

Inclusive disaster risk reduction in education: An analysis of teachers' preparedness

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ABSTRACT

This study determined the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu, for the school year 2025-2026 as a basis for an inclusive disaster risk reduction management plan. The adapted survey questionnaire was conducted with 70 respondents; the research design involved a descriptive correlational design and employed statistical tools such as the weighted mean, simple percentage, and Pearson product-moment correlation r . The interplay between students' development and classroom climate in an inclusive disaster-ready environment impacts the learning process, with consequences for the school's effectiveness. Findings indicated that the overall extent of school preparedness in inclusive disaster risk reduction in education, as to identification of learners with special needs, is high; accessibility is high; meaningful participation and non-discrimination are high; strategy/method is high; and collaboration and networking are high. Additionally, the overall extent of challenges encountered in the school preparedness for inclusive disaster risk reduction in education is high. There is no significant relationship between the extent of school preparedness and the extent of challenges encountered in the school preparedness in inclusive disaster risk reduction in education. In conclusion, challenges such as limited resources, insufficient training, or administrative constraints may persist regardless of a school's perceived preparedness. Even schools with relatively high levels of preparedness may still encounter substantial barriers to inclusivity, while less prepared schools may face similar difficulties. Thus, the researcher recommends developing and implementing an Inclusive Disaster Risk Reduction Management Plan.

Keywords: Special Education, inclusive education, disaster risk reduction, inclusive disaster risk reduction management plan, descriptive-correlational, Borbon, Cebu

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INTRODUCTION

The interplay between students' development and classroom climate in an inclusive disaster-ready environment significantly impacts the learning process, with direct consequences for overall school effectiveness. Persons with disabilities (PWDs) hold the same rights to risk reduction and management measures as any other citizen, including the right to

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participate equally in the design and implementation of disaster risk reduction (DRR) policies and practices (Calgaro, Villeneuve and Roberts, 2020). Despite this, PWDs remain less involved in emergency preparedness and response efforts, resulting in existing disaster preparedness programmes that are insufficiently sensitive to their needs (Handicap International, 2014). Inclusive Disaster Risk Reduction in education refers to the systematic integration of disaster preparedness, mitigation, response, and recovery strategies within educational settings, ensuring these measures are accessible and effective for all learners, including those with disabilities and special needs (UNICEF, 2020). According to Murshed and Chowdhury (2023), inclusive DRR in schools involves not only physical infrastructure improvements but also capacity-building among teachers and students to create resilient learning environments.

Policy frameworks at the national level have sought to address these gaps. In Indonesia, the National Disaster Risk Management Regulation Number 14 of 2014 addresses the handling, protection, and participation of PWDs, establishing a policy that regulates their right to protection during disasters. In the Philippines, however, significant gaps persist in implementing inclusive DRR policies in education. A study by Beltran et al. (2025) identified challenges including inadequate resources, limited parental involvement, and insufficient teacher training in implementing inclusive education in elementary schools. Similarly, Mabeza and Villacruz (2025) highlighted the demands on teachers' preparedness, strategies, and resources in integrating learners with disabilities into mainstream technical-vocational education classes. These challenges are similarly evident in Region VII, encompassing Cebu Province and Cebu City. Manliguez et al. (2025) identified comparable obstacles in elementary schools, while Bacus (2025) documented parallel challenges in Cebu City related to resources, parental involvement, and teacher training. Benemerito et al. (2025) further highlighted the pressures placed on teachers in integrating learners with disabilities into mainstream technical-vocational settings.

Within the context of the Philippines and Cebu Province, the successful implementation of inclusive disaster risk reduction in education is closely tied to the interplay of success factors across its various dimensions. While specific empirical studies in Cebu remain limited, recent research from nearby regions and national sources offers vital insights. Existing studies often focus on broader urban settings or far-flung areas, leaving the unique challenges and dynamics of rural municipalities largely underexplored. The elementary and secondary teachers of Borbon District, Borbon, Cebu represent one such underexplored context. This study therefore aims to identify existing preparedness measures, gaps, and challenges in implementing inclusive DRR plans in elementary and secondary schools. It seeks to explore how current strategies address the diverse needs of all learners, including those with disabilities, learning difficulties, or other vulnerabilities.

By examining how inclusive principles are applied in disaster preparedness, response, and recovery efforts, the study aims to identify barriers to effective implementation and highlight successful practices that can be replicated or scaled. This objective is intended to improve the inclusivity and effectiveness of school-based DRR plans, ensuring that no learner is left behind in times of crisis. More specifically, the study determines the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu for the school year 2025 to 2026. The intended outcome of the study is the creation of a comprehensive inclusive disaster risk reduction management plan.

The study is grounded in multiple theoretical frameworks and legal bases that collectively support the examination of teacher and school preparedness. The Social Constructionist Theory, as articulated by Reid and Rock (2012), posits that knowledge, meanings, and realities are created through social interactions and shared experiences rather

than existing as objective truths. In the context of inclusive education, this theory suggests that teachers' beliefs and perceptions about inclusion are socially constructed through their interactions with colleagues, students, administrators, and the broader community. The barriers they encounter, such as lack of support or resources, are not merely external obstacles but are interpreted and managed within these social frameworks. Understanding these socially constructed attitudes and barriers can help identify how teachers' experiences and responses to inclusion are shaped by their environment, emphasizing the need for collaborative approaches and supportive school cultures.

Complementing this perspective, the Behaviorism Theory as described by Aiken (2021) focuses on observable behaviors and the ways in which they can be shaped through reinforcement and conditioning, emphasizing the role of the environment in influencing learning and actions. In inclusive education settings, behaviorism highlights how teachers' attitudes and responses can be affected by the consequences they experience in their teaching environments. Positive reinforcement through support and professional development may encourage more inclusive attitudes and effective handling of diverse learners, while negative experiences such as lack of resources or administrative challenges may reinforce resistance or frustration. Understanding these behavioral dynamics allows the study to explore how external factors and feedback mechanisms shape teachers' cognitive attitudes and coping strategies when confronting barriers in inclusive classrooms.

The Risk Communication Theory, as discussed by Hendricks (2024), further supports the study by framing disaster preparedness as a communicative process between institutions and communities. Risk communication involves the exchange of information about risks or hazards between interested parties, with the goal of facilitating an informed audience that is involved, interested, and solution-oriented. Unlike issue management, which functions as a tool for crisis prevention by addressing warning signs of potential risk, risk communication serves as a tool for crisis communication, building understanding and helping connect experts or officials with the general public. This distinction is particularly relevant in school-based disaster risk reduction, where timely and effective communication is essential to ensuring that teachers, students, and communities are adequately prepared.

The Resilience Theory, as cited by Moore (2019), also undergirds the study by arguing that it is not the nature of adversity that is most consequential, but rather how individuals and communities respond to it. Resilience enables individuals to survive, recover, and even thrive in the face of misfortune. Masten (2018) defines resilience as the capacity of a system to adapt successfully to significant challenges that threaten its function, viability, or development, and her work underscores the importance of integrating resilience-building into educational contexts. Berkes and Ross (2013) further examined community resilience through both social-ecological and mental health perspectives, contributing to a growing body of research on resilience at the community level. Fletcher and Sarkar (2013) identified character strengths such as gratitude, kindness, hope, and bravery as protective factors that help individuals adapt positively and cope with difficulties, including those arising from physical and mental illness.

The study is likewise anchored in key legal frameworks governing inclusive education and disaster preparedness in the Philippines. Republic Act No. 11650, enacted in 2022 and titled "An Act Instituting Inclusive Education in Schools for Persons with Disabilities," mandates the integration of learners with disabilities into mainstream educational settings and promotes equal access to quality education by requiring schools to provide necessary accommodations, support services, and inclusive curricula. This law directly challenges teachers to adopt positive cognitive attitudes toward inclusion while confronting practical barriers such as resource limitations. DepEd Order No. 21, series of 2019, entitled "Policy Guidelines on Enhancing the Philippine Basic Education System," outlines strategic directions for improving the quality, equity, and inclusivity of basic education, promoting learner-

centered approaches and support mechanisms for marginalized learners. Together, these legal bases form a robust framework supporting inclusive education in the Philippines.

The study is further reinforced by DepEd Order No. 33, series of 2021, on School-Based Disaster Preparedness and Response Measures, which recognizes the Philippines' acute vulnerability to natural hazards, particularly hydrometeorological events such as tropical cyclones, flooding, and storm surges. Based on the Department of Education's Enhanced Basic Education Information System data from School Year 2009 to 2010 through 2018 to 2019, a total of 47,188 schools reported experiencing natural hazards, with 39,956 affected by tropical cyclones and 26,221 experiencing flooding. Additionally, DepEd Order No. 53, series of 2022, on Mandatory Unannounced Earthquake and Fire Drills in Schools, affirms that emergencies and calamities may occur anywhere and at any time, making effective preparedness plans essential for preventing disasters and saving lives. The Philippines, located within the seismically active Pacific Ring of Fire, experiences an average of 20 typhoons per year, alongside frequent flooding, landslides, and volcanic activity that strain school infrastructure and disrupt learning environments (World Bank; DepEd). The compounded effects of both natural and human-induced hazards underscore the urgent need for comprehensive disaster risk reduction planning.

The theoretical and legal frameworks discussed above collectively establish the foundation for this study, which seeks to determine the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu for the school year 2025 to 2026, as a basis for an inclusive disaster risk reduction management plan. By linking key concepts, best practices, and existing literature on inclusive disaster preparedness to the specific local context, the framework guides the examination of teachers' knowledge, skills, and experiences. The insights generated from this research are expected to yield evidence-based recommendations for designing a comprehensive and contextually relevant disaster risk reduction management plan that ensures the safety and inclusion of all learners, leaving no one behind in times of crisis.

Statement of the problem

This research determined the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu for the school year 2025-2026 as a basis for an inclusive disaster risk reduction management plan. Specifically, this study sought to answer the following questions:

1. What are the respondents' profiles in terms of age, gender, highest educational attainment, length of teaching experience, related and relevant training, and major?
2. What is the respondents' extent of school preparedness in inclusive disaster risk reduction in education, particularly as to identification of learners with special needs, accessibility, meaningful participation and non-discrimination, strategy and method, and collaboration and networking?
3. What is the respondents' extent of challenges encountered in the school preparedness in inclusive disaster risk reduction in education?
4. Is there a significant relationship between the extent of school preparedness and their extent of challenges encountered in the school preparedness in inclusive disaster risk reduction in education?
5. Based on the study's findings, what inclusive disaster risk reduction management plan can be proposed?

METHODOLOGY

This section presents the methodological process of the study, encompassing the research design, flow of the study, study environment, data sources, research instrument, data collection procedures, data analysis, and scoring procedures. The study employed a descriptive-correlational research design utilizing an adapted questionnaire administered to the respondents. This design was appropriate given the study's aim to determine the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu for the school year 2025-2026, as a basis for an inclusive disaster risk reduction management plan. As explained by Creswell and Creswell (2018), correlational research designs examine the relationship between two or more variables without manipulating them, which aligns with the objective of exploring the significant relationship between the extent of school preparedness and the extent of challenges encountered by teachers in inclusive disaster risk reduction in education. The study further employed purposive and convenience sampling, methods selected for their practicality and efficiency given that the respondents were readily available within the study locale. These methods required only a short period to complete and provided the accessibility and punctuality necessary to fulfill the research objectives.

The study followed a systematic input-process-output model as its conceptual flow. The input component comprised the profile of the respondents in terms of age, gender, highest educational attainment, length of teaching experience, related and relevant training, and major. It also included the extent of school preparedness in inclusive disaster risk reduction in education across the following dimensions: identification of learners with special needs, accessibility, meaningful participation and non-discrimination, strategy and method, and collaboration and networking. Additionally, the input encompassed the respondents' extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education, as well as the significant relationship between these two variables. The process component involved the gathering, organization, and analysis of data, including the tabulation, computation, and evaluation of questionnaire results. The output of the research was intended to provide empirical data as the basis for an inclusive disaster risk reduction management plan. The study aimed to identify existing practices, gaps, and challenges in implementing inclusive DRR plans in elementary and secondary schools, to explore how current strategies address the diverse needs of all learners including those with disabilities, learning difficulties, or other forms of vulnerability, and to uncover barriers that hinder effective implementation while highlighting successful practices that can be replicated or scaled. This objective was designed to contribute to improving the inclusivity and effectiveness of school-based DRR plans, ensuring that no learner is left behind in times of crisis.

The study was conducted in Borbon District, Poblacion, Borbon, Cebu. The implementation of inclusive disaster risk reduction preparedness in Borbon District is gradually gaining attention among schools and educators. Teachers have expressed awareness of their critical role in ensuring that all learners, especially those with disabilities, are included in preparedness activities. Many schools conduct regular earthquake and fire drills, though not all exercises are adapted to meet the needs of learners with physical or cognitive impairments. Some teachers have indicated that while they are willing to support inclusive DRR, they lack specialized training in handling learners with special needs during emergencies. Classroom-based disaster awareness sessions are conducted but often employ generalized approaches that do not fully address individual learner differences. Inaccessible infrastructure, such as steep stairways or narrow exits, remains a major concern for schools aiming to implement inclusive evacuation procedures. Despite these limitations, teachers have shown initiative by creating makeshift accommodations or buddy systems for at-risk learners. Collaboration with parents

and local DRRM offices has been helpful, although not all schools receive consistent support or resources. Teachers also highlighted the emotional toll and pressure they experience during disaster situations, especially when responsible for vulnerable students. Nevertheless, their lived experiences reveal a growing sense of responsibility and commitment to fostering inclusive and safe learning spaces, underscoring the need for more structured support, capacity-building, and inclusive policy implementation in disaster preparedness at the school level.

The respondents of this study were the elementary and secondary teachers of Borbon District. A purposive and convenience sampling method was employed in the selection of the respondents. The total number of respondents was 70, computed through percentage distribution. Of the total respondents, 35 were elementary teachers, representing 50.00% of the sample, and 35 were secondary teachers, likewise representing 50.00%, yielding a combined total of 70 respondents or 100.00% of the sample. All 70 respondents, representing 100% of the sample, were included in the study to ensure broader representation across key levels of basic education. Their selection was appropriate given that teachers are directly involved in instructional planning, delivery, and classroom management, making them reliable sources of data on competencies and challenges in inclusive disaster risk reduction. The use of complete enumeration eliminates sampling bias and strengthens the validity and reliability of the findings, as it reflects the actual experiences of the entire group and provides a more accurate basis for educational planning and future research.

The study employed an adapted survey questionnaire drawn from the studies of Moreira et al. (2024) and Rofiah et al. (2024). The questionnaire was composed of four parts. The first part gathered the profiles of the respondents, specifically their age, gender, highest educational attainment, length of teaching experience, related and relevant training, and major. The second part measured the respondents' extent of school preparedness in inclusive disaster risk reduction in education and consisted of five statements per sub-variable across the identified dimensions. The third part addressed the respondents' extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education and consisted of ten statements. The fourth part, consistent with the correlational component of the study, facilitated the examination of the relationship between the two primary variables.

The data gathering procedure was organized into three distinct stages to maintain the validity, reliability, and ethical integrity of the collected data. During the pre-data gathering stage, the researcher sought permission from the research respondents with the recommending approval of the research adviser, ensuring that all necessary authorizations were secured prior to the administration of the research instrument. During the data gathering stage, the research-based questionnaire was printed and distributed personally to the respondents following the grant of permission, allowing for faster and more secure administration. The researcher assisted the respondents in filling out the questionnaires to ensure completeness and accuracy. During the post-data gathering stage, the accomplished questionnaires were collected, and the gathered data were tabulated, analyzed, and interpreted in preparation for the oral examination.

The study adhered to a comprehensive set of ethical principles throughout the research process. With respect to voluntary participation, all respondents from the research context were informed of their right to participate voluntarily and without coercion. Informed consent was likewise secured, ensuring that respondents understood the goals, objectives, and their rights as participants before engaging with the study. Anonymity was observed by keeping the respondents' profiles and personal data confidential, with assurance that their privacy would be respected with the utmost discretion. Confidentiality was further upheld by ensuring that all answers and data obtained from the respondents would remain strictly private throughout and after the research process. With regard to the potential for harm, the researcher assured respondents that participation posed no risk and that they were only required to share information they were comfortable disclosing, with all disclosed information kept strictly

confidential. Finally, the results communication was maintained to be free of plagiarism and inaccuracies, ensuring that all data and findings presented were reasonable, true, factual, and non-biased.

The study employed several statistical treatments appropriate to its descriptive-correlational design. Percentage (p) was used to determine the relevant profile information of the respondents, including age, gender, highest educational attainment, length of teaching experience, related and relevant training, and major. The weighted mean was used to assess the respondents' extent of school preparedness in inclusive disaster risk reduction in education as well as the extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education. The Pearson Moment Product Correlation r was used to test the significant relationship between the extent of school preparedness and the extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education.

The scoring procedure required individual participants to rate their extent of school preparedness in inclusive disaster risk reduction in education and their extent of challenges encountered using a five-point scale. A rating of 5, corresponding to a scale range of 4.20 to 5.00, was described as Extremely High, indicating that the statement is applied and observed to the highest extent. A rating of 4, corresponding to a range of 3.40 to 4.19, was described as High, indicating that the statement is applied and observed to a high extent. A rating of 3, corresponding to a range of 2.60 to 3.39, was described as Moderate, indicating that the statement is applied and observed to a moderate extent. A rating of 2, corresponding to a range of 1.80 to 2.59, was described as Low, indicating that the statement is applied and observed to a low extent. A rating of 1, corresponding to a range of 1.00 to 1.79, was described as Very Low, indicating that the statement is applied and observed to the lowest extent. These rating criteria provided a structured and interpretively consistent basis for analyzing and comparing the responses across all variables examined in the study.

RESULTS AND DISCUSSION

This chapter presents the analysis and interpretation of data gathered from 70 elementary and secondary teachers of Borbon District, Poblacion, Borbon, Cebu for the school year 2025-2026. The study employed a descriptive-correlational research design using an adapted survey questionnaire drawn from the works of Moreira et al. (2024) and Rofiah et al. (2024). Purposive and convenience sampling methods were used in selecting the respondents, who were evenly distributed between elementary and secondary levels, with 35 teachers from each level representing 50.00% of the total sample respectively. Data were analyzed using percentage for profile variables, weighted mean to assess the extent of school preparedness and challenges encountered, and the Pearson Moment Product Correlation r to examine the relationship between preparedness and challenges. The results are interpreted in direct relation to the objectives of the study, grounded entirely in the data gathered, and contextualized within relevant scholarly literature and applicable legal and theoretical frameworks. The discussion proceeds systematically across the respondent profiles, the extent of school preparedness across its five dimensions, the extent of challenges encountered, and the test of significant relationships between the two primary variables.

Profile of the respondents

The age distribution of the 70 respondents reveals that the largest group, comprising 30 respondents or 42.85%, falls within the 31-40 years age bracket. This is followed by 25 respondents or 35.71% who are between 21-30 years old, 10 respondents or 14.28% who are between 41-50 years old, and 5 respondents or 7.14% who are between 51-60 years old. The

data indicate that the majority of the respondents are in their twenties or thirties, suggesting a predominantly young to mid-career teaching force in the district. This demographic composition carries meaningful implications for the implementation of inclusive disaster risk reduction practices. Younger teachers, particularly those in their twenties to thirties, often bring high levels of energy, adaptability, and openness to adopting innovative teaching strategies, which can positively influence the implementation of inclusive DRR practices in schools. Studies have shown that early-career educators are more likely to integrate technology, collaborative learning, and creative instructional approaches, enhancing student engagement and responsiveness during DRR activities (Kim and Park, 2021; Zhao et al., 2020). Their familiarity with contemporary communication methods can further facilitate the integration of digital tools in preparedness drills, awareness campaigns, and emergency response coordination.

In terms of gender, the data show that 60 respondents or 85.71% are female, while 10 respondents or 14.28% are male, reflecting a predominantly female teaching force within the study population. This gender distribution has significant implications for the nature and approach of inclusive disaster risk reduction practices in the schools surveyed. Female educators often exhibit strong communication skills, empathy, and attentiveness to students' socio-emotional needs, qualities that can enhance the implementation of inclusive DRR strategies in schools (Day and Gu, 2019; Evans et al., 2021). These attributes allow female teachers to recognize and respond effectively to the diverse vulnerabilities of learners, including children with disabilities, language barriers, or socio-emotional challenges, thereby fostering a more inclusive and supportive learning environment. Additionally, studies suggest that female educators are more likely to adopt collaborative and participatory approaches, which can improve student engagement and preparedness during DRR activities (Huang and Chen, 2020).

Regarding highest educational attainment, the data reveal that the largest proportion of respondents, comprising 27 or 38.57%, hold units in any master's program, followed by 20 or 28.57% who have completed a master's degree, 10 or 14.28% who hold a bachelor's degree, another 10 or 14.28% who have units in a doctoral program, and 3 or 4.28% who hold a doctorate degree. The data collectively indicate that the majority of respondents have pursued graduate-level education, reflecting a teaching force engaged in continuous professional development. This pattern has important implications for the quality of inclusive DRR implementation in schools, as continuous professional development is essential for teachers to effectively implement inclusive disaster risk reduction practices. Regular training provides educators with updated knowledge, practical skills, and evidence-based strategies, enabling them to address the diverse needs of learners, including those with disabilities or other vulnerabilities, during emergency planning and response (Paton and Johnston, 2022; Shaw et al., 2020). Studies indicate that teachers who engage in ongoing professional development are better prepared to design inclusive drills, adapt instructional materials, and coordinate with support staff, thereby enhancing overall school resilience and preparedness (Huang et al., 2021).

With respect to length of teaching experience, the data show that 35 respondents or 50.00% have been teaching for 6-10 years, followed by 20 or 28.57% with 1-5 years of experience, 10 or 14.28% with 11-20 years, and 5 or 7.14% with 21 years and beyond. The data indicate that half of the respondents have accumulated nearly a decade of teaching experience, suggesting a workforce with a solid experiential foundation. Teachers with substantial experience, such as nearly a decade in the teaching profession, contribute significantly to the effective implementation of inclusive disaster risk reduction practices in schools. Experienced educators possess practical knowledge, classroom management skills, and a deep understanding of student needs, which enable them to anticipate challenges and

apply strategies that accommodate all learners, including those with disabilities or other vulnerabilities (Day and Gu, 2019; Evans et al., 2021). Studies suggest that teachers with several years of professional experience are better equipped to coordinate preparedness activities, adapt instructional methods, and mentor less experienced colleagues, thereby enhancing school readiness and resilience (Huang and Chen, 2020).

The distribution of respondents according to related and relevant training attended shows that 30 or 42.85% have attended training on inclusive education for learners with disabilities, 15 or 21.42% have undergone differentiated instruction and inclusive practices training, 10 or 14.28% have completed emergency preparedness and response training for teachers, another 10 or 14.28% have attended school-based disaster risk reduction and management training, and 5 or 7.14% have attended a basic disaster risk reduction and management orientation. The data show that the majority of respondents have engaged most extensively with inclusive education training, which has direct relevance to their capacity to implement inclusive DRR in schools. Teachers who have attended training or courses in inclusive education, particularly with a focus on disaster risk reduction, are better equipped to implement inclusive and effective preparedness strategies in schools. Such professional development enhances educators' knowledge of diverse learner needs, adaptive teaching methods, and inclusive safety procedures, enabling them to design drills, instructional materials, and emergency responses that accommodate all students (Shaw et al., 2020; Huang et al., 2021).

In terms of academic major, the data reveal that 35 respondents or 50.00% belong to other majors beyond general and special education, 30 or 42.85% majored in general education, and only 5 or 7.14% majored in special education. The predominantly non-special education academic background of the respondents has notable implications for the implementation of inclusive DRR. While teachers from general education majors often bring strong content knowledge and general teaching skills, studies show that a lack of specialized training in special education may limit their ability to fully address the needs of students with disabilities or other vulnerabilities during emergencies (Shaw et al., 2020; Evans et al., 2021). This finding underscores the urgency of supplementary training and capacity-building initiatives targeting inclusive emergency response for teachers whose academic preparation did not include special education competencies.

Extent of school preparedness in inclusive disaster risk reduction in education

The extent of school preparedness in inclusive disaster risk reduction in education was assessed across five dimensions: identification of learners with special needs, accessibility, meaningful participation and non-discrimination, strategy and method, and collaboration and networking. Each dimension was measured using a five-point scale ranging from 1.00-1.79 described as Very Low, 1.80-2.59 as Low, 2.60-3.39 as Moderate, 3.40-4.19 as High, and 4.20-5.00 as Extremely High.

With regard to the identification of learners with special needs, the five indicators yielded individual mean scores and standard deviations as follows: schools identify the diversity of children with special needs obtained a mean of 4.30 and SD of 0.79, described as Extremely High; schools identify special tools needed by children obtained a mean of 4.36 and SD of 0.82, described as Extremely High; the school records the accessibility required data for the mobility of children with special needs obtained the highest mean of 4.47 and SD of 0.74, described as Extremely High; the school records the abilities and strengths of children with special needs obtained a mean of 4.31 and SD of 0.81, described as Extremely High; and information on diagnosis and treatment to complete the child's medical history obtained a mean of 4.41 and SD of 0.73, described as Extremely High. The overall mean for this dimension is

4.37 with an SD of 0.78, described as Extremely High. The highest-scoring indicator concerning the recording of accessibility-required data for the mobility of children with special needs underscores the schools' strong practice of maintaining documentation that supports inclusive evacuation and emergency response planning. Maintaining accurate records on the accessibility needs and mobility requirements of children with special needs is critical for inclusive disaster risk reduction and effective school management, as systematic documentation allows educators and school administrators to plan tailored evacuation routes, allocate appropriate resources, and implement safety measures that accommodate all learners during emergencies (Shaw et al., 2020). The second highest indicator on the availability of medical history information, with a mean of 4.41, further reflects the schools' commitment to comprehensive learner data management. Comprehensive medical histories, including information on diagnosis and treatment, are critical for safeguarding the well-being and inclusion of children in both school and emergency settings, as accurate medical records enable educators and emergency personnel to respond appropriately to health needs, administer necessary treatments, and implement individualized accommodations during daily school activities and disaster situations (Paton and Johnston, 2022).

Regarding accessibility, the five indicators produced the following results: the school has special facilities for children with special needs obtained a mean of 4.56 and SD of 0.67, described as Extremely High; schools make learning modifications for students with special needs obtained a mean of 4.60 and SD of 0.60, described as Extremely High; there are learning accommodations for children with special needs obtained a mean of 4.54 and SD of 0.74, described as Extremely High; school buildings are designed to provide accessible facilities for children obtained a mean of 4.60 and SD of 0.69, described as Extremely High; and school infrastructure is tailored to the needs of the children obtained the highest mean of 4.61 and SD of 0.64, described as Extremely High. The overall mean for accessibility is 4.58 with an SD of 0.67, described as Extremely High, making this the highest-performing dimension among all five areas assessed. The leading indicator on child-centered infrastructure reflects the critical importance of physical accessibility in ensuring safe participation for all learners during emergencies. Accessible facilities such as ramps, wide corridors, handrails, and child-friendly classrooms ensure that learners, including those with disabilities, can navigate the school environment safely and independently, particularly during emergencies (Huang et al., 2021). The second highest indicators, both with a mean of 4.60, pertain to learning modifications and accessible building design, further reinforcing the schools' systemic approach to physical and instructional inclusion. Adapted instructional strategies, individualized support, and accessible classrooms, ramps, and restrooms ensure that all learners, including those with disabilities, can participate fully in educational activities and respond effectively during emergencies, and inclusive practices not only enhance learning outcomes but also strengthen disaster preparedness by reducing barriers to safe evacuation and access to emergency resources (King et al., 2019).

Concerning meaningful participation and non-discrimination, the results for each indicator are as follows: children with special needs are involved in planning disaster risk reduction obtained the highest mean of 4.67 and SD of 0.56, described as Extremely High; children with special needs are involved in disaster risk assessment obtained a mean of 4.60 and SD of 0.62, described as Extremely High; children with special needs are allowed to become facilitators in DRR obtained a mean of 2.86 and SD of 0.92, described as Moderate; the school prioritizes safety for children with special needs obtained a mean of 4.60 and SD of 0.65, described as Extremely High; and schools have rules and policies that support the involvement of children with special needs obtained a mean of 4.54 and SD of 0.74, described as Extremely High. The overall mean for this dimension is 4.25 with an SD of 0.99, described as Extremely High. Notably, the indicator on allowing children with special needs to become

facilitators in DRR obtained the lowest score of 2.86, which, while still within the Moderate range, stands in marked contrast to the other indicators in this dimension, revealing a specific gap in empowering learners with special needs to take active leadership roles in preparedness activities. The highest-scoring indicator on the involvement of children with special needs in planning DRR reflects a commendable practice of participatory inclusion. By engaging learners with diverse abilities in planning processes, schools can better identify potential risks, accessibility challenges, and specific support requirements that may otherwise be overlooked, and participatory approaches empower students with special needs, foster self-advocacy, and improve their awareness and confidence in emergency procedures, ultimately strengthening overall school resilience (Kruger et al., 2018). Similarly, the involvement of these learners in disaster risk assessment and the prioritization of their safety, both yielding a mean of 4.60, indicate that schools recognize and act upon the heightened vulnerability of this group. Engaging these learners in risk assessment processes allows schools to identify specific vulnerabilities, accessibility barriers, and necessary accommodations that may otherwise be overlooked, and participation empowers children with special needs, increases their awareness of safety protocols, and fosters a sense of agency which contributes to more comprehensive and responsive DRR planning (Villeneuve, 2021).

In the dimension of strategy and method, the individual indicators produced the following results: there is a modification in DRR learning for children with special needs obtained the highest mean of 4.80 and SD of 0.40, described as Extremely High; there is accommodation in DRR learning for children with special needs obtained a mean of 4.07 and SD of 0.46, described as High; the school uses fun learning methods such as using songs in DRR learning obtained a mean of 4.77 and SD of 0.42, described as Extremely High; the school uses concrete media in DRR learning obtained a mean of 4.67 and SD of 0.56, described as Extremely High; and schools conduct regular mock drills obtained a mean of 4.67 and SD of 0.58, described as Extremely High. The overall mean for this dimension is 4.60 with an SD of 0.56, described as Extremely High. The highest-scoring indicator on the modification of DRR learning for children with special needs reflects a strong institutional commitment to adaptive and differentiated disaster education. Tailored instructional strategies such as simplified language, visual aids, hands-on activities, and multi-sensory approaches enable students with varying cognitive, physical, or sensory needs to understand risks, safety procedures, and appropriate emergency responses, and inclusive teaching practices not only improve knowledge retention and engagement but also foster confidence and preparedness among all learners, including those with disabilities (Xu et al., 2021). The second highest indicator on the use of fun learning methods such as songs in DRR learning, with a mean of 4.77, underscores the schools' recognition of the value of engaging pedagogical strategies in disaster education. Such approaches increase student engagement, facilitate memory retention, and make complex safety concepts more understandable, particularly for younger learners and those with diverse learning needs, and musical and playful activities in DRR education not only promote knowledge acquisition but also encourage active participation, collaboration, and positive attitudes toward preparedness activities (Zhu et al., 2021). Notably, the indicator on accommodation in DRR learning obtained a mean of 4.07, described as High rather than Extremely High, suggesting a relative area for improvement within an otherwise strong dimension.

For collaboration and networking, the five indicators yielded the following results: the residents around the school are involved in the DRR socialization and training obtained the highest mean of 4.64 and SD of 0.59, described as Extremely High; the school committees are involved in disaster simulation activities obtained a mean of 4.36 and SD of 0.82, described as Extremely High; parents are involved in disaster socialization and training obtained a mean of 4.21 and SD of 0.78, described as Extremely High; schools involve village organizations in

disaster emergency response obtained a mean of 3.70 and SD of 0.46, described as High; and schools involve organizations that support children with special needs such as the association of parents of children with special needs obtained a mean of 4.39 and SD of 0.73, described as Extremely High. The overall mean for this dimension is 4.26 with an SD of 0.75, described as Extremely High. The indicator on involving community residents in DRR socialization and training scored highest, reflecting the schools' active engagement with the surrounding community as part of their preparedness strategy. Active participation of the surrounding community helps create a shared understanding of hazards, fosters collaboration in emergency planning, and strengthens networks that support children and schools during disasters, and community engagement in DRR activities encourages collective responsibility, improves timely response during emergencies, and ensures that schools' preparedness strategies are contextually relevant and inclusive of local needs (Takeuchi et al., 2020). The second highest indicator on the involvement of organizations supporting children with special needs, with a mean of 4.39, highlights the value schools place on partnerships with parent associations and support organizations, as such partnerships enhance the development of individualized plans, improve communication between educators and families, and foster a culture of inclusion and resilience within the school community (Uy et al., 2020). The indicator on involving village organizations in disaster emergency response, with a mean of 3.70 described as High, represents the relatively lower-scoring item within this otherwise strongly performing dimension, suggesting that formalized engagement with local government and community structures in emergency response may benefit from further development.

Extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education

The extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education was assessed across ten indicators using the same five-point scale described above, yielding the following individual results. The indicator on schools lacking adequate resources such as assistive devices and emergency kits to support learners with disabilities during disasters obtained a mean of 2.53 and SD of 0.74, described as Low. There is limited teacher training on inclusive practices related to disaster preparedness and response obtained the second highest mean of 4.63 and SD of 0.59, described as Extremely High. The school infrastructure is not fully accessible or safe for learners with special needs during emergencies obtained a mean of 2.36 and SD of 0.82, described as Low. There is a lack of clear guidelines and protocols tailored for inclusive disaster risk reduction in the school obtained a mean of 2.64 and SD of 0.59, described as Moderate. Simulations and emergency drills do not adequately consider the needs of learners with disabilities obtained a mean of 2.14 and SD of 0.84, described as Low. Collaboration with parents, local government units, and disability support organizations is insufficient obtained a mean of 2.63 and SD of 0.57, described as Moderate. Teachers feel unprepared to assist students with diverse needs during a disaster situation obtained a mean of 4.36 and SD of 0.82, described as Extremely High. Inclusive DRR practices are not regularly evaluated or updated in the school disaster management plan obtained the third highest mean of 4.41 and SD of 0.73, described as Extremely High. Communication barriers hinder effective emergency response for students with hearing, visual, or cognitive impairments obtained a mean of 4.39 and SD of 0.79, described as Extremely High. Limited funding and administrative support affect the implementation of inclusive disaster risk reduction programs obtained the highest mean of 4.67 and SD of 0.53, described as Extremely High. The overall mean for challenges encountered is 3.48 with an SD of 1.25, described as High.

The highest-scoring challenge on limited funding and administrative support, with a mean of 4.67, reflects a widely documented barrier in inclusive DRR implementation. Literature confirms that limited funding and administrative support function as key barriers to the effective implementation of inclusive disaster risk reduction programs, particularly for vulnerable populations such as persons with disabilities. A briefing on disability inclusion in DRR notes that many DRR initiatives lack sustained investment and dedicated budget allocations, resulting in projects that are dependent on external funding and often end when project cycles conclude, thereby limiting long-term impact and inclusive practice (Twigg et al., 2018). The second highest challenge on limited teacher training on inclusive practices related to disaster preparedness and response, with a mean of 4.63, aligns with the profile finding that most respondents lack specialized special education backgrounds, and underscores a structural gap in the professional preparation of teachers for inclusive emergencies. Lack of formal training for teachers in disaster risk reduction significantly undermines the quality and inclusivity of disaster preparedness and response education in schools, and barriers to DRR education include a lack of professional training for teachers which reduces their capacity to teach both theoretical knowledge and practical skills related to disaster preparedness and inclusive responses (Aghaei et al., 2018). The third highest challenge on inclusive DRR practices not being regularly evaluated or updated in the school disaster management plan, with a mean of 4.41, further reveals a systemic limitation in sustaining and improving preparedness quality over time. Literature on DRR education integration identifies the absence of formal assessment tools and feedback loops in school DRR practices, indicating that schools may not sufficiently review or revise disaster plans to address evolving hazards or diverse learner needs (Vaughan-Lee et al., 2018). Conversely, indicators such as inadequate infrastructure, with a mean of 2.36, insufficient consideration of disabilities in drills, with a mean of 2.14, and inadequate resources, with a mean of 2.53, all described as Low, suggest that these particular challenges are perceived as less prevalent, which may reflect the positive physical accessibility and preparedness practices documented in the school preparedness findings.

Relationship between extent of school preparedness and extent of challenges encountered

The Pearson Moment Product Correlation r was used to test the significant relationship between the extent of school preparedness across its five dimensions and the extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education, at a significance level of 0.05 using a two-tailed test. The results for each pair of variables are as follows. The relationship between identification of learners with special needs and the extent of challenges encountered yielded a computed rho of 0.112, described as Very Weak correlation, with a p-value of 0.356, leading to a decision to fail to reject the null hypothesis, indicating a result that is not statistically significant. The relationship between accessibility and the extent of challenges encountered yielded a computed rho of -0.145, described as Very Weak correlation, with a p-value of 0.230, also leading to a decision to fail to reject the null hypothesis, indicating a result that is not statistically significant. The relationship between meaningful participation and non-discrimination and the extent of challenges encountered yielded a computed rho of 0.070, described as Very Weak correlation, with a p-value of 0.566, with a decision to fail to reject the null hypothesis, indicating a result that is not statistically significant. The relationship between strategy and method and the extent of challenges encountered yielded a computed rho of -0.106, described as Very Weak correlation, with a p-value of 0.381, with a decision to fail to reject the null hypothesis, indicating a result that is not statistically significant. The relationship between collaboration and networking and the extent of challenges encountered yielded a computed rho of 0.082, described as Very Weak correlation, with a p-value of 0.499, with a decision to fail to reject the null hypothesis,

indicating a result that is not statistically significant. Across all five dimensions, the study failed to reject the null hypothesis, confirming that there is no statistically significant relationship between the extent of school preparedness and the extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education.

These findings imply that the level of preparedness of schools does not necessarily determine the degree of challenges they face in implementing inclusive disaster risk reduction measures. This further suggests that challenges such as limited resources, insufficient training, or administrative constraints may persist regardless of how prepared a school perceives itself to be, pointing to the structural and systemic nature of these barriers rather than individual school performance. Studies have shown that barriers such as insufficient funding, lack of teacher training, and limited administrative support can persist even in schools with well-developed preparedness plans, affecting the equitable participation of all learners during emergencies (Shaw et al., 2020; UNESCO, 2019). The very weak correlation coefficients ranging from -0.145 to 0.112 across all five pairs further reinforce that preparedness and challenges operate as largely independent constructs within this study context, suggesting the need for targeted systemic interventions beyond what school-level preparedness alone can address.

The findings of this study collectively present a nuanced picture of the state of inclusive disaster risk reduction in the elementary and secondary schools of Borbon District, Borbon, Cebu. Across all five dimensions of school preparedness, the respondents reported Extremely High levels, with overall means ranging from 4.25 to 4.58, reflecting commendable institutional efforts in identifying learners with special needs, ensuring physical and instructional accessibility, promoting meaningful participation, employing adaptive strategies and methods, and building collaborative networks with communities and support organizations. However, the extent of challenges encountered yielded an overall mean of 3.48, described as High, revealing that significant obstacles persist concurrently alongside these preparedness strengths, particularly in the areas of funding, teacher training, evaluation, and communication. The absence of statistically significant relationships between preparedness and challenges across all five dimensions, with p-values of 0.356, 0.230, 0.566, 0.381, and 0.499, all exceeding the 0.05 significance level, underscores the independence of these two constructs and highlights that high levels of perceived preparedness do not automatically translate into reduced challenges. These results contribute meaningfully to the growing body of literature on inclusive DRR in educational settings by providing empirical evidence from an underexplored rural district context, and they reinforce theoretical perspectives on the persistent structural barriers to inclusive emergency preparedness in schools. The study therefore establishes a compelling and evidence-based rationale for the development of an inclusive disaster risk reduction management plan tailored to the specific needs, strengths, and gaps identified within Borbon District, the formulation of which is addressed in the subsequent chapter.

CONCLUSION

This study determined the preparedness of elementary and secondary teachers toward inclusive disaster risk reduction in education at Borbon District, Poblacion, Borbon, Cebu for the school year 2025-2026, with the ultimate aim of establishing an empirical basis for the development of an inclusive disaster risk reduction management plan. The study was conducted among 70 respondents drawn from selected elementary and secondary schools within the district, employing a descriptive-correlational research design and utilizing an adapted survey questionnaire from Moreira et al. (2024) and Rofiah et al. (2024). Data were analyzed using weighted mean, simple percentage, and Pearson product-moment correlation r to address the four research objectives of the study, namely the profile of the respondents, the extent of school

preparedness in inclusive disaster risk reduction across its five dimensions, the extent of challenges encountered in school preparedness, and the significant relationship between these two primary variables.

The profile findings revealed that the majority of the respondents were between their twenties and thirties, with female teachers comprising the dominant gender group. Most respondents had pursued graduate-level education, reflecting a commitment to continuous professional development, and approximately half had accumulated nearly a decade of teaching experience. In terms of relevant training, the majority had attended programs specifically focused on inclusive education for learners with disabilities, while relatively fewer had participated in disaster-specific training programs. With respect to academic major, the majority came from general education or other non-special education fields, with only a small proportion holding a specialization in special education. These profile characteristics collectively suggest a teaching workforce that is professionally active and experientially grounded, yet potentially limited in the specialized competencies required for implementing inclusive disaster risk reduction practices, particularly in meeting the emergency needs of learners with disabilities.

The findings on the extent of school preparedness in inclusive disaster risk reduction in education, assessed across five dimensions, consistently yielded high to extremely high overall mean ratings, indicating a generally strong institutional orientation toward inclusive preparedness. The dimension of accessibility recorded the highest overall mean, followed closely by strategy and method, with identification of learners with special needs, collaboration and networking, and meaningful participation and non-discrimination also demonstrating strong performance across their respective indicators. Notwithstanding these positive aggregate outcomes, a specific gap was identified within the dimension of meaningful participation and non-discrimination, where the indicator on allowing children with special needs to become facilitators in disaster risk reduction activities obtained a comparatively lower mean falling within the Moderate range. This finding suggests that while schools actively involve learners with special needs in preparedness planning and risk assessment, they have yet to fully empower these learners to assume facilitative or leadership roles within disaster risk reduction initiatives.

With regard to the challenges encountered in school preparedness in inclusive disaster risk reduction in education, the overall extent was rated High, indicating that substantial obstacles remain present even amid the high preparedness levels reported across the five dimensions. The most prominently rated challenges included limited funding and administrative support, limited teacher training on inclusive practices related to disaster preparedness and response, the absence of regular evaluation and updating of inclusive disaster risk reduction practices in school disaster management plans, and communication barriers affecting students with hearing, visual, or cognitive impairments. These findings underscore the persistence of structural and systemic barriers that operate independently of schools' self-assessed preparedness levels, pointing to the need for sustained institutional investment, targeted professional development, and formalized feedback mechanisms to strengthen the quality and inclusivity of disaster risk reduction programs over time.

The test of significant relationship between the extent of school preparedness and the extent of challenges encountered, conducted using the Pearson Moment Product Correlation r at a significance level of 0.05, yielded p -values of 0.356, 0.230, 0.566, 0.381, and 0.499 for the five dimensions of identification of learners with special needs, accessibility, meaningful participation and non-discrimination, strategy and method, and collaboration and networking, respectively. All computed p -values exceeded the 0.05 significance threshold, and the corresponding correlation coefficients were described as Very Weak across all five pairs. Consequently, the study failed to reject the null hypothesis, confirming that there is no

statistically significant relationship between the extent of school preparedness and the extent of challenges encountered in school preparedness in inclusive disaster risk reduction in education. This finding leads to the conclusion that challenges such as limited resources, insufficient training, and administrative constraints may persist regardless of how prepared a school perceives itself to be. Even schools with relatively high levels of preparedness may still encounter substantial barriers to inclusivity, while less prepared schools may face similar difficulties, demonstrating that preparedness and challenges function as largely independent constructs within this study context.

The convergence of these findings points to a clear and pressing need for a more structured, evidence-based, and contextually responsive approach to inclusive disaster risk reduction in the schools of Borbon District. Addressing the identified gaps, particularly in teacher training, funding, policy evaluation, and the empowerment of learners with special needs, requires deliberate and coordinated action that goes beyond individual school-level efforts. In light of these conclusions, the study recommends the implementation of the output developed from this research, namely the Inclusive Disaster Risk Reduction Management Plan, which was formulated to directly respond to the documented strengths, gaps, and challenges identified within the district. This plan is intended to serve as a practical and comprehensive framework that reinforces existing preparedness practices, addresses persistent structural barriers, and ensures that no learner is left behind in times of crisis, thereby advancing both educational equity and community resilience in the context of inclusive disaster risk reduction.

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