

## **Assessing the level of awareness on climate change and sustainable development among students of Partido State University, Camarines Sur, Philippines**

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**Abstract:** The participation of youth in any disaster risk reduction activities could be enhanced when they have high levels of awareness on climate change. But there seems to be scanty information about their level of awareness. The study was conducted to investigate the level of awareness of youth studying in a state university in the Philippines, and to determine the factors that influenced their awareness. The study employed the descriptive survey method using a 5-Lickert scale instrument involving the students of Partido State University (PSU), Camarines Sur, Philippines. Respondents (n = 247) were selected randomly from the undergraduate student population, and were stratified by their year levels. Although there was no qualitative difference observed among the respondents, the computed weighted mean for all variables under investigated differ across year levels. Based on the computed weighted mean, level of awareness is generally higher among senior students than first year students. Similar observations were made for all variables, i.e. computed weighted means increase as year level increases. In addition, the factors perceived to be significantly influencing the level of awareness of the respondents have differed across year levels. First year students perceived personal experience while second and third year students as well as fourth year students perceived education and government actions, respectively as much important factors that could influence their level of awareness. The channels of information about climate change also differ across year levels based on the computed weighted means. Among the four channels presented in the survey, first and second year students perceived mass media and family and trainings and seminars, third year students perceived internet and social media, and fourth year students perceived education, mass media and family and trainings and seminars as important channels of information. Overall, the differences could be utilized as bases in developing academic as well as extracurricular activities that are sensitive to the sex and year level of the involved students to improve their cognitive adaptive capacity.

**Keywords:** level of awareness, climate change, empiricist perspective, descriptive research method, Partido State University, Camarines Sur, Phillipines

## **INTRODUCTION**

The Philippines is highly vulnerable to the impacts of climate change because it is heavily dependent on climate-sensitive economic processes such as agriculture and has fewer resources for adaptation. As UNFCCC (2007) indicated, developing countries like the Philippines are highly vulnerable to climate change impacts because they have fewer resources to adapt socially, technologically and financially. As such, it is anticipated that developing countries would suffer far reaching effects of climate change especially on their ability to attain sustainable development (UNFCCC 2007). And among the sectors that would significantly be affected by these impacts are the youth.

Youth's awareness on climate change must be considered in climate change adaptation in the country. According to Fernandez and Shaw (2013), youth's awareness on climate change must be integrated even in the formulation of disaster risk reduction plan. This is necessary as the youths are among the marginalized sector of the society that bears much of the impacts of disasters (Gaillard & Pangilinan, 2010). Therefore, excluding them from the disaster risk reduction processes would threaten their safety from disasters and neglects a valuable resource for risk communication, education, advocacy, and action-oriented risk reduction activities (Anderson, 2005). Likewise, they possess significant qualities which when tapped could serve as important resources for households and communities in preparing for, responding to, and recovering from disasters (Fernandez & Shaw, 2013). According to Peek (2008), youth's knowledge, creativity, energy, enthusiasm, and social networks could be tapped in various phases of disaster risk reduction (DRR) processes to help themselves and others. For instance, Mitchell, Tanner, and Haynes (2009) observed that youths in the Philippines who are working with an NGO on community risk mapping and mitigation activities have much greater capacity to participate in DRR than many people assume. They further reported that these young people used their DRR knowledge to successfully persuade school officials and community planners to relocate their school, which was previously located in a high-risk landslide area to a safer ground.

Though youth could be regarded as potential partners in conducting DRR activities in the country (Fernandez, 2012), there appears to have paucity of information on youth's level of awareness of climate change. In addition, such scanty information of youth's awareness on climate change has most of the time being left out in the DRR processes. According to Fernandez and Shaw (2007), young people continue to be left out in the DRR processes although the international DRR community has been advocating a participatory approach.

The study was therefore conducted to investigate the level of awareness of youth studying in a state university in the Philippines, and to determine the factors that influenced their awareness. Specifically, the study aims to identify the sources of information most accessible to the students and have affected their level of awareness on climate change, and to determine if undergraduate students' level of awareness differs across year levels.

### **Statement of the Problem**

The participation of youth in any DRR activities could be enhanced when they have high levels of awareness on climate change. But there seems to be scanty information about their level of awareness. This could explain why youth is always being left out in the process of DRR

although the international DRR community advocates a multi-sectoral or participatory approach (Fernandez & Shaw, 2013). To contribute to the existing literature on youth's level of awareness on climate change, the study was conducted. The study aimed to answer the following questions:

1. What is the level of awareness on climate change of selected undergraduate students of Partido State University?
2. What factors will students perceived to significantly influence their level of awareness on climate change, and will they differ across year levels?
3. What channel of information will students perceive as important in improving their level of awareness of climate change, and will they differ across year levels?

### **Scope and Limitation of the Study**

The study is limited in scope and depth of analysis due to time and resource constraints. There has been no attempt done to consider students from other universities to have a broader perspective on the level of youth's awareness of climate change in the study site. There was no attempt to inquire from the respondents their definition of climate change and their identification of the impact of climate change. There was also no attempt to analyze the difference between the level of awareness on climate change between students of state-owned and privately-owned universities. Moreover, the study did not analyze the influence of socio-demographic variables (SDVs) on students' level of awareness although existing studies (e.g. Kabir et al., 2016; Akompab et al., 2012) indicate the significant role of SDVs on individuals' perception and awareness of climate change. No attempt was also done to analyze the impacts of the sources of information on climate change on students' level of awareness. The use of quantitative research design could also limit the data being collected as not all information could be obtained through applying only quantitative data collection protocols. Future researchers may use triangulation method in assessing students' level of awareness on climate change that include examining the knowledge of students on climate change-related issues, focused group discussion, and even analyzing the curriculum of the school as to whether or not it contains climate change-related content knowledge. However, future research studies that could address these limitations of the study are recommended.

### **Significance of the Study**

Although the study is limited in scope and depth of analysis, it could be used as baseline information for the university to evaluate its curricular programs, and academic activities that could enhance the level of awareness of their students on climate change. This is necessary because the university is located in a place, which is highly vulnerable to climate change risks and impacts. In addition, the study could also provide useful information to the university in the development and conduct of disaster risk reduction and climate change enhancing-awareness seminar among its constituents especially the students.

The result of the study could also provide important empirical information to institutions involved in DRR that could be useful in integrating youth's perspective in the process. The information could also provide useful insights on how to engage the youth in any climate change adaptation activities especially those that are being done by the Regional Development Council. Lastly, the analysis derived in the study could help formulate and integrate policies concerning

climate change in the sustainable regional development plan that will empower the community to actively participate in the programs.

## **REVIEW OF RELATED LITERATURE**

This section presents the review of literature related to the focus of the study. It presents literature on the role of youth in climate change adaptation, role of higher education institutions in enhancing the level of awareness of youth on climate change, and the importance of increasing the level of awareness of youth on climate change adaptation and disaster risk reduction.

### **The Role of Youth in Climate Change Adaptation and Disaster Risk Reduction**

Pandve et al. (2009) emphasized that youth play a crucial role in combating climate change. The young people who have the skills of spreading new habits and technologies could contribute to the fight against climate change (Ki-moon, 2008 in Pandve et al., 2009). United Nations International Strategy for Disaster Reduction, UNISDR (2000) purported that youth can help in the successful implementation of disaster prevention and risk management strategies because they can promote the necessary change in behaviors and a shift in mentalities. This is possible because they are adaptable as well as able to quickly make low-carbon lifestyles and career choice (Pandve et al., 2009). Further, they can share and apply what they learned especially within their households, families, and the wider community (Shaw et al. 2009). In essence, the youth can easily and actively support state's initiatives that could lead to the formulation of far-reaching legislations (Pandve et al., 2009).

### **The Role of HEIs in enhancing the level of awareness of students on climate change**

Though literature pointed out that youth is crucial in climate change adaptation, there is a need to empower them. Empowerment is essential in equipping them with the necessary competencies and resources needed to make an impact in climate change adaptation.

The traditional mission of higher education institutions (HEIs) is to enhance youth awareness through teaching and research function (Triplet al.2014). The role of higher education in society must be expressed in its key mission of producing and disseminating knowledge and of engaging the community in the learning process. In the issue of climate change, higher education necessary to impact the individuals' general awareness of the issue while at the same time, to determine how enabled they are to develop the necessary solutions and innovations to overcome climate change (Al Yousuf, 2016).As UNFCCC (2007) argued, "education provides the skills people need to thrive in the new sustainable economy, working in areas such as renewable energy, smart agriculture, forest rehabilitation, the design of resource-efficient cities and sound management of healthy ecosystems." In addition, improving education can give people the skills and knowledge to better prepare for and recover from natural disasters. For instance, the people in Cuba were able to respond quickly to hurricane alerts and recover from the impacts of storms because of their improving education (Al Yousuf, 2016). Likewise, the higher rate of literacy and higher people's level of awareness in Japan had helped them respond properly to impacts of tsunamis and earthquake.

Unfortunately, this state is not true to all other countries across the globe. A Yale University research paper cited in Al Yuosuf (2016) had indicated that education and awareness on climate change are strongly linked. As presented in the paper, a survey of residents of 119 countries found that 40% of adults worldwide reported never having heard of climate change (Al Yuosuf, 2016). This value rises to more than 65% in some countries like India and Egypt. From the survey, it was concluded that education tends to be the single strongest predictor of awareness of climate change. It is here where the role of higher education institutions on increasing societal awareness of climate change is highlighted. Universities are supposed to create a society with a high basic scientific literacy. This is necessary because it can help “increase a community’s ability to solve and adapt to climate change by enabling members to make informed decisions about climate and the factors that impact it” (Al Yousuf, 2016).

However, universities’ roles also cannot be isolated from the context and conditions in which they find themselves. They must engage with local, national, continental and global challenges. The functions of higher education in the society should however be guided by the pursuit of excellence in teaching, training, research and institutional performance as well as the perceived priority needs of the society to address climate change challenges. Higher education must tick a balance between short-term pertinence and service and long-range quality, between basic and applied research and between professional training and general education (Kamba, 1991) that would create a disaster resilient society or society with high climate change literacy. In this way, the relationships between higher education institutions and society could be observed in terms of the adoption and implementation of strategies and interventions in combatting climate-related vulnerabilities and risks (Mearns, & Norton, 2010). The development of an integrated conceptual framework for strengthening the capacity of universities to help society understand and respond to a wide range of sustainability challenges is therefore imperative (Hart, et al., 2015).

The state universities as an institution for learning plays an important role to limit or lessen the impacts of climate change by creating an innovative program that promotes and develops effective public awareness strategies on climate change adaptation (Violeto, 2015). According to Sampei and Aoyagi-Usui (2009) in Burck, et al. (2014), there are only few people who are aware of the negative effects of climate change. But higher education institutions should be able to increase this awareness.

### **Enhancing the Level of Awareness of Students on Climate Change**

As youth plays crucial role in climate change adaptation, there is a need to enhance their awareness of climate change. Having a rising population globally, this new generation has an increasingly strong social and environmental awareness that could lead to the development of a low carbon emission society (Wibby, 2013). The United Nations (2004) reported that youth make up 18% of the world’s population with majority (87%) living in developing countries. Increasing the level of their awareness on climate change could therefore promote the creation of a climate resilient society especially in the developing countries because they have the energy to lead towards such future. Their energy and knowledge could be tapped in raising awareness, running educational programmes, conserving our nature, promoting renewable energy use, adopting environmentally friendly practices, implementing adaptation and mitigation projects (Wibby, 2013). In addition, they could be encouraged to actively engage at local, national, and global levels in raising awareness about the risks and impacts of climate change. As climate

change is a major issue for all levels of government, global, national and local, youth could be tapped to participate in decision-making and policy-making related to climate change. This necessitates that youth should be empowered.

Empowering the youth of today to address climate change impacts is an educational priority (Narksompong & Limjirikan, 2015). Enhancing their level of awareness is necessary because “they are the future citizens and decision makers that must live with the impacts of climate change” (Narksompong & Limjirikan, 2015). They are also the future agents of action who would implement climate change solutions. Therefore, the active participation of youth could provide an intergenerational viewpoint of present and future citizens (Narksompong & Limjirikan, 2015). As such, global, national, and local authorities’ response to climate change should not concentrate only on their role in reducing greenhouse gases but also on actively empowering young people to prepare them for future climate change adaptive and mitigative actions (Wilson, 2006). Although adapting to climate change is among the biggest challenge that humanity faces in the next century (Jones et al., 2012), engaging the youth in decision-making as well as policy-making process could provide an intergenerational perspective to any climate change adaptation and mitigation initiatives. Creating an enabling environment for youth could aid in mitigating climate change drivers in the future especially that climate change is dominated by human influences, which are now large enough to exceed the bounds of natural variability (Karl, & Trenberth, 2003).

One way to achieve this goal is to engage the higher education institutions (HEIs) in youth's awareness on climate change (Geuna & Muscio, 2009). As Al Yousuf (2016) had emphasized, there is a need to fully leverage the power and responsibility of education in raising the awareness of, and in empowering the young people to enable them to address challenges of climate change. This step could produce a two-pronged effect on youth, namely, it enhances their individual’s general awareness, and it determines their ability to develop necessary solutions and innovations for overcoming climate change (Al Yousuf, 2016). Enhanced awareness of climate change through education would enable informed decision-making, which in turn, plays a vital role in increasing adaptation and mitigation capacities of communities, and empower women and men to adopt sustainable lifestyles (UNESCO, n.d.). Agboola and Emmanuel (2016) also emphasized that increasing the level of awareness on climate change of today’s youth through education would have far reaching implications for the survival of mankind. Nath (2009) argued that students in universities should not be ignorant on the issue of climate change; rather, they should be able to relate it to sustainable development, which would ensure their own future.

Aside from education as a channel and source of information about climate change, Calvo and Apilado (2014) indicated the importance of mass media in improving youth’s level of awareness. They reported that mass media such as radio and television improved students’ awareness by regularly broadcasting information on climate change. Improved awareness could create a favorable attitude towards the phenomenon. Thus, the development of an information communication material may help improve their level of awareness and provide additional knowledge that will likely promote better attitude in them.

On the other hand, Ojomo et al. (2015) argued that youth’s personal experience could provide the impetus to address climate change. They believed that personal experience plays an important role in knowledge building and attitude formation of students. In fact, an enriched knowledge of climate change could possibly be created due to the varied experiences of the

youth with climate change. Such knowledge could be utilized to produce advocacy materials that could ensure a comprehensive knowledge of climate change impacts in any given place.

As climate change affects the security and economy of any nation, Bondoc (2015) suggested including the government on the process of increasing youth's level of awareness of climate change. The government can develop policies, programs, and projects that could specifically empower youth to combat climate change, and secure the inclusion of young people in government's decision-making and planning. Further, Devkota and Phuyal (2017) suggested putting into policies the role of universities in enhancing the level of awareness of youth in a nation. Uyarra (2010) had indicated that universities' initiatives in enhancing youth's level of awareness could impact the economy, and in fact, could be apparent because of intense scholarly and policy interest among universities in the last years.

## **METHODOLOGY**

### **Study Site**

The study was conducted at Partido State University (PSU), Camarines Sur. Partido State University is a by-product of the integration of seven (7) educational institutions located within the 4<sup>th</sup> district of Camarines Sur, which become its satellite campuses. PSU is mandated to provide advanced instruction and training in the arts, philosophy, sciences, technology and other graduate and professional courses. It is also mandated to provide advanced studies, research, and extension services in these areas.

The campus, i.e. San Jose campus, from which the study was conducted, has a total student population of 644 distributed across its seven undergraduate programs.

Prior to data collection, permission to conduct the study was sought from all concerned officials such as the president, deans, and the like. Consent of the respondents was also sought, where they were given the choice to participate or not in the survey. They were given the full information about the study including its objectives, the utility of the information, and the treatment for the confidentiality of data. Data were presented as aggregate in forms of percentages and means to maintain the confidentiality of the respondents.

### **Research Design and Sample Population**

The study employed the descriptive survey method involving the students of Partido State University (PSU), Camarines Sur, Philippines. Respondents ( $n = 247$ ) were selected randomly from the undergraduate student population, and were stratified by their year levels. They were distributed as follows: First Year – 87; Second Year – 42; Third Year – 61; Fourth Year – 57.

### **Instrument and Data Collection**

The instrument, a 5-point Likert-type scale, was modified from Agboola and Emmanuel (2016), and consisted of two parts. The first part collected data on students profile such as sex and year level while the second collected data on respondents' level of awareness of climate change, sources of information about climate change, and the factors that influenced respondents' level of awareness.

### **Data Analysis**

Descriptive statistical tests such as percentage and mean were computed to describe trends across groups and across year levels.

## RESULTS AND DISCUSSION

### Respondents' Sex and Year Level

Table 1 shows respondents' distribution across sex and year level. As indicated in Table 1, more than half of the respondents was female (55%), and there were more first year students ( $n = 87$ ) than the students in higher levels.

**Table 1:** Population Distribution of the Respondents by sex and by year level among students of Partido State University, Province of Camarines Sur, Philippines ( $n = 247$ )

SEX	Profile				Total	%
	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year		
Male	47	16	22	26	111	44.93
Female	40	26	39	31	136	55.06
<b>Total</b>	<b>87</b>	<b>42</b>	<b>61</b>	<b>57</b>	<b>247</b>	<b>100</b>

This trend implies that the university should invest on gender-inclusive disaster preparedness programs that are comprehensible even by first year students. This also implies that orientation activities for first year students should include the disaster risk reduction and management action plan of the university, if there is any. According to Anderson, et al. (2009), a gender-inclusive approach to DRR can help achieve win-win solutions even for families and communities. In addition, information on hazards, vulnerabilities, risks, and ways to reduce impacts need to be simplified, and disseminated in a language that both male and female students can understand (Anderson et al., 2009).

### Respondents' Level of Awareness on Climate Change

Table 2 presented the students' or respondents' level of awareness on climate change by year level. In general, students of PSU have much awareness on climate change issue regardless of year level (overall weighted mean = 3.8). In fact, they are much aware that climate change is already happening; it manifests in diverse ways; people are already experiencing its impacts; it is an immediate and urgent concern; it is a threat to sustainable development; and there are research institutions in various levels that look into this issue. Though there is no difference observed in the verbal interpretation of the weighted mean across year levels, the computed weighted mean for each of the indicator varies across year level. Expectedly, the first year students had the lowest computed weighted mean (3.82) for all indicators while fourth year students showed the highest computed weighted mean (3.88). Interestingly, students in the third year level (3.83) has lower computed weighted mean than the students in the second year level (3.85).

**Table 2** Level of Awareness of Climate Change by year level among students of Partido State University, Province of Camarines Sur, Philippines (n=247)

<i>Indicators</i>	<i>Weighted Mean</i>			
	<i>1<sup>st</sup> Year</i>	<i>2<sup>nd</sup> Year</i>	<i>3<sup>rd</sup> Year</i>	<i>4<sup>th</sup> Year</i>
<i>Climate change is happening</i>	3.96 ( <i>Much Aware</i> )	3.88 ( <i>Much Aware</i> )	3.86 ( <i>Much Aware</i> )	3.94 ( <i>Much Aware</i> )
<i>Climate change manifests in diverse ways in the world</i>	3.75 ( <i>Much Aware</i> )	3.78 ( <i>Much Aware</i> )	3.96 ( <i>Much Aware</i> )	3.89 ( <i>Much Aware</i> )
<i>We are already experiencing the impacts of climate change</i>	3.76 ( <i>Much Aware</i> )	3.87 ( <i>Much Aware</i> )	3.75 ( <i>Much Aware</i> )	3.85 ( <i>Much Aware</i> )
<i>I see climate change to be of immediate and urgent concern</i>	3.89 ( <i>Much Aware</i> )	3.89 ( <i>Much Aware</i> )	3.76 ( <i>Much Aware</i> )	3.87 ( <i>Much Aware</i> )
<i>Climate change is a threat to sustainable development</i>	3.80 ( <i>Much Aware</i> )	3.85 ( <i>Much Aware</i> )	3.89 ( <i>Much Aware</i> )	3.89 ( <i>Much Aware</i> )
<i>There are climate change research agencies at both National and global levels that I know</i>	3.79 ( <i>Much Aware</i> )	3.87 ( <i>Much Aware</i> )	3.79 ( <i>Much Aware</i> )	3.85 ( <i>Much Aware</i> )
<b>Grand Average Weighted Mean</b>	<b>3.82</b> ( <i>Much Aware</i> )	<b>3.85</b> ( <i>Much Aware</i> )	<b>3.83</b> ( <i>Much Aware</i> )	<b>3.88</b> ( <i>Much Aware</i> )

**Legend;** *Very Much Aware* – 4.51-5.00 *Much Aware* – 3.51-4.50 *Aware* – 2.51-3.50 *Moderately Aware* – 1.51-2.50 *Not Aware* – 1.00-1.50

The results highlight the opportunity of the University to implement climate change-related awareness programs especially for students in the lower year levels. The University could even tap the support of the fourth year students to share their knowledge on climate change to students in the lower year levels. Likewise, there is also a need to integrate the science of climate change into the curriculum of the various programs in the University. Calvo and Apilado (2014) recommended integrating climate change concepts in general education subjects in the curriculum courses to increase the level of awareness, knowledge, and attitude of students. This is necessary so that students regardless of year levels would be able to disseminate what they have learned to others (Amanchukwu, Amadi-Ali, & Ololube, 2015).

### Respondents' Perceived Factors Influencing the Level of Awareness

Table 3 shows the respondents' perceived factors that influence their level of awareness on climate change. As indicated in Table 3, first year students have the lowest computed weighted mean for all factors though generally they agreed that education, public sources, personal experience, and government programs could influence their awareness on climate change. A closer look at Table 3 reveals that each year level differs in their perceived major factor, i.e. the factor with the highest computed weighted mean that could influence their level of awareness. For instance, personal experience is perceived to be an important factor that could influence the level of awareness of the first year students. In contrast, second and third year students perceived education as an important factor that could influence their level of awareness. Fourth year students consider government actions as the most important factor that could influence their level of awareness.

**Table 3.** Respondents' perceived factors that influence the level of awareness (n = 247)

<i>Factors</i>	<i>Weighted Mean</i>			
	<i>1<sup>st</sup> Year</i>	<i>2<sup>nd</sup> Year</i>	<i>3<sup>rd</sup> Year</i>	<i>4<sup>th</sup> Year</i>
<i>Education</i>	3.56	3.84	3.86	3.90

	(Agree)	(Agree)	(Agree)	(Agree)
Public Sources	3.61	3.78	3.82	3.88
	(Agree)	(Agree)	(Agree)	(Agree)
Personal Experience	3.79	3.81	3.85	3.89
	(Agree)	(Agree)	(Agree)	(Agree)
Government Programs	3.68	3.80	3.85	3.91
	(Agree)	(Agree)	(Agree)	(Agree)
<b>Grand Average Weighted Mean</b>	<b>3.66</b>	<b>3.81</b>	<b>3.84</b>	<b>3.89</b>
	(Agree)	(Agree)	(Agree)	(Agree)

**Legend;** 4.51-5.00 -Strongly Agree 3.51-4.50-Agree 2.51-3.50 –Moderately Agree 1.51-2.50 –Disagree1.00-1.50-StronglyDisagree

The results indicate the role of universities to improve or enhance the awareness level of students on climate change. There appears a progression on the perceived factors that are important in improving youth's awareness on climate change, i.e. from personal experience to education to government programs. Devkota and Phuyal (2017) emphasize the important role of universities in enhancing youth awareness of climate change, and the role of university policies, programs, and projects in increasing the level of understanding of climate change impacts and risks. They also reported the importance of the use of information education campaign materials as reference materials that could improve students' level of awareness.

Moreover, the results also emphasized the importance of integrating climate change concepts into the learning materials in classroom discussions as well as extension activities of institutions to encourage positive actions to minimize the impact of climate change in people's lives (Devkota&Phuyal, 2017). Again, the science of climate change should not only be integrated into the curriculum of the University's programs but also into the learning materials used in the teaching-learning transactions. This is important to improve the cognitive adaptive capacity of students. According to Grothmann and Patt (2005), improving the cognitive adaptive capacity of students on climate change will improve efforts of attaining the goals of current and future adaptation strategies. This is possible because "improving human cognitive adaptive capacity will contribute in addressing the shortcomings of limiting the determinants of adaptive capacity to only 'economic, social, institutional, and technological situation'" (Grothmann&Patt, 2005). Corollary to this, a continued neglect of the cognitive adaptive capacity of individual actors on climate change will undermine current and future efforts of climate change adaptation.

### Respondents' Important Sources of Information on Climate Change

Table 4 shows the respondents' perception on the importance of four major sources of information that could enhance their level of awareness of climate change. As shown in Table 4, all respondents indicated that education, mass media and family, trainings and seminar workshops, and the Internet and social media are much important channels that could enhance their level of awareness. Interestingly, the computed weighted mean for all sources showed a progression on their importance as it goes from lower to higher year levels, i.e. it increases from first year to fourth year. On a per year level analysis, both first and second year students considered mass media (wm = 3.85 and 3.88, respectively) and family and trainings and seminar workshops (wm = 3.85 and 3.88, respectively) as much important sources of information about climate change. On the other hand, third year students consider the internet and social media (wm = 3.88) while fourth year students consider education (wm = 3.90), mass media and family (wm = 3.90), and trainings and seminar workshops (wm = 3.90) as much important sources.

*Table 4 Sources of Information on Climate Change Perceived by Students as Important by year level (n = 247)*

<b>Indicators</b>	<b>Weighted Mean</b>			
	<b>1<sup>st</sup> Year</b>	<b>2<sup>nd</sup> Year</b>	<b>3<sup>rd</sup> Year</b>	<b>4<sup>th</sup> Year</b>
<i>Education</i>	3.56 (Much Important)	3.84 (Much Important)	3.87 (Much Important)	3.90 (Much Important)
<i>Mass Media and Family</i>	3.85 (Much Important)	3.88 (Much Important)	3.86 (Much Important)	3.90 (Much Important)
<i>Trainings and seminar workshops</i>	3.85 (Much Important)	3.88 (Much Important)	3.86 (Much Important)	3.90 (Much Important)
<i>Internet and Social Media</i>	3.79 (Much Important)	3.85 (Much Important)	3.88 (Much Important)	3.89 (Much Important)
<b>Overall Weighted Mean</b>	<b>3.76</b> (Much Important)	<b>3.86</b> (Much Important)	<b>3.87</b> (Much Important)	<b>3.90</b> (Much Important)

**Legend:** 4.51-5.00 - Very Much Important; 3.51-4.50-Much Important; 2.51-3.50-Important; 1.51-2.50-Less Important; 1.00-1.50- Not Important

The results imply that University education could improve the level of awareness of students on climate change as indicated in the increasing computed weighted mean from first to fourth year levels. This is necessary because educating the youth about climate change “can also support climate change adaptation, such as enhancing adaptive capacity, reducing vulnerabilities, disaster risk reduction and preparation in schools and communities for uncertain futures” (Narksompong&Limjirakan, 2015).

Further, the results also imply the type of channel that is effective for a specific student group. As indicated in Table 4, responses of the younger students emphasize the role of mass media, family, trainings, and seminars in influencing their awareness while the older students are more likely to be influenced by the information from the Internet and education. This is possibly due to the exposure of older students to both educational content knowledge of the issue and the use of internet as part of their academic as well as extracurricular activities. As Lineman et al. (2015) reported, increasing awareness on climate change relates to the exposure in social media networks, which publicize this terminology. As they emphasized, the primary driver for the increase of awareness of climate change is the increase in publicity of such term in either positive or negative light. In addition, Ekpiken and Ukpabio (2015) reported that awareness of climate change is positively related with the level of education of individuals. It means that the more people are educated the more they have knowledge about weather conditions.

On the other hand, the trend in the responses of students in lower year levels emphasizes the role of families and trainings on increasing youth’s level of awareness of climate change. It is therefore imperative that DRR activities of local government units should be directed towards empowerment of families through trainings or workshops. This could help the parents create an enabling environment and opportunities to support the development of the potential of youth to contribute to decision-making and combat climate change (Narksompong&Limjirakan, 2015). As Seballso et al. (2011) had emphasized, changing adult perception of young people and their capabilities could help create a safe, enabling environment for realizing the rights of young people and building agency for action.

Though the verbal interpretation of students’ responses in all variables being investigated did not change across year levels, respondents do differ in the computed weighted means of these variables. Unfortunately, the differences were not tested empirically. Nonetheless, the differences could be utilized as bases in developing academic as well as extracurricular activities

that are sensitive to the sex and year level of the involved students to improve their cognitive adaptive capacity. As emphasized by Grothmann&Patt (2005), improving students' cognitive adaptive capacity promises immediate results on adaptation initiatives.

## **Summary**

This paper evaluates the awareness level on climate change as experienced by first, second, third, and fourth year students. This essays both examines the powerful role of youth in impacting climate change and how different societal forces influence students' understanding on climate change. There is a correlation drawn between first, second, third and fourth students and where there knowledge of climate change is obtained. There appears to be a deepened developmental awareness of climate change that is correlated beside age.

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