

Climate Change Awareness and Adaptation Practices of Student Teachers in the University of Eastern Philippines

Antonieto L. Adora¹, Nelia M. Adora, PhD.²

Faculty, College of Education, University of Easter Philippines, Catarman, Northern Samar, Philippines

Abstract: *Climate change has broad adverse impacts. It affects not only our environment, but also economic and social development. Developing countries are generally warmer, more prone to rainfall variability, more dependent on agriculture – the most climate sensitive of economic sectors – as a result of low income have limited risk mitigation infrastructure. It brings with it increasing incidence of disease, and declining agricultural productivity the ensuing climatic ravages have been recorded as intense severe weather events – rainfall, drought, floods, heat waves; the increment environmental changes result to landslides, salination, changes in season patterns, soil erosion, species loss, etc. There are likely to result in deteriorating livelihood, which impact upon household expenditure on schooling and nutritional status of children school weather events – rainfall, drought, floods, heat waves; the increment environmental changes result to landslides, salination, changes in season patterns, soil erosion, species loss, etc. There are likely to result in deteriorating livelihood, which impact upon household expenditure on schooling and nutritional status of children school absenteeism and dropouts are higher in flood prone areas. Flooding also inhibits completion of school programs. These are the reasons why everyone should respond to his challenge. This study determined the climate change awareness and adaptation practices of students in the University of Eastern Philippines. Specifically, it aimed to: 1.) determine the level of climate change awareness of the students; 2.) determine the level of adaptation practices of the respondents; and 3.) know what prompted the involvement in climate change adaptation of the respondents. The respondents were composed of students and teachers in the university. Complete enumeration was done because of limited number of respondents. Descriptive method was used to determine the prevailing condition on the awareness, practices, and adaptation on climate change among the respondents. Questionnaire and interview schedule were used to gather necessary variables. The result shoed that some elements of climate change are better understood than others. In a further indication of the lack of basic scientific knowledge which can help to build a more grounded and robust understanding of climate change, these future teachers struggle significantly with an understanding of the basic concepts of climate and weather. In an indication of the confusion surrounding the concept of climate change adaptation, almost half of students correctly identified that climate is a term used to describe average weather over a prolonged period of time. When combining the elements which reflect on climate/weather and ocean science, only half of students answered this combination of questions correctly. In respect to awareness of perhaps less specific elements of climate change which relate to causes of climate change, students generally had a better understanding, but exceptions are common. In questioning students about the causes of climate change, students again return a high number of incorrect or “don’t know” choices to questions which would be deemed more scientific such as those relating to acid rain, fossil fuels and the ozone layer. Alarmingly, less than half of the surveyed student-teachers identified the combustion of fossil fuel as a contributor to climate change. However, the large number of students who exhibit confusion in respect to these elements of climate change knowledge are well documented in a number of similar studies (Rajeev Gowda et al, 2013). It could be argued that the strong links between climate change, acid rain and ozone layer depletion are to blame for these misunderstandings. It would appear that more direct human interferences with our atmosphere such as the effects of cutting down trees and industry on climate change are better understood among the college student-teachers population sampled.*

Keywords: Climate change, awareness, adaptation practices, involvement

1. Introduction

Climate change refers to the alteration in the composition of the global atmosphere through varied levels of human activities leading to the observed pattern of natural climate variability over comparable time periods. While adaptation involves controlling the extent of climate change through combining the undesirable or unfriendly sources with climate impacts while enhancing the sources of favorable climate impacts with the relevant appropriate measure (Salami, 2011).

Climate change has broad adverse impacts. It affects not only our environment, but also economic and social development. Developing countries are generally warmer, more prone to rainfall variability, more dependent on agriculture – the most climate sensitive of economic sectors – as a result of low income have limited risk mitigation infrastructure. It brings with it increasing incidence of

disease, and declining agricultural productivity the ensuing climatic ravages have been recorded as intense severe weather events – rainfall, drought, floods, heat waves; the increment environmental changes result to landslides, salination, changes in season patterns, soil erosion, species loss, etc. There are likely to result in deteriorating livelihood, which impact upon household expenditure on schooling and nutritional status of children school absenteeism and dropouts are higher in flood prone areas. Flooding also inhibits completion of school programs. These are the reasons why everyone should respond to his challenge.

This study involved the students-teachers, the future teachers. They are the educators who are expected to be knowledgeable in the climate change discipline with sufficient pedagogical skills and enthusiasm for adequate transfer of knowledge and to engender attitudinal changes. They should be the agents for the spread of knowledge and

increase awareness for the need for sustainable adjustment and necessary life changes to this effect. They should be part of the nation's citizenry who are adequately sensitized and well intellectually fortified to impart the change.

Moreover, the level of awareness on climate change and the adaptation practices of the students will influence their family members, neighbors and the whole community. This chain of awareness has great impact to the community for them to be safe from calamities. The output of this paper will also serve as basis in assessing the effectiveness of integrating climate change awareness to learning activities.

2. Objectives of the Study

This study determined the climate change awareness and adaptation practices of students in the University of Eastern Philippines. Specifically, it aimed to:

- 1) Determine the level of climate change awareness of the students;
- 2) Determine the level of adaptation practices of the respondents;
- 3) Know what prompted the involvement in climate change adaptation of the respondents.

3. Methodology

This study was conducted in the University of Eastern Philippines during second semester of school year 2018-2019. The respondents were composed of students and teachers in the university. Complete enumeration was done because of limited number of respondents. Descriptive method was used to determine the prevailing condition on the awareness, practices, and adaptation on climate change among the respondents. Questionnaire and interview schedule were used to gather necessary variables.

4. Results and Discussion

Climate Change Awareness

The climate change awareness of the students were measured and was found to be basically aware with a mean of 3.09. This means that the students have the idea that climate change is change in the climate atmospheric condition and it affects health and wellbeing. Students also forward the idea that climate change is caused by increased emission of greenhouse gases. It is clear that students have some knowledge and awareness of climate change, but that significant gaps in knowledge exist. Perhaps more importantly, students harbor considerable misunderstandings about climate change. Knowledge about fossil fuel is limited which is largely consistent with other surveys which tested for awareness of this topic (Jean-Baptiste et al, 2007). Also the very low level of knowledge of climate change effects in agriculture can be noted in the study and have also returned results similar to the surprising result from this study that climate change causes severe weather conditions. However, responses of some students during interviews contradict some of the indicators which were positively identified by other students. Interviewees mentioned of their lack of knowledge on climate change especially on atmospheric conditions that might affect the health of people. This

finding is an indication that not all people are giving serious attention to climate change. Some of them, especially students are not fully aware of fossil fuels and emission of greenhouse gases as detrimental to human health.

Table 1: Climate Change Awareness

<i>Indicators</i>	<i>WM</i>	<i>Interpretation</i>
1) Climate change is change in the climate atmospheric condition.	3.88	Very Aware
2) Climate change affects my health and wellbeing.	3.50	Very aware
3) It is caused by increased emission of greenhouse gases.	3.35	Aware
4) It is caused by burning of fossil fuel.	3.20	Aware
5) It is caused by increased persistent deforestation.	3.00	Aware
6) It causes global warming.	3.00	Aware
7) It causes extreme weather conditions.	2.79	Aware
8) Climate change affects agricultural productivity.	2.00	Slightly aware
<i>Mean</i>	<i>3.09</i>	<i>Aware</i>

Adaptation Practices on Climate Change

In terms of adaptation practices, Table 2 shows that students are practicing to a high level some practices that could make them resilient when disaster comes as a result of climate change. They are planting trees that are important to combat effects of industrialization which is increasing carbon dioxide in the environment. They are also reducing energy consumption/using energy efficient appliances and lighting and using solar equipment to minimize their energy use which is produced through burning fossil fuels. However, some students replied on the negative when asked about their adaptation practices. Some are not aware of how they can adapt to changing climatic conditions. These students are not aware about energy consumption of simple electronic devices at their homes. Almost half of the students interviewed about adaptation practices are not knowledgeable of practices that would contribute to energy consumption reduction or reduce emission of carbon dioxide to the environment.

Table 2: Adaptation practices on climate change

<i>Indicators</i>	<i>WM</i>	<i>Interpretation</i>
1) Planting more trees.	3.80	Much practiced
2) Reducing energy consumption/using energy efficient appliances and lighting.	3.78	Much practiced
3) Using solar equipment.	3.74	Much practiced
4) Using fuel efficient vehicle.	3.70	Much practiced
5) Forest protection and development.	3.49	Much practiced
6) Law and legal framework enforcement.	3.45	Much practiced
7) Sending item for recycling.	3.39	Practiced
8) Encouraging development and use of renewable resources.	3.38	Practiced
9) Development of alternative crops.	3.37	Practiced
10) Protection of coastal areas.	3.3	Practiced
11) Reducing transportation by providing effective communication.	3.29	Practiced
12) Organizing public awareness campaign.	3.22	Practiced
13) Environmental education program in schools.	3.00	Practiced
14) Zero tolerance to unsustainable lifestyle.	3.00	Practiced
<i>Mean</i>	<i>3.42</i>	<i>Much practiced</i>

Involvement with Climate Change Adaptation

Most of the students are adapting to climate change not just because of external factors which drive them to their share of minimizing effect of climate change. Aside from the government which is pushing its people to adapt measures in combatting climate change, they are also doing it as their own initiative. This finding shows that students are increasingly aware of the menace that climate change might bring to them or to the community. This is a good indication that these future teachers are already taking their own initiative to plan for their careers as professional teachers in the near future.

Table 3: Involvement with Climate Change Adaptation

<i>Indicators</i>	<i>WM</i>	<i>Interpretation</i>
1) Legislative mandate.	3.70	Very Aware
2) Logically-specific information showing potential impacts.	3.60	Very Aware
3) Community support and encouragement.	3.49	Very Aware
4) College directive.	3.37	Aware
5) Update of local coastal plan or emergency management plan.	3.32	Aware
6) State-level climate adaptation strategies.	3.32	Aware
7) Development or update of a local climate action plan.	3.29	Aware
8) Funding became available.	3.25	Aware
9) Personal motivation to address the issue.	3.22	Aware
10) Other local governments providing models for adaptation planning.	3.22	Aware
11) Mandate of the university.	3.00	Aware
12) A recent event.	2.75	Aware

5. Conclusions and Implications

In the core section of this survey which attempted to ascertain students' awareness and adaptation to climate change, it is clear that some elements of climate change are better understood than others. In a further indication of the lack of basic scientific knowledge which can help to build a more grounded and robust understanding of climate change, these future teachers struggle significantly with an understanding of the basic concepts of climate and weather.

In an indication of the confusion surrounding the concept of climate change adaptation, almost half of students correctly identified that climate is a term used to describe average weather over a prolonged period of time. When combining the elements which reflect on climate/weather and ocean science, only half of students answered this combination of questions correctly.

In respect to awareness of perhaps less specific elements of climate change which relate to causes of climate change, students generally had a better understanding, but exceptions are common. In questioning students about the causes of climate change, students again return a high number of incorrect or "don't know" choices to questions which would be deemed more scientific such as those relating to acid rain, fossil fuels and the ozone layer. Alarmingly, less than half of the surveyed student-teachers identified the combustion of fossil fuel as a contributor to climate change. However, the

large number of students who exhibit confusion in respect to these elements of climate change knowledge are well documented in a number of similar studies (Rajeev Gowda et al, 2013). It could be argued that the strong links between climate change, acid rain and ozone layer depletion are to blame for these misunderstandings. It would appear that more direct human interferences with our atmosphere such as the effects of cutting down trees and industry on climate change are better understood among the college student-teachers population sampled.

6. Recommendations

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

- 1) School administrators should design a seminar that will make student-teachers fully aware of climate change and its possible effect to humans.
- 2) Teachers should integrate topics of climate change and adaptation practices in the delivery of lessons.
- 3) Students should make it a habit to check with teachers issues about climate change that are seem vague to them.
- 4) A future research about vulnerability to disaster of schools in Northern Samar should be investigated to some mitigate the impact when disaster comes.

References

- [1] Sinatwa, E. (2007) Management of Student Discipline in Secondary Schools in Bungoma District, Kenya. Unpublished PhD. Thesis, Maseno University.
- [2] Cavanaugh, S. (2004) Schools abroad brace against terrorism. Education Week 6th October, 2019 Retrieved March 19th, 2019 from <http://www.edweek.org>.
- [3] Safety Effects by Community, Schools Environment and Substance Use Variables The Journal of Early Adolescence Vol. 24 No. 4 pp. 412-430.
- [4] Ogutu, R. (2008) An Investigation of School Infrastructure Development and its Influence on Disaster Awareness and Preparedness. Unpublished M.Ed. Project: Kenyatta University.
- [5] Rasiah, H.M. (2011) An Investigation of Disaster Preparedness in Public Secondary Schools in Isiolo District. Unpublished M.Ed. Thesis, Kenyatta University

Redican, K. Olsen I and Baffi.