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HIGHER EDUCATION STUDENTS' DISASTER AWARENESS, PREPAREDNESS AND RESILIENCY PREPARATION

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ABSTRACT

Natural disaster affects everyone's lives regardless of position and status in life but its impact can be mitigated by doing necessary preparations. This survey-correlational research design aimed to determine the disaster awareness, preparedness, and resiliency preparation of the 249 randomly selected higher education students from a state university in the province of Aklan. A 3-part researcher-made questionnaire was utilized to gather data about disaster awareness, preparedness, and resiliency preparation. The instruments were subjected to validity and reliability testing. The statistical tools used in data analyses were mean, standard deviation, Analysis of Variance (ANOVA) and Pearson's r. Inferential test was set at 5% level of significance. The results revealed that the higher education students had high level of disaster awareness. They also had very high level of disaster preparedness, and very high level of disaster resiliency preparation. There is significant variation in the disaster preparedness of the students. There is also significant difference in the disaster resiliency preparation of the students. Moreover, disaster awareness, disaster preparedness, and disaster resiliency preparation are significantly associated.

Keywords: Disaster, preparedness, awareness, resiliency preparation

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ORIGINAL ARTICLE

INTRODUCTION

Disasters are events that displace the structural, economic, organizational, cultural, and spiritual well-being of communities by destroying their means of existence (Paton & Johnston, 2007; Alexander, 2007).

According to Wingard and Brandlin (2013), the Philippines is a country prone to natural disaster which make every region, city, provinces, towns, municipalities and barangays of the country prone to natural disaster. The municipality of New Washington in Aklan is a land mass located between a river and a sea which make it prone to flood, tsunami, storm surge, and typhoon.

Around the municipality of New Washington, there were signage reminding everyone that a place is a disaster prone area. Although there exist these reminders, there are no clear program about awareness and preparation about natural disasters. Common observation is that agencies like schools focused on preparation during earthquake but not on other natural disasters. According to UN ISDR (2007), students especially those attending school in times of disaster were the most vulnerable when disaster strikes.

In 2006, ISDR (2007) initiated a campaign called *Disaster Risk Reduction Begins at School* to encourage the integration of disaster risk education into school curricula in countries vulnerable to disasters. Despite considerable effort and expenditure on public hazard education, levels of disaster awareness and preparedness remain low (Paton, 2008). Likewise, the findings of Ozmen (2009) have revealed that the preparedness level of the schools was not so well for prospective disasters, and there are significant differences among the views of the subjects about the disaster.

Schools are the most convenient places to develop a disaster resistant culture in the society (Ozmen, 2006). Schools should be the places where the students really can gain the awareness and knowledge of protecting the nature and environment and learn the ways of protecting themselves and the others from the disasters (Ozmen, 2009).

According to UN ISDR (2015) disaster risk reduction program is a part of sustainable development, so it must involve every part of society, government, non-governmental organizations and the professional and private sector. As a result, a people-centered and multi-sector approach is required to build resilience to multiple, cascading, and interacting hazards while also fostering a culture of prevention and resilience.

Disaster awareness

Disaster awareness refers to having relevant knowledge and skills on disaster management that can help one identify and mitigate disaster occurrences (Muasya, 2008).

Disaster awareness approach entails planning a series of coordinated activities—for example, a comprehensive campaign may be implemented during a disaster awareness week, when the media publicizes disaster messages on the radio, T.V. and in newspapers; schools conduct poster contests and perform disaster drills; and community centers display disaster posters (DP Training Program, 2010).

According to FEMA (2008) teaching students to take immediate positive action can help them and those around them come through the disaster safely. The promotion of knowledge, attitude and skills of teachers will not only help students academically, but may one day save their lives (Mamogale, 2011).

Ozmen (2009) recommended that school should be the place where the students can really gain the awareness and knowledge of protecting themselves and others from disasters.

Educated individuals have greater awareness of risks since they are more likely to have greater access to information sources and are more able to evaluate the information received (Asfaw and Admassie, 2008).

There is also evidence that education increases the acquisition of general knowledge that could influence values, priorities, capacity to plan for the future and improve allocation of resources (Burchi 2010).

Thus, the knowledge and skills gained through education may be useful in times of crisis, such as when a disaster strikes.

Disaster preparedness

Disaster preparedness is the capacitiy and knowledge developed by governments, professional response organizations, communities and individuals to anticipate and respond effectively to the impact of likely, imminent or current hazard events or conditions (The United Nations, 2008). It is one of the measures of taking control events regarding disaster risk management, involving factors such as planning, advocacy, education and training, and resources (DRR Resource Manual, 2008).

Austin (2012) emphasized that disaster preparedness results in a more effective response to disasters, better coordination during disasters, and a speedier recovery from a disaster.

Disaster preparedness plan has two types. One is focused on the various activities that need to be done to ensure proper and timely disaster response operations, and the other is focused on the safety of the people and the plans to increase their level of awareness and preparedness in case disaster happen (NDRRMP, 2011). However, emphasis is increasingly being placed on recovery preparedness—that is, on planning not only in order to respond effectively during and immediately after disasters but also in order to successfully navigate challenges associated with short- and longer-term recovery (Sutton et al, 2008) to enable different units of analysis—individuals, households, organizations, communities, and societies—to respond effectively and recover more quickly when disasters strike (NDRRMP, 2009).

Disaster Resiliency

Resilience is broadly defined as "the capacity to resist and recover from loss" and is a central concept to disaster reduction on local, national and international level (Zouh et al., 2010).

Resilience to disasters rests on the premise that all aspects of a community—its physical infrastructure, its socioeconomic health, the health and education of its citizens, and its natural environment—are strong (Ollet, 2008) and can be applied to many systems across scales, including systems within a person (e.g., stress-response system, immune system, cardiovascular system), the whole person as a system, a family system, a community or communication system, or an ecosystem (Masten, 2012).

Adding a cosmetic layer of policy or practice to a vulnerable community will not result in increased resilience. Long-term shifts in physical approaches (new technologies, methods, materials, and infrastructure systems) and cultural approaches (the people, management processes, institutional arrangements, and legislation) are needed to advance community resilience (White House and DHS, 2011).

Research Questions

This study looked at the disaster awareness of the higher education students and its relationship to disaster preparedness and resiliency preparation. Specifically, it seeks to answer the following questions:

1. What is the level of disaster awareness, preparedness, and resiliency preparation of the higher education students?
2. Is there a significant difference in the disaster preparedness of higher education students when grouped according to their level of disaster awareness?
3. Is there a significant difference in the disaster resiliency preparation of higher education students when grouped according to their level of disaster preparedness?

4. Is there a significant relationship among disaster awareness, disaster preparedness, and disaster resiliency preparation?

Theoretical Framework

This study is anchored on Social Cognitive Theory (SCT) of Bandura (1986). This theory posits that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behavior. The unique feature of SCT is the emphasis on social influence and its emphasis on external and internal social reinforcement. SCT considers the unique way in which individuals acquire and maintain behavior, while also considering the social environment in which individuals perform the behavior (Bandura, 1986). The theory considers a person's personal experiences, which influence whether or not behavioral activity will occur. These previous experiences shape reinforcements, aspirations, and outcome expectations, each of which frame whether an individual will participate in a particular action and the reasons for that behavior.

Awareness can be closely associated to one's knowledge about a phenomenon brought about to him/her from legitimate sources of information and authorities (LDRRMF, 2009). Being informed or aware does not always guarantee that a particular person or institution is prepared enough in times calamities and disasters come and without broad awareness people will not respond and risk cannot be reduced (FEMA, 2008).

Conceptual Framework

The conceptual framework of the study describes the overview of the research. As shown in Figure 1, the research will identify the level of disaster awareness, preparedness and resiliency preparation of the higher education students. The second part of the research seeks to identify the significant relation of disaster awareness, preparedness, and resiliency preparation.

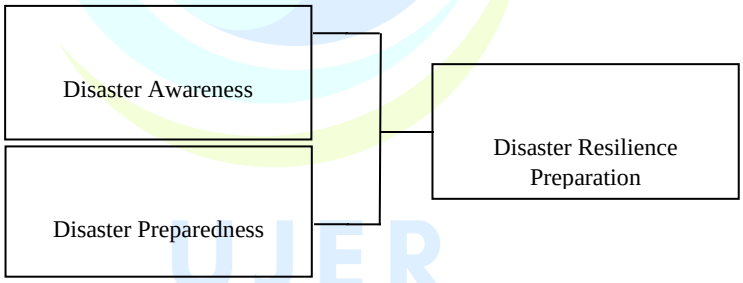

Figure 1. Conceptual Framework

METHODOLOGY

Research Design

In this study, the descriptive-correlational research method was used. It is the design that is appropriate for studies which aimed to find out what prevailed in the present condition (Ardales, 2009). Likewise, Best (in Sazon, 2009) described this as a method that involved descriptive recording, analysis, and interpreting conditions that exist. Moreover, correlational research attempted to determine whether and to what degree a relationship exists between two or more quantifiable variables. The purpose of a correlational research is to establish relationship or to use relationships in making predictions (David, 2009). In this study, the disaster awareness and disaster preparedness of college students were assumed to have influence on the disaster resiliency preparation .

Research Instrument

This study employed three sources of data: (1) Disaster Awareness Questionnaire, (2) Disaster Preparedness Questionnaire, and (3) Disaster Resilience Preparation Questionnaire. To ensure the validity and reliability of the questionnaires, the instruments undergo face and content validation by a group of experts. Reliability coefficient was also computed using Cronbach Alpha.

The Disaster Awareness Questionnaire is a 20-item questionnaire used to assess respondents' disaster awareness, whereas the Disaster Preparedness Questionnaire is a 15-item questionnaire used to assess respondents' disaster preparedness. A 15-item Disaster Resiliency Preparation Questionnaire was also used to assess respondents' level of disaster resiliency preparation. Because the reliability coefficients were 0.843, 0.953, and 0.941, the questionnaires were deemed reliable.

Research Respondents

This study's participants were 249 randomly selected higher education students. The respondents were chosen using stratified random sampling based on their department or program. The distribution of respondents is shown in Table 1.

Table 1. Distribution of the Participants according to department

Department	Population	Sample	Percentage (%)
BSCrim	146	55	22.08
BSMB	62	22	8.84
BSF	169	65	26.10
BSED	157	60	24.10
HRM	128	47	18.88
TOTAL	662	249	100.00%

Data Analysis

Descriptive statistics such as frequency, percentage, mean, and standard deviation are used to analyze the data, as are inferential statistics such as Person's r. The following factors influenced the interpretation of means:

Mean Score	Interpretation
4.21 – 5.00	Very High Level
3.41 – 4.20	High Level
2.61 – 1.40	Moderate Level
1.81 – 2.60	Low Level
1.00 - 1.80	Very Low Level

RESULTS AND DISCUSSION

Higher education students' level of disaster awareness, preparedness, and resiliency preparation

Level of disaster awareness. As shown on the table 2, the students in general have an "High" level of disaster awareness (M = 3.98, SD = 0.31). The high level of awareness of the student-respondents implies that the students are cognizant of the different disaster that may hit the school and the community. This may further imply that the students have enough knowledge and understanding on the information related to a certain phenomenon or natural disaster. This may have been due to the fast dissemination of information nowadays through television, radio, newspapers, internet and social media, schools and different government agencies. Their personal knowledge about disaster may also have been due to their experiences on the disasters that have hit the community.

This result is similar to the findings that public awareness of natural hazards and their potential impact on the lives and livelihoods of vulnerable populations is at an all-time high (Organizations for Disaster Reduction, 2009). There is strong indication that the mainstream media is now foisting a more nuanced conception of natural disasters rather than portraying them as "acts of God." There are indications of progress in terms of investigating new channels of communication (such as community radio, street theater) and improving use of more traditional channels of communication (such as newspapers) for awareness generation. Burchi (2010) supported that education increases the acquisition of general knowledge that could influence values, priorities, and capacity to plan for the future.

Level of disaster preparedness. Higher education students have a "Very High" level of disaster preparedness (M = 4.69, SD = 0.36). The "Very High" level of disaster preparedness among college students implies that the students exhibits readiness in times of disaster and possess information and knowledge on what to do before or when the disaster strikes the community. This may also imply that the students have counter-disaster plans and emergency measures to minimize the impact of disaster. The "Very High" level of disaster preparedness may have been due to their high level of awareness about the different disaster and also with the programs, trainings, and preparations extended by the school community in partnership with the local government.

According to Tekeli-Yesil et al. (2010) individuals previous experience with a hazardous event can heighten perception of risk and promote preparedness actions.

This result is different from the result of the study of Khan (2008) that respondents lack understanding of disaster preparedness framework, it emerged that respondents lacked knowledge or understanding with 97% ticking "NO" to vulnerability assessment, followed by 87% to resource base, 83% to institutional framework and response mechanism.

Likewise, Khan (2008) further stated that 77% of respondents indicated that they had no understanding of 119 warning systems, 63% lacked knowledge about rehearsals, and 53% reported lack of knowledge about planning and public education and training.

Level of resiliency preparation. The level of disaster resiliency preparation of higher education students is "Very High" (M = 4.53, SD = 0.39). The "Very High" level of disaster resiliency preparation among college students implies that the students in general have the necessary preparation and knowledge on carrying out recovery activities to mitigate the aftermath effects of disasters. Likewise, this may imply that the students can recover to some workable points despite changes and hardships as results of disaster. This may be due to the fact that the students have already experienced these disasters and are already aware and have first-hand information on what to do in times that a disaster strikes again.

Findings of this study are similar to the result of King (2010), that people in the community are now coping with the effects of disaster and exhibiting better capability to survive and recover from a disastrous event.

Table 2. Level of disaster awareness, preparedness, and resiliency preparation

Variable	n	Mean	SD	Interpretation
Disaster Awareness	249	3.98	0.31	High
Disaster Preparedness	249	4.69	0.36	Very High
Disaster Resiliency Preparation	249	4.53	0.39	Very High

Difference in the disaster preparedness of higher education students when grouped according to level of disaster awareness

As shown in Table 3, there is a significant difference in the disaster preparedness of the college students when they are grouped according to their levels of disaster awareness as revealed by F (2, 246) =

16.976 and p = 0.000. This implies that college students who have higher level of awareness tend to be more prepared in times of disaster. Furthermore, this also implies that the knowledge of the students about disaster greatly influence their preparation in minimizing its impact on them.

The result is different from the results of the study of Ozmen (2008) that the views of the respondents related to the dimensions for disaster preparedness do not significantly differ from each other. The dimensions are confirmed at "occasionally" level except "planning".

However, according to FEMA (2008) that teaching students to take immediate positive action can help them and those around them come through the disaster safely and that the promotion of knowledge, attitude and skills of teachers will not only help students academically, but may one day save their lives. Without broad awareness, people will not respond and risk cannot be reduced.

Table 3. One- Way Analysis Test results on the differences in the Disaster Preparedness of college students when they are classified according to levels of Disaster Awareness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.931	2	1.966	16.976*	0.000
Within Groups	28.484	246	0.116		
Total	32.415	248			

* p < .05 - significant at 5% level

Difference in the Disaster Resiliency Preparation of College Students when Grouped According to Levels of Disaster Preparedness

As shown in Table 4, there is significant difference in the disaster resiliency preparation of the college students when they are grouped according to their levels of disaster preparedness as shown by F (2, 246) = 46.086 and p = 0.000. This means that college students who have higher level of disaster preparedness tend to have better preparation in the aftermath of disaster. Moreover, this also means that the disaster preparedness is a factor in the coping skills and ability of the students to bounce back after disaster.

The result is similar to the findings of King (2010) that the capability of the community to recover from disaster is largely due to the information they have. This information let them have better plans for recovery.

Similarly, according to Kangabam et al. (2010) the local residents must be aware of how they can effectively participate in preparing for a disaster, mitigating potential impacts of a disaster and the recovery process after a disaster.

Table 4. *One-Way Analysis Test results on the differences in the Disaster Resiliency Preparation of college students when they are classified according to levels of Disaster Preparedness*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.517	2	5.258	46.086*	0.000
Within Groups	28.067	246	0.114		
Total	38.584	248			

*p < .05 - significant at 5% level

Relationship among Disaster Awareness, Preparedness, and Resiliency Preparation of Higher Education Students

Table 5 shows the result of the Pearson r in the relationship among disaster awareness, preparedness, and resiliency preparation. As revealed in Table 5, there is significant positive relationship

that exists between disaster awareness and disaster preparedness, r = 0.431, p = 0.00. This indicates that disaster awareness is a contributing factor on the disaster preparedness of the college students.

Also, as shown in the table, there is significant relationship that exists between disaster awareness and disaster resiliency preparation, r = 0.351, p = 0.000. This indicates that the ability of the students to bounce back and cope with the effect of disaster is influence by their awareness of the disaster.

In the same manner, there is a significant relationship that exists between disaster preparedness and disaster resiliency preparation, r = 0.688, p = 0.000. This indicates that the disaster preparedness and disaster resiliency preparation of the students or vice versa are interrelated with each other.

Table 5. The relationship among Disaster Awareness, Preparedness, and Resiliency Preparation

Variables	R	Sig. (2-tailed)
Disaster Awareness and Preparedness	0.431*	0.000
Disaster Awareness and Resiliency Preparation	0.351*	0.000
Disaster Preparedness and Resiliency Preparation	0.688*	0.000

*p < .05 - significant at 5% level

This is similar to the findings of Miceli et al. (2008) that preparedness actions are influenced by a broad range of factors. Risk perception is strongly associated with disaster preparedness because individuals must perceive a risk to be motivated to initiate preparedness actions (Muttarak & Pothisiri, 2013). An individual's previous experience with a hazardous event can heighten perception of risk and promote preparedness actions (Tekeli-Yeşil et al., 2010).

These results are also similar to that of Fennis and Johnston (2010), that students who have participated in disaster education programs are more likely to have better knowledge of safety behaviors and higher disaster preparedness. Disaster education was found to be beneficial in their overall findings, resulting in more resilient children and communities.

Apart from formal schooling, there is evidence that disaster education interventions can be influential in raising awareness and knowledge of disasters, which in turn can enhance disaster preparedness actions (Page et al. 2008).

CONCLUSION

The higher education students possess knowledge on necessary information about disasters which commonly hit their local community. This familiarity and awareness of the different disasters lead to better planning and preparations on how to counter the dreadful impact of a disaster. Being aware of the disaster strengthens the capacity of the students to deal with problems brought by a disaster and higher awareness weakens their vulnerability to specific disaster.

Also, the students have necessary preparation prior to a natural disaster. They are aware of the disaster and had identified and recognized precautionary measures and things to do before a disaster. This preparedness towards disaster lead to avoidance on loss of life during disaster. Likewise, the students are calm and guided to act cautiously and appropriately in times of disaster.

The students had the capacity to cope and recover from the effect of disaster. They had the necessary preparation and skills to let them "bounce back" from the aftermath of disaster. This resiliency preparation of the students led to safer transition and faster moving on to normal life after a disastrous event. Likewise, better resiliency preparation minimizes the traumatic effect of a disaster and keeps a healthy disposition among the students towards life.

There is variation on the college students' level of disaster preparedness. This difference in the understanding of disaster preparedness may lead to misconceptions and wrong interpretation or perception on information about preparation for disaster. Different interpretation in disaster preparedness implies different

standards and unclear guidelines and procedures which seems dangerous because this may result to not unified set of actions during disaster. Therefore, this difference should be address by setting a standard set of actions in preparation for disasters.

The college students had different level of disaster resiliency preparation. The more aware they are about disasters the greater is their ability to recover from a disaster. This difference in their resiliency preparation could lead to variation in the amount of time they could bounce back from the effect of disaster. Those who had better resiliency preparation could recover faster and return to normal life than those who have less resiliency preparation. Likewise, the difference in the resiliency preparation lead to different strategies in their recovery effort from disaster which may indicate the disparity in their understanding of disaster. Thus, the need to have standard actions for resiliency preparation is necessary to let the students recover from disaster in the expected time.

Disaster awareness, disaster preparedness, and disaster resiliency preparation are interrelated with each other. Each of the variables influenced one another and were contributory factor to each other. This relationship among the variables may point out that preparation of the students before disaster and their recovery preparation rely on the information they had or what they understand about disaster. The understanding they have may lead therefore to some positive and negative impact on preparation towards disaster. It is positive if they have correct information about disaster and negative if otherwise. Therefore, correct and factual information about disaster awareness, preparedness, and resiliency preparation must be delivered to the students.

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