

Climate Change Consciousness among University Students: Implications to Global Education

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Abstract - Climate change is happening. Youth plays a vital role in addressing environmental issues and concerns more particular on climate change. Consciousness on climate change is very essential for its mitigation and adaptation purposes. Thus, this study was conducted to assess the consciousness among university students on climate change and its implications to global education. The objectives of this study were (1) to determine the level of awareness of the university students and (2) to identify the activities undertaken by students incorporating climate change. An adopted close and open-ended questionnaire was administered to obtain data. A total of 64 respondents were involved in the study. Results show that university students were aware on climate change as well as its key causes; effects and possible mitigation. Furthermore, results showed that the university students undertake activities that would mitigate the impact of climate change. Such activities are tree planting activities, clean-up drive and proper disposal/segregation of waste and environmental education campaign.

Likewise, the researchers recommend the enhancing of the different curricula to include the incorporation of climate change and related topics. Other activities such as symposium, forum, seminar can also be undertaken to promote environmental awareness and consciousness among the students in relation to climate change.

Keywords: climate change, global education, consciousness, youth

INTRODUCTION

The Philippines is highly vulnerable to climate change impacts due to its high exposure to natural hazards, dependence on climate-sensitive natural resources and vast coastlines [1]. Climate change is a global issue and it requires a global effort. Every actions of human should be taken into an account. Climate change is now a grim and avoidable reality [2]. It is an international threat that has no geographical boundaries and has emerged as one of the most devastating environmental threat [3]. According to [4], climate change is real and the most urgent environmental challenge facing the world today.

Education encourage sustainable lifestyle. It helps learners understand the causes and consequences of climate change, prepares them to live with the impacts of climate change, and empowers women and men to adopt more sustainable lifestyles [5]. The world community faces many risks from climate change. Changes in the frequency and intensity of extreme heat and cold, floods and droughts, and the profile of local air pollution and aeroallergens will directly affect

population health [6]. Risk of climate-related impacts results from the interaction between climate-related hazards (including hazardous events and trends) and the vulnerability and exposure of human and natural systems [6].

Climate change awareness is much needed for public support in its mitigation and adaptation [7]. Education and awareness-raising play an essential role in increasing the climate change adaptation and mitigation capacities of communities by enabling individuals to make informed decisions [5]. Awareness of actual and potential impacts from climate change, assessment of uncertainties and inclusion of risks should form the backbone of climate change policies in forest management planning [8].

It documents evidence for gender differences in health risks that are likely to be exacerbated by climate change, and in adaptation and mitigation measures that can help to protect and promote health. Globally, natural disasters such as droughts, floods and storms

kill more women than men, and tend to kill women at a younger age [9].

There is a clear scientific evidence that global climate change is caused by human activities. This mainly affects agriculture, health and migration, causing youth to vulnerable. At the same time, youth constitute the majority of the population in many countries and have an increasingly strong social and environmental awareness, which has the power to transform our societies towards low-carbon and climate resilient future [10]. They will be the ones facing the impacts of climate change now and into the future so it's important that they know the issue now [11]. Thus, there is a need to determine the consciousness among university students on climate change.

OBJECTIVES OF THE STUDY

This study aimed to determine the level of awareness on climate change among university students and to identify activities undertaken among university students incorporating climate change. Also, to propose activities that would promote consciousness among the students in the university on climate change.

Research Locale

The study was conducted at Western Mindanao State University (WMSU)-Campus C, San Ramon, Barangay Talisayan, Zamboanga City. The University is approximately 22 kilometers from the City proper and lies geographically at 7° 0' 30.7296" latitude and 121° 55' 39.9216" longitude.

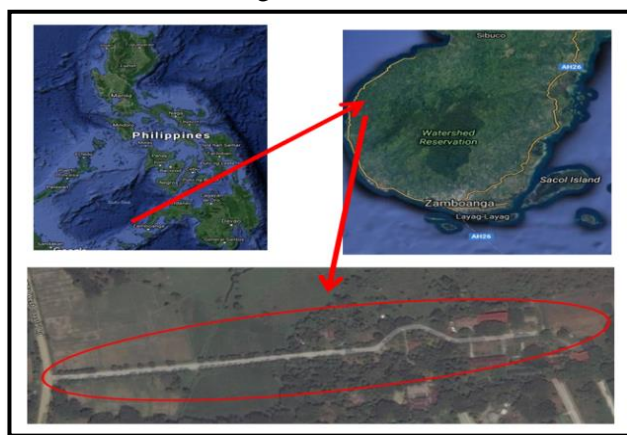


Figure 1. Study Locale

MATERIALS AND METHODS

This study utilized a descriptive research applying the qualitative design to determine the consciousness among university students on climate change and

identify their activities undertaken incorporating climate change. Purposive sampling technique was used to gather data. The respondents were the university student leaders of recognized student organizations of Western Mindanao State University. They were chosen based on the following criteria: a) must be a bonafide student of the university b) officer of recognized school organization and c) willing to share/contribute his/her knowledge and participate in the study. Furthermore, informed consent was given to the respondents and the researchers explain as to the confidentiality of their responses to the study. No names of the respondents will be mentioned in the study. The researchers ensure that all data gathered will be handled with utmost confidentiality. The respondents will have the right to access to data gathered limited to the results of the study.

An instrument adopted from study of (Ochieng & Koske, 2013) entitled "Climate Change Awareness and Policy implications among Primary School Teachers in Kisumu City, Kenya" was used to gather information from 64 students. The instrument was validated by experts on climate change from the faculty of the Forestry and Environmental Studies of Western Mindanao State University, Zamboanga City. The said instrument was also tested for its validity using the appropriate tool by a statistician. It is in congruent with United Nations Environmental Program Questionnaire, which emphasized the importance of questionnaire survey in gauging level of awareness on climate change among stakeholders and potential partners including government officials, business leaders, NGO representatives, journalists, scientists, clergy and youth. Moreover, the instrument consisted three parts labelled I to III. Part I consisted of demographic information. Part II consisted of awareness questions to establish the basic knowledge on climate change. Part III consisted Likert's Statements to further assess the respondents' knowledge on climate change including its causes, effects, and possible mitigations. The following scale for interpretation was used to describe: 1.00-1.79: Highly Aware; 1.80-2.59; Aware; 2.60-3.39: Moderately Aware; 3.40-4.19: Less Aware; 4.20-5.00: Unaware.

The respondents were requested to complete the survey questionnaire. Only university student leaders who are willing to participate in the study were considered.

The data gathering procedure has divided into two phases – the preparation phase and collection phase. Permission to conduct the study was requested from the

Dean and student coordinators of the colleges/departments involved. After the request was granted data gathering was followed.

Frequency count, percentage distribution and mean score were used to determine the consciousness among university students on climate change.

RESULTS AND DISCUSSION

Respondents

Table 1 shows that majority of the respondents were aged ranged from 17-21 years old. In terms of their gender, male to female ratio is almost equal. This implies that gender-inclusive should be invest among universities. A gender-inclusive approach to DRR can achieve win-win results for families and communities [12]. Age has an influence on the public's level of awareness and perception of climate change but it is difficult to set with certainty whether the correlation is positive or negative.

Table 1: Distribution of the Respondents' Gender and Age

Characteristics	n	%
<i>Gender</i>		
Male	34	53.1
Female	30	46.9
<i>Age</i>		
17-21	55	85.9
22-26	5	7.8
27-31	1	1.6
32-36	3	4.7
Total	64	100

Knowledge towards climate change

Knowledge on climate change helps the development of a sense of responsibility through the creation of informed awareness [16]. The results presented in Figure 1 shows that the university students were aware, and only 28% were highly aware or said that the know more about climate change. Results of the study is contrary with the results of the survey conducted by UNEP and Shalik[13][14]in which students are poorly informed about climate change and student level of knowledge is extremely low.. Moreover, half of the survey respondents had never heard about climate change as an issue of environmental concern, and most were confused about the basic facts of climate change. Furthermore, results of the study is similar with the results of the study conducted by Oruonye[15] in which students in tertiary

institution in Jalingo Metropolis, Nigeria were aware on climate change.

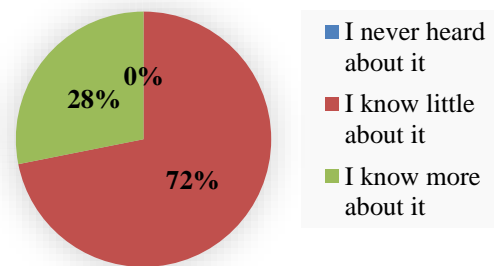


Figure 2. Respondents' perceived Awareness Climate Change.

Moreover, international environmental treaties and agreements are importance source of scientific information related to climate change. For this study, Table 2 revealed that majority of the respondents have never heard on climate change instruments and institutions such as United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol and Intergovernmental Panel on Climate Change (IPCC). This implies that there is a gap of knowledge among university students on climate change.

Table 2. Knowledge on Climate Change Instruments and Institutions

Climate Change Instruments and Institutions	FREQUENCY/PERCENTAGE	
	I have never heard of it	I know something about it
UNFCCC	45 (70.31%)	19 (29.69%)
Kyoto Protocol	45 (70.31%)	19 (29.69%)
Intergovernmental Panel on Climate Change (IPCC)	43(67.19%)	21 (32.81%)

Seminars and workshops have an important role in awareness-raising. Figure 3 presented the attendance of the respondents in climate change seminars and workshops. In general, most of the university student have attended seminars and workshops related to climate change.

In the University, forum on climate change were also conducted and resource persons from Philippine Institute of Volcanology and Seismology (PHILVOCS) and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)were invited to talk about the topic.

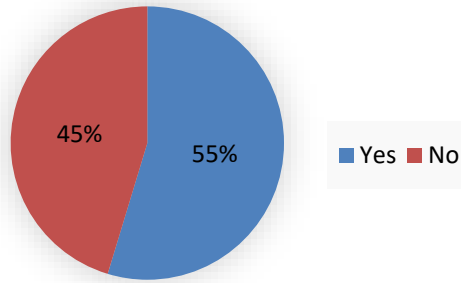


Figure 3. Attendance in Climate Change Seminars and Workshops

Students were given the opportunity to interact with the resource person through open forum. Even with, the results give opportunity of the university to conduct more seminars and workshops related to climate change.

Table 3. Sources of Information about Climate Change.

Sources of Information	Frequency
Internet	43
Movies (Televisions)	41
School Libraries	36
Newspapers and Magazines	35
Radio	32
Flyers	24
Books	13

As shown in Table 3, the main driving factors that enhanced the awareness of the students on climate change is the internet, followed by movies (televisions) and school libraries. They have also gained information from radio, newspapers, magazines, and flyers. In addition, university students were able to know about climate change because there are available learning materials on climate change such as articles, text books, magazines, manuals pamphlets and research papers.

According to Najjar the amount of amount of information about climate change on the internet is endless and scientific journal articles are the most reliable sources of information. Pandve and Raut reported that common source of about climate change was newspaper and magazines followed by television, internet, radio, and scientific journal [3].

Table 4 shows the respondents' level of awareness on climate change causes, effects and possible mitigations. In general, university students were aware to highly aware on climate change causes, effects and possible mitigation. Majority of the statements revealed that they were aware that climate change is caused by deforestation, combustion of fossil fuel, poor agricultural practices such as the use of fertilizers (inorganic), poor waste management and can be mitigated through the use of organic fertilizers and by planting trees. In addition, results revealed that they were aware climate change leads to rise in sea levels, food shortages and it is associated with the increased frequencies of droughts and floods.

Table 3. Level of Awareness on Climate Change Causes, Effects and possible Mitigations.

STATEMENTS	MEAN	INTERPRETATION
1. Climate change is caused by air pollution from industries	1.53	Highly Aware
2. Philippines has become hotter than it was	1.69	Highly Aware
3. The world's temperatures have risen over the years	1.70	Highly Aware
4. Climate change is caused by poor management of waste	1.80	Aware
5. Climate Change is caused by Deforestation	1.86	Aware
6. Climate change is caused by combustion of fossil fuels	1.94	Aware
7. Climate change leads to food shortages	1.95	Aware
8. Climate change is associated with the increased frequencies of droughts and floods	1.97	Aware
9. We can mitigate climate change by planting more trees	2.00	Aware
10. Climate change leads to rise in sea levels	2.05	Aware
11. Climate change is caused by poor agricultural practices (e.g. Fertilizers)	2.52	Aware
12. We can mitigate climate change through organic farming	2.55	Aware
13. We can mitigate climate change by using renewable energy sources (e.g. hydro-power, geothermal, solar, and wind) instead of fossil fuel	2.86	Moderately Aware
14. Use of land-fills instead of open damp sites does provide a mitigation option for climate change	2.81	Moderately Aware
15. We can mitigate climate change by minimizing air pollution from industries	2.89	Moderately Aware
GRAND MEAN	2.14	Aware

Further results show that respondents were moderate aware on the possible mitigation of climate change. They believed that we can mitigate climate change by using renewable energy sources such as hydro-power, geothermal, solar, and wind instead of fossil fuel, use of land-fills instead of open dump sites does is one of the mitigation options for climate change and climate change can be mitigated minimizing air pollution from industries.

Likewise, respondents showed high awareness on the statements; climate change is caused by air pollution from industries, the world's temperatures have risen over the years and Philippines has become hotter than it was.

However, overall in terms of awareness on climate change, the respondents are just aware of the issues with a grand mean of 2.14. This implies that more formal and non-formal activities are needed for the students to be fully aware on the issues on climate change and do activities that would help mitigate the impact to their community.

It was also found out that university students undertake certain activities incorporating climate change. It is essential and valuable for climate change mitigation and adaptation. One of which is tree planting activities. Planting trees may reduce carbon footprints and will help combat climate change by absorbing and storing carbon dioxide and releasing oxygen gas in the atmosphere. Moreover, clean-up drive and proper disposal and segregation of waste had been undertaken. This activity will also reduce greenhouse gas (GHG) emission which contributes to climate change. Some of the students also conducted environmental awareness seminars and workshops to their communities and schools. Raising environmental awareness allows the students and communities to sightsee environmental issues (such as climate change) and take part in different climate change adaptation and mitigation activities.

CONCLUSION AND RECOMMENDATION

The students of Western Mindanao State University Campus C are aware about climate change as well as its causes, effects and possible mitigation. They conducted tree planting activities, clean up drive, proper disposal of waste and environmental education campaign.

This implies, that they can be effective agent in promoting environmental awareness, education and protection. However, interms of international agreement such as Kyoto Protocol, majority never heard about such agreements. Hence, intensified

information regarding such international agreement can be undertaken through seminar and forum in the University.

The youth are the most potential sectors in our society and they can be agent for change because of their dynamism and energy they can bring changes for improvement, protection of our environment like the issue on climate change.

Student leaders or the youth are partners of the University in sharing information to the different communities, hence it is important that they are aware of the issues so that they can share it in their communities properly and correct information are provided to the communities. They can be effective in promoting environmental education to the other sectors of the society.

Thus, to enhance student consciousness on climate change and related topics. Integration or incorporation of the said topics in the different curricula is necessary to address the gap in terms of knowledge and awareness of the students in the University.

Other activities can also be undertaken such as the following:

1. Conduct more symposiums/ workshop/ seminar to promote environmental awareness and consciousness of the youth.
2. Provide brochures, pamphlets flyers regarding climate change.

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