

SOCIAL SCIENCES DIVISION

SSD-1

PERCEPTION AND ATTITUDE TOWARDS THE CO-MANAGEMENT OF MT MAKILING FOREST RESERVE, LAGUNA, PHILIPPINES

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The study sought to determine the Bagong Silang upland community's perception of and attitude towards the co-management approach in managing the Mt. Makiling Forest Reserve (MFR) in Los Baños, Laguna. Specifically, it aims to: 1) determine the socio-demographic characteristics of the Bagong Silang upland community; 2) identify the co-management practices, its nature and extent, between Bagong Silang upland community and the University of the Philippines; 3) determine the perception and attitude of the Bagong Silang upland community regarding co-managing the Makiling Forest Reserve with the University of the Philippines Los Baños (UPLB); and 4) determine the relationships between the community's socio-demographic characteristics and perception of and attitude towards co-managing the Makiling Forest Reserve. Using the sampling proportion technique, the study covered 36 respondents from the 152 households in the community. A key informant interview was also conducted to capture the perceptions of the university personnel towards the co-management of MFR. Spearman's Rho (at 0.1 level of significance) and Factor Analysis technique was employed to determine the statistical relationships of the different aspects or components studied. Results revealed that across the 52 components considered in the study, only 12 yielded strong correlation values that are grouped into 3 factors. First, Factor 1 can be explained that the *"project development processes are perceived to be significantly important for a co-management between UP and Bagong Silang community of managing MFR to be effective"*. The 3 strongly correlated components contributed to the analysis of this factor include: 1. the community member's position to their organization; 2) the resident's perception that they should be involved in the planning and decision-making processes with the UPLB; and 3) the perception that the participation in the co-management should entail proper benefits to the community. Secondly, Factor 2 suggested that *"the prescribed landuse activities of UPLB eg. agroforestry, soil and water conservation, and ecotourism were perceived to be a shared responsibility among the community members hence each member should fairly participate in the forest*

conservation activities". Six major components yielded strong correlations under this factor: 1) participation in agroforestry activities; 2) participation in soil and water conservation programs; 3) involvement of the community members in the ecotourism activities; 4) active local participation in tree planting activities of the university; 5) number of years the member has been serving their organization; and 6) active local support to the UPLB's strict of rules and regulations regarding the forest settlement. Lastly, Factor 3 suggested that "*benefits of co-management should be ensured for it to be sustainable*". The 3 related components that were distilled in this group include: 1) scholarships should be awarded to the community members' children; 2) skills training should be provided to the community; and 3) non-farm livelihood trainings such as automechanic, dressmaking, and others should be provided to the community. Overall, the study concluded that the co-management system to be sustainable and effective, it would require the active involvement of the community in the planning and decision-making activities, ensuring the benefits of co-management, and cohesive rapport between the co-managers of MFR.

Keywords: Mt. Makiling, perception and attitude, co-management, forest conservation

SSD-2

LOCAL PERCEPTIONS ON ECOLOGICAL CONSERVATION PRACTICES IN SUSTAINING THE ECOTOURISM OF PAGSANJAN FALLS

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Ecotourism is one the most effective management approach to ecological conservation. Being a non-extractive land use practice, it brings dual benefits: ecological conservation and source of livelihood for local stakeholders. Given this, proper knowledge and appreciation regarding the need for environmental protection and the effective involvement of major stakeholders in conservation activities are crucial. Pagsanjan Falls is a well-known ecotourist destination in the Philippines where ecological conservation is set as a high priority as it serves as a means to sustain various forms of livelihood and income of the community

For such reason, a study was conducted to distill the local interventions that the local stakeholders make to sustain the ecotourism value of the falls, and capture their local perceptions about the changing conditions of the watershed (forest and river basin) and their perceived causes. A semi-structured interview with local stakeholders and executives, and an exhaustive review of existing documents were employed. As a result, eight key Natural Resource Management (NRM) policies were reviewed. These policies serve different objectives such as: a) providing regulatory frameworks in managing the Pagsanjan Gorge Tourist zone; b) organizing river councils (People's Organization) that will help implement the environmental projects of the government; and c) implementation of rehabilitation projects in the Pagsanjan-Lumban River Basin by the DENR-LLDA. Respondents perceived that these policies are very significant in improving the ecological conditions of the basin. Perceptions on the condition of the watershed however showed varied results. Thirty-three percent (33%) believed that the watershed has deteriorated because of the illegal timber poaching activities and the increase in commercial establishments along Pagsanjan River, seventeen percent (17%) believed that the watershed has improved upon the implementation of rehabilitation projects of the government, and fifty percent (50%) perceived that there was no change in the conditions of the watershed over the past ten years. Perceived local interventions that will help improve the conditions of the watershed include: ecological seminars in schools conducted by the municipal LGUs, joint tree plantation projects of various NGOs such as Rotary Club and Lions Club, active involvement of the local communities in the projects of DENR-LLDA, and strict implementation of forest policies by the municipal LGU. On the perceptions about the condition of aquatic ecosystem, majority (67%) believed that the water condition of the basin has deteriorated and fish yield has declined. These problems were attributed to unmanaged agricultural and domestic wastes from the upstream rivers of the nearby municipalities that causes high turbidity and decreased oxygen-level in the river waters. Perceived interventions that help address these problems include: the active local participation in the Sagip-Ilog Program (a solid-waste management project of the municipal LGU), and the river clean-up drives which are mostly participated by "bangkeros" or boatman associations. Overall, the respondents believe that the ecotourism value of the Pagsanjan Falls is so far being sustained because of the local interventions being shared by the different stakeholders. Perceived problems however pose serious threats that needs to be properly addressed.

Keywords: ecotourism, local perception, ecological conservation, watershed

SSD-3

**PATTERNS OF INTERNET-BASED FRIENDSHIP AMONG
RESIDENTS
OF LOS BAÑOS, LAGUNA: THE FRIENDSTER CASE**

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The prevalent use of the street lingo "Friendster" to refer to a friend is evidence that the Internet has become a pervasive entity that influences Filipinos. Because the Internet has become an ubiquitous medium for faceless and remote social interaction via services called social networking, data such as gender, geographic location, age and a person's list of friends have become readily available, making it possible to analyze on a community-scale the demography and the friendship characteristics of a population, without resorting to the traditional procedure of surveying a population sample. We developed a computer program that extracted the demographic and friendship data of 7,172 Friendster™ members whose listed hometown is Los Baños, Laguna. Based on our demographic analysis, we found that: (1) There are more female participants (52.34%) than male (47.66%); (2) Ages 15-25 of both genders compose 68% of the participants, with ages 26-40 following at 28%, ages 41-85 at 4%, and senior citizens (64-85) at 1%; (2) The birds-of-a-feather adage (i.e., homophily) is observed in age level preference such that the members are strongly biased towards being friends with people of a similar age; And, (3) there is heterophily in gender preference such that friendship among individuals of the opposite gender occurs more often. Based on our network analysis, we found that: (1) The friendship network is well-connected and robust to node removal; (2) It exhibits a small-world characteristic with an average path length of 4.5 (maximum=12) among connected members, shorter than the well-known "six degrees of separation" finding by Travers and Milgram in 1969; And (3) the network exhibits a scale-free characteristics with heavily-tailed power-law distribution (power = -1.02 and $R^2 = 0.84$) suggesting the presence of many members acting as the network hubs.

Keywords: demography, Internet, friend-of-a-friend network, small-world, scale-free.

SSD-4

**SELF-AWARENESS AS AN APPROACH TO
STRESS MANAGEMENT: ASSESSING THE
LEVEL OF FRUSTRATION AND STRESS
LEVEL OF SELECTED FRESHMEN
STUDENTS OF THE UNIVERSITY OF THE
PHILIPPINES LOS BAÑOS**

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Stress is an unavoidable universal human phenomenon which is oftentimes disquieting. Stress-related disorders have become prevalent, threatening the quality of human resource. An alternative approach to stress management is self-awareness. A keen understanding of oneself facilitates clear identification of ways to handle stress factors.

This study attempts to determine vulnerability to stress as measured by the level of frustration. Frustration occurs when one is prevented from attaining an aspiration or achieving a goal. Stress due to frustration can be alleviated by finding equally rewarding alternatives to the original aspirations or goals.

A questionnaire was administered to a sample of 258 college students of Physical Education I (PEI) classes at the University of the Philippines Los Baños. The subjects were asked to indicate their perceptions of frustration that trigger stress.

Responses affirm that as the level of frustration rises, the stress also increases. Results reveal that out of the 258 students, there were 140 students (54.26%) with high frustration and high stress level; 108 students (41.86%) with moderate frustration and moderate stress level; and 10 students (3.88%) with low frustration and low stress level.

Assessment of frustration levels can direct future research in the area of stress management. Corresponding to the level of frustration, an appropriate program can be designed to combat stress.

Keywords: Stress, self-awareness, frustration level, stress level, stress management

SSD-5

**UTILIZATION OF BIOGAS IN ILOCOS NORTE AND
ILOCOS SUR: ITS IMPACT TO THE USERS**

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The Biogas plant was established as part of the comprehensive energy program to ensure the promotion and commercialization of non-conventional energy resources and technologies which are technically feasible, socially desirable and acceptable and economically viable.

This study was conducted to evaluate the socio-economic and environmental impact of biogas system to the users.

The study was conducted through an interview of biogas users in the two Ilocos provinces. Biogas users were generally middle aged, mean age of 48 years, generally married males with a high level of educational attainment. They had small to medium family size with an average annual income of P247,411.77 ranging from 10,000.00 – P600,000.00 which means that their average annual income is above the poverty threshold. Most had little experience in biogas operation. However, they had moderate knowledge level of the various practices of the biogas. Their attitudes towards the biogas and the technicians are high.

The respondents' perception on the biogas plant effectiveness and extent of plant utilization is moderate. In addition, the socio-economic impact is perceived to be moderate and the environmental impact is perceived to be very sound. Out of the ten socio-demographic variables tested, three variables were significantly related to the socio-economic impact. These are educational attainment, family income, and knowledge level. Five variables, age, educational attainment and family income, attitude towards the biogas and attitudes towards the technicians were related to the environmental impact. However, only two demographic variables were significantly correlated with the extent of biogas utilization. These are educational attainment and family income. Extent of biogas utilization is related to both the socio-economic and environmental impact. The biogas plant effectiveness is significantly related to the extent of biogas utilization.

Keywords: biogas, biogas utilization, environmental and socio-economic impact

SSD-6

**TINDUPÎ, P'RAS, SAMALUNÂ, GANÛS: SEASONAL
CALENDAR, CLIMATE CHANGE AND ADAPTIVE
STRATEGIES AMONG THE SUBANUN
IN MT. MALINDANG**

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After long years of residing in the Mt. Malindang area in Northwestern Mindanao, the Subanun of Misamis Occidental have learned to face societal demands and the harshness borne by a changing environment. As an indigenous people interacting with and dependent on the environment, they have crafted adaptive strategies through concrete experiences in undertaking survival tasks.

Their knowledge of the seasonal calendar constitutes an element of cultural system and institutions putting order to the relationship between the community and the biophysical environment. This indigenous knowledge epitomizes part of Subanun culture-ecosystem relation.

The Subanun of Mt. Malindang recognize two (2) general seasons in the six (6) communities constituting the study sites -- (tindupî, or rainy / wet season, and p'ras, or sunny / dry season). They also recognize a number of intermittent seasons: samalunâ (season when rainy and sunny periods occur interchangeably); ganus (windy season); gan'us dupî (rainy period with occasional winds or storms); p'ras gan'us (season of frequent sunshine with winds/storms); p'ras gilat/lugong (season of frequent sunshine with lightning and thunderstorms). There are distinct differences among the study sites in terms of the time of occurrence and the length or duration of the seasons. The differentiations in physico-geographic characteristics of the communities dictate the type of adaptive strategies (farming, hunting, and fishing) resorted to for survival, underlain by a belief system that sustains the conservational characteristics of biodiversity.

Tragically, climate change and other environmental conditions now compel farmers to take the risk in carrying out some activities at any time of the year despite indigenous knowledge about which seasons are appropriate or ideal for undertaking such activities. Adaptive strategies and survival tasks are changing. After all, either rain or sun may come, anytime.

Keywords: seasonal calendar, culture-ecosystem relation, environmental change, survival strategies, biodiversity conservation

SSD-7

READINESS OF MSU-IIT STUDENTS FOR QUANTUM MECHANICS

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Understanding the fundamental concepts in modern physics especially in quantum mechanics is of utmost importance because most technological advancements of today arise from the quantum nature of matter. However, learning quantum mechanics is difficult because of unfamiliar mathematics such as complex vector spaces with inner products and its abstract concepts could be a barrier in connecting mathematical objects to the real world.

We devised a measuring instrument for assessing the readiness of MSU-IIT students for quantum mechanics. This consists of 3 parts: a 1-hr power point lecture-presentation complete with appropriate animations/simulations and a 18-item pre- and post-examination questionnaire comprising four themes of quantum mechanics: de Broglie waves, wavefunctions and Schrödinger equation, uncertainty principle and the modern model of the atom. In the questionnaire, two were non-multiple choice items. For each multiple-choice question, the students were also asked to indicate their level of confidence or certainty in the correctness of their answers.

In total, 45 science students (physics, engineering, physics education majors) participated in this study. The students are aged 16-19 years old; mostly freshmen and sophomores. All of them have not yet taken up any formal modern physics course. The student responses were categorized into two types. Group A: 28 students took both the 18-item pre-examination (post-examination) before (after) the power point lecture-presentation, while Group B: 17 students who took only the post-examination.

For Group A students, an average of only $52 \pm 5\%$ give correct answers per question during the pre-examination and this increased to $75 \pm 3\%$ average-per-question during the post-examination. There is also a remarkable increase in the per-question-average level of student certainty in their answers:

$58 \pm 1\%$ during the pre-examination and $81 \pm 1\%$ in the post-examination.

However, for Group B students who heard the power point lecture-presentation but only took the post-examination, an average of only $51 \pm 6\%$ give correct answers per question and their average level of confidence is only $48 \pm 2\%$ per question.

The results can also be analyzed in terms of the number of students who gave correct answers to at least half of the 18-item questionnaire. For Group A, in the pre-examination, 9 students or 32% of the students failed this criterion but during the post-examination, all of the 28 students passed with all students registering improved performance. For Group B students, however only 9 of the 17 students passed this criterion.

Our study therefore shows that a pre-examination is significant in the learning process. In addition, a non-traditional lecture-presentation consisting of computer animations/simulations, even of short duration and given by beginning graduate students gives a significant impact in improving the performance of students in written tests.

Keywords: quantum mechanics, Schrödinger equation, computer animations/simulation

SSD-8

PSYCHOMETRIC EVALUATION OF DEPRESSIVE SYMPTOMS IN UNIVERSITY STUDENTS OF MSU-IIT

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Depression is a common emotional disorder, which causes distress and impairs functioning. The Cognitive, physiological, behavioral and motivational symptoms are the core features of this disorder and different combinations of these symptoms are experienced by depressed individuals. Depressive disorders are identified by the World Health Organization as *priority mental health disorder* of adolescence because of its high prevalence, recurrence, ability to cause significant complications and impairment.

This study evaluates the psychometric properties of the depressive behaviors among non-clinical university students of MSU-IIT as well as the frequency of depressed, dysphoric individuals, and non-depressed individuals.

Beck Depression Inventory (BDI) was administered to 824 students (366 males and 458 females) of MSU-IIT. Reliability and discriminant analysis were used to test the psychometric properties and validity of BDI in evaluating the depressive symptoms of the said population. Principal component analysis was performed to assess the factor structure of the depressive behaviors of the

students as diagnosed by the BDI.

Severe depression was observed in 25% (N=206) having 60% (N=124) of it were females. Dysphoria was observed in 133 individuals (16.14%), and the remaining 58.86% were non-depressed. The mean total BDI scores was higher (14.76, SD=9.46) than its western counterpart and showed no significant difference according to non-parametric Mann-Whitney Statistics. However, females recorded higher mean total BDI scores (15.44, SD=9.82) than males (13.92, SD=8.94). Reliability test shows to be good with Cronbach's alpha, $\alpha=0.87$ and with high discrimination of depressive symptoms (89.7%). Of the five significant factors extracted in the principal component analysis, only two were considered. Factor 1 is highly associated with the cognitive-affective dimension such as sense of failure, self-dislike, sadness, pessimism, guilt-feelings, self-accusation, sense of punishment, and lack of satisfaction. This accounts for the 30% of the variability. On the other hand, factor 2 is highly associated to somatic-nonspecific dimension such as distortion of body image, sleep disturbance, work inhibition, and loss of appetite. This factor accounts for an additional 7.58% of the variability.

Depressive symptoms can be reliably assessed by the Beck Depression Inventory in the non-clinical university based students of MSU-IIT, with validity comparable to that for international studies.

Keywords: Depression, dysphoria, Beck Depression Inventory (BDI)