

# Awareness and Preparedness in Disaster Risk Reduction and Management Among High School Teachers and Students: A Data-Driven Assessment

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*Abstract* — This study aimed to assess the awareness and preparedness in Disaster Risk Reduction and Management (DRRM) among high school teachers and students of San Agustin National High School, San Agustin, Madridejos, Cebu. Using a quantitative, correlational research design, the study explored the relationship between the respondents' profiles, their level of DRRM awareness, and their preparedness actions. A total of 40 teachers and 245 students participated in the study, selected through stratified random sampling. Data were collected using structured questionnaires and analyzed using Pearson's  $r$  correlation coefficient and Chi-square tests of independence at a 0.05 level of significance.

The findings revealed that both teachers' and students' profiles including age, educational attainment, years of teaching, grade level, prior disaster experience, and knowledge of the school environment were significantly correlated with their level of DRRM awareness and preparedness actions. Moreover, the study confirmed a significant relationship between awareness and

preparedness: respondents with higher awareness levels were more likely to demonstrate proactive preparedness behaviors. The results highlight the importance of continuous DRRM education, practical training, and simulation exercises to enhance disaster resilience in the school community. The study recommends strengthening DRRM programs for teachers and students, integrating DRRM into the curriculum, fostering active participation in school-based initiatives, and collaborating with the Local Government Unit through the Municipal Disaster Risk Reduction and Management Office (MDRRMO) for guidance, training, and resources. For future research, longitudinal studies are suggested to track changes in awareness and preparedness over time and evaluate the effectiveness of specific interventions.

***Keywords: Disaster Risk Reduction and Management, DRRM awareness, preparedness, high school teachers, students, MDRRMO, school-based disaster preparedness***

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## I. INTRODUCTION

Disasters are like a thief in the dark - unpredictable, disruptive, and often devastating. They come without warning, leaving vulnerable people on the verge of hopelessness. But beyond the quickness of their arrival, it is the awareness and preparedness that determine whether their impact is just a mere setback or a long-term tragedy. The inability of people and societies to effectively mitigate the impacts of hazards, whether natural, human-induced, or health-related, such as the COVID-19 pandemic is highly detrimental. They are inevitable when societies fail to prepare for, respond to, and reduce the effects of these hazards. Therefore, disasters are not solely the result of the hazard itself but also of human shortcomings in managing and adapting to these risks. Such events often lead to loss of life, displacement of communities, economic turmoil, and long-term psychological and social consequences. The widespread effects of disasters underscore the urgent need for improved preparedness, early warning systems, and resilient infrastructure to reduce vulnerability and enhance societal resilience.

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In the global context, disasters remain a pressing concern, according to United Nation for Disaster Risk Reduction (UNDRR) around 200 million people are affected annually by natural hazards such as earthquakes, floods, typhoons and droughts. Climate change has intensified the frequency and severity of these disasters, putting vulnerable groups at even greater risk. In response, the Sendai Framework for Disaster Risk Reduction (2015-2023) put greater emphasis the importance of education, awareness and preparedness as core strategies for reducing risks. Schools worldwide are increasingly recognized as critical spaces for building resilience among children and youth, who constitutes as one of the most vulnerable groups during disasters.

Being situated in the Pacific's typhoon belt, Philippines is considered as one of the most hazard-prone countries in the world. According to World Risk Index 2023, the Philippines ranked as one of the countries with the highest disaster risk globally. Every year, the nation experiences multiple typhoons, earthquakes, volcanic eruptions, and floods that cause significant loss of life, livelihood and properties. On average, about 20 typhoons visit the country every year and five of which are said to be destructive and is widely regarded as the exporter of typhoons. To address this, the Philippine government enacted Republic Act 10121, also known as the Philippine Disaster Risk Reduction and Management Act of 2010, which institutionalizes disaster risk management and mandates preparedness, response, and resilience-building measures at all levels of government and society. The Department of Education (DepEd) has likewise implemented key policies to institutionalized disaster risk management in schools. DepEd Order No.50, s.2011, established the creation of Disaster Risk Reduction and Management Office while DepEd Order No. 37, s. 2015 introduced the Comprehensive Disaster Risk Reduction and Management (DRRM) in Basic Education Framework, to ensure that schools integrate disaster awareness, preparedness and resilience into their policies and practices.

At the local level, schools serve not only as centers for learning but also as safe havens and evacuation sites during calamities. Highschool students and teachers directly exposed to the impacts of disasters, such as class suspensions, infrastructure damage and psychological stress. The effectiveness of disaster risk reduction in schools greatly depends on the awareness and preparedness of both teachers and students.

However, despite the existence of numerous policies, gaps in implementation remain at the school and community levels, particularly regarding the assessment of whether teachers and students are adequately prepared to respond during emergencies. Local Government Units (LGUs), which play a critical role in DRRM planning and execution, often rely on accurate and timely data from schools to design effective disaster awareness and preparedness interventions. Therefore, conducting a data-driven assessment of awareness and preparedness in DRRM among teachers and students provides valuable insights that can strengthen school safety, guide LGU policies, and enhance overall community resilience.

The significance of this study focuses in providing valuable insights into the current level of awareness and preparedness in Disaster Risk Reduction and Management (DRRM) among high school teachers and students. For students, the findings will help identify their strengths and gaps in disaster awareness and preparedness, and will serve as a baseline for enhancing school-based DRRM programs, drills and training sessions that empower them to actively participate and foster a culture of safety and resilience within the school community. For teachers, the study will reveal areas in need of improvement in training, policies, and practices, allowing schools to enhance safety protocols, emergency procedures, and overall readiness during disasters. For the Local Government Unit (LGU), the result of this study will provide evidence-based data to support policy making, fund allocation, and the integration of school-based DRRM initiatives into LGU's annual Disaster Risk Reduction and Management Program (DRRMP).

This research focuses specifically on high school teachers and students in one selected public high school within the locality. It examines their profiles, knowledge of disaster risks, understanding of emergency procedures, participation in drills, and readiness to respond during emergencies. The study does not include other public or private schools, nor other educational levels. Additionally, it relies on self-reported data collected through surveys and questionnaires, which may be affected by respondents' perceptions and recall bias. While the findings offer valuable insights for school-based DRRM programs and local policy planning, they may not be fully applicable to other schools or regions.

Ultimately, this study argues that assessing the awareness and preparedness in Disaster Risk Reduction and Management (DRRM) among high school teachers and students is essential for identifying both gaps and strengths in school-based disaster readiness; through a data-driven assessment, the research seeks to provide evidence that can guide the development of more effective educational programs, policies, and local government interventions to enhance resilience and ensure safety of the school community.

### **Literature Review**

This study is grounded in the principle that awareness and preparedness are interconnected factors that play an essential role in enhancing students and teachers' resilience in the face of disasters. It provides theoretical foundation for this study by presenting key ideas, concepts, and frameworks related to Disaster Risk Reduction and Management (DRRM). Thus, examines the definitions, principles, and models of disaster preparedness and awareness as well as the roles of teachers, and students in mitigating the impacts of hazards.

Having these concepts, the researcher gains a deeper understanding of the theoretical foundations that guide the assessment of awareness and preparedness in DRRM, which serves as a basis for developing the study's framework and research instruments.

Disaster preparedness and awareness among learners and teachers have become a central focus for researchers and policymakers. Schools as key spaces for building resilience among children and youth, integrating disaster awareness and preparedness into curricula, school policies, and community programs (The Sendai Framework for Disaster Risk Reduction, 2015–2030). Schools are required to establish DRRM structures and protocols such as DRRM coordinators, emergency evacuation plans, hazard mapping and preparing first aid and emergency kits. Teachers and students shall undergo regular trainings and drills on earthquake and fire response, flood and typhoon preparedness, psychological first aid and post-disaster support. DRRM concepts must be taught across all grade levels to develop risk awareness and preparedness (Republic Act 10121. 2010).

Awareness and preparedness are essential pillars of disaster resilience in schools. Institutionalizing a comprehensive, systematic, and proactive approach to disaster risk reduction and management in the basic education system ensures that all schools are prepared and resilient before during and after disasters. Schools should conduct quarterly emergency drills, develop contingency and evacuation plan, hazard mapping and risk assessment, create and display clear and laymanized evacuation maps and procedures in classrooms and common areas. Coordinate with the local government unit (LGU) for early warning dissemination, formulate a clear communication line for fast and efficient response strategy (DepEd Order No. 37, s. 2015).

According to Twigg (cited 2004), awareness is a key component in building a culture of safety and should be integrated into public education to promote risk-informed behavior. UNDRR (cited 2015) emphasizes that risk awareness among population, especially students, leads to better individual and collective decision-making in the face of disasters. As defined by Coppola (cited 2015), preparedness encompasses measures taken to ensure readiness to respond to and recover from emergencies. Asian Development Bank (cited 2013) stresses that awareness is the first step in effective disaster risk management. When communities understand the risk, they face and the potential consequences, they are better positioned to take action.

Johnson, A.B. (2016) highlights the importance of community awareness as a crucial element in disaster risk management. He emphasizes that without adequate awareness and preparedness efforts, often fail because people may not recognize risks or understand appropriate responses. UNICEF (cited 2020) put greater emphasis on the critical role of children and youth as agents of change in disaster risk reduction (DRR). Recognizing that children are among the most vulnerable during emergencies, building awareness and preparedness are not just proactive but transformative.

Preparedness involves having the necessary knowledge, skills, and resources to respond effectively to disasters. According to a study by Panda and Mohanty (2019), while many students understand the importance of disaster preparedness, fewer possess concrete plans or participate in drills and trainings. Factors influencing preparedness include school programs, family involvement, and community support (Johnson & Ronan, 2014). Garcia et al. (2020) revealed that

schools with integrated disaster risk reduction curricula reported higher levels of student preparedness.

Research indicates that students' awareness of disaster risks varies depending on factors such as geographical location, education, and exposure to disaster-related information. Al-rousan et al. (cited 2014) found that students living in disaster-prone areas demonstrated higher awareness levels compared to those in less vulnerable regions. Similarly, surveys conducted in the Philippines showed that students generally have a basic understanding of common hazards such as typhoons, floods, and earthquakes but lack comprehensive knowledge of preparedness measures (Balilo & Alampay, 2018).

Fuentes (cited 2023) illuminates the profound role of teachers in school-based disaster preparedness and recovery. Through phenomenological interviews and focus group discussions with educators in the Kidapawan City Division, Fuentes found that teachers perceive their responsibilities in disaster scenarios as both significant and honorable, prompting active involvement despite challenges. Quezada et al. (2024) examined disaster awareness and preparedness among upper elementary pupils in Davao del Sur. Utilizing a descriptive-correlational design with 186 intermediate learners, the study reported very high mean scores ( $M=4.39$ ,  $SD=0.46$ ) for both awareness and preparedness levels. A significant correlation was found between awareness and preparedness, suggesting that increased knowledge of disaster risk reduction contributes directly to students' readiness to act effectively during emergencies. This underscores the critical role of awareness-based education in strengthening school-based DRRM initiatives.

The role of formal education and awareness campaigns is vital in improving students' readiness. Numerous studies emphasize that disaster education enhances not only knowledge but also positive attitudes and behaviors towards safety (Peek, 2008). Regular drills, inclusion of DRR topics in the curriculum, and interactive learning methods were shown to increase student engagement and preparedness (Shiwaku & Fernandez, 2008).

Despite of global efforts, there remains a widespread lack of disaster awareness and understanding among students and communities. Alexander (cited 2013) argues that disaster

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education programs need to be more comprehensive, practical, and embedded in school curricula to effectively improve preparedness and resilience. Many studies have stressed the crucial roles of academic institutions in increasing students' knowledge and awareness of DRR (Nifa et al., 2018; Ivanov & Cvetkovic, 2014); Patel et al., 2023). According to the study by Tabangcura et al. (2023), the students' level of DRR awareness was assessed, highlighting it as a significant concern that schools must take into consideration

## II. METHODOLOGY

### Research Design

This study evaluates the level of awareness and preparedness among students and teachers in San Agustin National High School regarding the implementation of disaster risk reduction and management program during the school year 2025-2026, using the quantitative-descriptive research design.

A quantitative-descriptive research design is employed to determine the level of awareness and preparedness of students and teachers regarding disaster-related knowledge, preparedness, and their perceptions of the Disaster Risk Reduction and Management (DRRM) program. A structured survey questionnaire is utilized to collect measurable data, minimize bias, and ensure consistency throughout the data collection process. Subsequently, the study is guided by a single goal-to provide a clear snapshot of the current level of awareness and preparedness among students and teachers in San Agustin National High School, while identifying issues, gaps and factors that hinder the successful implementation of DRRM programs in the school. Further, such findings will be translated into data-driven DRRM improvement plan.

### Sample of the Study

The sample refers to the number of students and teachers that will be utilized in this study. The sample size, which will be determined by the number of items, individuals, or data points

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chosen to statistically represent a larger population, is a crucial determinant in research due to its direct impact on the reliability and generalizability of the results to the broader population (Coursera, 2023).

The study was conducted at San Agustin National high School, Madridejos, Cebu with target population comprises all 630 enrolled students and a total of 40 teachers during S.Y. 2025-2026.

In this study, the researchers employed stratified random sampling to ensure fair and proportional representation of both students and teachers as respondents. Stratified sampling is a probability sampling technique where the population is divided into smaller, more homogeneous groups known as strata, and samples are drawn proportionally from each group (Etikan & Bala, 2017). This method reduces sampling bias and increases the accuracy of the findings since each subgroup is adequately represented.

**TABLE 1**  
**DISTRIBUTION OF RESPONDENT GROUPS**

<b>Schools</b>	<b>Teachers</b>	<b>Learners</b>	<b>Total</b>	<b>%</b>
San Agustin National High School	40	245	285	100
<b>Total</b>	<b>40</b>	<b>245</b>	<b>285</b>	<b>100.00</b>

Table 1 represents the distribution of respondent groups at San Agustin National High School. The total population of 630 learners from Grades 7 to 10 was considered. Using Slovin's Formula at a 5% margin of error, the minimum required sample size was computed to be 245 students. To distribute this sample proportionally, the researchers allocated the respondents according to their actual enrollment per grade level:

**TABLE 2**  
**STUDENTS' POPULATION SAMPLE SIZE**

Grade Level	Population(N)	Sample size (n)
7	153	59
8	159	62
9	154	60
10	163	63
	630	245

Table 2 represents the students' population sample size. This proportional allocation ensures that each grade level is represented based on its relative size in the overall student population.

By using stratified random sampling, the study ensures that the diversity within the student population is properly captured and the census method used to ensure the complete data and avoid sampling error. This method strengthens the reliability and validity of the research results, as it minimizes the risk of over- or under-representation of any subgroup within the school.

**TABLE 3**  
**TEACHERS' POPULATION CENSUS**

Stratum	Population	Census
Teachers	40	40

Table 3 represents the teachers' respondents at San Agustin National High School. The total teacher population of 40 was also considered. A census approach was employed in data collection, allowing all teachers to be included in the study. This method ensured complete representation of the teaching staff and minimized sampling error, thereby increasing the reliability and validity of the findings. This guarantees that perspectives from all faculty groups are included, providing a comprehensive view of the school's disaster risk reduction and management (DRRM) preparedness.

The primary data had collected directly from the stakeholders particularly the students' respondents wherein they able to provide insights into their level of disaster awareness and preparedness in actual school-based scenarios. Second, the teacher respondents determining their knowledge of DRRM policies, teaching integration, and capacity to guide students during emergencies. The main instrument for gathering these data will be a structured survey questionnaire, in order to strengthen the analysis, the study also uses documentary and literature-based sources such as school documents: their School DRRM Plan, disaster drill records, safety and evacuation plans, and incident reports. Next, is the different DepEd Policies and Guidelines related to DRRM (e.g., DepEd Order No. 21, s. 2015 – DRRM in Basic Education Framework; DepEd Order No. 50, s. 2011 – Creation of DRRM Offices). Also, the Local Government DRRM Plans from the LGU Madridejos and MDRRM Office to understand how school programs align with municipal strategies. Moreover, previous studies, journals, and reports on disaster preparedness in schools to serve as theoretical support and comparative data.

## Measures

In this study, the primary method of data collection is the use of a structured questionnaire. Containing a set of pre-determined questions with fixed response options. It is designed to measure the awareness and preparedness levels of both teachers and students in relation to disaster risk reduction and management (DRRM) program implementation in San Agustin National high School.

The questionnaire was developed based on existing frameworks of disaster preparedness and aligned with the Department of Education (DepEd) policies on school safety and DRRM. It is divided into sections that assess (1) students respondents' demographic profile, (2) knowledge on building design, location of the school and the potential hazards, (3) level of awareness for the types of disasters, its causes and effects, safety measures, evacuation routes and emergency contacts and the school-based DRRM programs and initiatives and the importance of drills participations (4) and the level of preparedness on DRRM, disaster response, emergency kit or Go Bag preparation, basic first aid training and the formulation of family emergency plan. For

teachers' perspectives, it seeks to measure their (1) knowledge and awareness on schools' hazards and its underlying risk, (2) level of response to the disaster warnings and alerts, (3) disaster safety protocols, and the (4) School-based DRRM implementation.

Most items in the instrument are presented in the form of Likert-scale questions, allowing respondents to rate their level of agreement or frequency on a five-point scale ranging from *Strongly Agree (5)* to *Strongly Disagree (1)*. This type of structured format ensures uniformity of responses, facilitates ease of administration to a large number of participants, and allows the gathered data to be quantified and analyzed statistically.

The use of structured questionnaires is deemed appropriate for this study because it enables the researcher to systematically collect comparable data from a large population of students (n=245) and teachers (n=40). Responses can be aggregated, coded, and processed using statistical tools to determine the overall level of awareness and preparedness, as well as to identify gaps and areas for improvement in the school's DRRM implementation.

Content validation will be conducted by a panel of experts at Northwest Samar State University, with the instrument undergoing revisions based on their feedback.

## Procedures

The gathered data from students and teachers of San Agustin National High School were carefully processed to ensure accuracy, reliability, and alignment with the research objectives. Since the study focused on assessing awareness and preparedness for disaster risk reduction and management (DRRM), the quantitative data processing was employed. The accomplished questionnaires were collected, checked for completeness, and validated. Incomplete or inconsistent responses were excluded to maintain the integrity of the dataset.

Using the structured questionnaire, each response was assigned a numerical code to allow statistical analysis. Items using a Likert scale were coded as follows: *Strongly Agree = 5*, *Agree =*

4, *Neutral* = 3, *Disagree* = 2, *Strongly Disagree* = 1. This ensured that levels of awareness and preparedness could be quantified and compared across respondents.

The data were tabulated according to respondent type (students and teachers) and further broken down by grade level (Grades 7–10) using stratified sampling. This enabled the researcher to examine variations in awareness and preparedness across groups.

### **Data Processing**

The data collected from the teachers and students of San Agustin National High School through structured questionnaires underwent a systematic process to ensure accuracy, reliability, and alignment with the research objectives. A quantitative method was utilized to process the information. Using the following statistical tools: Frequency and Percentage Distribution – to describe the demographic profile of respondents (for teachers: age, sex, civil status, highest education attainment, years in teaching and DRRM/CCA trainings and seminars attended, for students: name, grade level, age, sex, disasters' exposure, knowledge on school building design, location and the potential hazard.), to determine the general level of awareness and preparedness of both teachers and students the researcher employs the Weighted Mean, to measure the consistency of responses within each group the researcher uses the Standard Deviation, in order to identify differences between student and teacher awareness and preparedness levels Comparative Analysis is employed.

The Chi-square test was used to assessed the significant relationship between the profile of the respondent groups and the preparedness actions of teachers and students and the relation between the level of awareness of disaster risk reduction and management (DRRM) and the preparedness actions of teachers and students. The results served as the basis for understanding the correlation among these variables.

## **Ethical Considerations**

The researcher strictly adhered to ethical principles throughout the conduct of the study. Participation of respondents was entirely voluntary, with no form of coercion or undue influence applied. Prior to the administration of the questionnaires, the purpose of the study was clearly explained to the respondents. They were informed of their right to participate voluntarily and to withdraw at any time without any liability. Further, respondents were treated with utmost respect, fairness, and protection of their rights.

All data gathered were treated with strict confidentiality. The names of the respondents were not recorded; instead, codes were assigned to ensure anonymity. This practice safeguarded the identity of the participants and ensured that the information they provided could not be traced back to them (Babbie, 2021).

The cooperation of both teachers and students was sought without coercion. They were given the freedom to decline participation if they felt uncomfortable, in compliance with ethical standards of research (Israel & Hay, 2006). The study upheld respect for the dignity, autonomy, and rights of every participant. The researchers ensured that all questions were appropriate, respectful, and relevant to the study objectives (Orb, Eisenhauer, & Wynaden, 2001).

The data collected were used solely for academic purposes. The findings were reported honestly, and no manipulation or misrepresentation of data was undertaken. After the completion of the research, data will be securely stored and disposed of in line with ethical guidelines for research integrity (American Psychological Association [APA], 2017).

## **III. RESULTS AND DISCUSSION**

This chapter presents and discusses the results of the study titled “Awareness and Preparedness in Disaster Risk Reduction and Management (DRRM) among High School Teachers and Students of San Agustin National High School, San Agustin, Madridejos, Cebu.” The data are

analyzed using Pearson's  $r$  and Chi-square test of independence to determine the relationship between the respondents' profile, level of awareness, and preparedness actions.

### **Summary of Findings**

The findings demonstrate that both awareness and preparedness are positively correlated among high school teachers and students of San Agustin National High School. Personal and demographic factors such as age, educational attainment, teaching experience, and prior disaster exposure significantly influence these levels. Moreover, the Chi-square test confirmed that awareness is significantly associated with preparedness actions, indicating that individuals who are more knowledgeable about DRRM are also more likely to be proactive in disaster situations.

These findings underscore the importance of strengthening DRRM integration in the school curriculum and institutional policies. Continuous training, regular drills, and awareness campaigns are recommended to enhance the disaster resilience of both teachers and students, ensuring a safer and more prepared learning environment.

## **IV. CONCLUSIONS**

Based on the findings of the study titled "Awareness and Preparedness in Disaster Risk Reduction and Management (DRRM) among High School Teachers and Students of San Agustin National High School, San Agustin, Madridejos, Cebu," it can be concluded that teachers' and students' awareness of DRRM is significantly influenced by their personal and demographic profiles. Also, factors such as age, educational attainment, years of teaching, grade level, prior disaster experience, and knowledge of the school's structural and environmental conditions positively affect awareness levels. Older and more experienced teachers, as well as higher-grade students with prior exposure to disasters, tend to demonstrate higher DRRM awareness. Preparedness actions of teachers and students are positively correlated with their profiles. Teachers with more experience, higher education, and greater exposure to DRRM training programs exhibit

higher preparedness, while students who are older, in higher grade levels, and knowledgeable about their school environment demonstrate stronger preparedness behaviors. Awareness is significantly associated with preparedness. Both Chi-square tests for teachers and students showed that a higher level of awareness directly corresponds to more proactive preparedness actions. This indicates that knowledge and understanding of disaster risks are crucial determinants of practical disaster readiness. There is a clear gap between awareness and actionable preparedness, particularly among students. While awareness levels are generally high, preparedness actions are moderate, highlighting the need for more frequent drills, hands-on training, and active participation in DRRM initiatives to translate knowledge into practice.

Overall, the study confirms that personal profiles, exposure to DRRM education, and prior disaster experiences play critical roles in shaping both awareness and preparedness. Strengthening DRRM programs in schools, integrating experiential learning, and conducting regular capacity-building activities are essential strategies to enhance disaster resilience among teachers and students alike

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