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Original Article

Awareness on Climate Change Adaptation in the University of Eastern Philippines

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Abstract *- The study determined the level of awareness on climate change adaptation of the faculty members, students, and non-teaching personnel of the University of Eastern Philippines System. The awareness was measured in terms of education, agriculture, health, fishery and marine resources, infrastructure and human settlement, and environment and natural resources. The study also found the correlation of the level of awareness and selected personal variables and the significant difference in the awareness among the groups of respondents.*

The study employed the descriptive-correlational method of research utilizing a 30-item Liker type instrument on awareness on climate change adaptation. Data were analyzed using percentages, means, multiple regression analysis, and analysis of variance.

The findings of the study showed that the faculty members were much aware of climate change adaptation in terms of education, agriculture, and health and awareness on climate change adaptation in terms of fishery and marine resources, infrastructure, and environment and natural resources. The students were much aware of climate change adaptation in terms of education, agriculture, and health and awareness on climate change adaptation in terms of fishery and marine resources, infrastructure, and environment and natural resources. The non-teaching personnel was aware of the six components of the level of awareness. For the faculty members and non-teaching personnel, the exposure to newspaper and television were found to be significantly related to the level of awareness on climate adaptation. For the students, the exposure to newspaper and year level was found to be significantly related to the level of awareness on climate adaptation. There is a significant difference in the level of awareness on climate change adaptation among the three groups of respondents.

Keywords *- Awareness, Climate change adaptation, Faculty members, Students, Non-teaching personnel*

I. INTRODUCTION

The impending threat of environmental problems, especially that of the climate change phenomena with the confluence of the social, political, and technological changes confronting the country today, have created greater demands and changes to the educational institutions. The school, as an agent of social change and molder of the youth to become responsible citizens, has been expected to provide the necessary knowledge, skills, and values in helping the government cope with these changes.

Accordingly, one of the strategies used to respond to these changes is to incorporate societal issues, particularly environmental issues, into the curricula and other education programs with the view of inculcating environmental activism advocacy in the educational institutions.

This is highlighted by the provisions of the Climate Change Act of 2009, which was recently passed into law by former President Gloria Macapagal-Arroyo, which recognize the vulnerability of the Philippine archipelago and its local communities, particularly the poor women and children, to the potentially dangerous consequences of climate change such as rising seas, changing landscapes, increasing frequency and/or severity of droughts, fires, floods and storms, climate-related illnesses and diseases, damage to ecosystems, biodiversity loss that affect the country's environment, culture and economy. The State shall cooperate with the global community in the resolution of climate change issues, including disaster risk reduction. It shall be the policy of the State to enjoin the participation of national and local governments, businesses, non-government organizations in reducing the adverse effects of climate change. The State shall strengthen, integrate, consolidate and institutionalize government initiatives to achieve coordination in the implementation of plans and programs to address climate change in the context of sustainable development. In furtherance, it shall be the policy of the State to systematically integrate the concept of climate change in various phases of policy formulation, development plans, poverty reduction strategies, and other development tools and techniques by all agencies and instrumentalities of the government.

Sad to say, at this point in time, UEP's obligatory response to the challenge of the problem/issue of climate change adaptation and disaster risk reduction management is still in its infant stage. Thus it is not beyond reproach. As an

affiliate member of the Environmental Education Network of the Philippines (EENP) for so many years now, immediate proactive action should be done now before it is too late. Pressing problems in terms of environmental education advocacy should have to be addressed the soonest to ensure that sound environmental programs are implemented.

Unfortunately, the researcher observed that the University has poor information campaigns and advocacy on Climate Change Adaptation and Disaster Risk Reduction. It was observed that if there is a tsunami alert, the people of the University have no coordination with the administration or local government where to go and who are the authorities to guide them on what to do and where to go. If ever, disaster happens, there will be a lot of causalities and damages. The researcher observed that there is low environmental concern among the people in the University. They may have a low level of awareness of the climate change issues, and precisely it may be the reason why they do not do anything about it.

II. STATEMENT OF THE PROBLEM

This study aimed at investigating the extent of the awareness level on climate change adaptation of the faculty members, students, and non-teaching personnel of the University of Eastern Philippines System.

Specifically, it sought answers to the following:

1. What is the respondents' profile in terms of:
   1.1. Demographic profile along:
      1.1.1. Educational attainment
      1.1.2. Length of service in the institution
      1.1.3. Year level of the students
   1.2. Social environment
      1.2.1. Membership in organization
      1.2.2. Media and communication used
2. What is the level of awareness on the climate change adaptation and disaster risk reduction among the faculty, students, and non-teaching personnel in terms of:
   2.1. Education
   2.2. Agriculture
   2.3. Health
   2.4. Fishery and marine resources
   2.5. Infrastructure
   2.6. Environment and natural resources
3. Is there a significant relationship between the level of awareness and selected personal variables?
4. Is there a significant difference in the level of awareness among the groups of respondents?

III. METHODOLOGY

The study employed the descriptive-correlational method of research utilizing a validated 30-item Likert-type instrument on awareness on climate change adaptation. Data were analyzed using percentages, means, multiple regression analysis, and analysis of variance.

IV. RESULTS AND DISCUSSION

A. Profile of the Respondents in terms of Educational Attainment

Of the 128 faculty-respondents, 127 responded on their educational attainment. The table below presents that faculty-respondents with MA/MS units registered the highest of 46 or 36 percent and the lowest with BS degree, which registered nine (9) or seven (7) percent. Relative to the non-teaching personnel, those with MA/MS units indicated the highest frequency of 51 or 46%, while those with doctoral units registered the lowest frequency of one (1) or one (1) percent.

A. Profile of the Respondents in terms of Length of Service

Findings show that the combined teaching and non-teaching staff-respondents consisted of 237 or 59 percent out of the actual respondents of 403. In terms of the faculty-respondents of the three campuses, from the total number of 122-response respondents, the highest representation was those whose length of service was more than 25 years in service, registering 31 or 25 percent, while the lowest was that of the 21-25 years which registered 11 respondents or nine (9) percent. For the non-teaching personnel, out of the total of 155 total actual respondents, the highest representation was from the five (5) or fewer years in service that registered 28 respondents or 24 percent, and the lowest was those in the 21 to 25 years in service which registered eight (8) or seven (7) percent.

B. Membership in Organization

The distribution of the respondents according to membership in the organization. In terms of membership in the organization, 301 students or 82

B. Profile of the Respondents in terms of

percent responded "no," meaning they were not members of any organization, and 65 or 18 percent responded "yes." Among the 126 faculty who responded, 82 or 65 percent confirmed "yes," while 44 or 35 percent revealed that they were not

members in any organization, inside or outside the campus. In the case of non-0teaching personnel, there was 67 or 62 percent confirmed their membership in the organization, and 42 or 38 percent respondents "no," meaning they were not members of any organizations.

Profile of the Respondents in terms of Media and Communication Used

In relation to media and communication, the respondents mostly used television with a frequency of 314 or 87 percent for the students, 122 or 97 percent for the faculty, and 111 or 96 percent for the non-teaching personnel, while communication through neighbors got the lowest frequency in all the respondents, 64 or 18 percent for the students; 34 or 27 percent for the faculty and 15 or 13 percent for the non-teaching personnel.

Table 1. Level of Awareness on Climate Change Adaptation in terms of Environment and Natural Resources

Distribution of Respondents in terms of Level of Awareness on Climate Change Adaptation in terms of Environment and Natural Resources

Climate Change Adaptation Awareness in terms of Environment and Natural Resources	Students		Faculty		Non-Teaching Personnel	
	Mean	Inter	Mean	Inter	Mean	Inter
1. Strengthen EIA in ways that reduce political interference in environmental management	3.45	Much Aware	3.13	Aware	2.66	Aware
2. Develop simple and easy-to-follow procedures, including regular cleaning of waterways and rivers	3.66	Much Aware	3.45	Much Aware	2.91	Aware
3. Strengthen national institutional arrangement for effective implementation of climate change policies and plans	3.53	Much Aware	3.23	Aware	2.85	Aware

4.	Improve technical expertise and decision-making processes	3.37	Much Aware	3.22	Aware	2.73	Aware
5.	Decrease the use of imported petroleum fuels through conservation efficiency, use of renewable energy (solar, wind, hydro, and biomass), and other sources	3.32	Much Aware	3.03	Aware	2.84	Aware
TOTAL		**358**	**100**	**126**	**100**	**116**	**100**

Faculty = 128
Students = 372
Non-teaching personnel = 121

C. Awareness of Climate Change Adaptation among the Three Groups of Respondents from the UEP System

Analysis of variance was utilized to test for significant differences towards awareness of climate change adaptation among the three groups of respondents from the UEP. In climate change adaptation, analysis of variance result showed an F-value of 11.278 and a significance value of 0.000 which means that there are significant differences in the awareness levels towards climate change adaptation among the three groups of respondents. To determine which group differed from the other, the Bonferroni post-hoc comparison was employed. The result showed that the only awareness level of students (mean = 3.50) is significantly higher than non-teaching staff (mean = 3.19) with a difference of 0.068 and significance value of 0.000, which is less than the 0.05 alpha level.

Similar to the previous ANOVA result, Bonferroni's post-hoc comparisons showed that students' awareness level (mean = 3.56) is significantly higher than the non-teaching staff (mean = 3.21). Other comparisons did not show significant differences.

The findings imply that the UEP student respondents have higher levels of awareness because of the fact that most of the students are exposed to frequent seminars and symposiums conducted from time to time on climate change adaptation by the DENR, environmental groups, and Catarman LGUs. Moreover, this could also be attributed to the fact that the College of Science offers a Bachelor of Science in Environmental Studies and the creation of the UEP Center for Environmental Studies and Advocacies (CESA).

Table 2. Results of Analysis of Variance and Multiple Comparison

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig
CCA	Between groups	9.602	2	4.801	11.278	.000
	Within groups	263.096	618	.426		
	Total	272.699	620			

	Type	**Type**	**Mean Difference**	**Std. Error**	**Sig**
CCA	Student	Faculty	.14783	.06689	.082
		Non-Teaching	.31570*	.06828	.000
	Faculty	Student	-.14783	.06686	.082
		Non-Teaching	.16787	.08273	.129

	Non-Teaching Personnel	Student	-.31570*	.0682 8	.00 0
		Faculty	-.16787	.0827 3	.12 9

Legend:

CCA: Climate Change Adaptation

Test of Relationships Between Independent and Dependent Variables

Student Profile VS Climate Change Adaptation

Multiple regression analysis was utilized to test the relationship of students' profiles on climate change adaptation. Regression results showed that generally, the relationship is significant with an F-value of 3.131 and a significance value of 0.005, which is less than the 0.05 alpha level. The null hypothesis is therefore rejected in favor of the alternative hypothesis. However, the table of coefficient shows that only students in the higher years and those that read newspapers predict higher adaptation levels. Beta coefficients for year level and newspapers are 0.247 and 0.242, respectively, with significance values of less than 0.05 alpha level.

These findings imply that presumably, students in higher years and those that read newspapers are exposed to environmental issues, and climate change adaptation consequently acquired awareness even at "familiarity level" only. Besides, the learning experiences that they have attained help them in one way or another awake the environmental values, orientation, and judgment.

Table 2. Results of ANOVA for Student's Demographic Profile on Climate Change Adaptation

Model	Sum of Squares	Df	Mean Square	F	Sig
1 Regression	7.118	6	1.186	3.131	.005[a]
Residual	130.730	345	.379		
Total	137.847	351			

Model	Unstandardized B	Coefficients Std. Error	Sig.
1 (constant)	3.567	.115	.000
Year Level	.247	.030	.040
Membership in Organization	-.066	.089	.463
Newspaper	.242	.084	.004
Television	-.043	.099	.666
Radio	.026	.079	.745
Neighbor	.077	.109	.480

a. Dependent Variable: Climate Change Adaptation
b. Selecting only cases for which Type = Students

Faculty and Non-Teaching Personnel VS Climate Change Adaptation

Multiple regression analysis was likewise used to test the relationship of UEP Faculty and non-teaching employees' profiles on climate change adaptation. Regression results showed that generally, the relationship is significant with an F-value of 2.49 and a significance value of 0.024, which is less than the 0.05 alpha level. The null hypothesis, therefore, is rejected in favor of the alternative hypothesis. The table of coefficients shows that employees who are exposed to television and radio have a higher level of climate change adaptation awareness. Beta coefficients for television and radio are 0.532 and 0.229, respectively, with significance values of less than 0.05 alpha level.

These findings imply that employees who are exposed to television and radio have a higher level of climate change adaptation awareness because concerned government agencies on these environmental issues like PAG-ASA, DENR, and other non-government organizations advertise and plugged their current information update on television and radio programs. This developed in them a higher level of awareness.

V. CONCLUSION

Based on the summary of findings, the following conclusions were drawn by the researcher:

That the faculty were more mature, with MA/MS units, stayed so long in the institution, and most were members of the organizations.

The students were mostly in their higher year in college and more mature, already having a lot of learning experience.

The non-teaching personnel had less exposure to climate change adaptation and disaster risk reduction, although they were in the university for quite a long time.

As to the media and communication used, they considered television as the medium that gave them so much information that really enriched their knowledge on environmental issues, specifically on climate change adaptation.

Educational attainment and length of service, and year level in college were found to be significant. It implies that a high awareness level depends on the past experiences of an individual derived from higher educational attainment, year leve in college, and a number of years in service really influence and affect invariably the respondents' level of awareness on environmental issues. This means the higher the educational attainment, year in college, and the length of service, the higher the level of awareness.

VI. RECOMMENDATIONS

It is the unflinching resolve of the researcher that findings of the present study would be functional to the University of Eastern Philippines System policy makers and program planners in formulating guidelines in the conceptualization and operationalization of proactive measures and thrusts in terms of the following:

1. Encourage the UEP Office of the Vice President for Research and Extension, the Executive Directors of UEP Catubig and UEP Laoang in cooperation with the Office of the Governor, DENR Provincial Office, and other active environmental non-government organizations like Plan Philippines to conduct a “Trainors’ Training Summit on Climate Change Adaptation” wherein students, faculty, administration officials, LGU officials, socio-civic organizations and members of the clergy are supposed to attend.
2. In the soonest possible time, the UEP System should initiate in mainstreaming in their planning and development programs and projects through application of “Championing Climate Change Adaptation: the AlbayExperience” of Governor Joey SarteSalceda, Center of Initiative and Research on Climate Adaptation (CIRCA), Albay Provincial Capitol, Annex 2, Legaspi City, Philippines.
3. If possible to make mainstreaming and curriculum inclusion and climate change adaptation to the UEP System would be made possible to establish linkages with the Provincial and Regional Disaster Coordinating Council, Environmental Education Network of the Philippines (EENP), School of Environmental Science and Management (SESAM), UPLB and NEDA Region 8 Office.
4. The Student Affairs Office of the three campuses, in cooperation with the UEP Supreme Student Council, faculty and Alumni Federation in cooperation with recognized campus organizations of the three campuses, Provincial and Municipal Disaster Coordinating Council should conduct a quarterly forum as a mechanism for information and education campaign on climate change adaptation.
5. Further study should be pursued on the subject of the present research with active participation and involvement of the three campuses and, if possible, establish tie-ups with LGUs of Catarman, Catubig, and Laoang that may focus on other variables that may have a bearing on knowledge, values, personality, and goals and motivation in life among others.

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