equal except there was one in each group that had a slightly higher level than the

Table 3.

Observations Based on Practical Examinations

Approach	'Theory Before Practice'	'Practice Before theory'	Difference
Posture	Needs to find where sit on the piano Looks stiff Erect but relaxed Does not look comfortable A straight back might aid in the thinking process Relaxed Sits too near the piano	Needs improvement Erect but tense Good Good posture for beginner	'Practice Before Theory' approach has more comments on "good" posture
Hand position	Fourth and fifth fingers need strengthening Needs improvement Has problem with left hand Thumb tense Wrist too high Elbows too close to body Needs to improve finger position Hinders finger facility	Fourth and fifth fingers can be a problem if not corrected immediately Impressive Relaxed Natural Fourth and fifth fingers too low Wrist a little stiff Wrist too high when turning on the third and fourth fingers Needs to improve level of wrists and arms	'Practice Before Theory' approach has more positive comments, like "relaxed" and "natural" than old approach

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able 3. (Continued...)

Observations Based on Practical Examinations

Approach	'Theory Before Practice'	'Practice Before theory'	Difference
Finger facility	Facility will greatly improve if hand position is checked Good coordination Good control but needs finger exercises Lacks strength, needs more exercises Well coordinated Less coordinated Needs to improve	Relaxed fingers Good coordination Well coordinated Stiff Credible Needs more exercise Needs more control when playing fast piece	Both approaches have more or less the same comments, except the new approach has a comment on "clear /musical"
Articulation facility	Finger facility and understanding of styles Needs to improve pedaling Clear in some places Faulty articulation	Credible Loosely articulated Clear articulation despite of handicap Messy A little heavy Knows where to accent	Both approaches show more or less the same comments
Piece level	Advanced	Higher than peers	Both approaches had at least one who had a higher level piece

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Table 3. (Continued...)

Observations Based on Practical Examinations

Approach	'Theory Before Practice'	'Practice Before theory'	Difference
Scale knowledge	Satisfactory	Good	Same results
Understanding style	Good	Good	Same results
Other comments	Needs to learn to sit correctly Work out strengthening fingers coordination of hand	Very impressive Needs to relax more Fingers are strong Conscious	'Practice Before Theory' approach performance is more impressive than old approach

others. Piece levels are important because it brings the student into the area of acceptability into the program. Both groups had satisfactory scale knowledge. This area of learning was taught by rote 'practice before theory' to all participants. All the participants showed an understanding of the musical styles of their assigned pieces. While the comments differ regardless of approach, the evaluation shows an agreement among evaluators that the new approach performance is more impressive than the traditional approach performance.

SUMMARY AND CONCLUSIONS

This study investigated the piano performance of probationary students enrolled in the Music Department of the College of Performing and Visual Arts at Silliman University to find out if improvement on piano playing performance could be based on an alternative teaching approach. The alternative teaching approach, 'practice before theory' was tested against the more traditional teaching approach in current use 'theory before practice' to find observable differences in the technical areas of piano performance.

Technical criteria included posture, hand position, finger facility and articulation. The data was collected by testing an equal number of participants divided into two groups, each using a specific approach. The evaluation of the approaches was based on two performances, the recital and the practical examinations. Evaluations were done by the students' piano teacher, her teaching assistant, 16 faculty members who composed the jury, and, three junior-level pedagogy students. Demographic profiles, musical backgrounds and attitudes of the participants were examined to see whether these factors contributed to the differences in the learning processes.

The participants with musical background and those who had a chance to touch or play the piano in the past had an edge in learning the instrument than those with less or no musical background at all. Three out of these four participants were part of the new approach group, perhaps explaining why they had a better performance than those in the older approach.

Mid-semester recital evaluations proved to be very good for all regardless of what approach they used. It is at this time where the skill of memory and execution of an assigned piece are crucial. End-semester practical examinations showed the observable effects of the difference that the new approach had based on higher ratings earned in

comparison to the traditional approach. Points of evaluation included posture, hand position, articulation, level of piece, scale knowledge, understanding of style, and fidelity of style, memorization and other skills.

Both approaches have more or less the same results in terms of willingness to learn, and following instruction. The traditional 'theory before practice' approach participants were punctual in coming to class while the new 'practice before theory' approach participants were the ones who found time to practice after classes. That is why, in general, the 'practice before theory' approach showed a slightly higher attitude rating than the other. Attitudes towards learning are a part of improvement where the practice on the instrument and the eagerness to learn give more edge to performance.

The salient difference between the two approaches for posture, hand position, finger facility scale knowledge and understanding of style are that the 'practice before theory' approach performance is described to be "relaxed, and natural" while the 'theory before practice' approach performance included comments like 'needs to learn to sit correctly, needs to work out to strengthen fingers and coordination of hands.'

In conclusion, the study has shown that there is an observable difference in the performance of the On Probation piano students who participated in the study and exposed to two different piano teaching approaches. Also, proper attitude plays an important part in the improvement of skills, especially the attitudes of practice after lessons and the willingness to do this task. When reviewing the musical backgrounds, those who were able to touch the piano (without theoretical know-how), in the past, were those who did not have as many problems with putting the skills of reading and playing as those who had never experienced touching the piano. This explains why the evaluators rated the "practice before theory" (new approach) higher in the technical areas of learning the art. Good attitude and musical backgrounds are important factors for improvement tested through the 'practice before theory' approach. This has shown positive results. This type of learning gives the participant a chance to be more comfortable with the use of their hands where concepts learned by heart and continued practice become essential to the mechanics of playing.

This non-discriminatory approach to learning has proven to be beneficial to the non-musically-literate students who wish to gain a music degree as it gives them an opportunity to begin a music career

from zero. It is only the College of Performing and Visual Arts that accepts these types of entrants. Further study could be done on piano students on a higher piano level to see whether there are observable differences in teaching approaches.

It is suggested that a longer time for testing might bring in even more conclusive results. While this paper strongly recommends that the College of Performing and Visual Arts adapt the “practice before theory” approach as an alternative to that of the “theory before practice” approach, both could be used simultaneously as is needed by the student. Studios of music used to the traditional way of piano pedagogy might benefit from giving the alternative approach a try. It further recommends other disciplines to adopt this method as well. These disciplines could include subjects in the performing field like voice, and other musical instruments, and in speech and theater arts. This approach could also be considered in learning nursing and other medical procedures and across grade levels where subjects for early childhood, elementary and high school can be learned.

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Revolutionizing Freud: Marcuse on the Psychology of Domination, Resistance, and Emancipation

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Following Marx, Herbert Marcuse believes that the internal logic of overproduction and excessive consumption, combined with massive pauperization will lead to the self-destruction of capitalist society. But the political events of mid-20th century made Marcuse realize that Marx's notion of the necessary transition from capitalism to socialism did not happen. What happened instead were the integration of the proletariat into the status quo, the stabilization of capitalism, the bureaucratization of socialism, and the absence of a revolutionary agent for progressive social change. For this reason, Marcuse appropriated Freud's theory of instincts in order to provide Marxism an anthropological basis. I argue that Freud's theory of instincts provided Marcuse with a model for a psychology of domination and resistance, and a model to think anew the philosophical conditions of emancipation: the agent of social transformation is the biological individual. I argue further that Marcuse's appropriation of Freud's theory of instincts is aimed to explain why the transition from capitalism to socialism did not happen, why, especially in the 1930s, the revolutionary class had been dissolved and became conformist, and how this conformism was even extended into the postwar era.

KEYWORDS: reality principle, surplus repression, performance principle, *Ananke*, sublimation, repressive desublimation, Flase Needs, domination, resistance, emancipation

Toward the end of the second half of the twentieth century, with the help of his three philosophers of predilection, namely, Heidegger, Hegel, and Marx, Marcuse constructed a philosophical model that was to provide the conceptual language and the framework to develop a new theory of emancipation, realizing the hope of the Enlightenment project but under contemporary conditions. Heidegger's historical *Dasein* gave a model for the possibility of the individual becoming disposed to radical action. Hegel provided the model to analyze the process of social crisis, and the necessity of the passage to a new phase of social organization. Furthermore, Hegel's master-slave dialectic allows Marcuse to view labor as the basis of self-consciousness. The early Marx focuses on work as the locus of domination, alienation, and the place from which emancipation can be realized. But here a problem arises: whilst Hegel's dialectic is supposed to point to the inevitability of crisis and transformation, in fact the empirical "slaves" of the society of the 1930s not only failed to overthrow a capitalistic order on its knees. Worse still, they turned in ever increasing numbers from the mid-1930s onwards towards parties and their fanatical leaders whose programmes are the exact opposite of the full human emancipation. This historical conundrum led Marcuse, together with the other members of the Frankfurt School, to become increasingly interested in the psychological dimension of domination and emancipation. This turn to the philosophy of domination and emancipation can be made sense of more specifically from the perspective of Marcuse's Marxist assumptions.

Like Marx, Marcuse believes that the internal logic of overproduction and excessive consumption, combined with massive pauperization, leads to the self-destruction of capitalist society. The capitalist system of overproduction coupled with excessive consumption creates insatiable individuals whose needs and desires are impossible to satisfy. This is dangerous for Marcuse because as the society produces more and more to address the yearnings of unquenchable individuals, a discrepancy between the purchasing power of the individuals and the volume of goods and services produced by the capitalist society necessarily ensues at some point in time. Marcuse believes that this would cause disintegration of the capitalist order. But the self-destruction of capitalism that Marcuse, following Marx, predicted, did not as a matter of fact necessarily lead to socialism. Contrary to what Marx predicted, Marcuse in the middle of the twentieth century began to realize that the transition from capitalism to socialism did not happen. What happened instead were the integration of the

proletariat into the status quo, the stabilization of capitalism, the bureaucratization of socialism (as in the case of the former Soviet Union), and the absence of a revolutionary agent for progressive social change. Marcuse discovered that the capitalist society had developed a technique that effectively dissolves "opposition" in the society and reduces the individuals into acquiescence or even complicity. Thus, dialectic, which was supposed to be unstoppable and necessarily leads to a free society of free producers, instead produces a conformist society of complying individuals.

This problem explains why Marcuse attempted to complement his revitalization of Marxism with Freud. Marcuse's attempt to revitalize Marxism through Heidegger and Hegel, therefore, did not suffice. It needs another decisive piece to complete the methodological puzzle. Marcuse found it in Freud's psychoanalysis. This is now the main thrust of this paper: an engagement with the way in which Marcuse attempted to provide Marxism an anthropological basis by going into the depth dimension of the human psyche, through an appropriation of Freud's theory of instincts. Marcuse's intention here is to explain why the transition from capitalism to socialism did not happen, why, especially in the 1930s, the revolutionary class had been dissolved and became conformist, and how this conformism was even extended into the postwar era. Equally, however, this paper argues that Freud's theory of instincts provided Marcuse with a model for a psychology of domination and resistance, and a model to think anew the philosophical conditions of emancipation: the agent of social transformation is the biological individual or, to use Marcuse's words, the individual with the "new sensibility."

THE SOCIAL DIMENSION OF FREUD'S THEORY OF HUMAN INSTINCTS¹

Central to Freud's theory of instincts, as Marcuse reconstructs it, is the idea that there is an inherent antagonism between the satisfaction of human instincts and individual freedom on the one hand and the development of civilization on the other. According to Freud, this antagonism is an antagonism between individual and cultural demands, or between sexuality and civilization.² In his exposition on Marcuse's *Eros and Civilization*, K. Daniel Cho observes that Freud's unrelenting position on the necessity of the repression of instincts is one of the key concepts in Marcuse's engagement with Freud.

Cho writes: "Marcuse's contention in *Eros and Civilization* is with Freud's belief that civilization is coterminous with the repression of the drives: 'The notion that a non-repressive civilization is impossible is a cornerstone of Freudian theory'."³ However, Freud believes that the repression of the instincts is beneficial to mankind because it humanizes the animal man and, is therefore the condition of progress to civilization. Freud argues that in order for civilization to thrive, the demands of human instincts must be constantly held in check by socially powerful norms. For Freud, this normative standard is necessary for two reasons: first, it prevents the dissolution of social bond by keeping in check the destructive forces of human instincts, and second, this process of repression also triggers mechanisms of sublimation and channeling of instinctual energies into forms of psychic development responsible for cognitive and moral progress. Whilst Marcuse adopts the framework and the language of Freud's social theory, he also questions whether the extent of repression of the instincts is excessive or indeed necessary.⁴ Before we consider this criticism of Freud, however, we must first consider the explanation Freud gave for the necessity of the repressiveness in civilization, which is twofold, namely, biological and economic.

Firstly, Freud believes that civilization, that is, the very possibility of a life in common for human individuals, and the possibility of any cognitive, moral, and instrumental progress, begins with the twofold systematic repression of the primary instincts of human beings, to wit: [a] the repression of life-instincts (Eros), which tend at first to focus on external gratification with exclusive object, the repression and rechanneling of these erotic instincts ensues in durable and expanding group relations; and [b] the repression of the destructive instincts (Thanatos). Left unchecked, the pleasure in destruction obviously destroys all possibility of life in common, but rechanneled, it can be made to serve positive purpose; it leads to the mastery of human beings and nature, to the individual and social morality.⁵ Let us summarize the basic assumptions underlying this theory of the social bond and historical evolution.

Eros, whose elemental goal is the preservation of life, and Thanatos, whose primary goal is the destruction of life, are the two mechanisms immanent within the human psyche that operate in the process of releasing tension.⁶ Eros does it through the immediate satisfaction of sexual desires, while Thanatos does it through destruction or death. Both Eros and Thanatos work under the pleasure principle, that is, seek immediate and full gratification. This necessity is imperative

inasmuch as these instinctual mechanisms obey organic laws. For Freud, this is the dynamics of life; life is a "conflict and compromise between these two trends."⁷ However, these two conflicting forces within the individual are brute organic forces that stem from the individual's organic makeup and therefore initially disregard the necessity of life in common. They are therefore perilous and would cause destruction to the individual in particular and to life in common in general if left unchecked since the individual satisfaction they seek necessarily runs counter to any basic functional demand of social life, notably the necessity of individual achievement to encroach upon the sphere of others, or for long-term commitment to be upheld. A society where the demands of Eros and Thanatos receive immediate satisfaction is structurally inconceivable. No social life can maintain itself if individual instincts are left unchecked. Thus, the individual has to restrain his or her socially destructive instincts by conforming to some socially useful norms. This is why Freud fully accepts and justifies the necessity and virtue of repression. Eros and Thanatos, which work under the pleasure principle, must bow to the rule of the reality principle.⁸ The "reality principle" is the set of demands the individual has to take into consideration, and which society enforces upon her/him via rules, norms, and prohibitions simply so that human life can be maintained given the limitations and constraints that stem from the natural and social environments. Freud argues: "Civilization has to use its utmost efforts in order to set limits to man's aggressive instincts and to hold the manifestation of them in check by physical reaction-formation."

Freud also believes that the repression of the human instincts is enforced and sustained by scarcity or *Ananke*.¹⁰ More specifically, repression of the primary instincts is demanded by the situation of scarcity, in which the human individual finds him or herself, that is, the difficulty for the human individual to find the means of subsistence given that Nature has not provided him/her with the kind of structural and organic connection to the environment that is granted to other living beings. This irreducible situation of existential precariousness that is both economic and organic is captured in the concept of *Ananke*. As Edward Hyman emphasizes, *Ananke* is the underlying principle of the reality principle.¹¹ *Ananke* in particular forces the human being to work in order to survive, in order to simply put food on the table, clothes on his/her skin, and shelter over his/her head. And since the society in the past "...has not means enough to support the life of its members without work on their part, it must

see to it that the number of these members is restricted and their energies directed away from sexual activities on to their work."¹² In other words, *Ananke* constrains not just the external activities of individuals, but also and indeed primordially their very instinctual life. In his engagement with Marcuse's *Eros and Civilization*, Barry Katz puts it aptly:

Chief among the environmental variables that condition the prevailing repressive organization of the instincts is the brute fact of material need, *Ananke*: the condition of scarcity that has dominated the world history of civilized society has dictated that a considerable part of the instinctual (libidinal) endowment of the population be diverted from enjoyment into productive labor.¹³

"Work," for Freud, is one of the foundations (the other is *Eros*) of society.¹⁴ Freud says that individuals "come together," i.e., live in society, first because they are forced to do so by economic necessity (*Ananke*) and second because they want to do so to acquire their sexual objects (*Eros*). In fact, for Freud, as for Marcuse, civilization is first of all progress in work—that is, work for the procurement and augmentation of the necessities (*Ananke*) of life.¹⁵ This necessity of work comes into direct opposition with the erotic instincts, and thus demands a thorough repression of libido, because direct libidinal fulfilment comes in the way of efficient work. The pleasure-seeking instincts must give way to non-libidinal work.¹⁶ C. Fred Alford summarizes this mechanism concisely: "Culture demands the sublimation of the erotic drives so that the psychic energy that would otherwise be directed toward immediate gratification *should* be inhibited in its aim and rechanneled into work."¹⁷ Erotic impulses can thus provide the source of the energy that is "redirected" in work. This gives a more precise image of the repression demanded by *Ananke*: not destruction of instincts, but rechanneling.

The repression of the human instincts by socially useful norms is precisely what is meant by the inhibition of the pleasure principle by the reality principle. To see now how this dialectic of pleasure and reality principle plays out in the formation of a subject, let us discuss briefly Freud's account of the opposition between the "pleasure principle" and "reality principle", and between the "ego" and the *id*.

On the one hand, the pleasure principle is the governing principle of the *id*; the *id* is that part of the human psyche that remains entirely unconscious. On the other, the reality principle is the governing principle of the ego. The ego is that part of the primary psychic processes that has been modified due to its direct contact with the

external world, both the material world and the social world (in the form of the parents). Freud summarizes this basic dichotomy by saying that the ego represents reason and common sense, while the *id* represents passion.¹⁸ Now, the instincts of the *id*, being governed by the pleasure principle, press for immediate satisfaction at all costs.¹⁹ This is the nature of the *id*. It seeks to satisfy its desires without any consideration of the possible danger for the individual. The ego intervenes at this point to take into account the demands and constraints from material reality and the social world. As the conscious part of the *id*, the ego mediates between the demands of the *id* and the external world.²⁰ Expressed in more general, philosophical terms, and as Adorno puts it, reason (*ego*) supervises the instinctual behavior of man (*id*).²¹ The ego uses the observation of the external world through the senses and its memory of past experience and more particularly the knowledge of social rules and prohibitions gained through past social interactions, to capture instances of harmless satisfaction and impose them upon the *id*. In this way, the *id* is bridled by way of delaying its satisfaction or even modifying its aim. This is the basic mechanism underlying what Freud calls “sublimation” of the instincts.²² When this happens, the inhibition of the pleasure principle by the reality principle becomes complete.

However, the inhibition of the pleasure principle by the reality principle does not mean that the yearning for pleasure is completely abandoned. It is only postponed for the sake of a long-lasting and more secure pleasure in the future. As Freud argues in his seminal essay *Beyond the Pleasure Principle*, the postponement of satisfaction is only a step on the long, indirect road to pleasure.²³ This renunciation of instinctual satisfaction is characterized by momentary absence of pleasure and a coming back of the object of pleasure.²⁴ Inasmuch as there is a coming back of the object of pleasure, it can be inferred that there is a “pleasurable” ending in this process. However, it is essential to stress that this process of sublimation in fact means that in the end happiness is attained. Freud insists that happiness is impossible. Civilization in the end categorically implies “control and domination”, the denial of human freedom and happiness for the sake of survival and the possibility of life in common. Freud believes that life is basically suffering and that the dynamics of nature as a whole proves this point. He said there is no possibility at all that happiness can be achieved since all regulations of the universe militate against it. As he writes in a famous passage:

We are threatened with suffering from three directions: from our own body, which is doomed to decay and dissolution and which cannot even do without pain and anxiety as warning signals; from the external world, which may rage against us with overwhelming and merciless forces of destruction; and finally from our relation to other men. The suffering which comes from this last source is perhaps more painful than any other.²⁵

In regard to the first two sources, our judgment cannot hesitate long. It forces us to acknowledge those sources of suffering and to submit to the inevitable. We shall never completely master nature; and our bodily organism itself a part of that nature, will always remain a transient structure with a limited capacity for adaptation and achievement.²⁶

As regards the third, the social source of suffering...we do not admit it at all; we cannot see why the regulations made by ourselves should not, on the contrary, be a protection and a benefit for every one of us.²⁷

What Freud wants to elucidate at this point is not only the fact that human beings are destined to suffer, but also the cause which gives rise to this suffering—suffering is a direct upshot of the repression of instincts and such repression is an ineliminable condition of human life given the necessity for human beings to live in common. Freud never repudiates this repression. He argues that it is necessary in order to preserve life. Indeed, through the process of sublimation, which channels libidinal energies onto acceptable objects, repression is the key to civilization. In other words, the price for the preservation of life and culture is happiness. Momentary pleasure, which bespeaks of the oscillation of pleasure and displeasure in life, is the best that human beings can ever have in terms of happiness. It characterizes what Freud maintains as the eternal antagonism between the pleasure principle and the reality principle.

One final key concept needs to be introduced. In *Civilization and Its Discontents*, Freud asks the following questions: “What means does civilization employ in order to inhibit the aggressiveness (of the human instincts) which opposes it, to make it harmless, to get rid of it, perhaps?”²⁸ What is the basic psychic mechanism underlying the repression of instinctual demands and sublimation? Let us deal with this query before discussing Marcuse’s engagement with Freud.

Aggressive and instinctual forces in individuals can be tamed as the ego opposes to their immediate and urgent demands, the demands stemming from social life, the rules and prohibitions learnt through social interactions, notably the moral education and punishment exercised by the parents on the young child. This process of moral and social learning leads to the internalization of social norms and commands, the creation in the ego of a psychic instance

that represents within these external social norms. Instinctual forces are thus tamed by the ego thanks to the institution of the “superego” and “conscience.” The ego is the conscious part caught between the demands of the *id*, of which it is the superego which is the moral component of the ego, and which was formed following the ego’s contacts with social objects. In *The Question of Lay Analysis: An Introduction to Psychoanalysis*, Freud describes the superego as a special agency of the ego, which turns against the ego as it imposes upon it a kind of moralistic rule: conscience.²⁹ The superego is that specific agency in the human psyche that appropriates the reality principle stemming from the demands of external reality and exerts control over the ego to repress the *id*, the seat of the pleasure principle. The superego and the *id* are mediated by the ego. In Freud’s analysis, the ego is thus sandwiched between the *id* and the superego. It plays the significant role in striking a balance between the selfish demands of the *id* and the imposition of a stern moralistic rule as expressed by the superego. When overburdened by its tasks, the ego exerts defense mechanisms such as denial and repression. Conscience, through the superego, watches over the ego’s actions and intentions and exercises censorship on them.³⁰ In this manner, the aggressive instincts in individuals are weakened or disarmed and a well-functioning human society becomes possible. But as can be seen, this requires an unconditional submission of the ego to the superego. This makes Freud argue that any form of perversion must be tabooed. Perversion is not only detestable but also something monstrous and terrifying in what it harbors.³¹ This is because perversion represents an expression of the rebellion of the pleasure principle against the reality principle. The latter, however, subjugates the aggressive and brute forces in humans (Eros and Thanatos), a subjugation that is the condition for progress in civilization and that facilitates the smooth functioning of the entire system. This explains why Freud insists so strongly that the human instincts must be repressed at all costs.

What results from this process is the “sense of guilt”, the sense that the ego has of being watched over by the superego in every one of its actions and intentions.³² But Freud is convinced that this is how civilization ought to be, that the aggressive instincts should always be held in check and that the sense of guilt must remain permanent or indeed must be heightened. Every little advance in civilization should carry along with it a proportionate degree of guilt. For Freud, this is the price of civilization. But as said, this is at the cost of happiness.

MARCUSE'S CRITICAL APPROPRIATION OF FREUD

In contradiction to Freud's claim that human beings cannot live under the pleasure principle, that happiness cannot be attained, Marcuse's fundamental belief is that the goal of life is not merely security but pleasure.³³ As he writes, the struggle for existence is originally the struggle for pleasure. In turn therefore, Marcuse believes that a non-repressive society, that is, free and happy society, is the goal of human history. Or, to put it differently, the content of emancipation is not just rational autonomy, but the autonomy of beings who are free and happy, that is, fulfilled. In order to support this vision of emancipation, Marcuse proposes to interpret the struggle between reality principle and pleasure principle differently. The antagonism between the life instincts and the restrictions of civilization is socio-historical, not given for all times and, is therefore avoidable. In other words, such antagonism is simply a product of the historical organization of human society and, therefore, is subject to change. For Marcuse, the subjection of the pleasure principle to the reality principle is due not primarily to nature but to humans, to the administrators of the society.

It is important to note that the purpose of Marcuse's engagement with Freud's theory of instincts is not so much to criticize the contradictions (as Marcuse perceived it to be) of Freud's thoughts.³⁴ Nor is Marcuse concerned with the epistemological aspect of Freud's theory of instincts.³⁵ As has been pointed out in the early part of this paper, Marcuse's cardinal purpose in appropriating Freud's theory of instincts is to provide the anthropological basis for a renewed critical theory of society, one that receives its inspiration from two main sources: philosophy (especially Hegel), and the systematic critique of capitalism (Marx). What concerns Marcuse most in Freud's theory of instincts then is its capacity to provide a model for the psychology of domination, rebellion, and emancipation. Marcuse believes that it is an explosive theory because the release of Eros from subjection under the reality principle would result in a "complete human being," one in particular that could easily be united with the full human being of the young Marx.³⁶ According to Marcuse, the inherent antagonism between Eros and Thanatos and their opposition to external reality in fact point to the possibility of liberation. For that reason, the basic concepts of Freudian theory do not need dismantling, but rather they need to be pressed to the

limits.³⁷ Barry Katz thus argues that this “pressing to the limits” of Freud’s theory of instincts is intimately linked to Marcuse’s constant attempt to ground the historicity of human action. This passage from Freudian psychology to a theory of historicity occurs via mediating concepts, borrowed from Benjamin, like “remembrance” or “recollection.”³⁸ According to Katz, Freud’s theory of instincts provided the content and context of Marcuse’s notion of remembrance: what is to be remembered now is the primal stage of polymorphous gratification which has its origin in infancy.³⁹ This is because for Marcuse, as Katz observes, the unconscious instincts preserve the memory of the past stages of individual development in which integral gratification is obtained and the individual lived in her/his environment without subjection or repression.⁴⁰

But because Freud failed to distinguish adequately between the biological and socio-historical vicissitudes of the instincts, that is, between their biologically given nature and the shape they take in distinctive historical periods and social set-ups, he had defused a potentially explosive theory.⁴¹ Marcuse then attempts to reactivate such explosive theory by detailing the socio-historical dimensions of the evolution of instincts. To do this, Marcuse introduces two key concepts: *surplus repression* and *performance principle*. Marcuse employs these concepts to argue that human history can be divided very schematically into two phases: first, a phase which lasted until the modern age, in which some form of social domination (and so, of basic repression) was necessary in order to deal with scarcity and lay the technological foundations for abundance; and, second, a new phase in which with the advancement of science and technology, which successfully answered the problem of material necessity, repression became needless.⁴²

Surplus repression is a form of repression that is necessitated by *social* domination and top of and beyond repression that is necessary to organize society and production in times of scarcity. It is an additional control which arises from the specific institution of domination.⁴³ Marcuse creates this notion as the counterpart in instinctual and social life to Marx’s surplus value. In Marx, for the surplus value to be extracted from labor power, adequate social structures must be in place which ensure that a surplus of repression prevents workers from rejecting the extra effort demanded of them and indeed forces them to accept these extra efforts. Morton Schoolman shows that next to this first meaning, surplus repression can also be understood as

a specific organization of scarcity through the creation of artificially manufactured needs.⁴⁴

Since scarcity is in theory overcome with modern production, there is in principle no longer a need for any repression. In theory, we could let machines do the work for us. We now live potentially under a new reality principle, with a decisive weakening of *Ananke*. This is where Marcuse's key notion of "performance principle" is introduced and plays a central role. The performance principle is the historical form of the reality principle.⁴⁵ If in Freudian theory it is the reality principle that demands repression, for Marcuse, it is now the performance principle in the guise of reality.⁴⁶ Marcuse justifies his position by claiming that the advancement of science and technology had already put an end to *Ananke*, which is the main factor in the external necessities constituting the reality principle. Marcuse argues: "The issue of scarcity which legitimizes the repression in previous civilizations seems to be untenable now. In the advanced industrial society, the procurement of basic needs is no longer a problem, but it is the manner in which these material needs are distributed and utilized."⁴⁷ In particular, this means that this is now the moment that work can be eroticized, that individuals no longer need to work long and hard but work less and enjoy more.⁴⁸ However, the capitalist system of (over)production and lavish, and seemingly unlimited, consumption maintain the prevalence of a massive and unbending reality principle through the creation and valorization of artificial needs that constitute a new justification for the old demand that working and consuming individuals obey and conform to the dictates of society.⁴⁹

In his reading of Marcuse's *Eros and Civilization*, Richard Kearney observes that even when in theory the repression of instincts could be lessened or lifted since *Ananke* is no longer upon us, the performance principle which governs the capitalist society manipulates instinctual desires through the invention of new (unnecessary) needs as soon as the old (necessary) ones are satisfied.⁵⁰ In this way, old domination can give way to a new form of domination.

Another important aspect of Marcuse's engagement with Freud is the claim that the institutionalization of surplus repression through the performance principle is made possible by "repressive desublimation", a key Marcusean concept that bespeaks of the process of "mass repression whereby consumers come to identify libidinally with the commodities they purchased."⁵¹ As John Fry has shown, this results in the eroticization of originally non-erotic objects, e.g., cars,

clothing, houses, gadgets, and the like.⁵² Here, “the demands of the life-instincts originally characterized by polymorphous sexuality, are permitted expression and gratification in safe (or even useful) form of activity.”⁵³ Thus, the demands of the sexual instincts meet fewer taboos and (this is crucial) liberated instincts can be redirected towards productive goals rather than expand for themselves. However, this liberation from repression, instead of being synonymous with liberation of the human being, leads to even greater subservience to the economic order and its productivist and consumerist logics. This is because domination now is sustained through the manipulation of the psyche, and also because it now provides forms of gratification through increased consumption.

Meanwhile, the manipulation of the instincts results not only in “surplus repression” but also in the eventual release of Thanatos from its control under Eros.⁵⁴ This loosening up of Thanatos from the dominion of Eros can be witnessed, according to Marcuse (who follows Freud closely on this point),⁵⁵ in the First and the Second World Wars, the Holocaust, the Cold War, and all the other destructive phenomena displayed in modernity. For Marcuse, “The repression of civilization had only led to war and domination.”⁵⁶ This is true of all social orders throughout history, but is true more particularly of capitalistic, and even more specifically, of late capitalistic society, because of the increase in repression that is achieved through surplus-repression that directly targets the psyche. Jack Lawrence summarizes Marcuse’s argument clearly:

Whereas Freud argued that instinctual repression of human instincts (*id*) had to override the infantile pleasure principle as the price of the survival of civilization, Marcuse concluded quite the opposite. The suppression of the human instincts had not curbed human aggression and civilized mankind. On the contrary, he argued, it had produced massive human neuroses by suppressing human pleasure in the name of the capitalist work discipline.... Thus, Marcuse found that the reality principle had only increased the tendency of modern societies to be authoritarian, repressive and anti-liberatory; individuals had abandoned the pleasure principle and fantasy for societies that had in the meantime failed.⁵⁷

Marcuse’s concepts of “surplus repression” and “repressive desublimation” thus bring the reification of consciousness to qualitatively new heights. Domination continues and indeed expands in the midst of apparent liberation. This in a nutshell explains for Marcuse why in the wake of technological advancement the revolutionary class or the historically conscious individual disposed

to radical action have been dissolved and became the very instrument that perpetuates domination, and why the anticipated self-destruction of capitalism did not happen.

As the performance principle and surplus repression of capitalist society make work unpleasurable and breed ersatz individuals with pseudo freedom, Marcuse's ideal of true liberation instead calls for a new type of individuals who do not repress their sensuous makeup but cultivate it instead.⁵⁸ Cynthia Willet shows very well that the fundamental thesis of Marcuse's *Eros and Civilization* is the invocation of this new type of individuals who pursue a life devoted to "pleasure" understood in the broad anthropological or deep-psychological sense of full harmony with self and environment.⁵⁹ Contrary to Freud's stance that the individuals must postpone the gratification of their instincts, for Marcuse, the liberated individuals are those who celebrate the gratification of the "senses" since *Ananke* should no longer hold sway over human beings. In this way, the human body, the repression of which is the source of domination⁶⁰ (as Marcuse's notion of the "senses" refers to the entirety of the human body) is no longer arrested by the performance principle. The human body ceases to be an instrument of alienated labor. It is no longer haunted by conscience and the sense of guilt, but becomes the vehicle of liberation.⁶¹ For Marcuse, this is the road to the realization of a non-repressive, free, and happy society that Freud had thoroughly dismissed as dangerous utopia.

Finally, the notion of "perversion," tabooed in Freudian theory, becomes for Marcuse a key phenomenon which can be the symptom or, in some cases even, form of "refusal" against the system of control and domination exacted by the (capitalist) society. Perversion can be interpreted as an expression of rebellion against the subjugation of sexuality.⁶² It is the revolt of the pleasure principle against the performance principle.⁶³ In *Eros and Civilization*, Marcuse argues that the most liberating form of "perversion" is "fantasy" because it "continues to speak of the language of the pleasure principle, of freedom from repression, of uninhibited desire and gratification."⁶⁴ This produces a vision of a world that is free from control and domination. The products of fantasy in works of art and cultural creations project the image of a non-repressive, free, and happy society. Fantasy is not just future, but also past-oriented; it has an intimate link to "remembrance." It is fantasy that remembers or recollects those moments of instinctual gratification in the past, which for

Marcuse provide the image of liberation tabooed by the prevailing rationality. Inasmuch as Marcuse's notion of liberation involves the recollection of the forgotten image of liberation, inasmuch as this oblivion is due primarily to the near complete inhibition of the human instincts (pleasure principle) by the performance principle (the historicized form of the reality principle) via the institutionalization of surplus repression, and inasmuch as it is fantasy that can recollect this forgotten image of liberation, the power of fantasy can play a leading role in bringing the project of emancipation into fruition.

For Marcuse the rebellious power of fantasy occurs in "art" because the projection of a non-repressive, free, and happy society is basically a projection of the aesthetic dimension, of the beautiful. Art understood in this way is a form of critique. In the *Aesthetic Dimension*, Marcuse argues that art protests and at the same time transcends the system of domination.⁶⁵ In *One-Dimensional Man*, Marcuse will show that art assumes a political role; he said that art could invalidate and transform the existing pathological society.⁶⁶ Art points to forms of social pathologies and then offers the alternative which is completely different from Marx's "dictatorship of the proletariat" yet akin to the latter's notion of the total man: the individual with the "new sensibility."⁶⁷ This being the case, art for Marcuse is a decisive factor in the struggle for emancipation—indeed, it has become the ultimate form of "refusal."

CONCLUDING REMARKS

Armed with the theoretical language of Freud's theory of instincts, Marcuse provided an explanation of the failed overthrow of capitalism: the fact that "crisis and social transformation" did not happen was because the proletariat as potential agents of social transformation had been integrated into the capitalistic system. Through a critical study of Freud's theory of instincts, Marcuse developed a form of historical analysis that made it possible to explain, even ahead of Habermas's analysis of the diffusion of class struggle in the welfare state, how the integration of the proletariat into the capitalistic system was made possible by the new mechanisms of repression that late capitalism instituted in the interest of profit and expanded production, most notably "surplus repression" and the "performance principle." Marcuse employed

these concepts to explain how capitalist society manipulates instinctual desires through the invention of new (unnecessary) needs as soon as the old (necessary) ones are satisfied, a strategy that guarantees the perpetual integration of the proletariat into the capitalistic system. As I have shown, Freud's theory of instincts provided Marcuse with a model to think anew the philosophical conditions of emancipation: the agent of social transformation is the biological individual inasmuch as he or she can cast away "false needs" and retrieve "true" needs, or, to use Marcuse's words, the individual with the "new sensibility."

END NOTES

¹ In fact, Howard L. Kaye argues that Freud was from first to last a social theorist rather than a presumptuous Viennese physician. He writes: "Indeed, what drew Freud to the study of biology and medicine was precisely the hope of addressing scientifically the most fundamental cultural problems: the nature of man and his culture; the origins of religion, morality, and tradition and the nature of their extraordinary power; the sources of social order and disorder; the direction of contemporary cultural development; and finally, the problem of how to live in a disenchanted and psychologically impoverished world." See Howard L. Kaye, "Was Freud a Medical Scientist or a Social Theorist? The Mysterious 'Development of the Hero'," *Sociological Theory*, Vol. 21 No. 4 (December 2003), 375. See also Robert Golding, "Freud, Psychoanalysis, and Sociology: Some Observations on the Sociological Analysis of the Individual," *The British Journal of Sociology*, Vol. 33 No. 4 (December 1982): 545-562 and Hans G. Furth, "Psychoanalysis and Social Thought: The Endogenous Origin of Society," *Political Psychology*, Vol. 13 No. 1 (March 1992): 91-104.

² See Edward Hyman, "Eros and Freedom: The Critical Psychology of Herbert Marcuse," in Robert Pippin, Andrew Feenberg, Charles P. Weber, and Contributors, *Marcuse: Critical Theory and the Promise of Utopia* (Massachusetts: Bergin and Garve Publishers, 1988), 145. See also M.A. Casey, *Meaninglessness: The solutions of Nietzsche, Freud and Rorty* (North Melbourne, Victoria: Freedom Publishing Company, 2001), 45. On the culture and the necessity of repression, see *Ibid.*, 47-50.

³ K. Daniel Cho, "Thanatos and Civilization: Lacan, Marcuse, and the Death Drive", in *Marcuse's Challenge to Education*, edited by Douglas Kellner, Tyson Lewis, Clayton Pierce, and K. Daniel Cho (Lanham, Boulder, New York, Toronto, Plymouth, UK: Rowman and Little Field Publishers, 2009), 64.

⁴ See Adrian N. Carr and Cheryl A. Lapp, *Leadership is a Matter of Life and Death: The Psychodynamics of Eros and Thanatos Working in Organization* (New York: Palgrave Macmillan, 2006), 11.

⁵ Herbert Marcuse, *Eros and Civilization: A Philosophical Inquiry into Freud* (United States of America: The Beacon Press, 1966), 95.

⁶ Sigmund Freud, *The Ego and the Id*, translated by Joan Riviere, revised and edited by James Strachey (New York and London: W.W. Norton and Company, 1962), 30. See also Jonathan Lear, *Freud* (London and New York: Routledge, Taylor and Francis Group, 2005), 145.

⁷ Ibid., 31. For more on Freud's Eros and Thanatos, see Pamela Thurschwell, *Sigmund Freud* (London and New York: Routledge, Taylor and Francis Group, 2000), 88 and Paul-Laurent Assoun, *Freud and Nietzsche*, translated by Richard L. Collier, Jr. (London and New Brunswick, New Jersey: The Athlone Press, 2000), 87-90.

⁸ John Fry, *Marcuse-Dilemma and Liberation: A Critical Analysis* (New Jersey: Humanities Press, 1978), 41.

⁹ Sigmund Freud, *Civilization and Its Discontents*, edited by M. Masud R. Khan, translated by James Strachey (London: The Hogarth Press and the Institute of Psycho-Analysis, 1973), 49.

¹⁰ Marcuse, *Eros and Civilization*, 32.

¹¹ See Hyman, "Eros and Freedom", 152.

¹² Ibid., 32-33. But in the advanced industrial society, *Ananke* is no longer a problem. This will be tackled later.

¹³ Barry Katz, *Herbert Marcuse and the Art of Liberation: An Intellectual Biography* (London: Verso, 1982), 150.

¹⁴ Freud puts it clearly in his seminal work *Civilization and Its Discontents*: "The communal life of human beings had, therefore, a two-fold foundation: the compulsion to work which was created by external necessity (*Ananke*), and the power of love (Eros), which made the man unwilling to be deprived of his sexual object...." See Freud, *Civilization and Its Discontents*, 38. Emphasis added.

¹⁵ Marcuse, *Eros and Civilization*, 77.

¹⁶ See Michael H. Lessnoff, *Political Philosophers of the Twentieth Century* (Oxford: Blackwell Publishers, 1999), 53.

¹⁷ C. Fred Alford, *Science and the Revenge of Nature, Marcus and Habermas* (Florida: University Presses of Florida, 1985), 38-39. Emphasis added.

¹⁸ Freud, *Ego and the Id*, 15. More on the Ego and the Id in Thurschwell, *Freud*, 82.

¹⁹ Sigmund Freud, *Two Short Accounts of Psycho-Analysis*, translated and edited by James Strachey (London: Penguin Books, 1991), 111.

²⁰ Ibid. Cf. Plato's psychology. In Platonic psychology, man is viewed as a being who is composed of three kinds of souls, that is, the rational soul, spiritual soul, and the appetitive soul. Each has its specific location in the human body. The rational soul is

located in the head, the spiritual soul in the chest, and the appetitive in the abdomen. For Plato, the rational soul must rule over the spiritual and the appetitive souls to attain a well-balanced personality. This is because the spiritual and appetitive souls are irrational, hence if left untamed would cause destruction of the individual. See Eddie R. Babor, *The Human Person: Not Real, But Existing* (Manila: C & E Publishing, 2001), 55-57. See also Lear, *Freud*, 165-167.

²¹ Cited in James DiCenso, "Kant, Freud, and the Ethical Critique of Religion," *International Journal for Philosophy of Religion*, Vol. 61 No. 3 (2007): 161.

²² See Freud, *Two Short Accounts*, 111. In the *Ego and the Id*, Freud "explains that sublimation" is the process by which the ego mediates the transfer of affective 'intensities' or energies from one instinct to another." See Uzoma Esonwanne, "Critique and Extension: Said and Freud," *Research in African Literatures*, Vol. 36 No. 3 (Autumn, 2005): 108.

²³ Sigmund Freud, *Beyond the Pleasure Principle*, Translated and Edited by James Strachey, Introduction by Gregory Zilboorg, with Biographical Introduction by Peter Gay (New York and London: W.W. Norton and Company, 1961), 7.

²⁴ *Ibid.*, 13-15.

²⁵ Freud, *Civilization and Its Discontents*, 13.

²⁶ *Ibid.*, 23.

²⁷ *Ibid.* See also Celine Surprenant, *Freud's Mass Psychology: Questions of Scale* (New York: Palgrave Macmillan, 2003), 87 and Tony Thwaites, *Reading Freud: Psychoanalysis as Cultural Theory* (Los Angeles, London, New Delhi, and Singapore: SAGE Publications, 2007), 144-145.

²⁸ Freud, *Civilization and Its Discontents*, 60. Emphasis added.

²⁹ Sigmund Freud, *The Question of Lay Analysis: An Introduction to Psychoanalysis*, translated by Nancy Procter-Gregg (London: Imago Publishing Company, 1947), 48.

³⁰ Freud, *Civilization and Its Discontents*, 73. For more on Freud's concept of the superego, see Robert Bock, *Sigmund Freud*, Revised Edition (London and New York: Routledge, Taylor and Francis Group, 2002), 74-79. On Freud and Klein on the formation of the superego, see Robert Caper, *Immaterial Facts: Freud's Discovery of Psychic Reality and Klein's Development of His Work* (London and New York: Routledge, Taylor and Francis Group, 2000), 100-103.

³¹ Marcuse, *Eros and Civilization*, 53.

³² Freud, *Civilization and Its Discontents*, 73.

³³ Marcuse, *Eros and Civilization*, 106.

³⁴ See Marcuse, *Eros and Civilization*.

³⁵ Marcuse, *Eros and Civilization*, 62.

³⁶ See Peter Lind, *Marcuse and Freedom* (London and Sydney: Croom Helm, 1985), 194.

³⁷ Katz, *Herbert Marcuse*, 147-150. See also Herbert Marcuse, "Eros and Thanatos", in *Modern Critical Views: Sigmund Freud*, edited with an Introduction by Harold Bloom (New York: Chelsea House Publishers, 1985): 7-15.

³⁸ Katz, *Herbert Marcuse*, 153.

³⁹ *Ibid.*, 154.

⁴⁰ *Ibid.*, 153.

⁴¹ *Ibid.*, 49.

⁴² For a powerful critique of this point, see an earlier work of MacIntyre. Alasdair MacIntyre, *Herbert Marcuse: An Exposition and a Polemic* (New York: The Viking Press, 1970).

⁴³ Marcuse, *Eros and Civilization*, 44.

⁴⁴ Morton Schoolman, *The Imaginary Witness: The Critical Theory of Herbert Marcuse* (New York: The Free Press, 1980), 95.

⁴⁵ Marcuse, *Eros and Civilization*, 44.

⁴⁶ MacIntyre, *Herbert Marcuse*, 49. See also Jack Lawrence, *What is Left? Marxism, Utopianism, and the Revolt Against History* (Lanham, Maryland: University Press of America, 2006), 100.

⁴⁷ Marcuse, *Eros and Civilization*, 84. See a good summary in Carr and Lapp, *Leadership is a Matter of Life and Death*, 93. Carr and Lapp writes: "...Marcuse argued that each society has material conditions that operated as a reality principle. The reality principle can take a different form in different societies. In capitalist societies, the specific reality principle that applies is performance principle—under whose rule 'society' is stratified according to the competitive economic performance of its members." See *Ibid.*

⁴⁸ This shows that Marcuse disagrees with Freud and "...insists upon the historicization of Freud's argument, such that the repression of the drives only occurs within certain historical limits, therefore leaving open the future possibility of a non-repressive civilization." See Cho, "Thanatos and Civilization," 64.

⁴⁹ See Schoolman, *The Imaginary Witness*, 95.

⁵⁰ Richard Kearney, *Modern Movements in European Philosophy*, Second Edition (Manchester and New York: Manchester University Press, 1994), 214.

⁵¹ Richard Wolin, *Heidegger's Children, Hannah Arendt, Karl Lowith, Hans Jonas, and Herbert Marcuse* (Princeton and Oxford: Princeton University Press, 2001), 168. See also Horowitz, *Repression*, 78.

⁵² Fry, *Marcuse—Dilemma and Liberation*, 41.

⁵³ *Ibid.*

⁵⁴ Wolin, *Heidegger's Children*, 78.

⁵⁵ See Marcuse, *Eros and Civilization*.

⁵⁶ See Lawrence, *What is Left?*, 100. On Freud theory of instincts and fascism, see Federico Fincheltein, "Fascism Becomes Desire: On Freud, Mussolini and Transnational Politics," in *The Transnational Unconscious: Essays in the History of Psychoanalysis and Transnationalism*, eds. Joy Damousi and Mariano Ben Plotkin (United Kingdom: Palgrave Macmillan, 2009): 97-123.

⁵⁷ Lawrence, *What is Left?*, 99.

⁵⁸ See Cynthia Willet, "A Dialectic of Eros and Freedom: Beauvoir and Marcuse," in *Between the Psyche and the Social: Psychoanalytic Social Theory*, edited by Kelly Oliver and Steve Edwin (New York: Rowan and Littlefield Publishers, 2002), 205.

⁵⁹ *Ibid.*, 207.

⁶⁰ See Gad Horowitz, "Psychoanalytic Feminism in the Wake of Marcuse," in *Marcuse: From the New Left to the Next Left*, eds. John Bokina and Timothy J. Lukes (Kansas: Kansas University Press, 1994), 118.

⁶¹ In *Eros and Civilization*, Marcuse employs the images of the Greek gods Orpheus and Narcissus to portray the image of a liberated individual. This is explained fully in the next section titled "Technology, Technological Domination, and the Great Refusal." According to Lawrence, Marcuse's call for the liberation of the body which means the full release of Eros, that is, the maximizing of freedom and the unleashing of the pleasure principle, does not signify a return to prehistoric savagery but the re-eroticization of the body, freeing itself from being an instrument of alienated labor. See Lawrence, *What is Left?*, 100.

⁶² Marcuse, *Eros and Civilization*, 53.

⁶³ *Ibid.*, 54.

⁶⁴ *Ibid.*, 120.

⁶⁵ Herbert Marcuse, *The Aesthetic Dimension: Toward a Critique of Marxist Aesthetics* (London: The Macmillan Press, 1979), ix. See also Carol Becker, "Surveying The Aesthetic Dimension at the Death of Postmodernism," in *Marcuse: From the New Left to the Next Left*, eds. John Bokina and Timothy J. Lukes (Kansas: Kansas University Press, 1994): 170-186.

⁶⁶ Herbert Marcuse, *One-Dimensional Man* (Boston: Beacon Press Boston, 1964), 238.

⁶⁷ According to Shierry Weber NicholSEN, Marcuse shares this view with Adorno and is "a central part of the Frankfurt School's contribution to redefining and fulfilling human needs in a more pacified world." Shierry Weber NicholSEN, "The Persistence of Passionate Subjectivity: Eros and Other in Marcuse, by Way of Adorno," in *Marcuse: From the New Left to the Next Left*, eds. John Bokina and Timothy J. Lukes (Kansas: Kansas University Press, 1994), 168. According to Timothy J. Lukes, in Marcuse's notion of the new sensibility affirms Marx's vision of transforming the society but Marcuse sees revolution being done "in accordance with the 'laws of beauty' by underscoring the importance of aesthetic needs and impulses." See Timothy J. Lukes, "Marcuse and Ecology" in *Marcuse: From the New Left to the Next Left*, eds. John Bokina and Timothy J. Lukes (Kansas: Kansas University Press, 1994), 200.

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The Roman Catholic Church and the Discontents of Philippine Society Under Spain: A Freudian Dilemma

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Religion played a key role in the colonial project of Spain in the Philippines. Spain's colonial enterprise used the Church as an instrument to pacify the natives and make the people submit to Spanish rule. Consequently, the missionary priests became the real figures of authority in the local level and their superiors in Manila the masters of the colony. Throughout the Spanish period the religious authorities played a dominant role in civil affairs because of the theocratic nature of the Spanish monarchy.

Using Freud's views regarding religion and his arguments about the human aggressive instinct as well as Isaiah Berlin's concepts of liberty, this paper attempts to offer another way of looking at the role played by religion in the cultural fiber of Philippine society during the Spanish period. It tries to answer the question: was Spain's "civilizing mission" in the Philippines better equipped to cope with the inherent instinct of aggression or did it contribute instead to the discontent of the people and increased their resentment against Spanish colonial rule?

The Church suppressed the aggressive nature of the people through Christian indoctrination. The Church, amongst others, offered the hope of paradise and the threat of hell to make the native converts follow the moral laws it imposed. But in their effort to establish a "civilized" society by restraining the aggressive instinct of the natives, the Church, in-effect, also curtailed the peoples' positive and negative liberties and created so much discontent.

KEYWORDS: Spanish colonization, civilizing mission, religion

Religion was one of the categories used by the western European nations to justify their acquisition of colonies abroad. It was a vital feature of Europe's "civilizing mission," a presumed responsibility to improve the conditions of African and Asian peoples. The Civilizing mission of the West "gave a moral dimension to arguments for imperialistic expansion that were otherwise limited to economic self-interest, strategic considerations and national pride. It enabled its adherents to defend violence and suffering as necessary but temporary evils that would prepare the way for lasting improvements in the condition of the subject peoples... Because of it, nineteenth-century European colonizers could speak of conquest as 'liberation' or 'deliverance' and of repression as 'pacification.'"¹ Thus, Spain came to the Philippines to "civilize" the natives whom the westerners perceived as barbarians and savages.²

Using Sigmund Freud's views regarding religion and his arguments about human basic instincts—specifically the aggressive instinct—as well as Isaiah Berlin's concepts of liberty, this paper attempts to offer another way of looking at the role played by religion in the cultural fiber of Philippine society during the Spanish period. It tries to answer the question whether the "civilizing mission" of Spain in the Philippines was better equipped to cope with the human inherent instinct of aggression according to Freud or whether it contributed instead to the discontent of the people, and eventually increased their resentment against Spanish colonial rule.

In *Civilization and Its Discontents*, Freud claims that the features of civilization include beauty, cleanliness and order. Freud, however, asserts that "No feature seems better to characterize civilization than its esteem and encouragement of man's higher mental activities—his intellectual, scientific and artistic achievements—and the leading role that it assigns to ideas in human life," foremost of which are the religious systems.³ When Spain conquered the Philippines it had three objectives in its policy toward the islands, its only colony in Asia: to acquire a share in the spice trade, to develop contacts with China and Japan in order to further Christian missionary efforts there, and to convert the Filipinos to Christianity. Only the third objective was eventually realized, and even this was not completely achieved because of the active resistance of both the Muslims in the south and the Igorots, the upland tribal peoples in the north. Nonetheless, it could not be denied that they have been effective in establishing their Church in the Philippines. Roman Catholicism, without doubt, is the most lasting imprint Spain had left in the Philippines. Indeed, the

Church was a vital tool used by the Spaniards to “civilize” the natives.

To understand better the role of the Church in Philippine society during the Spanish period it is important to note that being the institutional religion of the colonizer, it played a key role in the affairs of the state. During the time of Spain, the missionary priests were the true authority figures in the local level and their superiors in Manila the masters of the colony. The clergy became the real representatives of the Spanish crown and supervised the affairs of the colony.⁴ Throughout the Spanish period the religious authorities played the dominant role in civil affairs because of the theocratic nature of the Spanish monarchy. In the Philippines, the “royal patronage of the clergy” made the church the most important agency of the crown in subduing and pacifying the native inhabitants of the colony.⁵ The Spanish colonial project used the Church as an instrument to make the people submit to colonial rule. The Spanish conquistadores and missionaries believed that the inhabitants of the world were fated to the universal claims of Catholicism. With this, cultural hegemony was legitimized and regulated only as a function of the Spanish crown’s Christianizing mission and provided Spain’s colonial enterprise with its ideological framework.⁶

Essentially, the Spaniards used the Church to entrench their rule in the Philippines. They used the Church to subdue and pacify the resistant Filipinos through Christian indoctrination. From a Freudian point of view, this is a way of controlling the aggressive nature of the natives and makes them, in the eyes of the Spaniards, “civilized” beings and to maintain order in society. As asserted by Freud, the human tendency of aggression “is the factor which disturbs our relations with our neighbors.” Further, he says, that as a result of this mutual hostility of people, “civilized society is perpetually threatened with disintegration.” Civilization therefore has to use a lot of effort to limit human aggressiveness.⁷

The doctrines introduced by the Church to make the native converts follow the moral laws it imposed included death and dying and the hope of paradise. This future hope allowed the self to be realized in another time and place where suffering, pain and tension no longer exists. In return for complying with God’s laws, one may have a place in heaven, not as a slave or someone oppressed but as a child of the Father. The wish for a place in God’s kingdom is a common theme of 17th-century Spanish missionary texts in Tagalog:⁸

Tanong: Ano ang ygaganti nang Dios sa manga banal na tauo?

Sagot: Ang calualhatian sa langit doon maquiquita nila ang Dios, at matotoua at malili gaia, at lualhati magparating man saan.

(*Question:* What will God give back to holy people?

Answer: The tranquility of heaven where they will see God, and obtain happiness, and joy, and rest forever and ever.)

Paradise is depicted as a wonderful land without death, no sorrow and sadness, only joy and happiness. It is a place that is not what earthly existence is. If on earth they are suffering, in paradise everything will be glorious.⁹ Being good assured the native converts of a place in heaven. And “being good” meant submitting to the will and obeying the commandments of God as preached by the Church.¹⁰ Apparently, one has to endure all the sufferings on this earth until we receive God’s blessings in heaven.

Yet paradise, as an idea of another life in another time that lay beyond death can only be meaningful and intelligible to the extent that it could be opposed to something else, a counter-paradise that is, hell. It was in the creating of the threat of hell that fear could be generated. It was against the manufactured fears of hell that the idea of paradise could be offered as an attractive alternative. Paradise gave current fears a context. But before it could effectively do so, the context of fear, which is the possibility of hell, had to be constructed.¹¹

Consider this 16th century Tagalog catechism. A priest asked a native convert: “*Ano ang ypaparusa niya (Dios) sa manga tauong tampalasan?*” (With what will God punish sinners?). The expected reply was: “*Yhoholog niya sa ynfierno doon maghihirap sila at maccacasaquet magparating man saan.*” (He will throw them into hell and there they will suffer and ache forever).¹² This notion of ynfierno is also highlighted in an 18th century poem by Father Pedro de Herrera, a poem that depicts the never ending suffering and pain in Hell, stanzas 2 and 3 of which reads:¹³

Cun icao ypahintolot
sa calalima,t yholog
ang hirap mo,y, ualan togot
saquit na dili magamot

Cocohan damay sa iyo
malupit na Demonio
ang galit nila,t pagtampo
sa iyo rin ybobonto.

(If you were cast down
and thrown to the depths
your suffering will have no end
your pain will have no cure

You will have the companionship
of the cruel Devil
their anger and their rage
On you they will vent.)

This can also be seen in the 19th century novel of Jose Rizal, *Noli Me Tangere*. In the first chapter of his book, the author attempts to present a house-country analogy: he likens the Philippines to the house of Capitan Tiago where a party was held. Describing the house of Tiago, is therefore, like describing the Philippines itself. According to Rizal, the walls were crowded with paintings “depicting such religious themes as *Purgatory, Hell, The Last Judgment, The Death of the Just Man, The Death of the Sinner....*”¹⁴ These were the favorite subjects in the sermons of the priests, constantly warning their parishioners about what may befall someone in the afterlife.

Roman Catholic Church in the Philippines attempted to control the aggressiveness of the natives by imposing the Church’s morality on the people through the idea of sin and hell. By constantly indoctrinating the native with these threatening hegemonic ideas, it made one think twice about doing something that was against the “morals” established by the Church. This is clearly an example of Freud’s argument on how “religions have never overlooked the part played in civilization by a sense of guilt.”¹⁵

In a way, this also connects with Isaiah Berlin’s theory on positive liberty, which, Berlin claims, is the result of the individual’s desire to be his/her own master. According to Berlin, positive liberty is derived from the notion of the self as a conscious, thinking, willing, active being that bears the responsibility for its own choices and is capable of explaining them by references to his/her own ideas and purposes.¹⁶ In this view of liberty, one can infer that the presence of control is with the individual. To be free you must be able to control your own destiny based on your own interests. Creating a “sense of guilt” clearly is a way of limiting the positive aspect of your freedom based on Berlin’s definition. According to Berlin, there are two concepts of liberty—negative and positive liberty. Berlin claims that negative liberty is the absence of obstacles, barriers or constraints. One has

negative liberty to the extent that actions are available to one in this negative sense. Positive liberty, on the other hand, is the possibility of acting—or the fact of acting—in such a way as to take control of one's life and realize one's fundamental purposes. While negative liberty is usually attributed to individual agents, positive liberty is sometimes attributed to collectivities, or to individuals considered primarily as members of given collectivities.

Throughout the Spanish period it can be argued that oppression became a usual part of life among the natives. The Spaniards abused the Filipinos through the imposition of various institutions such as forced labor and arbitrary taxation. The Church, again through religious indoctrination, may have played a role in trying to control whatever aggressive reaction the people may have wanted to undertake. This was done through another hegemonic teaching of the Church which promises a reward of eternal glory in the Kingdom of God if one would endure and suffer all hardships in life as Jesus did. As claimed by Freud, religion can be seen as a system of doctrines and promises which on the one hand explains to individuals "the riddles of this world with enviable completeness," and, on the other, assures individuals that a careful Providence will watch over one's life and will compensate one for any frustrations he or she suffers here in future existence.¹⁷

The fear of suffering in the after life on the one hand and the promise of eternal life without pain on the other, in a way was what controlled the aggressive tendency of the people. In effect, however, they also restricted the individual liberties of the native, particularly what Berlin calls negative liberty.¹⁸ According to Berlin, negative liberty refers to the "area within which a man can act unobstructed by others." One is said to have negative liberty to the point in which no one or a group gets in the way with one's activity.¹⁹ Liberty in this sense is seen as the absence of obstacles outside of the individual which enables him or her to do whatever he or she might want to do. The Church, by threatening the native of eternal suffering and promising them eternal life, in effect, became an institution that instilled in them a sense of control over what Freud considers as our basic instinct of aggression. The Church clearly used external intimidation or coercion which curtailed the native's negative liberty. Freud contends that the liberty of the individual was greatest before there was any civilization. The development of civilization only imposes restrictions on it.²⁰ And curtailing such freedom, according to Freud, is one of the reasons for an individual's discontent with society since it defiles or alters human

nature.

Another teaching of the Church aimed at suppressing the aggressive nature of the people focused on Jesus' commandment to "Love thy neighbor as thy self." Freud says that this is the strongest defense of the Church against human aggressiveness. He, however, suggests that this commandment is impossible to fulfill since "such an enormous inflation of love can only lower its value, not rid of the difficulty."²¹ Likewise, looking at how the Spaniards had treated the natives, one cannot help but echo what Freud says that "so long as virtue is not rewarded here on earth, ethics will, I fancy, preach in vain."²² With how the natives were discriminated, abused, oppressed, and denied equality before the law, one can surmise that this "ethical" teaching may not have been as effective in controlling aggression as the threats of fire and brimstone or the promise of Eden.

So, how effective was the Church in containing the aggressive nature of the natives? Freud claims that religion may succeed "in sparing many people an individual neurosis," but "hardly anything more."²³ The Spaniards may have tried to control the aggressiveness of the Filipinos for over 300 years but the frustration and discontent of the people that had been building up could not be contained forever. It eventually burst. It started with a movement among Filipino intellectuals in Spain who clamored for change in the colony foremost of which was the expulsion of the Spanish priests in the Philippines. A leading figure among those who cried for reforms was Jose Rizal, regarded to be the "Father" of Filipino nationalism. Rizal wrote novels and other writings that were among the first to openly criticize in particular the Spanish friars.

The Church was extensively utilized by the Spaniards to "civilize" the Filipino natives. But in doing so, it may have ended up being viewed as an institution that curtailed their liberty—especially negative liberty. Instead of controlling the aggressiveness of the people, it may have only made the natives, particularly the members of the Filipino intelligentsia studying in Europe who had been exposed to the ideas of the French Revolution, unhappy and discontented, and encouraged them to challenge what Partha Chatterjee calls the "rule of colonial difference"—the premise of the colonial state's power that sought for the preservation of the "otherness" of the ruling group in the domain of the state.²⁴ Thus the members of the Reform Movement would also clamor for wider social and political freedom, freedoms that they thought would help them pursue self-mastery or self-determination.

The cause of the Filipino intelligentsia would be taken up by the

masses that eventually brought it into the open through a revolution.²⁵ Rizal's works in particular proved to be a turning point in Philippine history as it inspired a group of non-elite natives who organized an underground armed movement aimed to topple Spanish rule in the Philippines.²⁶ Its leader, Andres Bonifacio, was known to have read and be inspired by Rizal's novels and other writings. Bonifacio had been greatly influenced by Rizal and his works so that he in fact had used the name "Rizal" as the password for the highest ranking members of the revolutionary movement. During the Philippine Revolution in 1896 it may be important to point out that among the first to be attacked by the revolutionaries were the Spanish priests and their parishes. The struggles Bonifacio initially instigated eventually culminated in the independence of the Philippine islands from Spanish hands. This desire for independence truly can be traced to what Berlin calls positive liberty — the desire to be one's own master.²⁷

Clearly, the teachings of the Church were meant to control the aggressiveness of the natives and make them submit to colonial rule. But the Church, in effect, helped the natives realize that they were subordinates, a realization that was essential in the emergence of a resistance against the colonizers.

The "civilizing mission" of the West was designed to create in colonized populations disciplined agriculturists or workers and obedient subjects of a bureaucratic state.²⁸ An important aim of the "civilizing mission" of Europe, particularly of the last quarter of the 19th century, was to build structures capable of reproducing European societies: stable government replacing the violent, conflict prone tyrannies of indigenous political organization; orderly commerce and wage labor replacing chaos of slaving and raiding; a complex structuring of group boundaries, racial identities, and permissible forms of sexual and social interaction replacing the unacceptable looseness of the past.²⁹ Ultimately, the goal of the West was to create an obedient, hard working, refined, and "morally" upright native subject.

Indeed, the Spanish colonial government had dominated and controlled the Filipinos through the Roman Catholic Church. But in their effort to establish a "civilized" society by restraining the aggressive instinct of the natives, they also created so much discontent. Thus Freud exclaims: "What a potent obstacle to civilization aggressiveness must be, if the defense against it can cause as much unhappiness as aggressiveness itself!"³⁰

There were definitely other factors that led to the displeasure

of society, which brought forth the birth of a nationalist movement in the Philippines and the eventual outbreak of a revolution. But it may also be important not to ignore the role played by the Church in contributing to the restlessness of the Filipinos. The Church, by trying to control the natives' aggressive nature, limited the people's liberties and, in effect, created so much discontent and unhappiness.

END NOTES

¹ Michael Adas, *Machines as the measure of men: science, technology, and ideologies of Western dominance* (N.Y.: Cornell University Press, 1989), pp. 200-201.

² Edward Said in *Orientalism* (1979) argues that the peoples of Africa and Asia have been viewed by the Europeans through the eyes of "orientalism," a lens that distorts the real image of the colonized and portray them and their culture as backward, savage, stagnant and weak.

³ Sigmund Freud, *Civilization and its discontents* (N. Y.: W. W. Norton & Company, 1930), p. 47.

⁴ Paul Rodell, *Culture and customs of the Philippines* (Connecticut: Greenwood Press, 2002), p.30.

⁵ Benjamin N. Muego, *Spectator society: the Philippines under martial rule* (Ohio: Ohio University Center for International Studies, 1988), p. 38.

⁶ The view of regarding the role of the Church in the emergence of resistance against Spain is also shared by Leonard Davis in *Revolutionary struggle in the Philippines* (1989). In his study, the author notes that the Church people (mainly Spanish priests), were both church officials and state officials and the political expression of their Christianity was colonialism. Davis argues that the Spanish assault against the natives was justified on Christian grounds as liberation from enemy religions, whether animist or Islam.

⁷ Freud, 1930 p. 68-69.

⁸ *Doctrina Cristiana en lengua española y tagala* (1593), ed. by Carlos Quirino. (Manila: National Historical Commission, 1973) in Vicente L. Rafael, *Translation and conversion in Tagalog society under early Spanish rule* (N.Y.: Cornell University Press, 1988), p.171.

⁹ *Ibid.*, 172-173.

¹⁰ *Ibid.*, 168. In the work of Reynaldo Ileto, *Pasyon and revolution*, the author also demonstrates the emergence of an ideology of resistance based on Spanish Christian notions of suffering and paradise. The peasant revolts that coincided with but deviated from the elite led nationalist revolution of 1896 were made comprehensible to their participants in so far as they were embedded in terms taken mainly from

seventeenth- and early eighteenth-century devotional texts such as prayers, poems, and songs, and the *Pasyon*. One of the principal ideas developed in Iletto's study is that the masses' experience of Holy Week fundamentally shaped the style of peasant brotherhoods and uprisings during the Spanish and Early American colonial periods. The issues, however, that this book is concerned with go beyond the subject of the masses and their participation in the revolution. The author attempts to closely examine in historical context the Passion of Jesus Christ to reveal the vitality of the Filipino mind. Likewise, it looks into the conditions of the possibility of the emergence of popular individuals who were able to play the political power game, which had been dominated by elites, and challenges the notion that the elites are the only source of "culture" in Philippine society.

¹¹ Ibid., 179.

¹² Ibid.

¹³ P. Pedro de Herrera. *Meditaciones cum manga mahal na pagninilay na sadia sa Sanctong pag ejercicios* in Vicente L. Rafael, *Translation and conversion in Tagalog society under early Spanish rule* (N.Y.: Cornell University Press, 1988), p.180.

¹⁴ Jose Rizal, *Noli me tangere*, translated by Leon Ma. Guerrero (Manila, Philippines: Guerrero Publishing Inc., 2004), p. 2.

¹⁵ Freud, 99.

¹⁶ Isaiah Berlin, "Two Concepts of Liberties," *Four essays on liberty* (N.Y.: Oxford University Press, 1970), p. 131.

¹⁷ Freud, 1970 p. 22.

¹⁸ Berlin, 1970 p. 121.

¹⁹ Ibid., 122.

²⁰ Freud, 1930 p. 49.

²¹ Ibid., 109.

²² Ibid.,

²³ Ibid., 36.

²⁴ Partha Chatterjee, *The nation and its fragments: colonial and postcolonial histories* (N.J.: Princeton University Press, 1993), p. 10. As claimed by Chatterjee, nationalism starts with the colonized educated middle class who struggle to reduce their "difference" with the colonizers.

²⁵ Long before the outbreak of the revolution of 1896, sporadic revolts already occurred throughout the archipelago one of the causes included the imposition of the various Spanish institutions, e.g., taxation and forced labor as well as the natives'

disillusion of the Church and government established by Spain in the Philippines. Most of these early revolts, however, were suppressed by the Spaniards.

²⁶ It could not be denied that Rizal and his works played a crucial role in the awakening of the Filipinos from colonial subordination. He made them see their common grievances against the colonizers. The treatment the natives received from their colonial masters made them realize that they belonged to a different group, a different community even if it was just imagined (read: Benedict Anderson, *Imagined community: reflections on the origins and spread of nationalism* [1991]). Their being looked down as inferior beings motivated them, especially those who were exposed to the new and liberal ideas in Europe, to fight for their rights and prove to the world that they were their equal.

²⁷ Berlin, 1970 p. 131.

²⁸ Cooper and Stoler, ed., *Tensions of empire: colonial cultures in a bourgeois world* (Berkeley: University of California Press, 1997), p. 7.

²⁹ Ibid., 31.

³⁰ Freud, 1930 p. 109.

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NOTES



Frontier Justice, Colonial Justice, and the Spaces in Between in the Southern Philippines, 1898-1913

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This research note explores the meanings and function of frontier violence in the southern Philippines during a period of American military rule (1898-1913). It looks specifically at notions of colonial and frontier justice as demonstrated in the local press, and links these to the larger ideals and objectives of American colonialism on a distant periphery.

INTRODUCTION

Perhaps one of the most interesting and telling episodes of American imperialism in the Philippines was the US Army's fifteen year tenure in Mindanao and Sulu. Though referred to administratively as "Moro Province," because of its significant Muslim population, the southern islands were actually a fascinating amalgam of various groups and interest on both sides of the colonial divide. For Americans, Moro Province provided an exciting and untamed frontier; a distant colonial periphery beyond the ubiquitous modern gaze of civilian government. It represented a land of possibilities and dangers, and in many ways provided a nostalgic reminder of the American western frontier now largely tamed.¹ As a result, Moro Province was persistently romanticized in government accounts, personal memoirs, correspondence, and particularly in the local paper of record, *The Mindanao Herald*.²

This paper's readership was tantalized daily with sensational tales of murder, revenge, unrequited love, and improbable adventures. Broadly, however, the periodical excelled at demonstrating and

glorifying violence, in all its forms. Violence seemed to provide *The Mindanao Herald's* single most important requisite for authentic American self-hood in Moro Province, a metric by which to gauge the relative success and efficacy of imperial tutelage, and the critical authenticity of the experience.³ Consequently, acts of violence in the southern islands were reported, sensationalized, and often celebrated as the paper wove together a stirring narrative of frontier Americanism.

The following section explores a number of representative and remarkable cases reported in *The Mindanao Herald*, and attempts to contextualize them relative to the larger objectives of American imperialism in Moro Province. However, given the brevity and fragmentary nature of the paper's reporting, and its somewhat unofficial status,⁴ there is at times a stark inadequacy of closure on some of the cases, leaving one to speculate or extrapolate as much as possible the meanings and rationales of what is and is not reported. Such an inconvenience in the sources proves an obstacle to a fully accomplished article, nevertheless, historical episodes such as these should be told. And so I offer them here in the form of a research note, to be read and scrutinized, and perhaps to provide further insights into a remarkable period of American imperialism, limited as though it might be.

FRONTIER JUSTICE, COLONIAL JUSTICE, AND THE SPACES IN BETWEEN

Part of the allure of the southern Philippines was its location beyond the surveillance and policing modalities of the modern state. Concepts such as justice, righteousness, justifiable violence, retribution, atonement, rights, and chivalry were defined by the actors themselves rather than the sterile mechanisms and legalistic discourse of a faceless state. The crucible of utter independence in which such notions must be worked out and proved through violence provided the very essence of the frontier character. Beyond the panoptic gaze of state regulation and rigid social constructions individuals were forced to reproduce the fundamental values of civilization rather than simply appealing to them through institutionalized bureaucracies and monopolistic agencies of state violence. In Moro Province this meant a deep and abiding obsession with the nuance, meaning, and purpose of frontier violence and its agents; and in particular the notions of justice that framed such violence.

While newspapers and colonial reports brimmed with tales of gratuitous violence and duplicitous acts of venal betrayal, the stories that received the most attention were those that explored the underlying notions and formations of justice beyond the state. Americans were particularly interested in the violent resolution of indigenous disputes and the subsequent insertion of Americans into the extralegal justice system. There was, for example, the much followed case Gregorio Caluya and Louis Cajiga, both tenant farmers working the land of a prestigious Muslim Datto on Basilan, Gabino Pamaron. According to the Datto, a dispute broke out over adjoining pieces of land during which Louis Cajiga drew "a barong and a kriss from his belt and laid them on the ground, inviting Caluya to take his choice of weapons and settle the matter according to the code." Caluya refused and walked away. In response, Cajiga "grabbed up a kriss and attacked nearly severing Caluya's hand with one blow of his kriss." The two collided and grappled, and in the melee "Cajiga received a wound in the groin which penetrated the intestines, causing almost instant death." Caluya was promptly arrested by Datto Pamaron and taken to Zamboanga for trial, where he was eventually convicted and sentenced to twelve years in the penitentiary. Despite the final ruling by the colonial justice system, the coverage of the story overwhelmingly revolved around the concepts of frontier justice that shaped its original occurrence. *The Mindanao Herald* struck a sympathetic tone, pointing out that Caluya was "an old man" who was "emphatic in his statement that he had no desire to do harm to his assailant, his intention being merely to defend himself." After reading the article, readers were likely to come away with an implicit notion that perhaps the frontier exercise of justice was in fact more just than the inhibited and proscribed rulings of the court, which had not actually solved the problem, but rather had made an arbitrary ruling on a more visceral and immediate dispensation of justice.⁵

Such sympathies did run over into the court system, however, influencing leniency and fostering recognition of natural manifestations of justice on the frontier. There was, for example, the case of Obo, a Bogobo chief, who was brought before the colonial court on the charge of murder in 1904. According to reports, one of Obo's slaves "had committed a murder by kicking a sick man to death." Obo responded by "executing him [the slave] on the spot, afterwards hacking the dead body into small pieces." After extensive testimony "the case was dismissed;" however, "the chief was arraigned on a charge of slave-holding, to which he pleaded guilty" and paid a

paltry fine of 100 pesos.⁶

More sympathetic yet were tales of the poor and oppressed who rose up violently against supposedly unjust and archaic indigenous systems of social and economic repression, thus realizing the American frontier values of independence and equality. There was the tragic tale of Manuel Ave from Basilan, a man "much abused and beaten by his employer" and to which "no pay [had] been forthcoming." On 28 November 1903 Ave determined to murder his employer, Sr. Segundo Ruiz, as compensation for his abuse. Wielding an old bolo, Ave gave Ruiz "four vicious cuts ... on the side of the face, neck and back of the head, several bones being broken and an artery severed." *The Mindanao Herald* continued with a gratuitous account of the violence: "Only the dullness of the weapon used prevented the death of the victim. The severed ends of the artery were driven into the bone where they were held as in a vice, thus preventing death from loss of blood."⁷ Authorities were alerted and Ave confined, but the coverage ends there, apparently unconcerned with the forms of colonial justice resulting from the incident. The most important aspect of the report was to convey the retributive justice and the severity of the pain resulting from unjust abuse of an employee. Whatever forms of institutional justice that were eventually meted out to Ave are left unexplored, inconsequential to the larger narratives of frontier justice.

Perhaps one of the most detailed incidents of romantic frontier revenge was the case of Margarito Badudao, a resident of the district of Davao. Bududao was a common laborer employed by a local "jefe" in Davao by the name of Tiburcio de los Reyes, who was much "accustomed to oppress the [people] of that region, arresting them on trivial charges and compelling them to work on his plantation." After being "treated in this manner several times," Badudao complained and was subsequently placed in the stocks; gaining a powerful enemy. While Badudao was thus enduring his public humiliation de los Reyes went to Badudao's home "a short distance from the plantation and criminally assaulted his wife, whom he found alone in the house." Despite these outrageous injuries to him and his family, and "doubtless very angry," Badudao "made no apparent attempt to [take revenge] upon his oppressor." In fact, the two men met again a few days later and "bet a sack of rice on a wrestling match." The match was decided in Badudao's favor, but de los Reyes refused to pay. Badudao "then proposed to wrestle de los Reyes himself for the sack of rice, to which proposition the latter consented." Both men made preparations, however, as Badudao approached, "de los Reyes

suddenly snatched up a club and attacked . . . inflicting a painful wound on his head." Outmatched by the weapon Badudao ran for home, with his attacker in hot pursuit. After entering the house, Badudao was apparently able to escape undetected through a "rear door." But de los Reyes, after "finding no one else upon whom to wreak his ire, attacked and beat Badudao's wife, knocking her down, kicking, and otherwise maltreating her." With such indignities piled upon him, Badudao snuck back onto the plantation by night and, while de los Reyes and his family were sleeping, he "killed them all in a delirium of revenge."

When colonial authorities were alerted to the crime and informed of its details, they dispatched a contingent of Constabulary troops to secure Badudao and his family who had taken to the mountains. However, unlike the romantic manhunts sensationalized in local newspapers and reports, readers were informed that colonial officials were exercising every effort "to secure his surrender without further bloodshed," and despite "fear of a general outbreak" authorities did "not anticipate further trouble."⁸ In instances such as these, though perhaps a bit excessive, colonial justice was likely to only complicate and unbalance matters rather than to resolve them. The natural impulses and innate human notions of justice in a stateless frontier seemed to deal with the issue appropriately without any intrusive promptings from institutions or colonial authorities removed from the situation except by arbitrary jurisdiction. Hence, no more is heard concerning the case. Readers were privy to all of the pertinent information about the incident, and with that, the yearnings for justice were apparently satisfied with nothing left to tell.

While intense violence among local populations provided American colonists with a suitable context for recreating an American frontier, character formation could not occur through observation or vicarious proxy alone. Americans had to participate in both official and unofficial capacities, dispensing and receiving frontier violence in the dialectical struggle of nascent civilization. Independent exercises of frontier justice by American non-state actors were widely acclaimed and sensationalized in local media, both as forms of unofficial colonial discipline and as demonstrations of American supremacy in the open field of evolutionary frontier struggle. There was the 1904 case of Arthur W. Bodley, a deputy collector of customs at Jolo who "had an exciting experience with a Moro burglar." According to *The Mindanao Herald*, Bodley "was aroused from his slumber" on the night of 17 June 1904 and observed a prowler break a hole in his fence "and

[advance] towards the house." He called upon the man to stop "but it was evident that the fellow did not relish being driven off after having worked so hard to gain an entrance." The intruder continued his approach and soon "Mr. Bodley discovered that his visitor was armed with a murderous-looking barong." Shouting out one last warning, to which the burglar "paid no heed," "Mr. Bodley fired upon him with his revolver killing him instantly." When colonial officials arrived they were happy to discover that Mr. Bodley's victim was a wanted man who had succeeded in eluding state justice. "The dead thief was recognized by the police as an old offender," reported the paper, "who had been suspected of having committed numerous robberies in the neighborhood of San Reimundo within the past few weeks."⁹ The violent episode, therefore, was interpreted as a demonstration of heroic individualism acting on behalf of civilization beyond its institutional reach, thus affirming notions that institutions followed individual agents of frontier justice rather than vice versa.

Not all cases were so reactive in nature, however. The eagerness to carry out civilization's fierce synthesis often prompted a form of proactive vigilantism in which settlers pursued violent finality whether it was required or not. An apt example of its subtlety is found in a 1905 case involving a planter from Isabela de Basilan named John Eckstrom. According to reports, on 28 July 1905 Mr. Eckstrom "had a desperate encounter with a thieving muchacho in his house." Around 6pm the planter discovered one of his employees, a man named Jose Guarino, in the act of stealing a cash box filled with gold currency and some jewelry. Surprised by his discovery, Guarino "attempted to draw a bolo" but Mr. Eckstrom seized "upon him before the weapon could be unsheathed." "The desperado then dealt Eckstrom a stunning blow on the head with the handle of the bolo," leapt out a window and attempted to escape in a nearby swamp. Quick to recover, Eckstrom rushed into an adjoining room and retrieved a pistol. "Seeing the fugitive about to enter the swamp he opened fire upon him and brought him to the ground fatally wounded." Roused by the spectacle, the plantation's residents gathered round to observe the victim "writhing in his death agony on the ground."

Given the circumstances of the shooting, and the proximity and position of its participants, Eckstrom was later arraigned before Judge Powel in the court of First Instance in Zamboanga. After thoroughly investigating the case, however, the provincial attorney declined to prosecute "declaring the evidence clearly pointed to a justifiable killing." The court affirmed this opinion and the planter was released.

However, lest readers doubt the overall justice of the incident, the report made certain to conclude by highlighting the fact that the “deceased was well known to the police, having served several terms in jail ... for robbery.” Hence, while Eckstrom’s act certainly gave rise to doubts concerning its justifiability and the appropriateness of shooting a man in the back, it was nevertheless interpreted as an act in favor of civilization. The violent encounters between civility and savagery were meant precisely to purge out inferior and habitually anti-social elements to make way for progress and peace. It is not surprising then that the local paper of record blared sub-headlines claiming the planter fought a “Desperate Battle With Dishonest Servant” and killed him “in Self Defense.”¹⁰ The actual circumstances of the final killing may not have fit exactly within the definitional parameters of self defense, but they were viewed as protecting something larger, something collectively shared—a proactive defense mechanism of civilization on the periphery carried out by one of its non-intuitional agents.

Despite the preceding examples, colonial authorities and foreign residents of Moro Providence did not exclusively celebrate extra-governmental exercises of justice. The entire Philippine project was of course itself an experiment in state building, and Americans were delighted to see their civilized institutions impose a semblance of order over a colonial periphery like Moro Province. The provincial readership was just as eager to learn of daring manhunts, stirring gun battles, and public executions as they were to hear of individual exercises of justice. What was important was that elements of both state and non-state violence were present to affirm the personal and public recreations of an American frontier. The problem, however, was keeping them exclusive enough to build a civil society while tutoring colonial wards toward full governmental modernity. The tenuous connection between public and private justice and the vague notions of justifiable violence that shaped them often became indistinguishable and disruptive when carried out by colonial subjects. The strange story of Antonio de la Cruz and his Moro companion Jamarau in 1903 provides an apt example.

According to numerous reports de la Cruz and Jamarau entered a bustling market in the small Mindanao town of Parang sometime in early May, 1903. Displaying rifles and “carrying an American flag” the two strode calmly over to a stall where Datto Sarugan and three other Moros were selling rice. They then shouted “to the people to get out of the way as they were going to shoot.” The crowds scattered

but Datto Sarugan and his companions stood fast. Jamarau and de la Cruz subsequently opened fire. Their victims “started to run, but were shot down before they had proceed[ed] very far Jamarau then beheaded the corpses.” The two men were apprehended and tried for murder; however, the trial brought forth a series of unexpected and improbable facts, casting doubts on the military regime’s ability to control colonial sanctioned violence and justice. De la Cruz, “a man of means and influence,” swore that he was merely a spectator to the incident and played no part, despite multitudinous testimony to the contrary. Nevertheless, he remained stalwartly devoted to his alibi. Jamarau, on the other hand, “wore a deeply injured look” and testified of a much deeper conspiracy.

According to his testimony, he and de la Cruz had been acting under the direction and authority of an unidentified “Commanding Officer,” who, “incensed at the theft of some of his cattle by the Moros, had ordered him to go to the market place and arrest all the bad Moros, telling him to kill any that resisted.” The officer also commanded them “to bring the bodies with him when he returned.” Jamarau “tried to do so, but they were too heavy for him to carry, so he had to content himself with cutting the heads off and bringing them.” Referring to Datto Sarugan, Jamarau stated that he “didn’t know his name, but he knew he had killed him and he wanted the credit for it,” so he severed the heads as proof. Jamarau was to receive “ten pesos for his work.”

In the end, Judge Powell of the Court of First Instance in Zamboanga “declared that the action of de la Cruz in shooting the Moros was unwarranted by any evidence produced at the trial—that the Moros were without fire arms and that the evidence proved [the] killing had been done in cold blood.” He was subsequently sentenced to “confinement at hard labor for twenty years.” Jamarau’s fate remained much more of a mystery. The article simply states that he was “afterwards placed in the prison,” but spends an inordinate amount of space on the potential injustice of his incarceration. Jamarau was “highly indignant,” reported *The Mindanao Herald*, “remarking that he had always been a friend of the Americans and for that reason the Moros wanted to kill him. He told his story in a way that showed him to consider the killing as perfectly justifiable and himself a muchly-wronged public benefactor.”¹¹

The conspicuous lack of information regarding his final sentence, as well as the ambiguity of the alleged orders coming from a mysteriously unidentified “Commanding Officer” lead one to assume that Jamarau was acting in good faith as an unofficial frontier agent of

the state, dispensing justice and purging bad elements as a requisite of civilization. Whether this was the case or not remains largely unanswered, as readers are simply left to judge the merits of Jamarau's actions by the gratuitous violence reported and the ill-defined justice that may have resulted. Whatever the truth of the matter, one fact seemed clear—Jamarau was clearly not an enemy of the colonial state. His acts of violence, while perhaps excessive, were perpetrated within the context of American authority and supposedly subsumed within the monopolistic state claim on violence, thus justifying them by association. Such circumstances could not be wholly condemned by the colonial regime or its media outlets. And thus the story remains afloat in an ill-defined limbo without closure.

A much clearer cut case involving indigenous dispensations of state sanctioned violence occurred in 1904 with the apprehension of a noted outlaw from Basilan simply known as Ejan. On a Sunday morning in October, 1904 a "very important-looking group of Moros arrived in Zamboanga from the Island of Basilan." The posse, led by Maharajah Tanding, docked their boat at the "Government wharf" and "proceeded to the office of Governor Finley [an American]" carrying a "dirty-looking gunny-sack." After the "usual formalities," Tanding smartly reported that he had fulfilled the orders of Datto Gabino and apprehended "Ejan, the Moro who committed a murderous assault upon Jimauang, a fellow-tribesman, at Pilas, in September last." "'Very well,' replied the Governor; 'bring him in.'" Tanding hesitated, "rather embarrassed at the order, and stammered something about Ejan being a very bad man, etc." The Governor nevertheless "insisted that he bring his prisoner in." Tanding then retrieved the gunny sack and, after "making an obeisance before the Governor, he opened the sack and rolled the head of Ejan out on the floor" announcing, "'Tis he." The Governor was "greatly surprised . . . and demanded to know why Ejan had not been brought in alive, as he ordered." Tanding admitted that he did not know "the circumstances of Ejan's death" but was simply fulfilling the wishes of the Datto to meet the demands of the colonial state by bringing "the head to the Governor."

There were of course "rumors afloat in Basilan" that Ejan had been killed by a bolo in a showdown with the Datto's men, and, "there being no apparent necessity of bringing the entire body to the Governor," they simply "cut off the head and sent it as evidence that Ejan was 'good'." Still devoted to the litigious processes of colonial justice, however, "the Governor sent the delegation with their ghastly trophy for identification" to a military hospital

where Ejan's victim, Jimauang, lay recovering from his wounds. When the party arrived, the "old fellow sat up and regarded the head with a satisfied smile for a few minutes" and then made a positive identification. "He seemed sorry when Tanding replaced the head in the sack, and ... followed the party with his eyes until they left the room." Tanding later sailed out of Zamboanga a free man with his companions. However, Datto Gabino promised Governor Finley that he would come to Zamboanga in a few days to give a full account of Ejan's death and provide legal closure to the case. Nothing more was reported on the incident.

The circumstances of Ejan's death provide an apt example for the military regime's often muddled relationship with its colonial subjects. Violence for and on behalf of a state has long been an acceptable and even preferred demonstration of civic loyalty in the modern era. Datto Gabino and Maharajah Tanding's actions, along with many other similar agents of frontier justice, reveal an expedited path to American patronage. They are able to circumvent an otherwise tedious and laborious legal process by dispensing of unwanted elements through extra-legal means, which are, nevertheless, circumscribed within the context of monopolistic state violence. More than this, however, episodes of violence in the spaces in between institutional colonial justice and unabashed vigilantism often reconciled the paradoxical purposes of American colonialism in the Philippines. On the one hand, the overarching purpose of American colonialism was to impose civilization on barbaric frontiers, as evidenced by governmental jurisdictions, institutional mechanisms of state, and the creation of civil society. On the other hand, it was the violent, therapeutic, dialectical creation of these modern amenities that justified their existence to begin with, as an extension of the exceptional American character forged on the frontiers of civilization. In this way, Americans could enjoy the progressive homogenization of the modern world while still engaging the archaic and critically therapeutic episodes of their rugged and violent frontier past.

CONCLUSION

While the episodes discussed above provide only a small and fragmented look into the complex colonial circumstances of military rule in Moro Province, they do reveal some interesting insights into

the ultimately discursive nature of the colonial experience. These and other cases reported in the colonial press seem to suggest a particular tension of empire with regard to violence. On the one hand, violence, sanctioned or otherwise, represents the very antithesis of colonial order and undermines notions of a tutelary imperial relationship among colonizer and colonized. On the other hand, violence also seemed to provide a critical animating and authenticating function for Americans, who often viewed civil society as the product of a fierce synthesis between civilization and savagery. The unique circumstances of Moro Province appeared to provide an ideal setting for this paradox to play itself out in strange and telling ways.

END NOTES

¹ For an excellent discussion of the role of frontiers and the formation of an American character see, Frederick Jackson Turner's famous "Frontier Thesis" originally articulated in his paper, "The Significance of the Frontier in American History" presented at the American Historical Association meeting during the 1893 Chicago World's Fair, found in, Annual Report of the American Historical Association for the Year 1893, in United States Congressional Serial Set, serial set no., 3170; and for an expanded and more thorough discussion of his thesis, see, Frederick Jackson Turner, *The Frontier in American History* (Henry Holt & Co., 1920). Additionally, a useful look at Turner's Frontier Thesis in modern historiography can be found in, *The American Frontier: Opposing Viewpoints*, ed. Mary Ellen Jones (San Diego: Greenhaven Press, 1994). Theodore Roosevelt's famous advocacy of the "strenuous life" is also instructive, perhaps best embodied in his work, *Winning of the West*, v. I-IV (Lincoln: University of Nebraska Press, Presidential Ed. edition, 1995). Also particularly pertinent on this point were G. Stanley Hall's theories of racial "recapitulation" and declining American masculinity. Concerned with the emasculating effects of modernity on young boys Hall advocated maintaining the Darwinistic struggle for racial supremacy by exposing young men to savagery, thus honing their competitive skills. By maintaining a visceral connection with primitive man (known as racial recapitulation), Hall believed that young American men would not lose their competitive edge and succumb to racial suicide. See, G. Stanley Hall, *Adolescence: Its Psychology and its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education*, vol. I-II (New York: D. Appleton & Co., 1904). Additionally, discussion of modern anxieties and the American quest for authentic experience is treated exceptionally well in the following: T.J. Jackson Lears, *No Place of Grace: Antimodernism and the Trasformation of American Culture, 1880-1920* (Chicago: University of Chicago Press, 1981); "From Salvation to Self-Realization: Advertising and the Therapeutic Roots of the Consumer Culture, 1880-1930," in *The Culture of Consumption: Critical Essays in American History, 1880-1980*, ed. Richard Wightman Fox and T.J. Jackson Lears (New York: Pantheon Books, 1983), as well as Gail Bederman's *Manliness & Civilization: A Cultural History of Gender and Race in the United States, 1880-1917* (Chicago: The University of Chicago Press, 1995).

² For numerous romantic accounts of Moro Province and its inhabitants see the following selected works: *Census of the Philippine Islands, 1903*; *Reports of the Philippines Commission*; *Harpers Weekly* (particularly articles by John Bass); *The New York Times*; *The Chicago Daily Tribune*; *The Daily Bulletin* (later the *Manila Bulletin*); *The Manila Times*; Hugh L. Scott, *Some Memories of a Soldier* (New York: The Century Co., 1928); John Roberts White, *Bullets and Bolos: Fifteen Years in the Philippine Islands* (New York: The Century Co., 1928); Hurley, *Swish of the Kris: The Story of the Moros* (New York: E.P. Dutton & Co., 1936); etc.

³ The regenerative powers of frontier violence have been a topic of much discussion in scholarly work and literature. Perhaps the best author on the subject is Richard Slotkin, *Regeneration Through Violence: The Mythology of the American Frontier, 1600-1860* (Norman: University of Oklahoma Press, 2000); See also, *Gunfighter Nation: The Myth of the Frontier in Twentieth Century America* (Norman: University of Oklahoma Press, 1998); *The Fatal Environment: The Myth of the Frontier in the Age of Industrialization, 1800-1890* (Norman: University of Oklahoma Press, 1998). See also Cormac McCarthy's gut-wrenching novel, *Blood Meridian: Or the Evening of Redness in the West* (New York: Vintage, 1992).

⁴ *The Mindanao Herald* was a private concern funded largely by advertising revenues and patronage from American investment interests in the area. Despite its private status, however, the paper did work hand in glove with American military authorities in the province, providing a consistent and willing voice for American authority, essentially becoming an appendage of the military regime. Military officials frequently published editorials, provided inside information, and helped shape reporting to fit the immediate needs of the colonial administration. In this sense, the paper provides an incredibly unique convergence of official and unofficial discourses of American imperialism in Moro Province and demonstrates the ultimately discursive nature of the colonial project.

⁵ "Murder in Lamitan," *The Mindanao Herald*, 8 October 1904, p. 1; "Caluya Convicted," *ibid*, 15 October 1904, p. 1.

⁶ "Chopped Up a Slave," *ibid*, 17 September 1904, p. 2.

⁷ "A Murderous Assault," *ibid*, 28 November 1903, p. 5.

⁸ "Mandaya's Horrible Revenge," *ibid*, 12 May 1906, pp. 1-2.

⁹ "Burglar Killed," *ibid*, 18 June 1904, p. 1.

¹⁰ "Thieving Native Killed," *ibid*, 5 August 1905, p. 5.

¹¹ "De la Cruz Convicted," *ibid*, 13 February 1904, pp. 1-2.

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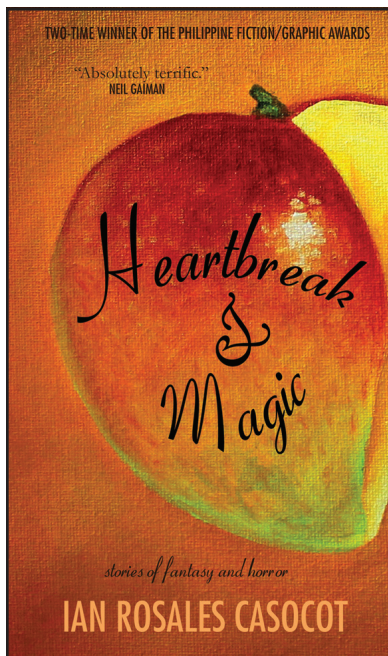
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REVIEW





Ian Rosales Casocot

Heartbreak & Magic: Stories of Fantasy and Horror

Manila: Anvil Publishing, 2011,
124 pages

The Magician from Dumaguete

Review by Lady Flor Partosa

In his third collection of stories, *Heartbreak & Magic: Stories of Fantasy and Horror*, the young writer from Dumaguete becomes himself a magician, as he weaves stories of “heartbreak” and “magic” that set the familiar—Dumaguete, the town’s neighboring towns, even Rizal—against a fantastic, dazzling landscape.

For one thing, history ceases to become a list of cold facts and becomes a backdrop of his narratives. In “A Strange Map of Time,” the author breathes life into Tuasan, a Bornean pilot that was missing from the crew of Legaspi’s men after their ship had been lost at sea for twenty-one days (as the author cites in Caridad Aldecoa Rodriguez’s *A History of Negros Oriental*). The author then gives new life to Tuasan and resurrects him from the historical narrative, where he is reborn as “Sawi” (incidentally the namesake of Dumaguete’s lovelorn poet to whom Casocot dedicates the story) and becomes a time-traveler. Where history considered Tuasan missing, in the story, Tuasan found himself ashore in Buglas. Performing his ancient ritual, an Old Man beheaded the foreign pilot so he could report what would happen

to the future. Thus he was born in Dumaguete as Sawi, with a vivid memory of his own birthing. At 2, he rendered his father speechless when he spoke, and at six, completed “the map of time” in the attic. After completing the map, he had aged with wisdom that didn’t belong to his world; eventually, he went through different gates and different eras of Dumaguete ‘history’—earthquake in 2016, the Big Fire in 1981, the Spanish era in 1890 (where he met a beautiful mestiza). Through his journey, he completed the three syllables to form his name: Tu.Wa.san. After that, he found himself back to the hut and the Old Man in Buglas. The story came full circle. When asked what the future looked like, Tuasan said: “...change and terror.” He continued that the white men who were “as pale as ghosts” will change everything. Tuasan who has grown to possess knowledge of the Universe tore “the map of time” and spoke no more.

These various changes that have thrown Dumaguete into a spiral seemingly capture the transition of our hometown. For Yvette Tan, the writer captures the “psychic crisis” of Dumaguete, which is caught between “the idyllic and the modern”. For someone who has seen Dumaguete as always quiet and laidback, which stands in a delicate balance of being not too completely rural yet not completely urban, I always have wished for my hometown to stay innocently charming. In “The Last Days of Magic,” Casocot takes the perspective of a child Kulas as he sadly notes how the people in Dumaguete have forgotten magic, a day when the “sun refused to wake from its blanket of blue waters to the east.” Everyone has stopped being romantic—to paint, to play, to sing—and has opted to be practical by becoming lawyers or accountants. It took a boy to give these people back what they have lost. This story, albeit innocently playful, addresses important matters of art and life—that the meaning of art lies in its “glow” or the power to give meaning to life.

The author also gave a new meaning to Rizal when he conjures a world set in the future when the last of the human species as we know it are called “carbonans” and where robots and clones exist. However a highly advanced, all-male society situated in a planet somewhere in the galaxy has managed to tailor out a perfect existence; and in the process, wiped out the female species both physically and theoretically. In the story “The Pepe Report,” the Council of Elders has assigned Dr. Lamco to clone Rizal and find out whether he is beyond reasonable doubt a homosexual. Coincidentally Dr. Lamco had recurrent dreams of being shot in front of a firing squad the same way Rizal had been killed. He also shared the same nickname with the Hero he would

have to clone—"Pepe".

J. Neil Garcia has written about Rizal's gender in the article entitled "Was Rizal Gay?," taking into account that Rizal had himself scratched out a word in his autobiography. Critics say the young Rizal was being heckled as "binabayi." For J. Neil Garcia, there are no definite answers as to whether Rizal was gay or not. For one thing, the concept of "homosexuality" has not been introduced yet; there was homosociality where there is bonding among people of the same sexes and where sexual relationship may or may have not been a part. Secondly, history is written by males, who may have enforced their maleness on Rizal, thereby removing various evidence (such as a notebook full of Rizal's sketches of penises) that could lessen the manliness of their idol Rizal. Enter Casocot, who had to "clone" Rizal in the story to give an answer regarding the hero's gender. Rizal is not homosexual; but much to the chagrin of the males, he had grown breasts and a delta.

The story could be shocking at the very least, the way it takes mythic figures like Rizal not only to the world of mortals but to the world of speculative fiction where he is reformed and 'destroyed' at the same time. However, the story also addresses pressing gender issues. The story has shown that we have a society that wants to make sure all the greats are males. Perhaps what separates us from our understanding of Rizal is that we have cast him in gold and bronze. In the story, Rizal is everything that the males at this time were not—he was so much more.

Just as Casocot speculates about the Future, he also tells stories of the Past. In a sense, to stoke the fires of magic is to remember an ancient wisdom, that is to tell stories of the "old days." There have been many sugilanun about a girl named Epifania. One is that she drove the Manobo hero Baybayon to go around the world telling stories that have become various tales of different cultures. 'When stories collide, the Great Laon creates new worlds'—the author quotes from a text inscribed on a bamboo slit. This is where magic begins—to tell stories of the past and create new worlds for the present. The author for his part continues this tradition by narrating how Epifania got her heart broken. In "The Sugilanon of Epifania's Heartbreak," Epifania fell in love with a young man named Bangbangin. However, convinced the girl was being foolish, the boy's mother told her she could have her son only "if the world stopped spinning." With her songs and offerings to the gods and goddesses of the sun, wind, sky moon, the world indeed stopped spinning: the gentle wind stopped blowing, tragedies struck the community, crops refused to grow, the sea rose. After the catastrophic events, Tiyay surrendered Bangbangin to Epifania. But the

young man didn't love him back. She cried in his arms but it wasn't long before he realized that the girl had transformed into a mango. He ate the fruit and planted the seed into the ground where it would soon grow into a "majestic tree."

However, the author explored not only magical tales but also 'black magic' or dread and terror. "How Sarah Broke Up With Me" is not another heartbreak story. It is a tale of a boy picking up his date for the prom—a seemingly innocent story that led to haunting events: Sarah struggling in her dress, the father shouting at the frightened boy in their game of chess while he was waiting for his date to get dressed, and Sarah eventually forming a noozle with her zipper. It ends with that. What happened next, the author leaves to the readers: Sarah broke him. This brokenness is also what happened to the narrator in "The Painted Lady." He is someone who has fallen prey to Veronica, a feisty, impulsive, woman. Veronica, although grotesque and grim in her ways, becomes more attractive and irresistible to the hapless character. In the story, she takes in the character of the mysterious feminine figure, almost like a dark goddess, which brings pain and pleasure. After she left him, the narrator was flung into a terrible ordeal, a broken state. He was destroyed. The price he had to pay in his experience of "Beauty", which for Rilke (at the risk of invoking his name) is the "beginning of every terror".

In the story "The Flicker," evil and terror take certain stage. It was easy to blame the haunted house when the children were reported missing. First, it was one child, then it became two, eventually kids were easily snatched out from their homes. However, the house is the mirror through which the residents see themselves. Grandmother Meding revealed to her daughter-in-law Elena that contrary to urban tales, it wasn't the father who had shot his family to death, perhaps it was the beautiful twins who had killed their parents. After hearing this story, Elena saw that her sweet daughter became so beautiful and looked like one of the twins in Meding's story. While we were busy eyeing the haunted house with suspicion, Meding had been convincing the parents that the children lest the kids would become like the twins and kill the parents. The adults wouldn't let the same fate that had fallen to the Ballesteros parents befall them. In the craftsmanship of a magician, the author has proven that what is evil is not always what it seems.

What is tragedy is not also what it may seem. In a rather comic tale of finding love at a time and place of roosters and Manokan, "A Tragedy of Chickens" is a story of Pedro Murillo, a bachelor whose eyes have turned blue for Ana, a server in Jos Manok Inato. He would

go everyday to see her, ordering “paa”, and not before long did the city run out of chickens. Because it is chickens, grilled chicken that has always given the City its identity and Jos Manok Inato the temple of this kind of cooking, the people were in a state of panic. Despite the famine of chickens in this chicken-crazy town, Pedro was cocky. He was to woo Anna, the love of his life, into sleeping with him. In surrendering to each other, Anna swore the she could hear cackles and crows ‘invading her soul’. And with this union, those who saw Pedro that day ‘walking on air’ were renewed at least in their dream state: the woman with cataract seeing the constellations forming a rooster, the poor, famished boy falling into a ditch finally tasting chicken meat, and the young police man reconciling with his wayward wife. It was the chickens that united Ana and Pedro, and it is their union that would cure the chicken-drought of the city, because alas at last an egg fell from the sky. What does this say of life? Love—a magic that dispels the dry-spell of chickens or crops, as it were in old times, when the union of man and woman also makes the land fertile. Crazy—the story might be crazy.

I remember asking the author if he would be uprooted from Dumaguete, would he write his stories differently. For the life of me, I couldn’t remember his answer. I doubt if he too would remember such question. I would imagine that the author draws magic from this magical, charming place that has, as people would confess, charmed and captured many a romantic traveler. Nevertheless, the author has taken us to different worlds, a world of the past, future, of evil, a heartbreak, of brokenness, of chickens. And through this whirlwind adventure, one can’t help but take a look at one’s own reality as well, for instance, a hometown struggling with changes or a society that equates greatness with maleness or even a reality of a broken heart or also love. The author has managed to transform our worlds through which we could understand ourselves, and not for long do we say to ourselves: magic.

ABOUT THE REVIEWER

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SILLIMAN JOURNAL

Volume 53 Number 1 2012

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BOOK REVIEW

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PANORAMIC PHOTO OF THE RIZAL BOULEVARD BY HERSLEY-YEN CASERO