International Journal of Social Science And Human Research

ISSN(print): 2644-0679, ISSN(online): 2644-0695

Volume 06 Issue 01 January 2023

DOI: 10.47191/ijsshr/v6-i1-99, Impact factor- 5.871

Page No: 743-751

Competency Assessment on Disaster Risk Reduction and Management (DRRM) Among Senior High School Students of Um Digos College

Micah R. Olores[1], Kawther Sacor I. Abdulhalim[2], Tomas Jr A. Diquito[3]

[1,2,3]Department of Teacher Education - University of Mindanao - Digos

ABSTRACT: The Philippines is geographically located in the Pacific ring of fire, making the country one of the most vulnerable countries to natural disasters. With this, proper mitigations such as disaster preparedness and awareness among the citizens are essential to minimize the casualties whenever disaster strikes. Thus, this study aimed to assess Senior High School Students' competency level (SHS) on Disaster Risk Reduction and Management (DRRM) topics. A descriptive-comparative quantitative design was used to attain the objectives of the study. Moreover, an adopted questionnaire was used in this study. A total of two-hundred twenty-two (222) Senior High School Students from the University of Mindanao - Digos participated in the survey. The study results revealed that Senior High School Students' DRRM competency level needs improvement and showed no significant differences when analyzed according to their grade level, strand, and age, except for the topic, "Application of DRRM Concepts," when analyzed by age. In contrast, it was found that there is a significant difference in students' competency according to their sex. Therefore, the findings of the study implied that there is a need for curriculum enhancement and training programs for teachers to address the gaps pertaining to DRRM.

KEYWORDS: DRRM, Competency Assessment, curriculum enhancement, disaster management education

INTRODUCTION

The Philippines is one of the countries that often experience an endless number of destructive natural hazards and disasters primarily due to its geographical location. Disasters such as typhoons, volcanic eruptions, and earthquakes are some of the most common natural disasters occurred all throughout the year. Due to the destructive impacts suffered by the country, the Philippines adopted Hyogo Framework for Action (HFA), which aims to effectively integrate the policies, plans, and programs of sustainable development mainly on the preparedness, prevention, mitigation, and vulnerability reduction on disasters (Saño, 2010, as cited by Mamon et al., 2017). Further, HFA led the country to implement Disaster Risk Reduction (DRR). This implementation paved the way for a systematic approach in identifying, assessing, and reducing the risks brought by disasters as an effective response to lowering the vulnerability of communities towards natural hazards (Tuladhar, Yatabe, Dahal, & Bhandary, 2015, as cited by Mamon et al., 2017). Moreover, disaster preparedness and awareness among the citizens of the country are one of the most important aspects to minimize the casualties caused by disasters. Thus, this study is conducted to assess the competency level of Filipino citizens, specifically senior high school students, on the Disaster Risk Reduction and Management (DRRM) topic. The results of this study will be helpful for future planning in terms of DRRM preparedness and mitigation processes.

The idea that knowledge of disaster can enhance the preparedness oneself is seen as an important aspect of disaster management. The Functionalist Theory developed by Emile Durkheim (1893) asserts that education meets societal needs by fostering social cohesiveness through developing skills (Prieto, Arcanghel, Corpuz, 2019). Thus, schools' purpose is to prepare students for participation in society's institutions, as well as the transfer of essential values for social responsibility with a goal of socializing people by bringing people from various backgrounds together. Education, according to functionalists, is a valuable contribution to a well-ordered society in which functionalist theory emphasizes social cohesion and solidarity (Prieto, et al.,2019). On the other hand, the Experiential Learning Theory developed by David Kolb (1984) asserts that "Learning is the process whereby knowledge is created through the transformation of experience." Kolb's experiential learning theory outlines a method for structuring and sequencing the curriculum and presents an alternative way of teaching a session or entire course for enhanced student learning. According to Kolb (1984), learning follows a cycle that involves four stages, namely: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). This four-stage model provides a direct explanation of a learning cycle that illustrates how experience is transformed into concepts through reflection, which serves as a guide for active experimentation and the selection of new experiences.

The concept of functionalist theory is evident in integrating DRR competencies in basic education, which was to enable students to become disaster-resilient community members on DRR toward sustainable development. Meanwhile, the idea of Experiential Learning Theory asserts that experiential DRRM activities play a significant role in effectively learning DRRM concepts and applications to increase students' disaster knowledge and preparedness. In the senior high curriculum, competencies on DRR are included, particularly in Earth and Life Science, a core subject, and Disaster Readiness and Reduction (DRR), a specialized subject for Science, Technology, Engineering, and Mathematics (STEM) program. As defined by Hartel and Foegeding (2004, as cited in Mamolo, 2019), competency is a general statement setting forth the desired knowledge and skills of a student completing a course or program. DRR competencies include defining and enumerating elements exposed to hazards, identifying areas exposed to hazards, and applying precautionary and safety measures before, during, and after the earthquake, volcanic eruptions, hydrometeorological hazards, etc. (Mamon et al., 2017). Likewise, Mamon et al. (2017) reported that the increased knowledge of natural hazards among grade 11 students is associated with their learning in the Earth and Life Science subject. Thus, the abovementioned DRR competencies improved students understanding of the fundamental concepts of natural hazards and measures of mitigation and adaptation.

The initiative of making the school safe from any disasters could serve as an access point for the communities exposed to risk to participate in the implementation of training and capacity-building for mitigating earthquake disasters to ensure that the children are safe in school against the harsh impact of the subsequent earthquakes. It can be done through a demonstration of how the school is being used as an appropriate venue for getting knowledge on how to prevent and mitigate earthquake disasters (Pandey and Okazaki, 2005, as cited by Tan et al.,2019). According to Hoffman and Muttarak (2017), education enhances abstract reasoning and anticipation skills; therefore, educated people are more likely to take preventative actions rather than first encounter natural risks and then learn. Furthermore, United Nations Educational, Scientific and Cultural Organization (UNESCO) helps member states develop their capacity to endure and recover from natural hazards and disasters caused by human activity, including technological ones (United Nations International Strategy for Disaster Reduction (UNISDR), 2009). In addition, in order to build and operate monitoring networks and early warning and risk mitigation systems designed for natural hazards with a focus on earthquakes, tsunamis, floods, and landslides, UNESCO lays out intergovernmental coordination, advice to governments, and policy support. Moreover, it encourages collaborative multi-stakeholder methods to improve disaster education and awareness as a fundamental component of the United Nations Decade on Education for Sustainable Development (UNDESD) headed by UNESCO (United Nations International Strategy for Disaster Reduction (UNISDR), 2009).

In the Philippines, Mamon, Suban, and Son (2017) conducted a study on the assessment of Grade 11 students on disaster-related knowledge, preparedness and readiness, adaptation, awareness, and risk perception. One-hundred twenty-one (121) Grade 11 students responded to the DRRM survey. Results showed that a large majority of students were able to comprehend some disaster-related concepts and ideas. In addition, they are aware of the hazards posed by disasters and are ready, prepared, and adapted to them, but there was a low perception of disaster risk among students. Hence, the findings implied high levels of disaster-related knowledge, preparedness and readiness, adaptation, and awareness among Grade 11 students. Mamon, Suban, and Son (2017) noted that this might result from disaster education integration into the senior high school science curriculum. On the contrary, based on the findings of Santos (2019), there are factors that need to be considered in improving DRR education in the Philippines; the factors include awareness among students and teachers about disaster risk reduction education, proper and adequate training of teachers in the field of DRRM, adequate resources and materials in teaching the subject, and integration of the DRR subjects to all strands. Hence, strengthening the implementation of DRRM in education is needed for improved DRR education in the country.

Assessing the DRRM competency level of students is mainly beneficial to the school to supplement its learners with what is lacking in their knowledge in terms of disaster preparedness to be used in emergencies called calamities and necessary training for an appropriate response to an emergency situation. In addition, this may be helpful to the parents to have an assurance that their children are equipped with the proper knowledge and know how to respond in times of emergency situations called by natural calamities. The school personnel can also benefit, specifically the teachers handling the DRR subject. The findings can be used as a reference for what is lacking in the materials allowing them to improve the approaches and the materials in teaching the subject. The result of this study is useful to the school management so as to provide a reference if there is a need for curriculum enhancement in the DRRM. They will also be able to give various training to the teachers to ensure that they are well-equipped with the DRRM. Lastly, future researchers can benefit from this study by using the data that have been provided.

RESEARCH OBJECTIVES

The main purpose of this study was to assess the competency ofthe students in disaster risk reduction and management. Specifically, it sought to:

1. Determine the profile of the students in terms of age, sex, strand,and grade level.
2. Determine the DRRM competency level of students in terms of elements of disaster, hazards, and application of DRRM concepts.

3. Determine if there is a significant difference in the DRRMcompetencies when analyzed by students' profile.

METHOD

Respondents

This study was conducted in the University of Mindanao - Digos, Digos City, Philippines, specifically in the Senior High School department. The criteria for selecting the respondents is that the students should have taken the subject Disaster Risk Reduction Education (DRRE) for Science Technology Engineering and Mathematics (STEM) strand, and(Physical) Earth and Life Science for Humanities and Social Sciences (HUMSS), Accountancy and Business Management (ABM), General Academic Strand, Home Economics I, Information and Communications Technology, Industrial Arts I strands. Moreover, stratified sampling was used in obtaining the sample of the study.Singh and Manapat (2013) noted that "Stratified random sampling is a procedure in which the sample drawn from each stratum is random one". It is a sampling technique that divides a population into smaller groupings known as strata. The strata in stratified random sampling are constructed based on shared qualities or characteristics among the respondents. When compared to the population, a random sample from each stratum is taken in a number proportional to the stratum's size. On the other hand, students who refused to give their informed consent were excluded from this study.

Instruments

In this study, the researchers utilized a questionnaire adopted from the study of Santos (2019) to assess the competency of SHS studentsin DRRM. Three experts in the field of science validated thequestionnaire (Santos, 2019). The researchers approached the author for permission to use the tool and were granted permission. Initially, theassessment includes 30 multiple-choice questions on the following topics: Disaster Elements (Items 1-10), Hazards (Items 11-20), and DRRM Principles Application (Items 21-30). The questionnaire was subjected to item analysis. Using the item analysis generator by Panerio (2019), 1 item in the indicator "Hazards" was removed, indicating that the item should be rejected. Finally, a 29-item questionnaire was used in the study.

Design and Procedure

This study utilized a descriptive-comparative research design. This research design is used to determine the relationship among variablesof the study. A descriptive-comparative research design is intended to describe the differences among groups in a population without manipulating the independent variable (Cantrell, 2011). In this study, the researchers considered the demographic profile of the students to determine if there is a significant difference in their DRRM competencies when these students are compared according to their demographic profile.

Several processes have been strictly followed before, during, andafter the conduct of the study. Before the conduct of the study, theresearchers sought approval from the Research and Publication office of the University of Mindanao - Digos, along with the approval of the Head of the Senior High School department of the institution. The researchers then proceeded to test the reliability after the letter was approved. Subsequently, the questionnaires were distributed to a number of students (a total of twenty) using Google Forms to determine each item's reliability. Due to the COVID-19 pandemic, the researchers utilized various social media platforms and Learning Management System (LMS) to send the google form to the intended respondents. After getting the reliability of each item, the researchers updated the number of items based on the reliability score. The final items were resubmitted to the research office with the reliability test results to proceed with the next phase. In the implementation phase, the researchers constructed a final google form after receiving approval from the research office. Once approved, the google form was sent to the target respondents of the study. Once the target number of respondents was obtained, the researchers proceeded with data analysis. In analyzing the obtained data, frequency, mean score, Mann Whitney U Test, and Kruskal Wallis Test was used. Frequency was used to determine the distribution of the respondents. The mean score was used to determine the competency level of the respondents (see table 1 (range of means) for an interpretation of the mean score). While Mann Whitney U Test was used to determine if there is a significant difference in the DRRM competency level when analyzed by sex and grade level, while Kruskal Wallis Test was used to determine if there is a significant difference in the DRRM competency level when analyzed by age and strand.

Table 1. Range of Means

Range of Means	Interpretation
<55	Needs Improvement
56-65	Low Proficiency
66-75	Adequate
76-85	Proficient
86-95	Very Proficient
96-100	Excellent

RESULT AND DISCUSSION

The study delved into the senior high school students' competency level on DRRM in terms of elements of disaster, hazards, and application of DRRM concepts. Many studies have been conducted that provided evidence that schools play a significant role in disaster risk reduction and management (Rogayan, Cuarto, & Ocsan, 2022).

Profile of the Respondents

A total of two hundred twenty-two (222) senior high school students from the University of Mindanao-Digos responded to the study. Among the respondents, 63.1% (n=140) are females, and 36.9% (n=82) are males. There are 54.5% (n=121) whose ages are between 18-20 years old, 42.8% (n=95) for ages between 15-17 years old,and 2.7% (n=6) for ages 21 years old and above. Meanwhile, 50.5% (n=112) of the respondents are Grade 12 students, and 49.5% (n=110) are Grade 11 students. In terms of distribution in respondents' strand, 45.9 % (n= 102) respondents are from HUMSS; 23 % (n=51) respondents are from STEM; 19.4% (n=43) from ABM; 5% (n=5) are from ICT; 2.7% (n=6) are from GAS; 2.3% (n=5) are from Industrial Arts I; and 1.8% (n=4) are from Home Economics I.

Table 2. Characteristics of 222 SHS students included in the study

Profile	F	%
Sex		
Male	82	36.9
Female	140	63.1
Age		
15-17 years old	95	42.8
18-20 years old	121	54.5
21 years old and above	6	2.7
Grade Level		
Grade 11	110	49.5
Grade 12	112	50.5
Strand		
ABM	43	19.4
GAS	6	2.7
Home Economics I	4	1.8
HUMSS	102	45.9
ICT	11	5.0
Industrial Arts I	5	2.3
STEM	51	23.0

Competency Level of Students in DRRM

Table 3 presents the competency level of students in DRRM. The student's competency in DRRM was measured through the use of the questionnaire from Santos (2019). The overall result indicates that students' DRM competency needs improvement (52.52, SD=18.124). In the Elements of Disaster, the result shows that students need improvement ($\bar{x}$ = 51.85, SD= 20.419). On the topic hazard, the result implies that the students have low proficiency in this topic ($\bar{x}$ = 57.76, SD= 21.960). Moreover, in Application of DRRM Concepts, result shows that students need improvement in this area ($\bar{x}$ = 48.47, SD= 24.074). With this result, it is essential that students are equipped with an in-depth knowledge and understanding in the DRRM competency. Students should understand what makes their school or community unsafe, as well as how they can make these places safe. Furthermore, Students should posses knowledge on what to do before, during,and after natural disasters. Active student participation and cooperation are clearly critical to the success of DRRM (Mamon et al., 2017).

According to Santos (2019), there are factors that need to be considered in improving the DRRR education in the Philippines. These are thefollowing: awareness among students and teachers about disaster risk reduction education, proper and adequate training of teachers in the field of DRRM, adequate resources and materials in teaching the subject, and integration of the DRR subjects to all strands. Further, the result suggests thatstudents should be engaged in an experiential learning. The findings of the study by Baker and Marshall (2016) provide evidence that an experiential approach to learning, as compared to that of direct instruction, yields greater practical use of knowledge taught. Other researchers demonstrated similar conclusions in both liberal education and agricultural education (Eyler & Halteman, 1981; Randell, Arrington, & Cheek, 1993, as cited in Baker et al., 2016). Sozcu (2020) further emphasized that many researchers have found that disaster education works best in places where the learning

process takes place outside the traditional classroom setting. In this respect, it has been shown that experience-based and action-oriented learning have greater levelsof success. Thus, effective disaster education programs should include collaboration with researchers, local communities, and schools (Shaw, 2015; Green and Petal, 2009, Nifa, Abbas, Lin, & Othman, 2017, as cited in Soczu, 2020).

Table 3. DRRM Competency Level of SHS Students

	$\underline{x}$	*SD*	Interpretation
Elements of Disaster	51.85	20.419	Needs Improvement
Hazards	57.76	212.960	Low Proficiency
Application of DRRMconcepts	48.47	24.074	Needs Improvement
Overall	52.52	18.124	

Competency Level of SHS Students in DRRM When Analyzed by Sex

Table 4 showed the competency level of SHS students in DRRM when analyzed by sex. The table showed that there is a significant difference between male (*mean rank = 96.91, Sum of ranks = 7922.00*) and female (*mean rank = 120.22, Sum of ranks = 16831.00*) SHS students' DRRM competency level, (*Mann-Whitney U (222) = 4519.000, p =.008)*. Further, as gleaned in Table 4, females have higher levels of competency than the males. This result is also true for the indicators hazard (*Mann-Whitney U (222)* = 4664.000, *p =.018)* and application of DRRM concepts (*Mann-Whitney U (222)* = 4830.000, *p =.047)*. Hence, this result rejects the null hypothesis. Thefinding is congruent to the result of PISA (2018) that female students outperformed male students. In the report, female students outper formedmale students in overall reading literacy, average mathematical literacy, and average scientific literacy, though not statistically different (Camara, Terre, & Quibilan, 2021). Meanwhile, the study of Rahman (2019) among high school students revealed that gender differences significantly affect the student's knowledge on the seismic perception and awareness. The findings showed that females are more knowledgeable on earthquake preparedness, participation and communication than male students and are more likely to learn about disaster. In accordance with the findings above, Ventura and Madrigal (2020) also found out that when examined by gender, females are more knowledgeable on disaster preparedness compared to males.

Table 4. Differences on the SHS Students' DRRM Competency Level When Analyzed by Sex Using Mann-Whitney U Test

Indicators	Group	n	MeanRank	Sum ofRanks	Mann-WhitneyU	Z	Asymp. Sig.
Elements of Disaster	Male	82	103.10	8454.00	5051.000	-1.510	.131
	Female	140	116.42	16299.00			
Hazards	Male	82	98.38	8067.00	4664.000	-2.362	.018*
	Female	140	119.19	16686.00			
Application of DRRM	Male	82	100.40	8233.00	4830.000	-1.985	.047*
	Female	140	118.00	16520.00			
Overall	Male	82	96.61	7922.00	4519.000	-2.650	.008**
	Female	140	120.22	16831.00			

*p<0.05, **p<0.01

Competency Level of SHS Students in DRRM in terms of Age

In table 5, a Kruskal Wallis test on differences showed that overall, there is no significant difference on the SHS students' DRRM competency level based on their ages, (*Chi-square (2, 219) = 4.019, p = .134).* Thus, the overall result rejected the hypothesis. This implies that students in the different ages have similar levels of DRRM competencies. However, it can be seen in Table 4, that for the application of DRRM, asignificant difference was observed (*Chi-square (2, 219) = 6.320, p = .042)* where younger students have higher competency levels than the older students. Nonetheless, this does not affect the overall significance of the result. In a study conducted in Nepal, Abas, Ibrahim, Wee, Sibly, and Mohamed (2020) stated that age does not directly influence the awareness of the DRE in between urban areas (Abas, Ibrahim, Wee, Sibly, & Mohamed, 2020). However, this study revealed that ages 15-17 have higher mean ranks as compared to those aged 18 and above for indicator application to DRRM.In line with this, a study stated that a community's DRR process and demographic aspects have always been related in some way. The study involved students as their participants which were classified in two age groupssuch as students aged below 15 years old and those who aged 15 years old and above. The findings revealed that students aged below 15 years old are more knowledgeable than those who aged 15 years old and above (Tuladhar, Yatabe, Dahal & Bhandary, 2014). According to Ghiselli's (1957) research, there is a progressive and

continuous decline in cognitive test results as age increases beginning around the age of 20.

Table 5. Differences on the SHS Students' DRRM Competency Level WhenAnalyzed by Age Using Kruskal Wallis Test

	Groups	N	MeanRank	Chi- Square	df	Asymp. Sig.
Elements of Disaster	15-17 years old	95	118.45	2.007	2	.367
	18-20 years old	121	106.47			
	21 years old and above	6	103.00			
	Total	222				
Hazards	15-17 years old	95	116.21	.922	2	.631
	18-20 years old	121	107.90			
	21 years old and above	6	109.50			
	Total	222				
Application of DRRMconcepts	15-17 years old	95	119.12	6.320	2	.042*
	18-20 years old	121	108.30			
	21 years old and above	6	55.33			
	Total	222				
Overall	15-17 years old	95	120.52	4.019	2	.134
	18-20 years old	121	105.84			
	21 years old and above	6	82.92			
	Total	222				

*p<0.05

SHS students' DRRM Competency Level in terms of Grade Level

Table 6 showed that there is no significant difference between Grade11 and Grade 12 SHS students' DRRM competency level, *Mann-Whitney U (222) = 5326.500, p =.081*. Further, as gleaned in Table 5, this result is consistent in all of the indicators of DRRM competencies. This implies that students in the different grade levels have similar levels of DRRMcompetencies. Hence, this result fails to reject the null hypothesis. The research conducted by Ventura and Madrigal (2020) indicates that students' awareness is significantly different when classified based on their grade levels. It revealed that students in 10^{th} grade have greater awareness and practice of disaster preparedness than those in their lower grades. In contrast, Rahman (2019) reported students in lower grade (9^{th} grade) tend to be more prepared for earthquake than those in higher grade (10^{th} grade), yet the latter are more aware than students in 9^{th} grade. However, the result of this research shows that there is no significant difference between the DRRM competency level of grade 11 and 12 students. In line with this, a study on Eastern Samar State University shows that there is no significant difference on students' disaster preparedness and readiness, adaptation, awarenessand disaster risk perception when grouped according to grade level (Lapada, 2022).

Table 6. Mann-Whitney U test results showing the differences on the SHS students' DRRM competency level when analyzed by grade level.

Indicators	Group	n	MeanRank	Sum of Ranks	Mann-WhitneyU	Z	Asymp. Sig.
Elements ofDisaster	Grade11	110	118.47	13032.00	5393.000	-1.622	.105
	Grade12	112	104.65	11721.00			
Hazards	Grade11	110	116.29	12792.00	5633.000	-1.117	.264
	Grade12	112	106.79	11961.00			
Application ofDRRM	Grade11	110	117.39	12912.50	5512.500	-1.363	.173
	Grade12	112	105.72	11840.50			
Overall	Grade11	110	119.08	13098.50	5326.500	-1.746	.081
	Grade12	112	104.06	11654.50			

*p<0.05

SHS Students' DRRM Competency Level When Analyzed by Strand

In table 7, a Kruskal Wallis test on differences showed that there is no significant difference on the SHS students' DRRM competency level based ontheir strands, [*Chi-square (6, 215) = 9.866, p = .130]*. This implies that students in the different strands have similar levels of DRRM competencies. This result is also consistent with the indicators of DRRM competencies. Hence, with this result, it fails to reject the null hypothesis. In the K-12 basic education program, Disaster Readiness and Risk Reduction is only taken by STEM students and other strands take up Earth and Life Science (Department of Education). On the contrary, Santos (2019) stated that students of all strands are susceptible to various natural disasters As a result, it is essential to introduce the DRRR subject to all students,from primary through secondary levels. The DRRR can be introduced as earlyas the primary level by integrating the concepts into other topics.

Table 7. Kruskal Wallis Test on the Differences on the SHS Students' DRRMCompetency Level When Analyzed by Strand

Indicators	Groups	N	MeanRank	Chi-Square	df	Asymp. Sig.
Elements of Disaster	ABM	43	116.69	7.176	6	.305
	GAS	6	77.00			
	Home Economics I	4	124.00			
	HUMSS	102	108.98			
	ICT	11	140.18			
	Industrial Arts I	5	66.60			
	STEM	51	113.46			
	Total	222				
Hazards	ABM	43	123.55	12.529	6	.051
	GAS	6	106.33			
	Home Economics I	4	103.88			
	HUMSS	102	101.68			
	ICT	11	124.91			
	Industrial Arts I	5	45.90			
	STEM	51	125.73			
	Total	222				
Application of DRRM	ABM	43	107.27	8.366	6	.213
	GAS	6	125.67			
	Home Economics I	4	81.38			
	HUMSS	102	112.68			
	ICT	11	105.73			
	Industrial Arts I	5	43.70			
	STEM	51	121.30			
	Total	222				
Overall	ABM	43	117.09	9.866	6	.130
	GAS	6	103.58			
	Home Economics I	4	102.88			
	HUMSS	102	106.19			
	ICT	11	125.09			
	Industrial Arts I	5	38.60			
	STEM	51	123.23			
	Total	222				

*$p<0.05$

CONCLUSION

The occurrence of disasters has been prevalent in different regions in the Philippines. Digos City is no exception, as it is also vulnerable to natural disasters. Recently, Davao region was struck by a destructive earthquake. With regards to this, the integration

of disaster education in school plays a significant role in ensuring that students are equipped with essential knowledge and preparedness to mitigate the destructive effects brought by disasters. Overall, the findings of this study indicate that senior high school students of UM Digos College require improvement in their DRRM competency, therefore, there is a need for a curriculum enhancement. With this result, it is essential that students are equipped with an in-depth knowledge and understanding in the DRRM competency. Further, students should understand what makes their school or community unsafe and how they can make these places safe. Students should possess knowledge on what to do before, during, and after natural disasters. Active student participation and cooperation are clearly critical to the success of DRRM (Mamon et al., 2017).

RECOMMENDATIONS

The result of this study led the researchers to formulate the following recommendations. It is recommended that the curriculum or activities to be implemented in the classroom are gender sensitive. Everyone should be able to participate in the class discussion and activities regardless of the students' gender. Additionally, the subject should focus on experiential learning where in students will actively learn through various disaster simulations and activities related to disaster preparedness. Moreover, it is recommended that Grade 12 students should undergo a basic training course on disaster preparedness and management. With this, the students will be able to apply the concepts in their previous DRRE subject. Further, there must be a frequent assessment on students' competency in DRRM in order to constantly determine the students' competency in DRRM. Lastly, Disaster Readiness and Risk Reduction should be strongly integrated in all strands. DRR subject should be included as a core subject in all strands.

REFERENCES

1) Abas, M. A., Ibrahim, N. E., Wee, S. T., Sibly, S., & Mohamed, S. (2020, August). Disaster resilience education (dre) programmes in schools: a case study in Kelantan, Malaysia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 549, No. 1, p. 012078). IOP Publishing. **doi:** 10.1088/1755-1315/549/1/012078
2) Baker, M. A., & Robinson, J. S. (2016). The Effects of Kolb's Experiential Learning Model on Successful Intelligence in Secondary Agriculture Students. *Journal of Agricultural Education*, *57*(3), 129-144. Retrieved from https://files.eric.ed.gov/fulltext/EJ1123045.pdf. doi: 10.5032/jae.2016.03129
3) Camara, J. S., Terre, E. Q., & Quibilan, M. J. U. (2021). Gendered-Analysis on Research Competency of 21 st Century Learners. *Journal of Contemporary Issues in Business and Government Vol*, *27*(1). Retrieved from https://www.cibgp.com/article_7794_dea310923ce859f50027e971d120a828.pdf
4) Cantrell, M. A. (2011). Demystifying the Research Process: Understanding a Descriptive Comparative Research Design. *Pediatric Nursing*, *37*(4), 188-9. https://www.proquest.com/scholarly-journals/demystifying-research-process-understanding/docview/884708375/se-2
5) Department of Education. Senior High School Core Curriculum Subjects. Retrieved from https://www.deped.gov.ph/k-to-12/about/k-to-12-basic-education-curriculum/senior-high-school-core-curriculum-subjects/
6) Department of Education. PISA 2018 National Report of the Philippines. Retrieved from https://www.deped.gov.ph/wp-content/uploads/2019/12/PISA-2018-Philippine-National-Report.pdf
7) Ghiselli, E. E. (1957). The relationship between intelligence and age among superior adults. *The Journal of Genetic Psychology*, *90*(2), 131-142. Retrieved from https://doi.org/10.1080/00221325.1957.10533012
8) Hoffmann, R., & Muttarak, R. (2017). Learn from the past, prepare for the future: Impacts of education and experience on disaster preparedness in the Philippines and Thailand. World Development, 96, 32-51. Doi: https://doi.org/10.1016/j.worlddev.2017.02.016
9) Kolb, D. A. (1984). Experiential Learning: Experience as the Source of Learning and Development. Englewood Cliffs, New Jersey: Prentice Hall
10) Lapada, A. (2022). Disaster risk reduction knowledge among Filipino senior high school students. *Journal of Social Sciences Review*, *2*(1), 56-73 DOI: https://doi.org/10.54183/jssr.v2i1.27
11) Mamolo, L. (2019). Analysis of senior high school students' competency in general mathematics. Universal Journal of Educational Research, 7(9), 1938-1944. DOI: 10.13189/ujer.2019.070913
12) Mamon, M. A. C., Suba, R. A. V., & Son, I. L. (2017). Disaster risk reduction knowledge of Grade 11 students: Impact of senior high school disaster education in the philippines. International Journal of Health System and Disaster Management, 5(3), 69. Available from: https://www.ijhsdm.org/text.asp?2017/5/3/69/225102
13) Prieto, N.G., Arcanghel, C. N. Corpuz, B.B. (2019). The Teacher and the Community, School Culthre and Organizational Leadership. Lorimar Publishing Inc.: Quezon City
14) Rahman, M. L. (2019). High School Students' Seismic Risk Perception and Preparedness in Savar, Dhaka. *Educational Research and Reviews*, *14*(5), 168-177. DOI: 10.5897/ERR2018.3674

15) Rogayan, D., Cuarto, R. M. D., & Ocsan, M. L. A. (2022). Are ninth-grade students aware and prepared when disaster strikes?. *Journal of Science and Education (JSE)*, *2*(2), 65-80. DOI: https://doi.org/10.56003/jse.v2i2.96
16) Santos, N. C. (2019). Students' Meteorological Knowledge and Its Relationship on Their Levels of Resiliency. Retrieved from https://www.ijern.com/journal/2019/October-2019/12.pdf
17) Sing Singh, R., & Mangat, N. S. (2013). *Elements of survey sampling* (Vol. 15). Springer Science & Business Media.
18) Sözcü, U. (2020). Disaster Education in Turkey: Trends in Theses and Articles between 2003 and 2020. *Journal of Pedagogical Research*, *4*(3), 418-441. 0 http://dx.doi.org/10.33902/JPR.2020465083
19) Tan, Marilou & Yaun, Emma & Ohayas, Rosalie & Marivic, Ed & Manubag, V & Lopez, Nerissa & Professor, Ed & Dean, Ed. (2019). DISASTER PREPAREDNESS OF NATIONAL HIGH SCHOOLS: AN ASSESSMENT PANEL OF EVALUATORS Approved by the Committee on Oral Examination with a grade of PASSED. 10.6084/m9.figshare.12084762.
20) Tuladhar, G., Yatabe, R., Dahal, R. K., & Bhandary, N. P. (2014). Knowledge of disaster risk reduction among school students in Nepal. *Geomatics, Natural Hazards and Risk*, *5*(3), 190-207. Doi: https://doi.org/10.1080/19475705.2013.809556
21) United Nations International Strategy for Disaster Reduction. (2009). Disaster Risk Reduction in the United Nations. United Nations Office for Disaster Risk Reduction (UNDRR). https://www.unisdr.org/files/9866_DisasterRiskReductionintheUnitedNat.pdf
22) Ventura, G. L., & Madrigal, D. V. (2020). Awareness and practices on disaster preparedness of students of a public high school in Antique. *Philippine Social Science Journal*, *3*(2), 45-46. Doi: https://doi.org/10.52006/main.v3i2.210