

# **Impact of Disaster Risk Reduction (DRR) In Education on The Knowledge and Attitude of Students Toward Responding to Natural Disasters**

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**Abstract**— The Philippine Department of Education (DepEd) has adopted the K–12 curriculums. DepEd has offered disaster risk reduction (DRR) in education as one of the topics in Social Studies in Grade 10. Every student must know about disaster risk reduction (DRR) in education and must have a positive outlook when responding to natural disasters. In this study, the researcher endeavored to seek the students' level of knowledge of disaster risk reduction (DRR) in education and its impact on their attitude toward responding to natural disasters. The study employed a random sample technique to choose participants for its descriptive research design. The gathering of data was done through a questionnaire administered via a printed questionnaire and a Google Form. The study was conducted on 225 sample participants of grade 10 students at Dela Paz National High School. The study reveals that students have a high level of knowledge about disaster risk reduction (DRR) in education, including disaster preparedness, response, preparations, and developing a plan. However, they lack knowledge about disaster management, readiness, discipline, cooperation, and the importance of various sectors' programs and actions. Students generally have a positive attitude towards responding to natural disasters, with a high mean of 4.59. They agree that safety drills are crucial for disaster preparedness and prioritize emergency kit preparation. Teachers' exposure to DRR in education improves attitudes toward responding appropriately to natural disasters. However, students still show a poor attitude towards preparation for potential risks and hazards due to natural disasters. Moreover, there is a positive relationship between the two variables; this means that as the knowledge of the students about disaster risk reduction (DRR) in education increases their attitude toward responding to natural disasters also increases. This implies that the knowledge of the students about disaster risk reduction (DRR) in education towards responding to natural disasters greatly influences their attitude. The Department of Education and the teachers should revisit the K–12 Basic Education Curriculum in 2013 to look into the possible continuous improvement of the integration and implementation of disaster risk reduction (DRR) in education as a component of subjects such as social studies and science and technology purposely to strengthen disaster risk reduction in the Philippines.

**Keywords**— disaster risk reduction (DRR) in education, natural disasters, knowledge, attitude, and Social Studies.

## **I. INTRODUCTION**

Numerous natural disasters can strike the Philippines. In times of disaster, education is one of the most vulnerable sectors. Schools and students across the country are therefore vulnerable to these hazards. One of the three pillars of the global Comprehensive School Safety Framework which aligned with the Sendai Framework is Disaster Risk Reduction (DRR) in education focuses on the integration of DRRM/CCA/EiE in the K-12 curriculum, including teacher training. This reinforced the K–12 Act, also known as the Enhanced Basic Education Act of 2013,'s curricular integration of important climate change ideas across grade levels. From kindergarten to junior high school, subjects including science, health, Social Studies, and Values Education incorporate the concepts of DRRM and CCA. A DRRM special subject is available for senior high school students as a part of the STEM strand. In addition, climate change competencies can be found in

Earth Science and Earth and Life Science. Emphasizing and integrating disaster management into natural disasters have become a critical priority in the Philippines.

Knowledge and attitudes of students in disaster risk reduction (DRR) in education are the greatest change agents for long-term protection and stewardship of environmental issues. Thus, disaster risk reduction (DRR) in education which promotes safer, adaptive, and resilient Filipino communities will enable these students to have a greater role in addressing environmental issues in the Philippines. This study was carried out to evaluate students' knowledge and its impact on their attitudes toward responding to natural disasters after being exposed to disaster risk reduction (DRR) in the classroom. Studies focusing on the integration of disaster risk reduction (DRR) in education at all levels in the high school curriculum play an important role in actual preparedness for different natural disasters. The

Philippine educational system is different from other developing countries. Hence, this study will help in enriching the various perspectives of disaster risk reduction (DRR) in the educational sector.

### *Disaster Risk Reduction (DRR) in Education*

Republic Act No. 10121, or the Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010, defines a hazard as a dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury, or other health impacts, property damage, loss of livelihood and services, social and economic disruption, or environmental damage. According to the School Disaster Risk Reduction and Management Manual, the implementation of DRRM in basic education is guided by DepEd's three major outcomes: access, quality, and governance. These set the program and policy development agenda of the agency. Based on the new K-12 curriculum, DRR and CCA are integrated from kindergarten to grade 10 in subject areas such as health, social studies, and science (Department of Education (2008) Disaster Risk Reduction Resource Manual).

The Philippine Department of Education (DepEd) has implemented international and national laws on disaster risk reduction (DRR) to prepare stakeholders and the community with the right mindset through the United Nations (UN) adoption of the Hyogo Framework for Action (HFA) 2005–2015: Building the Resilience of Nations and Communities to Disasters at the World Conference on Disaster in Kobe, Japan, in 2005. As cited by Valencia, (2019) DepEd passed Department Order No. 55 in 2007, which mandates the development of modules, lesson exemplars, and materials on DRR and climate change for basic education. This policy is supplemented by DepEd Memorandum No. 175 and the creation of a Technical Working Group (TWG) on the preparation of the Department's Calamity, Disaster, and Risk Management and Control Operations Manual. The TWG 2008 published the Risk Reduction Resource Manual, which contains information on hazards, disasters, the Philippines' risk profile, the Philippine disaster risk management system, and disaster monitoring and evaluation mechanisms. In 2013, the Department of Education, the Department of Education, issued a document titled "Reiterating School Disaster Risk Reduction Measures," highlighting its obligation to institutionalize DRR practices in schools. To strengthen its policies, DepEd issued Department Order No. 37, which presents a comprehensive Disaster Risk

Reduction and Management (DRRM) in the Basic Education Framework.

The Philippine Department of Education (DepEd) has adopted the K-12 curriculum. DepEd has offered DRR as one of the topics in Social Studies in Grade 10. In the curriculum of senior high school, or Grades 11 and 12, DRR education is also integrated into "Earth and Life Science," which is a core subject in all academic tracks. In the science track, however, DRR is taught as a single subject in senior high school. According to UNISDR Global Assessment Report 2015, "Disaster Readiness and Risk Reduction Education (DRRRE), aims to educate students about hazards and disasters, the principles and importance of DRR, and community-based practices for managing disaster risks. Disaster Risk Reduction (DRR) is often integrated into basic education but requires a comprehensive discussion.

In a study by Mamonin M.A., et al. (2017), Metro Manila found that Grade 11 students have high disaster-related knowledge but low disaster risk perception. To ensure all high school students are equipped with DRR knowledge, mandatory DRR subjects should be introduced in all academic strands, including Humanities and Social Sciences and Accounting and Business Management. Accurate, adequate, and updated resource materials are also needed.

### *Natural Disasters*

According to Metych (2024), Natural disaster is any calamitous occurrence generated by the effects of natural, rather than human-driven, phenomena that produce great loss of human life or destruction of the natural environment, private property, or public infrastructure. A natural disaster may be caused by weather and climate events, earthquakes, landslides, and other occurrences that originate at Earth's surface or within the planet itself. In this study, natural disasters are limited to earthquakes, typhoons, and volcanic eruptions based on the occurrence frequently on the geographic location of the current study.

The Philippines sits within the Pacific Ring of Fire. In 2021, over 12.6 thousand earthquake events were registered in the Philippines, the strongest of which hit the regions of Davao Oriental and Davao Occidental, both having a magnitude of 7.1. Another high-intensity earthquake struck the island of Luzon in 2019 with a magnitude of 6.1, leaving several people dead or injured. Based on the Philippine Institute of Volcanology and Seismology (PHIVOLCS) hazard map. Antipolo City,

province of Rizal has the PHIVOLCS Earthquake Intensity Scale (PEIS) Intensity VIII and above ranging in magnitude from two to seven. The school may be affected by ground shaking in the event of an earthquake. Moreover, there is a high potential liquefaction hazard in the city but not specifically in the area of the school. (GeoRisk Philippines' HazardHunterPH at <https://has.phivolcs.dost.gov.ph>)

The Philippines is home to nine active volcanoes, nearly half of which are located on the island of Luzon. Antipolo City, Rizal is prone to volcanic eruptions. Approximately the current study is 66.8 km from the Taal volcano situated in the province of Batangas. In case of future eruptions, Antipolo City may be affected by ash fallout, depending on the scale of eruption and prevailing wind direction at the time of eruption. Generally, ashfall is heavier near the active vent and thins out indefinitely away from the eruption center. (GeoRisk Philippines' HazardHunterPH at <https://has.phivolcs.dost.gov.ph>)

In 2022 alone, the Philippines was hit by 18 tropical cyclone events, most of which were tropical depressions. The most catastrophic typhoon in recent history was Typhoon Yolanda or Haiyan in 2013, causing over 95 billion Philippine pesos in financial damages. In addition, about seven thousand people were reported dead, and nearly 30 thousand went missing. Antipolo City is identified as a high risk of wind damage with a hydro-meteorological hazards assessment of 117.1 - 220 kph (20-year return period). (GeoRisk Philippines' HazardHunterPH at <https://has.phivolcs.dost.gov.ph>)

This shows that strict implementation of disaster preparedness should be done to mitigate severe wind risks. The assessment of students' level of knowledge and attitude toward responding to natural disasters applied in this study can be used to set out a cost-benefit study for more vulnerable individuals and increase their resilience to natural disasters.

The study of Alkalash, S. H., et al. (2023) entitled, Knowledge of and Attitude Toward Disaster Preparedness Among Secondary School Students in the Western Region of Saudi Arabia revealed that the perceived knowledge regarding disaster preparedness among secondary school students in the Western region of Saudi Arabia was fair with a high level of positive attitude toward it. With this, attitudes about natural

disasters are very critical for the school community because both knowledge and attitude can direct their behavior to deal with such conditions without being anxious or panicking. The study recommends that disaster response training simulation be involved in the curricula. This study is similar in a way because it included a level of knowledge and attitude about natural disasters among Grade 10 students in Dela Paz National High School, Antipolo City.

A research study done by Loremia, A. and Alcover, D., (2020) assesses the implementation of Disaster Risk Reduction Education activities and its effects on the lives of learners in the Philippines during the School Year 2019 - 2020. The research revealed that the awareness and knowledge of the respondents on the practices of what to do before, during, and after disasters were very knowledgeable. The research also revealed that the level of awareness of DRR activities was very much enhanced. This research has some bearing on the current study since it analyzes the knowledge of the respondents after they finished the learning competencies on Disaster Risk Reduction Education which was integrated into the Social Studies 10 curriculum. The expectation that teachers teach learners knowledge leads to learners' change of attitudes toward responding appropriately to environmental challenges.

A study conducted by Eriwell Hipolito (2021) showed that students' knowledge of disaster preparedness is described as high to moderate level in the concepts, ideas, and theories behind disaster preparedness. It also showed that the attitude level of the students in disaster preparedness is generally high. Students agree and show their support for the inclusion of disaster preparedness in the curriculum as part of their learning. recommended that students develop a culture of disaster preparedness in school at all times whether inside or outside the school as a disaster could strike anytime. Therefore, it would be very important to consider students' knowledge and attitudes when responding to natural disasters in the context of increasing their learning competency in disaster preparedness, prevention, and mitigation.

## II. METHODOLOGY

### A. Research Methodology

The study used random sampling techniques to select respondents in this study from a larger student population. Random sampling was adopted as the sampling technique as the researcher intended to target the representative of the larger population being studied

could be believed to be reliable for the study. The research instrument for this study was a validated survey questionnaire constructed by the researcher from the various readings. It is composed of two parts. Part I was used to elicit responses on the respondent's level of knowledge about disaster risk reduction (DRR) in education from the first quarter learning competencies of Social Studies 10 using a Five-Likert scale ranging from Extremely Knowledgeable to Not Knowledgeable at all. Part II which was a Five-Likert scale ranging from strongly agree to strongly disagree was used to elicit responses to ascertain the students' attitude toward responding to natural disasters. The researcher administered the questionnaires personally via face-to-face and Google forms to make sure that the respondents filled the questionnaire effectively. This research was guided by the ethical principles of informed consent and confidentiality and that no harm should come to participants. Under some reasonable grounds, the specific characteristics and answers of the respondents were held confidential. To secure the informed consent of the respondents or participants in this study, the questionnaires open with a letter describing the purpose of the study. The respondents were instructed that they were free not to participate in the study and answer the survey instrument, and they were assured that their schools' identities would be treated with utmost confidentiality.

**B. Scope and Limitation**

This study focuses on how student's level of knowledge about disaster risk reduction (DRR) in education impacts their attitude toward responding to natural disasters. This study will not cover the demographic profiles of the sample participants who believed not necessarily connected to students' knowledge about disaster risk reduction (DRR) in education and did not have any connection to attitude towards responding to natural disasters. The respondents should be officially enrolled grade 10 students this school year 2023-2024 in Dela Paz National High School, Antipolo City

**C. Sampling**

The respondents in this study were the regular grade 10 students of Dela Paz National High School for the school year 2023-2024 with a total of 225 sample participants.

**D. Data Collection**

The following tools were used to analyze the data:

To treat data in problem number 1, "What is the student's level of knowledge about disaster risk reduction (DRR) in education? - weighted mean was used.

Below is the descriptive scale that aided the researcher in quantifying the indicators in problem number 1.

Scale	Verbal Description
4.21 – 5.00	Extremely knowledgeable
3.41 – 4.20	Very knowledgeable
2.61 – 3.40	Moderately knowledgeable
1.81 – 2.60	Slightly knowledgeable
1.00 – 1.80	Not knowledgeable at all

To treat data in problem number 2, "What is the attitude of the students toward responding to natural disasters after they are exposed to disaster risk reduction (DRR) in education? -weighted mean was used.

Below is the descriptive scale that aided the researcher in quantifying the indicators in problem number 2.

Scale	Verbal Description
4.21 – 5.00	Strongly Agree
3.41 – 4.20	Agree
2.61 – 3.40	Neutral
1.81 – 2.60	Disagree
1.00 – 1.80	Strongly Disagree

To treat data in problem number 3, "What is the relationship between the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude toward responding to natural disasters? - Pearson correlation coefficient (r) was used.

The decision to accept or reject the null hypothesis is made if the *t-value* is greater than or less than the critical value of 2.160 using the t-test.

Below is the table to demonstrate how to interpret the size of a correlation coefficient.

Size of Correlation	Verbal Description
.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .90 (-.70 to -.90)	High positive (negative) correlation
.50 to .70 (-.50 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.30 to -.70)	Low positive (negative) correlation
.00 to .30 (.00 to -.30)	Negligible correlation

**III. RESULTS AND DISCUSSION**

**Research question 1:** What is the student’s level of knowledge about disaster risk reduction (DRR) in education?

*Table 1: Student’s level of knowledge about Disaster Risk Reduction (DRR) in Education*

Statements on the level of knowledge about Disaster Risk Reduction (DRR) in Education	WM	Verbal Interpretation	Rank
1. I know the current natural disasters in the Philippines.	4.58	Extremely knowledgeable	7
2. I know how to analyze the causes and effects of the Philippines' natural disasters.	4.34	Extremely knowledgeable	8
3. I know the programs and actions of different sectors in solving each natural disaster.	4.05	Very knowledgeable	11
4. I valued the programs and actions of various sectors on natural disasters.	4.00	Very knowledgeable	12
5. I can give the meaning of disaster management.	3.70	Very knowledgeable	14
6. I can examine concepts or terms related to disaster management.	4.10	Very knowledgeable	10
7. I can explain the nature of the top-down approach in dealing with natural disasters.	4.80	Extremely knowledgeable	5
8. I can compare top-down and bottom-up approaches.	3.55	Very knowledgeable	15
9. I can determine the preparations that should be made in the face of risks caused by natural disasters.	4.87	Extremely knowledgeable	3
10. I realized the importance of readiness, discipline, and cooperation in addressing natural disasters.	3.75	Very knowledgeable	13
11. I can review concepts and factors important in predicting disaster outcomes.	4.15	Very knowledgeable	9
12. I can explain the importance of disaster preparedness that may be experienced by man.	4.95	Extremely knowledgeable	1
13. I can determine the response that the people should do during a disaster.	4.88	Extremely knowledgeable	2
14. I can determine steps or activities to repair the damaged areas caused by the disaster.	4.77	Extremely knowledgeable	6
15. I can develop a CBDRRM Plan based on the condition of my community.	4.82	Extremely knowledgeable	4
<b>Overall Mean</b>	<b>4.35</b>	<b>Extremely knowledgeable</b>	

Table 1 presents the student’s level of knowledge about Disaster Risk Reduction (DRR) in Education. Extremely knowledgeable for the item on I can explain the importance of disaster preparedness that may be experienced by man were expressed by the respondents which was recorded at 4.95 making it as no. 1 on the rank. The items of I can determine the response that the people should do during a disaster, I can determine the preparations that should be made in the face of risks caused by natural disasters, I can develop a CBDRRM Plan based on the condition of my community, I can explain the nature of the top-down approach in dealing with natural disasters, I can determine steps or activities to repair the damaged areas caused by the disaster, I know the current natural disasters in the Philippines, I know how to analyze the causes and effects of the Philippines' natural disasters, had a weighted mean of

4.88, 4.87, 4.82, 4.80, 4.77, 4.58, and 4.34 respectively. Thus, this showed that the students have high or extreme knowledge of each of the items of Disaster Risk Reduction (DRR) in Education. This implies that the integration of Disaster Risk Reduction (DRR) in Education as one of the topics in Social Studies in Grade 10 is understood by most of the students and shows a high mastery level of the learning competencies of the subject.

However, there are items such as I can compare top-down and bottom-up approaches, I can give the meaning of disaster management, I realize the importance of readiness, discipline, and cooperation in addressing natural disasters, I value the programs and actions of various sectors on natural disasters, I know the programs and actions of different sectors in solving each natural disaster, I can examine concepts or terms related to

disaster management, I can review concepts and factors important in predicting disaster outcomes with a mean scores of 3.55, 3.70, 3.75, 4.00, 4.10, and 4.15 respectively have shown less knowledge by the students. Students must consider improving this aspect of Disaster Risk Reduction (DRR) in Education as they are part of

the basic education curriculum in Social Studies in Grade 10.

**Research question 2:** What is the attitude of the students toward responding to natural disasters after they are exposed to disaster risk reduction (DRR) in education?

*Table 2: Student's level of attitude toward responding to natural disaster*

Statements on the attitude of the students towards responding to natural disaster	WM	Verbal Interpretation	Rank
1. Disaster risk reduction (DRR) in education helps me to become an active and well-informed individual about responding to natural disasters.	4.75	Strongly Agree	7
2. Integrating disaster risk reduction (DRR) in education has increased my love and appreciation for the environment.	4.84	Strongly Agree	5
3. Disaster risk reduction (DRR) in education helps me become a well-prepared individual in any disaster.	4.02	Agree	15
4. The integration of disaster risk reduction (DRR) in education developed my operational understanding of concepts and processes relating to natural disasters.	4.68	Strongly Agree	9
5. As a student, I am aware of our participation in decision-making related to disaster management.	4.30	Strongly Agree	11
6. I am aware of my responsibility to investigate problems associated with natural disasters.	4.24	Strongly Agree	13
7. I understand my role as a citizen in promoting the safety of the community where I belong.	4.91	Strongly Agree	3
8. I realized the importance of readiness, discipline, and cooperation in addressing natural disasters.	4.53	Strongly Agree	10
9. I must be capable of developing a disaster management plan based on the condition of my community.	4.73	Strongly Agree	8
10. I should prepare for potential risks and hazards due to natural disasters such as earthquakes, typhoons, and volcanic eruptions.	4.05	Agree	14
11. I must know what to do in an emergency or natural disaster.	4.25	Strongly Agree	12
12. I should be trained in first aid and emergency rescue transfer when a disaster occurs.	4.90	Strongly Agree	4
13. I should prepare an emergency kit and first aid kit for emergencies.	4.93	Strongly Agree	2
14. I should involve myself in safety drills such as earthquake drills and fire drills.	4.94	Strongly Agree	1
15. I must be aware of the evacuation plan in case of emergencies.	4.81	Strongly Agree	6
<b>Overall Mean</b>	<b>4.59</b>	<b>Strongly Agree</b>	

In Table 2, the student's level of attitude toward responding to natural disasters could be described generally as very high with an overall mean of 4.59. Thus, it can be deduced that the student's level of attitude towards responding to natural disasters has a positive attitude to most of the items. The students strongly agreed that involvement in safety drills such as earthquake drills and fire drills. It can be inferred that the extreme knowledge of students regarding the

importance of disaster preparedness that may be experienced by man such as earthquakes and other natural disasters had a high impact on the students' positive attitude towards responding to natural disasters.

Furthermore, they also strongly agreed that preparing emergency kits and first aid kits for possible emergencies should also be prioritized. Having a strong positive attitude towards responding to natural disasters is a result of the extreme knowledge of the students after

they are exposed to disaster risk reduction (DRR) in education which was integrated into the Social Studies 10 curriculum. This implies that teachers teach learners knowledge on disaster risk reduction (DRR) in education leads to learners' improvement in their attitudes toward responding appropriately to natural disasters. This shows that the teachers integrate disaster risk reduction (DRR) in education in their lessons appropriately and congruent to the needs and willingness of the students to learn.

However, the student despite having a highly positive attitude towards responding to natural disasters still showed signs of a poor attitude towards preparation for potential risks and hazards due to natural disasters such as earthquakes, typhoons, and volcanic eruptions with a weighted mean of 4.05. This drives that the less knowledge of students about disaster management as

shown in Table 1 leads to poor attitude toward preparation for potential risks and hazards due to natural disasters such as earthquakes, typhoons, and volcanic eruptions. This revealed that although intensive teaching in disaster management occurs in the Social Studies 10 curriculum, the students are not involved in preparation for potential risks and hazards due to natural disasters. Teachers must consider enhancing this aspect of disaster risk reduction (DRR) in education.

**Research question 3:** What is the relationship between the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude toward responding to natural disasters?

**Hypothesis 1:** There is no significant relationship between the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude toward responding to natural disasters.

**Table 3:** Relationship of the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude towards responding to natural disasters

Variables	Overall Mean	SD	Correlation	Interpretation
Knowledge	4.35	0.47	0.76	High positive correlation
Attitude	4.59	0.32		

Table 3 shows a correlation coefficient of 0.763. As a general rule of thumb, the correlation is greater than 0.5, which means that there is a strong relationship between students' level of knowledge about disaster risk reduction (DRR) in education and their attitude towards responding to natural disasters. There is a positive relationship between the two variables; this means that as the knowledge of the students about disaster risk reduction (DRR) in education increases their attitude toward responding to natural disasters also increases.

According to Nakano and Yamori (2021), the use of a proactive attitude paradigm in DRR education will

certainly promote the formation of proactive attitudes in learners and enable them to engage in DRR and take appropriate action in the event of a disaster. Similarly, the current study found that the knowledge of disaster risk reduction in education proactively influences the attitude of learners in responding appropriately to natural disasters. In strengthening disaster risk reduction in education, teachers need to transmit knowledge to learners using a teaching strategy based on the transmission paradigm and the proactive attitude paradigm as recommended by the study of Nakano and Yamori.

**Table 4:** Significant Relationship of the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude towards responding to natural disasters

Variables	t-value	p-value Sig.(2-tailed)	Interpretation	Decision
Knowledge vs Attitude	4.229	2.160	Significant	Reject $H_0$

Table 4 reveals that the student's level of knowledge about disaster risk reduction (DRR) in education and their attitude towards responding to natural disasters were strongly correlated and the relationship was

statistically significant,  $r(13) = .76, p < .05$ . It reveals a strong correlation which allows rejecting the null hypothesis. This implies that the knowledge of the students about disaster risk reduction (DRR) in

education towards responding to natural disasters greatly influences their attitude.

#### **IV. CONCLUSION AND RECOMMENDATIONS**

##### *Conclusions*

The following conclusions were drawn from the analysis of data and findings.

The study reveals that students have a high level of knowledge about Disaster Risk Reduction (DRR) in Education. They are highly knowledgeable about disaster preparedness, disaster response, preparations, and developing a disaster risk reduction plan. It could be concluded that the integration of DRR in Education as a topic in Social Studies in Grade 10 is well understood by most students. This study reflects a high level of knowledge about disaster risk reduction. However, as evidenced by the lower mean ratings in disaster management, readiness, discipline, cooperation, and the importance of various sectors' programs and actions, it could be concluded that students should consider improving their knowledge of DRR in Education as part of the basic education curriculum.

The study found that students generally have a positive attitude towards responding to natural disasters, with a high mean of 4.59. They strongly agree that involvement in safety drills, such as earthquake and fire drills, is crucial for disaster preparedness. They also prioritize the preparation of emergency kits and first aid kits. The study concluded that students' exposure to disaster risk reduction (DRR) in education improves attitudes toward responding appropriately to natural disasters. However, students still show a poor attitude towards preparation for potential risks and hazards due to natural disasters, which concludes that teachers need to enhance their teaching of this aspect of DRR in education.

Students' level of knowledge about disaster risk reduction (DRR) in education and their attitude towards responding to natural disasters were strongly correlated and the relationship was statistically significant,  $r(13) = .76, p < .05$ . It reveals a strong correlation which allows rejecting the null hypothesis. It could be concluded that the high level of knowledge significantly influences students' attitudes toward responding to natural disasters.

##### *Recommendations*

The following recommendations were made by the researcher based on the conclusion drawn from the study.

Students should be encouraged to be more knowledgeable in all concepts and aspects and master the learning competencies of disaster risk reduction (DRR) in education.

Teachers need to enhance through reskilling and upskilling their teaching strategies on disaster risk reduction (DRR) in education.

The study recommends that the integration of disaster risk reduction (DRR) in education should not be solely incorporated by "Araling Panlipunan" or Social Studies but should also be integrated into all subjects.

The school should also have programs for the students to actively engage in disaster risk reduction (DRR) activities through curricular and extra-curricular activities.

Other variables related to disaster risk reduction (DRR) in education should be included in further studies like skills and practices of students regarding disaster risk reduction (DRR) in education.

Research and scholarship opportunities should be granted to teachers and students about disaster risk reduction (DRR) in education.

The Department of Education and the teachers should revisit the K-12 Basic Education Curriculum in 2013 to look into the possible continuous improvement of the integration and implementation of disaster risk reduction (DRR) in education as a component of subjects such as social studies and science and technology.

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