

**Assessment of school preparedness and challenges:
Strengthening DRR practices toward resilient institutions**

Ruby Cris D. Santos*

Cebu Technological University - San Francisco Campus, San Francisco, Cebu, Philippines

ABSTRACT

This study assessed the implementation of Disaster Risk Reduction (DRR) programs and school-based DRR interventions among elementary and secondary schools in the District of San Francisco, Camotes, Cebu for School Year 2025–2026 as basis for an Enhanced DRR Implementation and Integration Plan. A descriptive-comparative mixed-methods design was used with 26 school administrators as respondents. Data were analyzed using descriptive statistics, Spearman rank correlation, Kruskal-Wallis test, and thematic analysis. Results showed that school preparedness was generally rated “often” in prevention and mitigation (M=4.065), preparedness (M=4.177), and response (M=4.177), while recovery and rehabilitation was rated “always” (M=4.338). Challenges in safe learning facilities were rated “agree,” while school disaster management and DRR in education were rated “neutral.” No significant relationship was found between preparedness and challenges ($\rho=0.053$, $p=0.797$), and no significant differences were observed across demographic profiles. Qualitative findings revealed key challenges such as limited resources, insufficient training, and weak coordination, while coping practices included stakeholder collaboration and capacity building. Overall, the study highlights that although schools demonstrate moderate to high DRR preparedness, implementation is hindered by resource and coordination gaps, leading to the development of an Enhanced DRR Implementation Plan focused on capacity building, resource strengthening, and stakeholder engagement.

Keywords: Disaster Risk Reduction (DRR), elementary and secondary schools, resilience, implementation challenges, educational leadership, school preparedness, school safety.

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INTRODUCTION

The Philippines is among the countries most exposed to disaster hazards because of its geographic location within the Pacific Ring of Fire and the Western Pacific Typhoon Belt. This geographic condition exposes communities to recurring natural hazards, including typhoons, earthquakes, volcanic eruptions, and flooding, which significantly affect communities, infrastructure, and educational systems across the country (Pal et al., 2023). Within the

*Corresponding author / Email: rubycris.santos005@deped.gov.ph
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education sector, disasters can interrupt classes, damage facilities, restrict access to learning opportunities, and expose learners, teachers, administrators, and other school personnel to serious safety risks. These conditions emphasize the need to strengthen disaster preparedness and resilience in schools to protect members of the school community while ensuring the continuity of education during and after emergencies.

The importance of school preparedness becomes even more pronounced because schools function not only as centers of teaching and learning but also, in many communities, as temporary evacuation sites during disasters. Consequently, effective Disaster Risk Reduction and Management practices are essential to the capacity of schools to anticipate hazards, minimize their effects, respond appropriately, and recover from emergencies. Although considerable efforts have been undertaken to institutionalize DRRM programs in Philippine schools, challenges remain in their implementation, monitoring, and sustainability. Manliguez, De la Cruz, and Manliguez (2023) found that disaster preparedness and emergency response programs in Philippine schools were implemented only at a moderate level, indicating the continuing need for stronger management systems, sustained capacity building, and improved policy implementation to enhance institutional resilience.

Recognizing these concerns, the Department of Education has institutionalized disaster preparedness and response through policies requiring schools to integrate DRRM into educational planning and governance. DepEd Order No. 37, s. 2015 mandates the incorporation of DRRM systems and processes into School Improvement Plans, programs, and decision making. The importance of institutional leadership in translating these policies into actual preparedness practices is supported by Domingo Dela Cruz and Ormilla (2022), who found that school preparedness and resilience are strengthened when schools demonstrate effective leadership, coordination, and consistent implementation of DRRM policies. Thus, the existence of policies alone does not guarantee preparedness. Schools must continuously evaluate their DRRM practices to determine their capacity to prevent and mitigate disaster risks, respond effectively during emergencies, and recover afterward. Regular assessment can reveal existing strengths and weaknesses and provide an empirical basis for developing appropriate disaster preparedness strategies.

The need for systematic assessment is further supported by the theoretical foundations of disaster preparedness, resilience, and institutional collaboration. This study is anchored on the Protection Motivation Theory of Rogers (1975, 1983), the Resilience Theory of Holling (1973) and Ungar (2008), and the Social Capital Theory of Bourdieu (1986) and Putnam (1993). Collectively, these perspectives explain disaster preparedness as a process that involves individual perceptions and protective actions, institutional adaptability, and collaborative relationships among schools and their communities. Rather than viewing preparedness solely as the availability of emergency equipment or compliance with mandated procedures, these theories position school resilience as the product of informed behavior, adaptive organizational capacity, and coordinated social action.

Protection Motivation Theory explains that individuals are more likely to adopt protective behaviors when they perceive a threat as serious, recognize their vulnerability to that threat, and believe that available protective responses are effective and within their capacity to perform (Rogers, 1975, 1983). Applied to the school context, the theory suggests that teachers, students, and administrators are more likely to participate actively in DRR practices when they understand the risks posed by disasters and believe that their actions can reduce those risks. Participation in drills, preparation of evacuation plans, identification of hazards, and use of information and communication technology based alert systems therefore become more meaningful when members of the school community possess both risk awareness and confidence in their capacity to respond. This theoretical perspective underscores the

importance of disaster education and regular preparedness activities that transform awareness into protective action.

While Protection Motivation Theory explains protective behavior at the individual level, Resilience Theory provides an institutional perspective on the capacity of schools to withstand and recover from disruptive events. Holling (1973) conceptualized resilience as the capacity of systems to absorb disturbances while maintaining essential functions, while Ungar (2008) further developed the concept by emphasizing adaptation in response to adversity. In education, schools may therefore be understood as adaptive systems that must continue providing essential educational services despite emergencies. Their resilience can be strengthened through preparedness programs, capacity building initiatives, appropriate resources, responsive leadership, and community linkages. Resilience consequently involves more than returning to conditions that existed before a disaster. It also includes learning from crises and using those experiences to improve systems, practices, and institutional capacities.

Complementing these perspectives, Social Capital Theory emphasizes the role of networks, trust, cooperation, and partnerships in mobilizing resources and coordinating collective action during crises. Bourdieu (1986) and Putnam (1993) demonstrate that relationships among individuals and institutions constitute valuable resources that can be activated when communities encounter difficulties. Within school DRRM, this means that partnerships involving schools, parents, barangays, local government units, and other community organizations can improve information sharing, resource mobilization, coordination, and emergency response. The three theoretical perspectives therefore converge on the proposition that resilient schools require knowledgeable and motivated individuals, adaptive institutional systems, and strong collaborative networks. These elements provide an integrated theoretical basis for examining the preparedness of schools and the challenges affecting the implementation of DRR practices.

These theoretical foundations operate within an extensive national legal and policy framework. Republic Act 10121, otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010, established the National Disaster Risk Reduction and Management Framework and promotes an integrated, holistic, and multisectoral approach to disaster prevention, mitigation, preparedness, response, rehabilitation, and recovery. The law requires institutions, including educational organizations, to integrate disaster risk reduction into their systems and operations to protect learners and personnel. The Climate Change Act of 2009, or Republic Act 9729, likewise reinforces the importance of institutional preparedness by establishing a national framework for addressing climate related risks and strengthening adaptation. Together, these laws establish disaster risk reduction and climate resilience as institutional responsibilities rather than optional activities.

The protection of learners during emergencies is further reinforced by Republic Act 10821, otherwise known as the Children's Emergency Relief and Protection Act of 2016. Enacted on February 23, 2016, the law recognizes the urgency of protecting the safety, health, development, and overall wellbeing of children affected by natural and human induced emergencies. It supports the development of comprehensive emergency programs that protect children during and after disasters and reinforces the responsibility of schools to function as safe spaces, provide psychosocial support, and sustain educational continuity. This legal mandate demonstrates that school preparedness must address not only physical safety but also the broader educational and psychosocial needs of learners throughout an emergency.

Within the basic education sector, DepEd Order No. 37, s. 2015, entitled "Comprehensive Disaster Risk Reduction and Management in Basic Education Framework," provides the principal policy foundation for strengthening disaster preparedness and resilience.

The policy requires the integration of DRR into school operations, school planning, instructional planning, and different levels of educational governance. It emphasizes preparedness, prevention, mitigation, response, and recovery as essential considerations in decisions affecting the safety and wellbeing of learners, teachers, and other school personnel. These provisions reinforce the need for schools to continuously assess their DRR practices and compare their implementation with established standards to determine whether preparedness measures remain effective, responsive, and sustainable.

Other Department of Education issuances further operationalize this framework. DepEd Order No. 50, s. 2011 created the Disaster Risk Reduction and Management Office and assigned responsibilities related to developing guidelines, conducting training, and establishing preparedness standards for schools. DepEd Order No. 55, s. 2007 emphasized the incorporation of safety and preparedness measures into School Improvement Plans, thereby positioning disaster preparedness as a regular component of school operations rather than a separate or occasional activity. DepEd Order No. 24, s. 2008 mandated quarterly earthquake and fire drills to increase the familiarity of learners and personnel with appropriate evacuation procedures and strengthen a culture of safety within school communities.

Learner participation and institutional coordination are similarly emphasized in subsequent policies. DepEd Order No. 23, s. 2015 established student led school watching and hazard mapping activities, enabling learners to participate directly in identifying hazards and contributing to preparedness planning. Such participation can strengthen disaster awareness, responsibility, and involvement among learners before, during, and after emergencies. DepEd Order No. 21, s. 2015 further strengthened emergency coordination and communication by requiring DRRM coordinators and formal disaster response reporting mechanisms, thereby promoting accountability and more efficient coordination between schools and field offices. Taken together, Republic Act 10121, Republic Act 10821, Republic Act 9729, and the various DepEd issuances provide a comprehensive legal and administrative framework requiring schools to protect learners and personnel through proactive planning, preparedness, coordinated response, and institutional resilience.

Despite this comprehensive policy environment, implementation depends considerably on the individuals responsible for school leadership and management. Recent studies suggest that demographic characteristics of school administrators, including age, educational attainment, position, and length of administrative experience, influence leadership practices and institutional management. Tangan (2024) found that age and educational attainment were strongly associated with the leadership styles of public sector school heads. Similarly, Pandodum and Galibo (2024) identified educational attainment and length of service as important predictors of leadership styles among elementary school heads. These findings suggest that professional background and accumulated administrative experience may shape how school leaders interpret policies, allocate resources, respond to institutional challenges, and implement school improvement and disaster risk reduction initiatives.

Recent reviews further indicate that many school administrators occupy middle to later career stages and possess higher academic qualifications, reflecting increasing professionalization in educational leadership. Nevertheless, academic qualifications alone do not determine administrative effectiveness because leadership competence continues to develop through experience, professional development, and sustained exposure to school management responsibilities. School administrators therefore differ in the extent of their postgraduate preparation, administrative experience, and organizational responsibilities. Since these characteristics may influence how school improvement initiatives and DRR policies are translated into practice, examining the demographic and professional profiles of school leaders provides an important context for understanding variations in school preparedness.

Beyond leadership characteristics, the literature consistently identifies disaster preparedness as a multifaceted institutional process requiring adequate funding, regular drills, sustained training, appropriate facilities, systematic monitoring, and collaboration with community partners. Recent evaluations of DRRM implementation in Philippine public elementary schools indicate that school DRRM committees have contributed substantially to improving safety, but regular drills, simulations, and monitoring still require improvement to ensure long term effectiveness and sustainability. Studies conducted in Southeast Asia similarly suggest that schools with greater involvement in school based and project based DRR initiatives tend to exhibit higher levels of preparedness. Such schools are more likely to conduct earthquake and fire drills regularly, identify appropriate evacuation areas, and implement awareness programs for learners.

Nevertheless, the implementation of these practices remains uneven. Important gaps have been identified in the inspection and maintenance of safety facilities, which can reduce the effectiveness of preparedness measures during actual emergencies. Although many public and private schools in the Philippines now conduct emergency drills, designate evacuation areas, and provide continuing professional development activities for teachers and learners, institutionalization remains inconsistent. Challenges involving resource provision, monitoring of compliance with standards, and institutional support remain particularly evident among rural and geographically isolated schools. Thus, the expansion of DRR activities across schools demonstrates progress, but the quality, regularity, and sustainability of implementation remain important concerns.

The discrepancy between national policy requirements and actual school conditions is particularly evident in the availability and maintenance of emergency resources. Despite the Department of Education's established framework for DRR integration and regular emergency drills, many schools continue to experience shortages of first aid kits, inadequately maintained evacuation routes, and insufficient emergency preparedness and safety equipment. Physical resources such as first aid kits, fire extinguishers, emergency exits, and evacuation facilities remain fundamental indicators of school readiness because effective emergency procedures cannot be implemented fully when essential safety equipment is unavailable, inaccessible, or poorly maintained.

This concern is supported by Arcegono et al. (2024), whose study involving high school students in the Philippines found that learners possessed considerable disaster knowledge and generally demonstrated positive disaster risk reduction practices. However, significant gaps remained in emergency preparedness, particularly in relation to the availability of emergency supplies, trained first aid responders, and plans for maintaining school operations during emergencies. These findings reveal an important distinction between disaster awareness and actual preparedness. Knowledge of hazards and appropriate responses is necessary, but it must be complemented by sufficient resources, functional systems, trained personnel, and continuity plans to translate awareness into effective action.

Regular disaster drills and simulations are therefore important because they provide opportunities for both school personnel and learners to transform disaster knowledge into practiced responses. Structured and repeated preparedness training, as emphasized in international disaster frameworks, can improve awareness, response time, confidence, and coordination during emergencies. Horton et al. (2023), in an integrative review, found higher levels of preparedness among schools with comprehensive disaster preparedness programs that included regular drills, detailed emergency plans, continuous training, and collaboration with relevant external organizations. The review also revealed considerable variation in preparedness among schools because of differences in resources, planning, and program

implementation. This variation demonstrates that meaningful preparedness requires action oriented activities and sustained institutional commitment rather than mere compliance with governmental requirements.

Teacher and staff capacity represents another critical dimension of DRRM implementation. Rachman et al. (2024) reported that professional development and disaster mitigation training improved teachers' ability to develop disaster related instructional materials and integrate preparedness concepts into instruction. Similarly, Jaffar et al. (2024) observed that integrating disaster risk reduction into both instructional and noninstructional settings strengthens teachers' ability to develop disaster awareness and preparedness among learners. These findings converge on the need for continuing school based capacity building programs that equip educators to facilitate preparedness activities, communicate appropriate responses, and participate effectively in emergency operations. They also reinforce the position of the United Nations Office for Disaster Risk Reduction that disaster readiness depends on collaboration among schools, local authorities, and community members through shared hazard awareness, jointly developed emergency plans, and coordinated emergency response.

The effectiveness of these preparedness activities is closely associated with institutional resources and support. Horton et al. (2023) identified five important areas affecting school disaster preparedness, namely the availability of emergency equipment and supplies, the existence of a disaster plan, the regular practice of drills, the presence of interagency collaboration systems, and access to sufficient resources. Differences among schools in these areas contribute to substantial variations in their levels of preparedness. Domingo Dela Cruz and Ormilla (2022) likewise found that although public elementary schools implement DRRM policies, difficulties remain in resource availability, implementation monitoring, and the sustainability of preparedness efforts. Together, these findings demonstrate that effective preparedness requires more than individual awareness or isolated activities. Schools need adequate institutional support, reliable access to emergency resources, established planning and coordination mechanisms, and regular monitoring to sustain preparedness.

School leadership connects these different dimensions of preparedness because administrators are responsible for translating policies and available resources into coherent institutional practices. Research indicates that the sustainability of DRRM initiatives depends not only on material resources but also on administrative commitment, strategic planning, policy implementation, and continuous monitoring. School leaders who actively support DRRM initiatives are more likely to establish stronger preparedness systems, coordinate effectively with external organizations, and cultivate a culture of safety within their institutions. Sustained administrative commitment, regular policy review and evaluation, and continuous capacity building are therefore essential to institutionalizing disaster preparedness and maintaining the effectiveness of DRRM programs over time (Domingo Dela Cruz & Ormilla, 2022).

Taken collectively, the theoretical, legal, and empirical literature presents disaster resilient schools as institutions in which protective behavior, adaptive capacity, leadership, resources, training, and community collaboration operate together. Protection Motivation Theory explains how risk perception and confidence in protective actions influence the behavior of school stakeholders (Rogers, 1975, 1983), while Resilience Theory emphasizes the capacity of educational institutions to adapt, maintain essential functions, recover, and improve following disruptions (Holling, 1973; Ungar, 2008). Social Capital Theory further demonstrates how trust, networks, and partnerships strengthen access to resources and collective responses during crises (Bourdieu, 1986; Putnam, 1993). These theoretical propositions are reinforced by national laws and Department of Education policies that establish preparedness, learner protection, coordination, drills, hazard identification, emergency planning, and institutional accountability as essential responsibilities of schools.

At the same time, the literature reveals a persistent gap between established policy expectations and the actual capacity of schools to implement DRRM consistently. Existing studies show considerable progress in disaster education, emergency drills, teacher training, preparedness planning, hazard awareness, and partnerships with external organizations. However, problems remain in the consistency of implementation, availability and maintenance of emergency resources, continuing professional development, institutional support, monitoring, and administrative sustainability. Variations in leadership characteristics, resource availability, geographic conditions, and local implementation practices further contribute to differences in preparedness across schools. Consequently, compliance with national DRRM policies does not necessarily indicate that a school possesses the operational capacity to respond effectively to an actual disaster.

These converging findings establish the need for school specific and evidence based assessments that examine both existing preparedness practices and the challenges that constrain their implementation. Regular assessment enables educational institutions to determine whether mandated DRR measures have been translated into functional systems, identify strengths that can be sustained, recognize deficiencies requiring intervention, and formulate strategies based on actual institutional conditions. Such assessment is especially important because preparedness is not a fixed condition but a continuing process requiring leadership commitment, adequate resources, regular training, systematic monitoring, and collaboration among stakeholders.

Considering these theoretical, legal, and empirical foundations, the present study seeks to assess school preparedness and the challenges encountered in strengthening Disaster Risk Reduction practices toward the development of resilient educational institutions. It examines the extent to which DRRM practices are implemented while identifying institutional conditions and challenges that may affect preparedness, response, and recovery. Through this assessment, the study intends to provide an empirical basis for an evidence based action plan that can strengthen DRRM implementation in Basic Education. In doing so, the research responds to the continuing need to bridge the gap between established disaster preparedness policies and their sustained implementation at the school level, ultimately contributing to safer, better prepared, and more resilient learning environments capable of protecting learners, personnel, and educational continuity before, during, and after disasters.

Statement of the problem

This study assessed the level of implementation of Disaster Risk Reduction (DRR) programs and the extent of school based DRR interventions among elementary and secondary schools in the Municipality of San Francisco, Camotes, Cebu, for School Year 2025–2026 as basis for an Enhanced DRR Implementation Plan.

Specifically, it sought to answer the following research questions:

1. What is the profile of the school administrators in terms of age, educational attainment, years of administrative experience, and training attended related to DRR?
2. What is the perceived level of school preparedness in implementing Disaster Risk Reduction (DRR) programs in terms of prevention and mitigation, preparedness, response, and recovery and rehabilitation?
3. What are the challenges encountered by schools in strengthening DRR practices in terms of safe learning facilities, schools' disaster management, and DRR in education?
4. Is there a significant relationship between the perceived level of school preparedness and the challenges encountered by schools in implementing DRR practices?

5. Is there a significant difference in the level of school preparedness and the challenges encountered when grouped according to their demographic profile?
6. What are the challenges experienced by the school administrators in the implementation of the DRR Program?
7. What practices are used to address these challenges?
8. How do the qualitative findings help explain the quantitative results?
9. Based on the findings, what strengthened DRR practices can be crafted towards resilient institutions?

METHODOLOGY

This study employed a mixed-method research design to systematically examine the challenges encountered by schools in strengthening Disaster Risk Reduction (DRR) practices. The descriptive approach was utilized to present the current status of school preparedness and the issues faced in implementing DRR programs, while the correlational aspect determined the relationship between the availability of resources and the challenges experienced by teachers and administrators. This method was deemed appropriate as it allowed the researcher to collect, analyze, and interpret data objectively, providing a clear picture of existing conditions and identifying patterns or associations relevant to the study's objectives. The flow of the study began with the identification of the problem and proceeded through instrument development, validation, data gathering, and analysis, the findings of which served as the basis for formulating a Disaster Risk Reduction integration plan so that students are better equipped to respond to disasters and emergencies.

The study took place in a district located at 10°09' North latitude and 124°21' East longitude, covering a total of 15 barangays. Within its jurisdiction, the district supervises 27 elementary schools and 8 secondary schools, with a workforce of 630 teaching staff and 37 non-teaching personnel committed to delivering quality education and ensuring smooth school operations. For many years, the district has earned a solid reputation based upon the quality of academic achievement, in addition to providing a wide range of opportunities related to sports and the arts, which offer unique ways for students to showcase their diverse talents. Student athletes and performers continue to perform at an exceptional level during both division and regional competitions, while also bringing recognition and pride back to their respective schools. The district has been recognized by the state for its outstanding implementation of several programs such as School Monitoring, Evaluation and Adjustment (SMEA) and School-Based Management (SBM) as a reflection of its dedication to providing quality, innovative educational opportunities for its students. The district is committed to developing the capabilities of each student by taking a comprehensive approach to each learner's development and providing effective ways to implement educational programs.

Twenty-eight public school leaders from the given district served as the respondents in this study. These public school leaders are responsible for many aspects concerning schools; educational leaders play a vital role in running schools and implementing policies affecting schools' ability to provide students with quality instruction. The public school leaders' responsibilities also include managing resources, supervising teachers, and promoting programs that support student academic achievement and the overall development of all students. As the school leader is responsible for program implementation and decision making, they are an important source of information to help assess the level of preparation for, and the challenges faced in, improving Disaster Risk Reduction practices in schools. Based upon their feedback and input, strategies and interventions can be developed to close gaps that exist and make schools more resilient. Of the 28 respondents, 22, or 78.57%, were from elementary

schools, while 6, or 21.43%, were from secondary schools, for a total of 28 respondents representing 100.00% of the sample.

The primary instrument for data collection in this study was a structured survey research made questionnaire designed to obtain relevant information on the demographic profile of school heads, the level of school preparedness in implementing Disaster Risk Reduction programs, and the challenges encountered in strengthening DRR practices. The tool was organized into three major sections. Part I gathered demographic data about the participants and their educational background, age, job title or rank, and how long they have been in administration or have taught, if applicable; this data allowed the researcher to develop demographic characteristics of principals that are likely to affect their ability to lead and make decisions related to DRR. Part II collected data on the school's level of preparedness for implementation of DRR by gathering information on the availability of DRR related resources and facilities such as first aid kits, emergency exits, and evacuation centers, whether the schools conduct disaster preparedness activities and drills, whether they have provided training or capacity building opportunities for teachers and students, and whether they coordinate their DRR initiatives with local government or community; this allowed the researcher to assess the extent to which a school is adequately prepared and capable of responding to a disaster. Part III detailed the barriers schools face in building their capacity for DRR, grouped into four categories: (a) teacher and student awareness and competency, (b) availability and accessibility of DRR related resources, (c) implementation of school safety protocols and plans, and (d) administrative and policy support to schools; these indicators provided insight into the various obstacles encountered by schools that prevent them from developing resilient and DRR capable schools. To ensure that the questionnaire is clear, accurate, and consistent with the purpose of the study, the questionnaire was reviewed by experts in the areas of education, school leadership, and DRR prior to data collection. Where possible, the experts were Doctors of Education or holders of a similar degree, or experts in the field of Disaster Risk Reduction, and a reliability test was performed prior to the questionnaire administration to ensure that there was a high degree of agreement among respondents.

After the questionnaire was finalized and approved by both the research adviser and the Dean of Graduate Studies, the researcher secured formal permission to administer it to the selected school administrators. The questionnaires were personally distributed to the respondents within the District of San Francisco and were retrieved after three days to allow ample time for completion. To address ethical concerns, the researcher asked the respondents' permission to fill up the questionnaire, gave them the choice of not putting their name, and assured them that their responses would be treated with utmost confidentiality. Upon collection, the responses were checked for completeness and accuracy, and incomplete or invalid responses were excluded from the analysis. The validated data were then tallied, organized, and analyzed using appropriate statistical tools aligned with the study's objectives and ease of interpretation.

The researchers consistently gathered the information they needed for this study and analyzed it systematically so that the data could be analyzed and interpreted according to relevant statistical procedures in order to answer the specific questions raised. Descriptive statistics were used to describe the demographic profile of the school administrators who participated in this study, including the use of frequency counts and percentages to present a distribution of participants relative to their age, education level, number of years of administrative service, and DRR related training, the result of which was to provide a clear picture of the demographics of the participants in the study. To establish an overall level of preparedness of schools to implement Disaster Risk Reduction programs, the data were

analyzed using the mean and standard deviation. The weighted mean was applied to determine the overall implementation level of DRR in the areas of prevention and mitigation, preparedness, response, and recovery, and these were then compared for the purpose of determining variability in the responses using standard deviation. The mean and standard deviation were applied to a five point Likert scale with the range of "Never" to "Always." In addition, the challenges associated with increasing DRR practices in schools were analyzed using the same process to determine the relationships among the various indicators of challenges to safe learning environments and school disaster management and future integration of DRR into the schools' curricula. The Spearman Rank Correlation Coefficient (ρ) was used to establish the relationship between school preparedness to implement DRR and the challenges reported to be encountered, with the alpha level set at 0.05 to determine if there was a significant relationship between the two variables. The Kruskal Wallis H was used as a non parametric measure of central tendency to measure differences in school preparedness and challenges across demographic profiles, namely age, education level, and administrative experience, since the data could not be assumed to be normally distributed, and the same significance level of alpha equals 0.05 was used as the basis for acceptance or rejection of the null hypotheses. For qualitative data, content analysis was used to review the responses of participants regarding the challenges of implementing DRR. Responses were thoroughly reviewed, coded, and summarized into categories that broadly identify recurring ideas, and these categories were then summarized into broader themes. Frequency and percentage of responses were computed to identify the most frequently identified challenges, and multiple coding of responses was applied where appropriate, allowing for responses to represent more than one challenge in the study. Finally, the researchers triangulated quantitative and qualitative data in order to gain a more comprehensive understanding of the overall results of the study and substantiate the validity of the overall conclusions.

The items were presented using a Likert type scale, where the respondents selected their answers by placing a check mark in the corresponding space for each statement. For the level of school preparedness in implementing Disaster Risk Reduction programs, a scale range of 4.21 to 5.00 corresponded to the descriptive equivalent of Always, with the verbal interpretation that the resource or practice is always present and fully implemented; a scale range of 3.41 to 4.20 corresponded to Often, with the verbal interpretation that the resource or practice is often present and implemented; a scale range of 2.61 to 3.40 corresponded to Sometimes, with the verbal interpretation that the resource or practice is sometimes present and implemented; a scale range of 1.81 to 2.60 corresponded to Rarely, with the verbal interpretation that the resource or practice is rarely present or implemented; and a scale range of 1.00 to 1.80 corresponded to Never, with the verbal interpretation that the resource or practice is never present or implemented. For the challenges encountered by schools in strengthening DRR practices, a scale range of 4.21 to 5.00 corresponded to the descriptive equivalent of Strongly Agree, with the verbal interpretation that the challenge is always encountered and severely affects DRR practices; a scale range of 3.41 to 4.20 corresponded to Agree, with the verbal interpretation that the challenge is often encountered and significantly affects DRR practices; a scale range of 2.61 to 3.40 corresponded to Neutral, with the verbal interpretation that the challenge is sometimes encountered and moderately affects DRR practices; a scale range of 1.81 to 2.60 corresponded to Disagree, with the verbal interpretation that the challenge is rarely encountered and has minimal effect on DRR practices; and a scale range of 1.00 to 1.80 corresponded to Strongly Disagree, with the verbal interpretation that the challenge is never encountered and does not affect DRR practices.

RESULTS AND DISCUSSION

This chapter presents, analyzes, and interprets the data gathered from twenty-six school administrator-respondents of the study, conducted within the District of San Francisco, Camotes, Cebu. The discussion is grounded in the data collected through a structured research instrument administered to the respondents and is interpreted in direct relation to the objectives of the study, employing descriptive statistics such as frequency, percentage, mean, and standard deviation, alongside inferential statistical techniques including Spearman Rank Correlation and the Kruskal-Wallis test, complemented by qualitative content analysis of open-ended responses to enrich and validate the quantitative findings.

The demographic profile of the respondents was first examined in terms of age, educational attainment, and years of administrative experience. In terms of age, the data revealed that 1 respondent or 3.8% did not provide a response, none (0%) fell within the 21-30 age range, 4 respondents or 15.4% were between 31 and 40 years old, 9 respondents or 34.6% were between 41 and 50 years old, 11 respondents or 42.3% were between 51 and 60 years old, and 1 respondent or 3.8% was 61 years old and above, for a total of 26 respondents or 100%. This distribution indicates that the majority of the surveyed school administrators were in their fifties, followed closely by those in their forties, suggesting that most administrators in the district were experienced individuals who had reached mid-career or late-career status in their positions. This pattern is consistent with the observation of Montecinos et al. (2022) that the concentration of administrators within a similar age bracket reflects the typical career trajectory of principals, who generally accumulate years of teaching and leadership experience before assuming administrative roles. These findings suggest that sustained leadership development programs, succession planning, mentoring systems, and targeted training on disaster recovery support are necessary to ensure continuity and innovation within school district administrative leadership, and future studies may examine how the diversity of ages among school district leaders influences their capacity to implement disaster recovery supports effectively.

With respect to educational attainment, 1 respondent or 3.8% did not provide a response, 3 respondents or 11.5% held a Bachelor's degree, 13 respondents or 50.0% had earned Master's units, 4 respondents or 15.4% held a Master's degree, 3 respondents or 11.5% had earned Doctoral units, and 2 respondents or 7.7% held a Doctoral degree, for a total of 26 respondents or 100%. These results indicate that most respondents have pursued graduate studies, reflecting a generally high level of academic preparation among the school administrators. This finding aligns with the work of Bartanen et al. (2024), who found that school leadership is typically held by experienced educators who progress through years of teaching and instructional service before assuming administrative positions, with experience playing a key role in strengthening instructional supervision, school management, and decision-making skills. Similarly, Bastian and Drake (2023) emphasized that effective school leadership is closely linked to professional growth and sustained experience rather than early-career appointment. These findings imply that strengthening opportunities for continuous professional development, particularly in DRR-related leadership training, and encouraging the completion of postgraduate studies aligned with school safety and disaster preparedness may further enhance the capacity of school administrators.

In terms of years of administrative experience, 1 respondent or 3.8% did not provide a response, 4 respondents or 15.4% had 1-5 years of experience, 5 respondents or 19.2% had 6-10 years, 5 respondents or 19.2% had 11-15 years, 3 respondents or 11.5% had 16-20 years, and 8 respondents or 30.8% had 21 years and above of administrative experience, for a total of 26 respondents or 100%. The highest proportion of respondents therefore belonged to those

with 21 years and above of experience, followed closely by those with 6-10 years and 11-15 years of experience, indicating that most administrators are seasoned professionals with strong exposure to school management, policy implementation, and institutional leadership. This finding is supported by Montecinos et al. (2022), who noted that school administrators typically obtain their positions through years of teaching and leadership preparation, and by Bartanen et al. (2024), who observed that administrators continue to improve their leadership capacity as they gain more years of experience. Striepe and Cunningham (2022) and Chua Reyes et al. (2022) further emphasized that seasoned school leaders are expected to provide critical leadership during crises, including coordinating efforts, making decisions, and ensuring continuity of learning during disruptions. However, Faizuddin et al. (2022) cautioned that experience alone is insufficient, and that ongoing professional development remains essential for school leaders to adapt to emerging technologies, digital systems, and evolving demands in school leadership. These implications point to the need for continued investment in professional development programs addressing DRR, digital leadership, and crisis management to maintain administrative flexibility as new challenges emerge.

Regarding trainings attended related to Disaster Risk Reduction, the data show that School Disaster Management was attended by 20 respondents or 76.9% of the sample, ranking first among the training areas, followed by Basic DRR Awareness and Orientation with 17 respondents or 65.4% (rank 2), Hazard-Specific Preparedness Training with 15 respondents or 57.7% (rank 3), DRR in Education and Curriculum Integration with 13 respondents or 50.0% (rank 4), Leadership and Community Engagement in DRR with 12 respondents or 46.2% (rank 5), Safe Learning Facilities and Structural Safety with 11 respondents or 42.3% (rank 6), Emergency Response and Life-Saving Skills with 10 respondents or 38.5% (rank 7), Climate Change Adaptation and Environmental Management with 10 respondents or 38.5% (rank 7), Monitoring, Evaluation, and Continuous Improvement with 9 respondents or 34.6% (rank 8), and Psychosocial Support and Child Protection with only 6 respondents or 23.1% (rank 9), the least frequently attended training. These results suggest that foundational DRR training is broadly attended among the respondents, while specialized and technical training areas, particularly psychosocial support, remain comparatively underrepresented. This pattern is consistent with Hodson et al. (2024), who found that DRR capacity-building in schools often prioritizes foundational preparedness such as emergency response procedures and basic safety training, while more specialized components like psychosocial support, long-term resilience planning, and system monitoring receive less emphasis, and who further argued that training integrating both operational and psychosocial components strengthens school community resilience more effectively. Bartanen et al. (2024) also noted that barriers such as limited institutional resources, competing administrative priorities, and the absence of a sustained professional development system continue to constrain the provision of advanced DRR training in many school settings. These findings imply that the Department of Education and its divisions should expand DRR training programs to include psychosocial support and climate change adaptation components, while establishing ongoing, inclusive, and specialized capacity-building programs for school administrators.

The perceived level of school preparedness in implementing DRR programs was examined across four domains, namely prevention and mitigation, preparedness, response, and recovery and rehabilitation. In terms of prevention and mitigation, the overall mean was 4.065 with a standard deviation of 0.536, interpreted as Often, indicating that prevention and mitigation strategies are implemented frequently but not always. Among the specific indicators, the maintenance of a current and regularly updated School Disaster Risk Reduction and Management Plan obtained the highest mean of 4.462 (SD = 0.508), interpreted as Always, followed by the presence of clear policies to prevent accidents and reduce risks during school activities with a mean of 4.308 (SD = 0.679), also interpreted as Always. Other indicators rated

as Often included the preparation and prominent display of hazard maps such as flood zones, landslide risks, and earthquake-prone areas ($M = 4.115$, $SD = 0.909$), the conduct of periodic risk assessments ($M = 4.038$, $SD = 0.720$), the routine inspection of electrical systems, fire exits, and structural elements ($M = 4.038$, $SD = 0.720$), the availability of adequate fire safety equipment ($M = 3.731$, $SD = 0.778$), compliance of classrooms and facilities with DepEd and LGU safety standards ($M = 3.962$, $SD = 0.774$), the freedom of school premises from major physical hazards ($M = 4.154$, $SD = 0.675$), the visibility of warning signs, hazard labels, evacuation routes, and safety reminders ($M = 3.846$, $SD = 0.834$), and the active practice of environmental risk-reduction measures such as tree planting and drainage maintenance ($M = 4.000$, $SD = 0.748$). These results suggest general compliance with minimum standards for prevention and mitigation, though infrastructure safety improvements, periodic risk assessment procedures, hazard sign visibility, and emergency equipment availability warrant further attention. This is consistent with Widowati et al. (2023), who found that schools with structured DRR education embedded in governance, curriculum, and management systems are better able to coordinate their preparedness activities, and with Mutch (2023), who emphasized that collaborative partnerships among educators, students, families, and community stakeholders strengthen school resilience. Hodson et al. (2024) further noted that while DRR training increases awareness and response capacity, the overall effectiveness of school resilience programs depends on sustained, holistic training incorporating both operational and psychosocial elements.

In terms of preparedness, the overall mean was 4.177 with a standard deviation of 0.887, interpreted as Often. Indicators rated Always included the regular conduct of emergency drills such as earthquake, fire, and tsunami drills in accordance with DepEd guidelines ($M = 4.692$, $SD = 0.471$), the establishment of a designated School DRRM Team with clearly defined roles and responsibilities ($M = 4.538$, $SD = 0.582$), the clear identification and familiarity of evacuation routes among students and teachers ($M = 4.385$, $SD = 0.637$), the receipt of DRRM-related training by teachers and staff such as first aid, earthquake readiness, and fire safety ($M = 4.308$, $SD = 0.736$), and the proper maintenance of updated emergency contact information for the LGU, MDRRMO, and parents ($M = 4.269$, $SD = 1.373$). Indicators rated Often included student orientation on disaster preparedness at the start of the academic year ($M = 4.154$, $SD = 1.405$), the incorporation of disaster preparedness concepts into classroom instruction such as *Edukasyon sa Pagpapakatao* and Science ($M = 4.154$, $SD = 1.405$), parental engagement in DRRM initiatives ($M = 3.846$, $SD = 1.347$), the operational reliability of communication tools such as bells and megaphones ($M = 3.808$, $SD = 1.415$), and the availability and accessibility of emergency supplies including first aid kits, hygiene items, flashlights, and whistles ($M = 3.615$, $SD = 1.388$). These findings align with Horton et al. (2023), who identified regular drills, skilled staff, structured emergency plans, and partnerships with external organizations as essential components of effective disaster preparedness, and with Widowati et al. (2023), who emphasized that integrating DRR into school governance, planning, and curricula enhances the effectiveness of comprehensive school safety practices. The results imply a continuing need to strengthen resources, communication networks, and stakeholder engagement despite the generally strong preparedness demonstrated across the other indicators.

In terms of response, the overall mean was 4.177 with a standard deviation of 0.952, interpreted as Often. Indicators rated Always included effective coordination with the LGU, MDRRMO, BFP, PNP, and barangay officials during emergency operations ($M = 4.577$, $SD = 0.578$), efficient and well-organized communication among teachers, school leaders, and students during crisis situations ($M = 4.500$, $SD = 0.648$), the availability of qualified first aid personnel to attend to minor injuries ($M = 4.462$, $SD = 0.706$), and student awareness of

appropriate emergency actions such as duck-cover-hold and proper use of fire exits ($M = 4.269$, $SD = 1.343$). Indicators rated Often included the security, spaciousness, and accessibility of identified evacuation sites ($M = 4.154$, $SD = 1.377$), the conduct of accountability processes such as student headcounts and class checklists during evacuations ($M = 4.115$, $SD = 1.336$), the demonstrated ability of teachers and staff to execute emergency procedures with composure and efficiency ($M = 4.000$, $SD = 1.386$), the availability of critical emergency materials such as first aid kits, water, radios, and batteries ($M = 4.000$, $SD = 1.131$), the prompt activation of emergency warning systems such as alarms, bells, and public address systems ($M = 3.885$, $SD = 1.336$), and the implementation of a uniform evacuation protocol whenever disasters occur ($M = 3.808$, $SD = 1.600$). These results indicate that schools possess a strong capacity to respond to emergencies, particularly in communication and inter-agency coordination, though variability remains in the consistency of operational emergency preparedness mechanisms. This is consistent with Mutch (2023), who found that schools incorporating disaster response preparedness into their operations build greater community resilience and social capital, with Opabola and Galasso (2024), who noted that comprehensive and scenario-based disaster planning improves preparedness, coordination, and continuity of educational services, and with Nielo (2024), who observed that disaster communication plans incorporating training programs support improved coordination between school personnel and stakeholders.

In terms of recovery and rehabilitation, the overall mean was 4.338 with a standard deviation of 0.563, interpreted as Always, the highest among the four domains. Indicators rated Always included the implementation of learning continuity strategies such as modular instruction, temporary learning spaces, and blended learning following disruptions ($M = 4.654$, $SD = 0.485$), the conduct of immediate cleaning and debris-clearing activities after disaster events ($M = 4.615$, $SD = 0.571$), the proper recording of damages and submission of accurate reports to DepEd and LGU offices ($M = 4.538$, $SD = 0.647$), the strengthening of collaboration with community partners such as the PTA, LGU, and NGOs to support recovery efforts ($M = 4.462$, $SD = 0.706$), the utilization of insights from past disasters to enhance the DRRM plan ($M = 4.385$, $SD = 0.697$), the maintenance of a post-disaster recovery plan to ensure the safe resumption of classes ($M = 4.308$, $SD = 0.788$), the conduct of after-action reviews to evaluate the effectiveness of emergency response ($M = 4.308$, $SD = 0.736$), and the regular monitoring and addressing of the needs of affected learners regarding food, school supplies, and uniforms ($M = 4.231$, $SD = 0.765$). Indicators rated Often included the extension of psychosocial support to learners and staff by guidance counselors and teachers ($M = 4.000$, $SD = 0.980$) and the undertaking of repairs of classrooms and school facilities without delay after a disaster ($M = 3.885$, $SD = 0.816$). These findings suggest that schools in the district demonstrate substantial readiness in post-disaster recovery practices, consistent with UNDRR (2022), which emphasized that developing recovery plans and working collaboratively with stakeholders improves the resilience of education systems, with Mutch (2023), who noted that schools with strong community resilience and social capital are more successful in recovery efforts, and with Opabola and Galasso (2024), who found that scenario-based recovery planning minimizes disruption to learning. The results nonetheless point to a continuing need to strengthen psychosocial and social support services as well as facility rehabilitation processes.

The challenges encountered by schools in strengthening DRR practices were examined in terms of safe learning facilities, school disaster management, and DRR in education. In terms of safe learning facilities, the overall mean was 3.550 with a standard deviation of 0.876, interpreted as Agree, indicating a moderate to high level of challenge. The indicator with the highest mean was the need for structural improvements in certain classrooms or buildings to comply with safety standards ($M = 4.192$, $SD = 0.981$), followed by the shortage of fire extinguishers, alarm systems, and other essential emergency equipment ($M = 4.077$, $SD = 0.977$), limited financial resources to upgrade facilities for disaster preparedness and safety (M

= 3.962, SD = 0.871), insufficient safety signage, floor markings, and hazard labels (M = 3.885, SD = 0.864), and weather-related threats such as flooding, strong winds, and extreme heat compromising the safety of school buildings and grounds (M = 3.654, SD = 1.198), all interpreted as Agree. Indicators interpreted as Neutral included facilities not being fully accessible for learners with disabilities during emergencies (M = 3.308, SD = 1.192), unresolved maintenance concerns such as faulty wiring, damaged roofing, and poor drainage (M = 3.308, SD = 1.225), overcrowded classrooms making emergency evacuation more challenging (M = 3.231, SD = 1.142), evacuation pathways being blocked, unclear, or poorly maintained (M = 2.962, SD = 1.280), and the presence of physical hazards such as scattered debris, unstable trees, or slippery surfaces (M = 2.923, SD = 1.294). These results reflect the important role of infrastructure and financial constraints as barriers to creating safe and resilient learning environments, consistent with Opabola et al. (2023), who found that schools in disaster-prone, resource-limited areas struggle to construct and maintain disaster-resilient buildings, with Fernández et al. (2023), who emphasized the need to prioritize infrastructure improvements for vulnerable schools in low- and middle-income countries, and with Mir et al. (2024), who noted that deficiencies in school infrastructure and resources significantly decrease schools' ability to respond effectively to hazards.

In terms of school disaster management, the overall mean was 2.816 with a standard deviation of 1.079, interpreted as Neutral, indicating that respondents did not perceive this area as a major source of difficulty. The most highly rated concerns, though still within the Neutral range, were the SDRRM plan being outdated or lacking essential components (M = 3.038, SD = 1.216), incomplete or infrequently checked emergency kits (M = 2.962, SD = 1.311), the absence of adequate emergency communication tools such as megaphones and radios (M = 2.962, SD = 1.371), and insufficient DRRM training received by teachers and staff (M = 2.960, SD = 1.241). Other Neutral indicators included infrequent emergency drills due to time limitations or lack of resources (M = 2.808, SD = 1.297), time constraints making it challenging for teachers to prioritize DRRM activities alongside academic responsibilities (M = 2.808, SD = 1.234), limited parental and community involvement in DRRM initiatives (M = 2.808, SD = 1.415), minimal or inconsistent collaboration with the LGU, MDRRMO, and other relevant agencies (M = 2.654, SD = 1.129), and unclear duties and responsibilities of DRRM team members during emergencies (M = 2.615, SD = 1.203), while poor documentation of disasters, drills, and related incidents received the lowest mean and was interpreted as Disagree (M = 2.577, SD = 1.301), indicating that this was not viewed as a significant challenge by respondents. These results indicate that while school disaster management challenges do not rank highly in severity, there remain aspects requiring improvement in training, planning, and resource availability, consistent with Mutch (2023), who emphasized that effective DRR requires coordinated plans and clearly defined institutional responsibilities, with Manliguez et al. (2023), who found that even schools with moderate implementation of disaster preparedness exhibit planning and coordination weaknesses requiring consistent monitoring and policy enhancement, and with Dela Cruz and Ormilla (2022), who characterized successful school DRRM programs by personnel training, safety practices, and agency-wide planning.

In terms of DRR in education, the overall mean was 2.871 with a standard deviation of 1.034, interpreted as Neutral, suggesting moderate to minimal concerns regarding the integration of DRR into classroom instruction. The highest-rated indicators, still within the Neutral range, were the difficulty of adapting DRR lessons to local community hazards and risks (M = 3.000, SD = 1.200) and the absence of structured assessment tools to evaluate students' understanding of DRR (M = 2.962, SD = 1.183), followed by parents or guardians seldom reinforcing disaster preparedness lessons at home (M = 3.077, SD = 1.093), the rare

organization of DRR-focused activities such as contests, awareness campaigns, and classroom programs ($M = 2.880$, $SD = 1.201$), limited teaching resources related to DRR such as modules, visual aids, and manuals ($M = 2.840$, $SD = 1.143$), some students not taking emergency drills seriously ($M = 2.808$, $SD = 1.132$), the curriculum providing insufficient time to thoroughly discuss DRR concepts ($M = 2.760$, $SD = 1.200$), DRR principles not being regularly incorporated into classroom instruction ($M = 2.680$, $SD = 1.215$), teachers feeling inadequately prepared to teach DRR topics ($M = 2.680$, $SD = 1.215$), and students demonstrating limited knowledge of appropriate emergency responses such as duck-cover-hold ($M = 2.680$, $SD = 1.249$). These findings are consistent with Rosanti et al. (2025), who identified competent teachers, adequate systemic support, and curriculum integration as key elements of effective DRR education, with Tyas et al. (2025), who found that limited teacher training, instructional materials, and competing educational priorities hinder DRR policy implementation, and with Dwitarachmi et al. (2026), who found that experiential approaches such as simulations, drills, and hands-on activities are the most effective means of building student resilience.

The relationship between the perceived level of school preparedness and the challenges encountered by schools in implementing DRR practices was examined using Spearman Rank Correlation, which yielded a coefficient of 0.053 with a p-value of 0.79751, interpreted as a very weak or negligible and statistically non-significant correlation. Since the p-value exceeded the 0.05 level of significance, the null hypothesis was accepted, indicating that there is no statistically significant relationship between the level of school preparedness and the challenges encountered by schools in implementing DRR practices. This finding suggests that preparedness levels are not statistically dependent on the challenges schools experience during DRR implementation. This result is consistent with Yang et al. (2025), who found that integrating DRR into education policy, school governance, and institutional management strengthens preparedness independent of operational difficulties provided adequate teacher training and resources are allocated, with Daminar and Cabonce (2026), who concluded that governance practices such as strong leadership, institutional planning, effective resource management, and community engagement are essential for sustaining preparedness despite continuing challenges, and with Dalangin (2025), who identified good governance practices including transparency, accountability, stakeholder involvement, and consistent policy implementation as the baseline of effective disaster risk reduction systems in educational institutions.

Significant differences in the level of school preparedness and challenges encountered when respondents were grouped according to demographic profile were examined using the Kruskal-Wallis test across age group, educational attainment, and years of administrative experience. When grouped according to age group, the level of school preparedness yielded $H(\chi^2) = 3.226$ with a p-value of 0.52078, and the challenges encountered by schools yielded $H(\chi^2) = 3.249$ with a p-value of 0.51701, both at $\alpha = 0.05$; since both p-values exceeded the significance level, the null hypothesis was accepted for both variables, indicating no statistically significant difference in either school preparedness or challenges encountered when grouped by age. When grouped according to educational attainment, the level of school preparedness yielded $H(\chi^2) = 3.828$ with a p-value of 0.57443, and the challenges encountered yielded $H(\chi^2) = 2.021$ with a p-value of 0.84630, both exceeding the 0.05 significance threshold, resulting in acceptance of the null hypothesis for both variables and indicating no statistically significant difference based on educational attainment. When grouped according to years of administrative experience, the level of school preparedness yielded $H(\chi^2) = 3.235$ with a p-value of 0.66383, and the challenges encountered yielded $H(\chi^2) = 4.510$ with a p-value of 0.47856, both above the 0.05 significance level, again resulting in acceptance of the null hypothesis and indicating no statistically significant difference according to years of administrative experience. Collectively, these results indicate that DRR preparedness and

implementation challenges remain fairly consistent regardless of the demographic characteristics of school administrators, suggesting that institutional policies, standardized DRR guidelines, and mandated training programs exert a stronger influence than individual demographic factors. This is supported by Cresencio and Yabut (2023), who found that successful DRR implementation depends more on consistently applied institutional policies and coordinated school-wide practices than on individual administrator characteristics, by Alarte (2024), who emphasized that collaborative leadership and consistent capacity-building reinforce DRRM policy implementation regardless of individual qualifications, and by Dalangin (2025), who concluded that good governance, standardized DRRM frameworks, and organizational commitment support consistency in preparedness and implementation across administrators.

Qualitative data gathered through open-ended responses were analyzed using content analysis, wherein responses were reviewed, coded according to recurring ideas, grouped into categories, and further synthesized into broader themes, with multiple coding applied where responses reflected more than one category, and frequencies calculated to identify the most common responses in relation to the research objectives. The categories of challenges experienced by school administrators in implementing the DRR Program revealed that lack of resources, funding, and supplies was the most frequently reported challenge, cited by 19 respondents or 73.1% of the sample, specifically respondents 1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 21, 22, 23, 24, and 26. This was followed by insufficient training and skills, cited by 8 respondents or 30.8% (respondents 2, 4, 7, 9, 10, 11, and 16), facilities and infrastructure issues, cited by 6 respondents or 23.1% (respondents 9, 11, 13, 15, and 20), low awareness and participation, cited by 5 respondents or 19.2% (respondents 8, 9, 11, 19, 24, and 26), weak communication and coordination, cited by 4 respondents or 15.4% (respondents 7, 8, 14, 20, and 24), environmental and contextual challenges, cited by 2 respondents or 7.7% (respondents 7 and 26), psychological and emotional factors, cited by 2 respondents or 7.7% (respondents 5 and 7), limited manpower, cited by 1 respondent or 3.8% (respondent 4), and space constraints, cited by 1 respondent or 3.8% (respondent 17), while 2 respondents or 7.7% (respondents 6 and 25) reported no challenges. These findings are consistent with Daminar and Cabonce (2026), who found that inadequate financial resources, limited facilities and equipment, and lack of institutional support significantly constrain DRR implementation, with Alarte (2024), who identified ongoing capacity building, logistical support, and stakeholder collaboration as necessary for enhancing disaster preparedness, and with Dalangin (2025), who emphasized that effective DRR implementation depends on governance, policy enforcement, institutional resources, and sustained organizational commitment.

Thematic analysis of these challenges yielded seven overarching themes. The first theme, Resource and Capacity Constraints, encompassed the categories of lack of resources, funding, and supplies, insufficient training and skills, and limited manpower, describing limitations in financial resources, materials, and trained personnel necessary for effective DRR implementation. The second theme, Infrastructure and Facility Limitations, encompassed facilities and infrastructure issues and space constraints, reflecting how physical conditions and limited space hinder safe and efficient DRR practices. The third theme, Organizational and Communication Gaps, encompassed weak communication and coordination, describing how inadequate communication systems and delayed information affect DRR implementation. The fourth theme, Stakeholder Engagement and Awareness Issues, encompassed low awareness and participation, reflecting reduced effectiveness of DRR programs due to limited stakeholder engagement. The fifth theme, Environmental and Contextual Challenges, encompassed environmental and contextual challenges such as flooding and climate-related risks disrupting

DRR implementation. The sixth theme, Psychosocial and Behavioral Challenges, encompassed psychological and emotional factors affecting decision-making during emergencies. The seventh theme, Minimal or No Reported Challenges, encompassed the category of no challenges reported, reflecting that some respondents perceive DRR implementation as manageable or already well established. These thematic findings indicate that insufficient resources and capacity, limited infrastructure, and organizational gaps are the primary challenges faced by school administrators, consistent with Alarte (2024), who found that inadequate institutional resources and limited organizational capacity remain major barriers to DRR implementation, with Dalangin (2025), who emphasized the necessity of strong governance and sustained institutional support, and with Daminar and Cabonce (2026), who highlighted that limitations in financial resources, personnel, and logistical support continue to adversely affect the implementation of the Disaster Risk Reduction and Management Act within Philippine schools. Additional support for the infrastructure and stakeholder engagement themes was drawn from Cresencio and Yabut (2023), who emphasized coordinated institutional effort and active stakeholder participation, and from Yang et al. (2025), who stressed the importance of coordination, communication systems, and stakeholder engagement in sustaining DRR implementation, while the environmental and psychosocial themes were supported by Mutch (2023), who emphasized the role of social capital and psychosocial preparedness in disaster response, and by Rosanti et al. (2025), who highlighted the need to address environmental hazards alongside behavioral readiness.

The practices used by school administrators to address these challenges revealed that stakeholder coordination and partnership was the most frequently reported practice, cited by 16 respondents or 61.5% (respondents 1, 3, 8, 11, 13, 14, 15, 16, 18, 20, 21, 22, 23, 25, and 26), followed by resource mobilization and utilization, cited by 10 respondents or 38.5% (respondents 2, 3, 10, 11, 12, 13, 20, and 24), capacity building and training, cited by 8 respondents or 30.8% (respondents 2, 7, 9, 10, 11, and 13), planning and policy integration, cited by 5 respondents or 19.2% (respondents 6, 7, 8, 9, and 14), safety practices and drills, cited by 3 respondents or 11.5% (respondents 4, 13, and 19), establishing DRR structures and programs, cited by 2 respondents or 7.7% (respondents 9 and 15), communication practices, cited by 2 respondents or 7.7% (respondents 6 and 14), leadership and governance, cited by 2 respondents or 7.7% (respondents 15 and 26), psychological preparedness, cited by 1 respondent or 3.8% (respondent 5), and classroom-level management strategies, cited by 1 respondent or 3.8% (respondent 17). These results indicate that schools primarily rely on cooperation, training, and resource efficiency to overcome DRR-related challenges, consistent with Cresencio and Yabut (2023), who found that coordinated efforts among school personnel, local communities, and stakeholders enable schools to mobilize resources and carry out preparedness efforts more effectively, with Alarte (2024), who noted that ongoing capacity-building initiatives and collaborative leadership improve schools' preparedness and response ability, with Dalangin (2025), who concluded that effective DRRM implementation is sustained through governance, stakeholder involvement, and resource management, and with Yang et al. (2025), who emphasized that coordinated leadership, inter-agency collaboration, and strategic resource utilization strengthen institutional resilience.

Thematic analysis of these practices produced six interconnected themes. The first theme, Collaborative and Stakeholder-Driven DRR Implementation, encompassed stakeholder coordination and partnership, reflecting schools' reliance on coordination with LGUs, barangay officials, NGOs, and other stakeholders. The second theme, Capacity Building and Continuous Training, encompassed capacity building and training, reflecting schools' strengthening of preparedness through regular training, drills, and capability-building activities. The third theme, Resource Maximization and Mobilization, encompassed resource mobilization and utilization, reflecting schools' efforts to efficiently use available resources and seek additional

external support. The fourth theme, Institutionalization through Planning and Policy, encompassed planning and policy integration and the establishment of DRR structures and programs, reflecting the integration of DRR into school plans and policies such as School Improvement Plans. The fifth theme, Operational and Safety Practices, encompassed safety practices and drills, reflecting practical measures such as inspections and safety procedures implemented to ensure readiness. The sixth theme, Leadership and Behavioral Readiness, encompassed leadership and governance, psychological preparedness, and classroom-level management strategies, reflecting how leadership, coordination, and individual preparedness contribute to effective DRR implementation. These findings validate the significance of partnerships, training, and institutional capacity building in DRR, consistent with Cresencio and Yabut (2023), who identified partnerships, coordinated governance, and ongoing capacity building as major contributing factors to successful DRR implementation, with Alarte (2024), who found that regular training, collaborative leadership, and systematic policy implementation enhance both individual competencies and organizational readiness, and with Dalangin (2025), whose findings similarly affirmed the importance of effective DRRM governance.

The integration of qualitative and quantitative findings provided further explanation and validation of the statistical results. The overall mean of 4.065 for prevention and mitigation, interpreted as Often, was explained by the themes of Resource and Capacity Constraints and Organizational and Communication Gaps, revealing that resource limitations and coordination issues prevent full and consistent implementation despite frequent practice. The overall mean of 4.177 for preparedness, interpreted as Often, was supported by the themes of Capacity Building and Continuous Training and Collaborative and Stakeholder-Driven DRR Implementation, indicating that training and stakeholder collaboration actively strengthen school readiness despite existing constraints. The overall mean of 4.177 for response, interpreted as Often, was reinforced by the themes of Operational and Safety Practices and Leadership and Behavioral Readiness, explaining the consistent response capabilities demonstrated by schools through drills, safety procedures, and leadership. The overall mean of 4.338 for recovery and rehabilitation, interpreted as Always, was supported by the themes of Resource Maximization and Mobilization and Collaborative and Stakeholder-Driven DRR Implementation, indicating that resource mobilization and partnerships enable schools to resume operations effectively after disasters. The challenges in DRR implementation, with mean ranges from 3.550 to 2.816 corresponding to interpretations from Agree to Neutral, were expanded upon by the themes of Resource and Capacity Constraints, Infrastructure Limitations, and Stakeholder Engagement Issues, which identified specific issues such as lack of funding, inadequate facilities, and limited stakeholder participation. The non-significant relationship between preparedness and challenges, with $p = 0.053$ and $p = 0.79751$, was explained by the theme of Common Systemic Challenges Across Schools, indicating that the absence of a significant relationship reflects shared challenges experienced across schools regardless of preparedness level. Similarly, the non-significant differences by demographic profile, with p -values exceeding 0.05 across age, educational attainment, and years of administrative experience, were explained by the theme of Shared Experiences and Practices Across Respondents, indicating that challenges and practices are common across all demographic groups.

This integration of findings supports the conclusion that prevention and mitigation ($M = 4.065$), preparedness ($M = 4.177$), and response ($M = 4.177$) were all rated as often implemented, while recovery and rehabilitation received the highest level of implementation at always implemented ($M = 4.338$). Conversely, challenges were rated from neutral to agreeable,

with means ranging from 2.816 to 3.550, indicating that respondents experienced moderate difficulty in implementing solutions, while the correlation analysis revealed a non-significant relationship ($\rho = 0.053$, $p = 0.79751$) and no significant differences were observed across demographic profiles. These findings are consistent with Vicencio and Quiñones (2025), who found that many schools operate functioning DRR systems aligned with national frameworks despite resource constraints and operational limitations continuing to hinder effectiveness, and with Dalangin (2025), who emphasized that sound governance, institutional commitment, and adequate resource allocation remain essential despite persistent disparities in organizational capacity and financial resources. At the same time, Rosanti et al. (2025) found that continuous implementation of DRR strategies depends on collaborative efforts, school commitment, and adequate resources for sustainable resilience, while Goswami and Ahmad (2025) concluded that DRR implementation requires established policies, resilient infrastructure, continuous capacity building, and strong stakeholder participation, with contextual limitations continuing to shape implementation across institutions.

Taken together, these findings demonstrate that DRR implementation among schools in the District of San Francisco, Camotes, Cebu is largely a function of institutional systems, governance structures, and standardized policies rather than the demographic or individual characteristics of school administrators. Schools in the district exhibit strong preparedness across prevention and mitigation, preparedness, response, and particularly recovery and rehabilitation, supported by collaborative stakeholder engagement, ongoing capacity building, and effective resource mobilization, even as they continue to confront challenges rooted in limited funding, infrastructure deficiencies, and gaps in specialized training and stakeholder participation. The absence of a statistically significant relationship between preparedness and challenges, together with the absence of significant demographic differences, reinforces the understanding that these are systemic rather than individual issues, underscoring the need for continued institutional investment in resources, training, and coordination mechanisms rather than reliance on the particular profile of the administrator in charge. These results directly address the study's objectives of describing the demographic profile of respondents, assessing the perceived level of school preparedness, identifying the challenges encountered in DRR implementation, examining the relationship between preparedness and challenges, testing for significant differences according to demographic profile, and integrating qualitative findings to enrich the quantitative results. Collectively, they contribute to the broader field of school-based disaster risk reduction by affirming the centrality of institutional governance, stakeholder collaboration, and sustained capacity building in strengthening school resilience, and they provide the empirical and thematic foundation upon which the subsequent chapter develops an Enhanced Disaster Risk Reduction Implementation and Integration Plan aimed at addressing the identified resource, infrastructure, and training gaps while sustaining the strong preparedness and recovery practices already demonstrated by schools in the district.

CONCLUSION

The findings of this study collectively demonstrate that Disaster Risk Reduction has evolved from a mere compliance requirement into an integral component of daily school operations within the District of San Francisco, Camotes, Cebu. School administrators, most of whom fall within the 41 to 60 age group and possess extensive administrative experience alongside master's level education, have consistently sustained the four core functions of prevention and mitigation, preparedness, response, and recovery and rehabilitation. This continuity indicates that DRR practices are no longer treated as isolated or occasional undertakings but as ongoing responsibilities carried out in fulfillment of government policy directives and in direct response to the persistent risks confronting schools in the district.

Despite this generally high level of preparedness, particularly in recovery and rehabilitation, which emerged as the most strongly implemented area, schools continue to grapple with considerable challenges. Limited financial resources, inadequate infrastructure, and weak coordination among stakeholders remain recurring obstacles that constrain the full realization of DRR goals. Nevertheless, the absence of a significant relationship between preparedness and these challenges suggests that school leaders are not deterred by such constraints; rather, DRR implementation is shaped more by contextual and institutional factors than by the emotional or subjective experiences of administrators. Likewise, the lack of significant variation across demographic profiles such as age, educational attainment, and years of experience affirms that DRR execution remains consistent regardless of individual administrator characteristics, pointing instead to the influence of shared institutional mandates and systemic expectations.

Viewed through the lens of Protection Motivation Theory, the continuous implementation of DRR practices reflects a deliberate and risk-conscious effort on the part of school leaders to safeguard students, personnel, and the broader community from the consequences of future disasters. This commitment persists even in the face of resource limitations, underscoring the extent to which school administrators prioritize protective action despite operational difficulties. Complementing this perspective, Resilience Theory illuminates how schools are progressively strengthening their capacity to function amid disruption. Although financial and physical constraints continue to limit the full scope of DRR functions, schools are nonetheless engaged in a continuous process of capacity building that enables them to sustain educational continuity and facilitate recovery during emergencies. Furthermore, Social Capital Theory underscores the indispensable role of collaboration in this process, as the active involvement of parents, community members, and other stakeholders fosters connectedness and mutual support that help offset resource limitations while enhancing overall preparedness for future hazards.

These findings resonate closely with national policy frameworks that mandate the institutionalization of DRR in Philippine schools, including Republic Act 10121, Republic Act 10821, and Republic Act 9729, as well as directives such as DepEd Order No. 37, s. 2015, which require the Department of Education to develop and implement comprehensive school-based DRR systems. The consistency between the study's findings and these established policies reinforces the legitimacy and relevance of continued investment in school-based disaster risk reduction efforts. It becomes evident, therefore, that while DRR systems within the district's schools are already functioning at a commendable level, their full potential can only be realized through sustained efforts to strengthen institutional support, expand available resources, and deepen collaborative partnerships among schools, communities, and government agencies.

In light of these findings, it is strongly recommended that school principals, district supervisors, and other educational stakeholders adopt the Enhanced DRR Implementation and Integration Plan as a practical guide for advancing DRR practices across schools in the district. Grounded in evidence gathered directly from the experiences, difficulties, and needs of actual schools, this plan offers a structured mechanism for fostering cooperation, addressing existing gaps, and ensuring that DRR initiatives are implemented consistently and effectively across all institutions. Through its adoption, schools stand to benefit from clearer guidance in developing preventive measures, strengthening emergency preparedness, and improving response and recovery mechanisms, thereby rendering DRR practices more systematic, organized, and sustainable over time. Equally important, the plan is designed to support informed decision-making among school leaders and to facilitate stronger partnerships with community

stakeholders, ultimately promoting greater efficiency in the use of limited resources. Anchored in the principles of resilience and shared responsibility, the Enhanced DRR Implementation and Integration Plan represents a vital strategic tool for cultivating safer, more resilient, and better-prepared learning environments, ensuring the continued safety, well-being, and educational continuity of students and school personnel alike.

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