

# Gauging SUCs Alertness Thru Scheffe's Test in Disaster Risk Reduction

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**Abstract:-** The implementation of Disaster Risk Reduction Management program in public and private higher educational institutions (HEIs) were investigated using frequency count and percentages, mean and standard deviation and Scheffe's test. Based on findings six HEIs in the Philippines, has been successfully implemented disaster risk reduction management program. Wherein, those colleges and universities practiced prevention and mitigation in risk reduction. Nevertheless, SUCs implemented fire and earthquake drills, rehabilitation and recovery platform to the academic community e.g. teachers, staff and students. Though, students and staff observed better during the implementation of the disaster risk reduction management program as to awareness, emergency drills or exercises compared to the teachers.

**Keywords:-** Disaster, Prevention, Mitigation, Awareness, Emergency.

## I. INTRODUCTION

A school is an important component of society that plays a versatile role in the communities promoting healthy and safe environment. The initiative of school to establish disaster management roles as well as responsibilities is eventually the most efficient way of inculcating the value of safety. Implementation of the Republic Act No. 7722 otherwise known as Higher Education Act of 1994 and Disaster Risk Reduction Management Act (2010) help to establish high priority at a national level. As envisaged in the RA Act 10121, it is an act strengthening the Philippine disaster risk reduction management, providing for the national disaster risk reduction and management framework and institutionalizing the national disaster risk reduction and management plan of CDRRMC (2014). With this act under section 14, integration of disaster risk reduction education into school curricula of secondary and tertiary level of education is said to be mandatory. Taking into account the geographical location of the City of Surigao which is prone to typhoon and earthquake, it is equally important that schools have disaster risk reduction management program. However, there is no study conducted yet on the implementation of disaster risk reduction management plan of the higher institution education in Surigao City. Hence, this study was conducted.

Today the world is facing global challenges in both natural and man-made disaster. With this, Disaster Risk Reduction Management Program exists in every part of the

globe to build a nation of resilience and long term DRR sustainability. The role of the local and national government is supportive and supplementary which is crucial for proper implementation (Ministry of Home Affairs -India, 2013). UNISDR (2009) defines preparedness based on establishing arrangements in advance the effective and appropriate measures to respond when inevitable disaster strikes. It tends to carried out appropriate, quick and efficient management of all types of emergencies in order to achieve as well as maximize response and sustained recovery. UNESCO (2012) pointed out the importance of education sector as a crucial part in ever-increasing awareness of the effects, causes and consequences of disasters. Schools that take action to manage risks contribute to a culture of prevention, which is essential in the sustainable development process of the society. Indeed, it reduces disaster risks and strengthens the capacities of the most vulnerable schools to respond to emergencies.

Gerdan (2014) stated that it is possible to increase the capacity to cope with the disasters, which show variety in terms of their development periods and times and mostly involve uncertainty, by raising the awareness of all components, all individuals and communities in line with this common cause. A critical component of disaster preparedness is the knowledge of available local resource information and how to response at the time of disaster. Impacts of natural disasters can be reduced through pre-disaster activities for mitigating risks and such activities are among the most crucial aspects of disaster risk reduction to consider in forming a coordinated strategy or plan (Kangaban, 2010). According to Sattler et al. (2000), Miceli et al. (2008,) as cited by Muttarak and Pothisiri (2013) preparedness actions are influenced by a broad range of factors. Indeed, there is a strong association of risk perception and disaster preparedness since perception in risk can initiate preparedness action.

Moreover, Adiyoso and Kanegae (2013) a school adopting disaster risk reduction issues effectively enhanced knowledge, risk perception, critical awareness. Prevention and pre-disaster mitigation are necessary steps for achieving sustainable development that should be expanded to different levels from school to homes and then to communities (Hoseeini and Izadkhah, 2006). Disaster Response Provide life preservation and meet the basic subsistence needs of affected population based on acceptable standards during or immediately after a disaster (NDRRMP, 2011). Moreover, the provision of emergency services and public assistance during or immediately after a

disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected (ASEAN, 2011).

Despite the fact there are numerous of education materials and many efforts are being done to promote disaster education in schools, there seems to be a lack of comprehensive and systematic evaluation on the outcomes and impacts of these programs (Ronan, 2014; 14 UNESCO & UNICEF, 2012). At present research studies focusing on DRR education are sometimes a one-off nature by the NGOs or by academia rather than spearheaded by the government agencies. In the intensification of disaster, an effective emergency action plan should be the topmost priority. It involves dynamic plans and institutional arrangements to engage and guide the efforts of government, non-government; voluntary and private agencies in comprehensive and coordinated ways to respond to the entire spectrum of emergency need (UNISDR, 2009).

Higher Institution Education is facing multifarious challenges to forefend the inevitable disaster. In this study, it determines the extent of implementation of disaster risk reduction program of the public and private HEI in Surigao City. The study features the four areas of DRRM which includes awareness and preparedness, prevention and mitigation, response and rehabilitation and recovery wherein it needs to be developed, reviewed, improved and fully integrated in the campus.

This study was anchored on Disaster Risk Reduction Management Program of Surigao City mandated under Republic Act 10121, also known as “Philippine Disaster Risk Reduction and Management Act 2010” and Climate Change Act (2009). The foremost objective was to inherent responsibility to its constituents to protect, minimize and/or avoid and respond to loss of/damage to, lives, property and livelihood brought about by natural, industrial, bio-hazardous, medical and man-made disasters and calamities (CDRRMC, 2014).

Despite the limited resources, the City government of Surigao was able to withstand its unwavering commitment to prepare for emergencies which could either be natural or man-made. Government and private higher education institutions in Surigao City is working hand in hand to withstand the effects of probable hazard/events without unacceptable losses or interruptions or in other words, to be resilient.

Guided with the act, the following variables are presented in the study. The independent variables are the classifications of the study which includes the faculty, staff and students being the school occupants and the paramount concern of the institution. The dependent variables delve on how far and observant are the respondents based from their knowledge about disaster and calamities. Disaster Risk Reduction Management covers the four thematic areas that include Awareness and Preparedness, Prevention and Mitigation, Response and Rehabilitation, and Recovery. The following areas were the basis to determine the extent of implementation in public and private higher education institutions in Surigao City. With these, it is a challenge for HEI's to continue and sustain to be well-equipped in meeting the challenges and coping up the unpredicted disasters and emergencies.

## II. METHODS AND MATERIALS

The study is quantitative research in nature and employing descriptive-survey in gathering data and causal comparative designs, determined the extent of implementation of disaster risk reduction management program in public and private higher education institutions in Surigao City, Philippines. Moreover, data were evaluated and revealed differences in the extent by the frequency and percentages. The study was conducted in public and private HEIs established in Surigao City. This includes the five private tertiary institutions and 1 public HEI. The respondents of the study were the faculty, staff and students of the six public and private higher education institutions in Surigao City during the academic year 2015-2016. Table 1 presents the profile of the respondents which was determined using the Slovenes' formula.

Higher Education Institution	Faculty		Staff		Students	
	N	n	N	n	N	n
1. HEI 1	58	29	32	16	2169	57
2. HEI 2	48	24	28	14	975	25
3. HEI 3	7	4	4	2	180	5
4. HEI 4	30	15	10	5	527	14
5. HEI 5	129	65	139	70	9433	246
6. HEI 6	24	12	15	8	489	13
<b>Total</b>	<b>296</b>	<b>149</b>	<b>228</b>	<b>115</b>	<b>13773</b>	<b>360</b>

Table 1:- Distribution of the Respondents

The study utilized a researcher-made questionnaire wherein some of the contents were patterned and modified from the study of Paño, Abao and Boholano (2015). A Likert scale questionnaires which were composed of two parts. Part 1 includes the respondents' profile which

comprise of faculty, staff and students. Part 2 which were the four primary factors of disaster risk reduction management program which include awareness and preparedness, prevention and mitigation, response and rehabilitation, and recovery.

Preliminary procedures were made in gathering the primary and secondary data. Initially, a letter of request was sent to the six (6) higher education institutions in Surigao City to allow the researcher to conduct an interview about the existence of the program and to obtain the total populations of the faculty, staff and students. Another letter of request was sent together with the questionnaires addressing the purpose of conducting the study for respondents concern. Before distributing to the respondents, it was validated with the help of the experts. Reliability was determined using the Internal Consistency

Method, the Cronbach Alpha. After the test for reliability and validity, final copies of the research instrument were distributed to the respondents.

Data collected were categorized as to faculty, staff and students responses then placed in labeled envelop indicating their institution. These were then tabulated, analyzed and interpreted with the application of Likert Scale, see tabulated data below of which discretely indicates verbal and quantitative equivalents, in detailed below:

Scale	VD	QD
(4) = 3.50- 4.00	MI	MO
(3) = 2.51 – 3.49	I	O
(2) = 1.50 – 2.50	LI	NI
(1) = 1.00 – 1.49	NI	NO

Table 2

**Legend:**

**VD = Verbal description**

MI = Much Implemented

I = Implemented

LI = Less Implemented

NI = Not Implemented

**Qualitative Description**

MO = Much Observed

O = Observed

LO = Less Observed

NO = Not Observed

**III. RESULTS AND DISCUSSION**

Variables	Mean	SD	QD
1. Disaster awareness and preparedness	2.64	0.37	Implemented
2. Prevention and Mitigation	2.70	0.50	Implemented
3. Response	2.74	0.73	Implemented
4. Rehabilitation and Recovery	2.74	0.54	Implemented
<b>Grand Mean</b>	<b>2.71</b>	<b>0.15</b>	<b>Implemented</b>

Table 3:- Extent of implementation of disaster risk reduction management program in higher education institutions in Surigao City as perceived by the faculty

As shown in Table 3 the Grand Mean is 2.71 with 0.15 standard deviation and a qualitative description of Implemented. In general, the faculty members of HEI’s in Surigao City observed the implementation of disaster risk reduction management program as to disaster awareness and preparedness, prevention and mitigation, response, rehabilitation and recovery.

Faculty members in every institution sets an epitome in achieving clear institutional goals and objectives which provide a framework in making decisions during planning as well as implementing disaster actions. Participation and involvement in developing plans in raising awareness within school environment is a driven goal by the teachers. Indeed, there is a growing understanding and importance of

disaster risk reduction and it is a challenge for HEI teachers to continue to be well-equipped in meeting challenges and coping up the unpredicted disasters and emergencies. The willingness of the school to participate in the implementation of DRRMP rested in hands on the proficient teachers for delivery of wide-based disaster education. Commitment and creativity amongst teachers could be an effective mechanism to help teachers implement DRR education. Having teachers that are more knowledgeable and regarded as “champions” on DRR education could inspire other teachers to follow in their footsteps (Johnson and Ronan, 2014). Maximizing at all levels the use of instruction, research, extension and production in order to build an unwavering culture of school safety and resiliency.

Variables	Mean	SD	QD
1. Disaster awareness and preparedness	2.85	0.36	Implemented
2. Prevention and Mitigation	2.76	0.36	Implemented
3. Response	2.83	0.63	Implemented
4. Rehabilitation and Recovery	2.87	0.48	Implemented
<b>Grand Mean</b>	<b>2.83</b>	<b>0.13</b>	<b>Implemented</b>

Table 4:- Extent of implementation of disaster risk reduction management program in higher education institutions in Surigao City as perceived by the staff

It can be gleaned that Table 4 has a Grand Mean of 2.83 with a standard deviation of 0.13 and a qualitative description of Implemented. It signifies that the staff of the six HEI’s in Surigao City observed the implementation of disaster risk reduction management program. The end result shows that the Staff personnel apprehends their worth as one of the disaster committees which take part in the initiative of raising awareness in carrying out disaster risk reduction management plan in school. Staff as one of the

school occupants that employed in schools shares the same basic structure that serves as foundation for disaster planning process. Normally, it is their duty to secure pertinent papers and documents. Moreover, the delivery of supplies, instructional materials and educational needs of the students and teachers which is considered as their primary accountability. Hence, the active commitment and involvement of staffs of the institution bring success to the disaster-resilient initiatives.

Variables	Mean	SD	QD
1. Disaster awareness and preparedness	2.78	0.39	Implemented
2. Prevention and Mitigation	2.78	0.48	Implemented
3. Response	2.66	0.75	Implemented
4. Rehabilitation and Recovery	2.83	0.49	Implemented
<b>Grand Mean</b>	<b>2.76</b>	<b>0.16</b>	<b>Implemented</b>

Table 5:- Extent of implementation of disaster risk reduction management program in higher education institutions in Surigao City as perceived by the students

The result presented in Table 5 revealed the Grand Mean of 2.76 with 0.16 standard deviation and qualitative description of Implemented. It signifies that students observed the implementation of disaster risk reduction management program in higher education institutions in Surigao City. The utmost priority of the school is safe learning environment for students, thus developing the skills and knowledge of students is essential in preparing a school in any DRRM plan. Roles of students during disaster preparedness includes the following: cooperation during drills and exercise, being responsible for oneself and others, develop awareness on various hazards, organize activities to promote safety awareness, prepare first aid kit

and learn first aid procedures, take care of younger children and assist students with disabilities (UNISDR, 2010). Safety activities may promote awareness and well-being in which students indicates sense of preparedness and ability to handle emergency situation. There were also examples of children extending their knowledge beyond risk to a greater understanding of factors that build resilience (Orazem, 2008). Students needs guidance from teachers and administration in order to generate empowerment and proactive role in school environment. In Table 6, the pair wise comparison results of the extent of implementation of the program by type of respondents were in details.

Variable	F	P	Decision	Interpretation
<b>Awareness and Preparedness</b>	11.26	1.6E-05	Rejected	Significant
<b>Prevention and Mitigation</b>	1.71	0.183	Not Rejected	Not Significant
<b>Disaster Response</b>				
<i>Emergency Drills/Exercises</i>	5.36	0.005	Rejected	Significant
<i>School Fire Drill</i>	2.34	0.097	Not Rejected	Not Significant
<i>School Earthquake Drill</i>	1.02	0.360	Not Rejected	Not Significant
<b>Rehabilitation and Recovery</b>	2.53	0.081	Not Rejected	Not Significant

Table 6:- Difference on the extent of implementation of disaster risk reduction management program in public and private higher education institutions in Surigao City grouped by profile

Results in Table 6 show that there is no significant difference on the extent of implementation of the disaster risk reduction management program in public and private HEI’s in Surigao City as to prevention and mitigation, disaster response as to school fire and earthquake drills, and rehabilitation and recovery when grouped according to the type of respondents. These are based on the p-values of these mentioned factors which are greater than 0.05. With these, the null hypotheses are not rejected.

However, the extent of implementation of the program as to awareness and preparedness as well as disaster response as to emergency drills or exercises obtained p-values of 1.6E-05 and 0.005 respectively. Since the p-values are less than 0.05, the null hypotheses are rejected. Such results imply that these factors of implementation of

the program are perceived by the respondents in different levels.

Difference in respondents’ perception in implementation of disaster risk reduction management may be credited in dissimilar practices in such a way of planning, implementing and evaluating disaster risk reduction program and how it is in the process of execution. Respondents may also have different interpretation about disaster risk reduction management implementation because they have different understanding the way it will be done in the actual and in papers. All HEI’s must seriously ponder ways and means to ensuring school safety yet the difference of institutional opinion and stand towards this issue contributes to such results

Variable	Respondent	D	P	Decision	Interpretation	
Awareness and Preparedness	Teacher	Staff	-0.21	6.4E-05	Rejected	Significant
		Students	-0.14	.001	Rejected	Significant
	Staff	Students	0.07	.275	Not Rejected	Not Significant
Disaster Response: Emergency Drills/Exercises	Teacher	Staff	-0.12	.080	Not Rejected	Not Significant
		Students	-0.13	.006	Rejected	Significant
	Staff	Students	-0.01	.950	Not Rejected	Not Significant

Table 7:- Scheffe’s test results for the difference on the extent of implementation of disaster risk reduction management program in public and private higher education institutions in surigao city grouped by profile

Revealed in the Table above are p-values of 6.4E-05, 0.001, and 0.006 for the paired extent of implementation of the program as to awareness and preparedness between teacher and staff, and teacher and students as well as on the implementation of the program as to disaster response through emergency drills or exercised between teacher and students respectively. Since the p-values are less than 0.05, the null hypotheses are rejected indicating significant differences between these paired groups of respondents. The negative differences imply that the perceived extent of implementation by the staff and students are more positive than those of the teachers.

The aforementioned result is an indication that teachers are more knowledgeable, exposed and conversant compare to the students and staff with regards to issues about disaster resiliency. Teachers might be confused on their part in disaster management due to various tasks that needs to be performed. Others may not be convince or dissatisfied with the amenability of the program conducted by the institution. Moreover, their accountability also leads them to deal with disaster management preparedness as additional burden. Teacher will instruct and conduct various drills and exercises whereas; staff and students merely focus on execution of such procedure. In addition, it signifies a lot of trainings in order to enhance the reliability of teachers’ performance during emergencies.

**IV. CONCLUSIONS**

Disaster risk reduction management program in public and private higher educational institutions in Surigao City in terms of awareness and preparedness; prevention and mitigation; response and rehabilitation; and recovery were all implemented. It can be noted from all the tables that the six HEI’s in Surigao City are all on the comparable levels of implementation. Key issues on the barriers and challenges of DRR education are identified, critically analyzed and recommendations are made out from the different studies. Disaster Risk Reduction Management Program is present in all HEI’s, however, the extent of implementation varies. Indeed, disaster risk-reduction plan is not an assurance for school safety since there are still existing gaps in the different areas of disaster management that need to be addressed.

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