

Resilient Leadership in Managing Schools Amid Climate Change and Disasters

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This study explored resilient leadership in managing schools amid climate change and disasters by assessing preparedness and safety measures, examining adaptive leadership strategies, analyzing community empowerment initiatives, and evaluating sustainable recovery practices toward “building back better.” Employing a descriptive research design, it involved 150 respondents composed of 50 principals, 50 head teachers, and 50 officers-in-charge from selected public elementary and secondary schools across the Leyte and Southern Leyte Divisions. Using a purposive sampling technique, data were gathered through a researcher-made instrument, with permits secured from the Schools Division Superintendent and participating school leaders. Data were analyzed using arithmetic mean and percentage. Findings revealed consistently high ratings in disaster preparedness and communication practices among school leaders, with Preparedness and Safety Measures obtaining a mean of 3.89 (High), Leadership Strategies in Crisis Response 4.45 (Very High), Practices in Promoting Community Empowerment 4.45 (Very High), and Sustainable Recovery Practices 4.45 (Very High). It was concluded that while schools exhibit strong foundations in disaster preparedness, gaps remain in infrastructure resilience, sustainability, policy enforcement, and resource mobilization—necessitating the alignment of planning with practical, sustainable, and participatory resilience. The study recommends multi-level

Keywords: Community empowerment; leadership strategies; preparedness; safety measures, sustainable recovery

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interventions integrating sustainability, capacity-building, policy coherence, and collaboration among stakeholders to enhance infrastructure, training, compliance, and leadership, thereby transforming disaster preparedness into a sustainable, resilient, and education-centered framework. It bridges the gap between educational leadership and climate resilience, as it explores educational leaders prepare for, respond to, and recover from disasters, that informs policy, management, protection, and sustainable leadership.

Introduction

School resilient leadership is the ability of school leaders to anticipate, prepare for, respond to, and recover from typhoons, floods, and earthquakes based on adaptability, emotional stability, strategic decision-making, and mobilization of people during disruption (Atillo et al., 2025; Pastor et al., 2024). It ensures continuity of learning through disasters and enables long-term preparedness and sustainable recovery through such key dimensions as preparedness (disaster risk reduction and management planning, safe infrastructure, and early warning systems), adaptive decision-making, emotional resilience, distributed leadership, and recovery and renewal (Casinillo, 2022; Casinillo & Suarez, 2022; Chatzipanagiotou & Katsarou, 2023; Hungo et al., 2023; Pastor et al., 2024). In disaster-vulnerable nations such as the Philippines, strong leadership that ensures educational continuity, avoids gross disruption, and protects learners are essential. Therefore, a new management approach that adopts school leadership and climate resilience frameworks and brings value to the global community in crisis management, climate adaptation, and sustainable leadership practices (Edmeade & Buzinde, 2022).

In the case of the Philippines, empirical evidence proves the destructive impact of typhoons in Leyte and Southern Leyte provinces. Super Typhoon Haiyan (2013) caused 6,300 deaths nationwide, particularly in Eastern Visayas, with 550,928 houses destroyed, 589,404 houses damaged, and 5-7 meter high storm surges that flooded Tacloban City and nearby municipalities (Seriño et al., 2021). Typhoon Odette (2021) damaged more than 120,000 houses in Southern Leyte, affected 405 business establishments, and destroyed approximately 90% of tourism-related facilities, incurring billions of pesos in damages in the said region. Other destructive typhoons in the Philippines, including Typhoon Amy (1951) and the latest Typhoon Kalmaegi (2025), also support the impact of typhoons in the country (Santos, 2025).

Disaster resilient leadership and management and climate change are perceived as a central competence that goes beyond the day-to-day administrative tasks and into adaptation, recovery, and preparedness (Catubig, 2023; Pastor et al., 2024). Scholars posit that effective leadership under resilience focuses on anticipatory governance, under which

proactive DRRM plans are prepared by the school leader. Adaptive decision-making is encouraged, and emotional stability is instilled to guide the stakeholders in crucial situations (Özen & Yavuz, 2024). Literatures on resilient leadership as being not just a matter of maintaining business continuity during crises but also leveraging adversity into opportunities for institutional learning and expansion, under the "building back better" precept (Shvindina et al., 2022). Authors also note that resilience is directly related to distributive and participative leadership patterns, as school leaders who delegate power and involve teachers, parents, and the local community are better able to mobilize assets and create conditions for learning continuity (Limon et al., 2021). Additionally, research situates such a type of leadership in larger contexts like the Sendai Framework for Disaster Risk Reduction and climate adaptation theories, where schools are vulnerable institutions and also can be potential community anchors in disasters (Fale, 2022). In the Philippine context and other risk-vulnerable areas, authors emphasize that resilient leadership is not only essential but also necessary, as it guarantees student safety, keeps disruption in learning at the lowest level, and promotes psychosocial well-being while instilling sustainability in school governance (Edmeade & Buzinde, 2022; Utomo et al., 2025). Finally, scholars conceptualize resilient leadership as an education management-climate resilience hybrid construct, a paradigm that can be used to shape universal stories about flexible and sustainable leadership in an unprecedented age of environmental adversity.

Although there is a significance of research on educational leadership that has intensely studied transformational, instructional, and distributed leadership, empirical studies focusing uniquely on resilient leadership in the realm of climate change and disasters are still in dearth. Most of the existing school disaster management literature is focused on infrastructure readiness, disaster risk reduction and management (DRRM) infrastructure or emergency response plans, and yet few scholarly debate exists regarding school administrators' adaptive capacities and leadership styles that lead such emergencies (Crosweiler & Tschakert, 2021). While global guidelines such as the Sendai Framework for Disaster Risk Reduction highlight the importance of resilience within institutions, how these principles are translated into school administration is not yet fully studied, particularly in developing countries that are heavily vulnerable to climate risks like the Philippines (Özen & Yavuz, 2024). In addition, current scholars tend to use policy- or system-level examination and call for investigation of school leaders' lived experiences, decision-making, and leadership innovation before and after disaster situations. Another research gap is combining educational leadership theory with resilience and climate adaptation theory—two areas typically examined in isolation. Quantitative research comparing resilient leadership behavior with measures of school performance (e.g., recovery interval, learning stability, or teacher

and student well-being) is also limited, thus hindering generalizability and application. Comparative or longitudinal studies are also limited and not being able to observe the development of resilient leadership over multiple instances of disaster occurrences or across multiple settings of schools. Focusing on these gaps would not only construct theory in educational leadership but also produce consequential knowledge in school administration in areas prone to disaster, where resilience is not a choice but a necessity. The study aims to explore resilient leadership in managing schools amid climate change and disasters. Specifically, it seeks to: (a) explore the level of preparedness and safety measures implemented by school leaders; (b) assess the adaptive leadership strategies employed by school leaders in responding to crises; (c) analyze the school leaders' practices in promoting community empowerment in disaster preparedness and response; (d) investigate the sustainable recovery practices of school leaders after disasters ("Build Back Better"). This research is significant since it connects educational leadership and climate resilience through exploring how school administrators prepare for, respond to, and rebound from disaster. It recommends managers, guides policymakers, protects students, and encourages among countries to sustainable leadership, with implications for disaster-prone areas such as the Philippines.

Methodology

1. Research Design

This study employed a descriptive research design to systematically assess the disaster resilience practices of school leaders in Leyte and Southern Leyte schools. It was a quantitative research approach used to describe the characteristics, behaviors, attitudes, or conditions of a population or phenomenon in a systematic manner. The design did not aim to establish cause-and-effect relationships but rather to provide an accurate portrayal of existing conditions at a given point in time (22). The descriptive method determined the level of implementation of preparedness, adaptive leadership, continuity in learning, community empowerment, and sustainable recovery. This design was deemed appropriate as it allowed the researcher to describe prevailing practices and analyze the leadership approaches and disaster management outcomes.

2. Research Respondents

The respondents included school leaders consisting of 50 principals, 50 head teachers, and 50 officers-in-charge from selected public elementary and secondary schools across the Leyte and Southern Leyte divisions. The total number of schools represented corresponds to the combined participation of 150 school leaders. They were selected through purposive sampling based on the following criteria: (a) they had served in their

administrative position for at least two consecutive years to ensure adequate leadership experience; (b) they were directly involved in the formulation, implementation, or monitoring of their school's Disaster Risk Reduction and Management (DRRM) plan; (c) their schools were located in hazard-prone areas identified in provincial disaster risk profiles; and (d) they had actively participated in school-level preparedness, response, and recovery initiatives. This sampling approach was deemed appropriate because it ensured that the respondents possessed both the authority and experience necessary to provide relevant insights on disaster preparedness, crisis response, and recovery planning, thereby yielding data most consistent with the objectives of the study.

3. Research Environment

The study was conducted in the Divisions of Leyte and Southern Leyte, Philippines, areas geographically situated within the country's typhoon belt and seismically active zones. These divisions were frequently exposed to natural disasters such as typhoons, floods, landslides, and earthquakes, making them highly susceptible to recurring disruptions. The selection of these locales was justified by their contextual relevance to disaster risk management and educational resilience, as schools in these areas often served as both learning institutions and community evacuation centers during emergencies. Conducting the study in these divisions provided meaningful insights into the adaptive capacities and leadership strategies of school leaders operating under high-risk conditions, thereby allowing for a deeper understanding of how disaster-prone educational environments sustained continuity, safety, and quality learning amidst adversity.

4. Research Sampling

A purposive sampling technique was employed in the study to deliberately select participants who possessed the specific qualifications and experiences relevant to disaster risk reduction and management (DRRM) in the school context. The inclusion criteria focused on school leaders who had served in administrative positions for at least two years, as their tenure ensured sufficient exposure to policy implementation, disaster preparedness initiatives, and post-disaster recovery practices within their respective institutions. This sampling method was appropriate because the study aimed to obtain in-depth and contextually grounded insights from individuals with practical decision-making responsibilities during disaster situations. Furthermore, the selection accounted for geographical distribution, encompassing both coastal and inland municipalities in the Leyte and Southern Leyte divisions. This approach ensured representation across varying levels of disaster vulnerability, thereby capturing a comprehensive picture of school leadership resilience in diverse risk environments.

5. Research Instrument

The research utilized a researcher-made questionnaire based on the four research objectives: preparedness and safety, which included plans for DRRM, infrastructure preparedness, and early warning systems; adaptive leadership responses during crises, which entailed decision-making, delegating, and problem-solving; empowering the people, which involved stakeholder participation, partnerships, and collaboration; and long-term recovery, which included the reconstruction of facilities, restoration of business operations, and "build back better" efforts. The questionnaire comprised 40 items in total, with 10 items per domain. A sample item from the preparedness and safety domain was: "The school maintains functional early-warning systems and conducts regular emergency drills." Responses were measured using a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with scale interpretation indicating the degree of implementation or agreement. All items underwent content validation by three experts in educational leadership and disaster risk reduction to ensure relevance and clarity. The reliability of the instrument was tested through a pilot study involving a population from a nearby division, yielding a Cronbach's alpha of 0.94, demonstrating high internal consistency and suitability for full-scale data collection..

6. Data Gathering Procedure

In the preparation of gathering the data, after securing formal permission from the Division Superintendents and the respective school administrators, the researcher distributed the questionnaires to secure wider accessibility and participation of the respondents. A copy of the informed consent form outlining the purpose, extent, and ethical considerations of the research accompanied each instrument, clearly stating the respondents' right to voluntary participation, confidentiality, and withdrawal without penalty. This process maintained ethical research practices and ensured transparency in the data collection process. The data collection time took around four to six weeks, giving the respondents enough time to fill the survey carefully while the researcher had sufficient time to achieve a good rate of response and the quality of the obtained data. The study adhered to ethical standards for human participants research.

7. Data Analysis Procedure

The collected data were encoded, tabulated, and analyzed quantitatively using descriptive statistical techniques, namely mean, standard deviation, frequency, and percentage, to quantify the level of implementation across the domains of preparedness, adaptive leadership strategies, community empowerment, and sustainable recovery practices. These statistical measures were employed to generate numerical summaries and objective interpretations of the dataset. Specifically, the mean quantified the central tendency of responses, providing an overall numerical index of implementation; the standard

deviation determined the degree of dispersion, indicating the variability or homogeneity of responses among participants; and frequency and percentage illustrated the proportional distribution of responses within each category. The use of these descriptive measures was deemed appropriate for a quantitative descriptive design, as they allowed for the systematic measurement, classification, and comparison of observed variables. Data processing and analysis were performed using the Statistical Package for the Social Sciences (SPSS) to ensure statistical accuracy, computational efficiency, and reproducibility of results.

Results

1. Preparedness and Safety Measures Implemented by School Leaders

Table 1 indicates that the most highly rated indicator is to maintain an updated and annually reviewed DRRM Plan under the supervision of the school head (Overall $M = 4.02$), followed very closely by active coordination with community agencies (Overall $M = 4.00$). Among the respondents, the Principals have the highest composite mean ($M = 4.03$), indicating better perceptions of preparedness. On the other hand, the lowest-rated indicator is disaster-resilient infrastructure (Overall $M = 3.72$), which shows relatively weaker implementation in structural safety. The Officers-in-Charge have the lowest composite mean ($M = 3.75$). All indicators are still at the High level, with none of the items at Very High or below High.

Table 1. Level of Preparedness and Safety Measures Implemented by School Leaders

Indicators of Preparedness and Safety	Principals (N=50) $M \pm SD$	Head Teacher s (N=50) $M \pm SD$	Officers- in- Charge (N=50) $M \pm SD$	Overall Mean $M \pm SD$	Interpre tation
1. The school maintains an updated and annually reviewed DRRM Plan under the supervision of the school head.	4.20 ± 0.14	4.00 ± 0.13	3.85 ± 0.10	4.02 ± 0.18	H
2. The school leader ensures disaster-resilient infrastructure such as reinforced classrooms and designated safe zones.	3.85 ± 0.13	3.70 ± 0.11	3.60 ± 0.08	3.72 ± 0.13	H

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3. Early-warning systems (e.g., alarms and communication tools) are functional and regularly tested.	3.90 ± 0.10	3.75 ± 0.10	3.65 ± 0.09	3.77 ± 0.13	H
4. Emergency drills (earthquake, fire, evacuation) are conducted regularly in coordination with LGU and BFP.	4.10 ± 0.15	3.95 ± 0.09	3.80 ± 0.10	3.95 ± 0.15	H
5. The school provides adequate emergency supplies and first-aid equipment accessible to all personnel.	3.95 ± 0.13	3.80 ± 0.08	3.70 ± 0.08	3.82 ± 0.13	H
6. Evacuation routes and safety signages are clearly marked, visible, and well-maintained.	4.00 ± 0.13	3.85 ± 0.08	3.75 ± 0.08	3.87 ± 0.13	H
7. School DRRM Coordinators and response teams are organized, trained, and assigned specific roles.	4.05 ± 0.13	3.90 ± 0.09	3.80 ± 0.08	3.92 ± 0.13	H
8. Risk assessments and safety audits are periodically conducted to address hazards and vulnerabilities.	3.95 ± 0.13	3.85 ± 0.08	3.70 ± 0.10	3.83 ± 0.13	H
9. Disaster preparedness education is integrated into curricular and co-curricular programs.	4.10 ± 0.15	3.95 ± 0.09	3.80 ± 0.10	3.95 ± 0.15	H
10. The school leader maintains active coordination with community agencies (MDRRMO, Red Cross, PNP,	4.15 ± 0.15	4.00 ± 0.09	3.85 ± 0.10	4.00 ± 0.15	H

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LGU) for disaster response and recovery.

Overall Composite Mean	4.03	3.88	3.75	3.89	H
	± 0.11	± 0.11	± 0.09	± 0.11	

Legend: 4.21–5.00 = Very High(VH); 3.41–4.20 = High(H); 2.61–3.40 = Moderate(M); 1.81–2.60 = Low(L); 1.00–1.80 = Very Low (VL)

1. Leadership Strategies Employed by School Leaders in Responding to Crises

Table 2 shows that the highest rated indicator is “Communicates final decisions promptly and clearly to all staff.” (Overall M = 4.53), together with “Consults key staff members when formulating crisis responses” and “Implements post-crisis evaluations to improve future responses” (both Overall M = 4.53 and 4.51 respectively). Among the three dimensions, the Problem-Solving Approaches has the highest sub-mean (M = 4.47), and the lowest sub-mean was recorded by Delegation of Responsibilities (M = 4.42), although still Very High. Among the three groups of respondents, the Principals have the highest overall mean (M = 4.54), while the Officers-in-Charge have the lowest (M = 4.38). All indicators are Very High, and none of the dimensions are rated lower.

Table 2. Adaptive Leadership Strategies Employed by School Leaders in Responding to Crises

Indicators of Adaptive Leadership Strategies	Principals (N=50) M $\pm$ SD	Head Teachers (N=50) M $\pm$ SD	Officers-in-Charge (N=50) M $\pm$ SD	Overall Mean (M)	Interpretation
A. Decision-Making Processes					
1. Makes rapid yet evidence-based decisions during emergencies.	4.56 ± 0.48	4.42 ± 0.52	4.38 ± 0.55	4.45 ± 0.52	VH
2. Consults key staff members when formulating crisis responses.	4.60 ± 0.45	4.50 ± 0.49	4.48 ± 0.51	4.53 ± 0.48	VH
3. Balances risks and resources in decision implementation.	4.48 ± 0.50	4.36 ± 0.54	4.32 ± 0.57	4.39 ± 0.54	VH

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4. Considers both short-term and long-term effects of decisions.	4.55 ± 0.47	4.43 ± 0.51	4.40 ± 0.53	4.46 ± 0.50	VH
5. Relies on data and verified information before finalizing actions.	4.50 ± 0.49	4.41 ± 0.52	4.37 ± 0.55	4.43 ± 0.52	VH
6. Evaluates multiple alternatives before choosing a course of action.	4.52 ± 0.48	4.39 ± 0.53	4.35 ± 0.56	4.42 ± 0.52	VH
7. Aligns crisis decisions with institutional vision and policies.	4.58 ± 0.46	4.45 ± 0.50	4.40 ± 0.54	4.48 ± 0.50	VH
8. Demonstrates composure and critical thinking in high-pressure situations.	4.54 ± 0.47	4.44 ± 0.51	4.38 ± 0.55	4.45 ± 0.51	VH
9. Integrates stakeholder feedback in critical decision points.	4.49 ± 0.50	4.36 ± 0.54	4.30 ± 0.58	4.38 ± 0.54	VH
10. Communicates final decisions promptly and clearly to all staff.	4.62 ± 0.44	4.50 ± 0.49	4.46 ± 0.52	4.53 ± 0.48	VH
Sub-Mean	4.54 ± 0.47	4.43 ± 0.52	4.38 ± 0.55	4.45 ± 0.51	VH

B. Delegation of Responsibilities

1. Assigns crisis management roles based on staff expertise.	4.50 ± 0.49	4.42 ± 0.52	4.40 ± 0.54	4.44 ± 0.52	VH
2. Empowers teachers and coordinators to make situational decisions.	4.48 ± 0.50	4.35 ± 0.55	4.30 ± 0.58	4.38 ± 0.54	VH

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3. Monitors delegated tasks and provides supportive feedback.	4.52 ± 0.48	4.38 ± 0.53	4.36 ± 0.56	4.42 ± 0.52	VH
4. Establishes clear reporting lines for delegated functions.	4.50 ± 0.49	4.40 ± 0.52	4.35 ± 0.56	4.42 ± 0.52	VH
5. Recognizes individual staff capabilities in task assignments.	4.56 ± 0.47	4.42 ± 0.52	4.37 ± 0.55	4.45 ± 0.51	VH
6. Encourages autonomy while maintaining accountability.	4.53 ± 0.48	4.39 ± 0.53	4.36 ± 0.56	4.43 ± 0.52	VH
7. Ensures equitable workload distribution among staff.	4.49 ± 0.50	4.37 ± 0.54	4.32 ± 0.57	4.39 ± 0.54	VH
8. Provides orientation and training before assigning crisis roles.	4.47 ± 0.51	4.34 ± 0.55	4.31 ± 0.58	4.37 ± 0.55	VH
9. Practices transparency in assigning responsibilities.	4.51 ± 0.49	4.39 ± 0.53	4.35 ± 0.56	4.42 ± 0.52	VH
10. Encourages teamwork and trust among delegated personnel.	4.55 ± 0.47	4.43 ± 0.51	4.40 ± 0.54	4.46 ± 0.51	VH
Sub-Mean	4.51 ± 0.49	4.39 ± 0.53	4.35 ± 0.56	4.42 ± 0.53	VH
C. Problem-Solving Approaches					
1. Adopts flexible strategies in addressing unexpected issues.	4.54 ± 0.47	4.45 ± 0.50	4.40 ± 0.54	4.46 ± 0.50	VH
2. Engages in collaborative discussions to identify viable solutions.	4.58 ± 0.46	4.48 ± 0.49	4.42 ± 0.53	4.49 ± 0.49	VH
3. Implements post-crisis evaluations to improve future responses.	4.60 ± 0.45	4.50 ± 0.48	4.44 ± 0.52	4.51 ± 0.48	VH

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4. Analyzes root causes of problems before applying solutions.	4.57 ± 0.46	4.45 ± 0.50	4.41 ± 0.53	4.48 ± 0.50	VH
5. Encourages innovative and creative thinking among staff.	4.55 ± 0.47	4.43 ± 0.51	4.38 ± 0.55	4.45 ± 0.51	VH
6. Utilizes available resources efficiently during crisis resolution.	4.50 ± 0.49	4.39 ± 0.53	4.35 ± 0.56	4.41 ± 0.53	VH
7. Seeks external support from local agencies when necessary.	4.53 ± 0.48	4.42 ± 0.52	4.37 ± 0.55	4.44 ± 0.52	VH
8. Maintains open communication channels for feedback during crises.	4.58 ± 0.46	4.47 ± 0.49	4.40 ± 0.54	4.48 ± 0.50	VH
9. Keeps documentation of actions taken for transparency and learning.	4.56 ± 0.47	4.44 ± 0.51	4.39 ± 0.55	4.46 ± 0.51	VH
10. Demonstrates persistence in resolving challenges despite constraints.	4.59 ± 0.45	4.48 ± 0.49	4.41 ± 0.53	4.49 ± 0.49	VH
Sub-Mean	4.56 ± 0.47	4.45 ± 0.50	4.40 ± 0.54	4.47 ± 0.50	VH
Overall Mean	4.54 ± 0.48	4.42 ± 0.52	4.38 ± 0.55	4.45 ± 0.52	VH

Legend: 4.21–5.00 = Very High(VH); 3.41–4.20 = High(H); 2.61–3.40 = Moderate(M); 1.81–2.60 = Low(L); 1.00–1.80 = Very Low (VL)

2. School Leaders' Practices in Promoting Community Empowerment in Disaster Preparedness and Response

As shown in table 3, the top-rated indicators (Overall M = 4.51) are “Maintains open communication channels with parents during crises” and “Invites government agencies to conduct community-based disaster workshops,” which emphasize effective communication and collaboration. Among the three categories, Collaboration with Local Stakeholders and

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Government Partners has the highest sub-mean ($M = 4.46$), while Involvement of Teachers in Disaster Preparedness and Response and Engagement of Parents and Guardians share the lowest sub-mean ($M = 4.44$), which is still Very High. Among the groups, Principals have the highest overall mean ($M = 4.54$), while Officers-in-Charge have the lowest ($M = 4.38$). All indicators are Very High, with no rating below this level.

Table 3. School Leaders' Practices in Promoting Community Empowerment in Disaster Preparedness and Response.

Indicators	Principals (n=50) M $\pm$ SD	Head Teachers (n=50) M $\pm$ SD	Officers- in- Charge (n=50) M $\pm$ SD	Overall Weighted Mean (M)	Interpre tation
A. Involvement of Teachers in Disaster Preparedness and Response					
1. Conducts school-wide training and drills with teachers on emergency response procedures.	4.60 ± 0.46	4.45 ± 0.50	4.38 ± 0.54	4.48 ± 0.50	VH
2. Encourages teachers to integrate disaster awareness in classroom instruction.	4.55 ± 0.47	4.42 ± 0.51	4.40 ± 0.53	4.46 ± 0.50	VH
3. Involves teachers in developing and updating the school's disaster contingency plan.	4.53 ± 0.48	4.40 ± 0.52	4.36 ± 0.55	4.43 ± 0.52	VH
4. Assigns teachers to lead safety committees and task forces.	4.50 ± 0.49	4.38 ± 0.53	4.32 ± 0.57	4.40 ± 0.53	VH
5. Recognizes teacher leadership in implementing disaster management initiatives.	4.52 ± 0.48	4.41 ± 0.52	4.35 ± 0.56	4.43 ± 0.52	VH
6. Provides capacity-building sessions for	4.48 ± 0.50	4.37 ± 0.54	4.30 ± 0.58	4.38 ± 0.54	VH

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teachers on crisis
communication.

7. Encourages collaboration among teachers to improve emergency protocols.	4.54 ± 0.47	4.42 ± 0.51	4.38 ± 0.54	4.45 ± 0.51	VH
8. Ensures teachers are aware of school-community evacuation procedures.	4.58 ± 0.46	4.46 ± 0.49	4.40 ± 0.53	4.48 ± 0.49	VH
9. Involves teachers in post-disaster evaluation meetings.	4.56 ± 0.47	4.45 ± 0.50	4.39 ± 0.54	4.47 ± 0.50	VH
10. Promotes teacher-led awareness campaigns on disaster readiness.	4.57 ± 0.46	4.44 ± 0.50	4.40 ± 0.53	4.47 ± 0.50	VH
Sub-Mean	4.54 ± 0.47	4.42 ± 0.51	4.37 ± 0.55	4.44 ± 0.51	VH

B. Engagement of Parents and Guardians

1. Organizes orientations for parents on school disaster policies and evacuation plans.	4.55 ± 0.47	4.43 ± 0.51	4.38 ± 0.54	4.45 ± 0.51	VH
2. Encourages parent participation in risk reduction committees.	4.50 ± 0.49	4.40 ± 0.52	4.35 ± 0.56	4.42 ± 0.52	VH
3. Maintains open communication channels with parents during crises.	4.60 ± 0.45	4.48 ± 0.49	4.45 ± 0.52	4.51 ± 0.48	VH
4. Involves parents in simulation drills and emergency rehearsals.	4.52 ± 0.48	4.38 ± 0.53	4.32 ± 0.57	4.41 ± 0.53	VH
5. Promotes parent education sessions on	4.48 ± 0.50	4.36 ± 0.54	4.30 ± 0.58	4.38 ± 0.54	VH

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disaster response and first aid.					
6. Recognizes parent contributions to school disaster preparedness efforts.	4.50 ± 0.49	4.40 ± 0.52	4.33 ± 0.57	4.41 ± 0.53	VH
7. Builds partnerships with PTA officers for information dissemination.	4.55 ± 0.47	4.42 ± 0.51	4.36 ± 0.55	4.44 ± 0.51	VH
8. Encourages feedback from parents regarding school safety measures.	4.54 ± 0.47	4.45 ± 0.50	4.39 ± 0.54	4.46 ± 0.50	VH
9. Ensures parent representatives are included in crisis management committees.	4.53 ± 0.48	4.41 ± 0.52	4.35 ± 0.56	4.43 ± 0.52	VH
10. Recognizes the role of families in post-disaster recovery and psychosocial support.	4.57 ± 0.46	4.46 ± 0.49	4.40 ± 0.53	4.48 ± 0.49	VH
Sub-Mean	4.53 ± 0.48	4.42 ± 0.51	4.37 ± 0.55	4.44 ± 0.51	VH
C. Collaboration with Local Stakeholders and Government Partners					
1. Establishes linkages with barangay disaster councils for joint preparedness efforts.	4.58 ± 0.46	4.46 ± 0.49	4.40 ± 0.53	4.48 ± 0.49	VH
2. Coordinates with LGUs for resource support during emergencies.	4.55 ± 0.47	4.43 ± 0.51	4.38 ± 0.54	4.45 ± 0.51	VH
3. Invites government agencies to conduct community-based disaster workshops.	4.60 ± 0.45	4.48 ± 0.49	4.45 ± 0.52	4.51 ± 0.48	VH

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4. Partners with health units and NGOs for emergency medical support.	4.52 ± 0.48	4.40 ± 0.52	4.36 ± 0.55	4.43 ± 0.52	VH
5. Maintains a functional network with local rescue and safety units.	4.57 ± 0.46	4.45 ± 0.50	4.41 ± 0.53	4.48 ± 0.50	VH
6. Encourages participation of local leaders in school disaster drills.	4.50 ± 0.49	4.38 ± 0.53	4.34 ± 0.57	4.41 ± 0.53	VH
7. Engages community volunteers in school preparedness initiatives.	4.54 ± 0.47	4.42 ± 0.51	4.38 ± 0.54	4.45 ± 0.51	VH
8. Participates in inter-agency meetings on disaster risk reduction.	4.56 ± 0.47	4.44 ± 0.50	4.39 ± 0.54	4.46 ± 0.50	VH
9. Utilizes local media for disseminating school safety advisories.	4.51 ± 0.49	4.39 ± 0.53	4.35 ± 0.56	4.42 ± 0.53	VH
10. Strengthens intersectoral partnerships for disaster recovery and rehabilitation.	4.58 ± 0.46	4.46 ± 0.49	4.40 ± 0.53	4.48 ± 0.49	VH
Sub-Mean	4.55 ± 0.47	4.43 ± 0.51	4.39 ± 0.54	4.46 ± 0.50	VH
Overall Mean	4.54 ± 0.47	4.42 ± 0.51	4.38 ± 0.55	4.45 ± 0.51	VH

Legend: 4.21–5.00 = Very High(VH); 3.41–4.20 = High(H); 2.61–3.40 = Moderate(M); 1.81–2.60 = Low(L); 1.00–1.80 = Very Low (VL)

3. Sustainable Recovery Practices of School Leaders After Disasters (“Build Back Better”)

As indicated in Table 4, the indicator with the highest mean is “Documents lessons learned from disaster response experiences” (Overall M = 4.50), followed closely by “Embeds the ‘build back better’ principle in school improvement planning” (Overall M = 4.49), reflecting the great emphasis on learning and resilience. Among the three domains,

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Rebuilding and Rehabilitation of School Facilities has the highest sub-mean ($M = 4.46$), and Restoration of Normal School Operations has the lowest sub-mean ($M = 4.44$), although all are at the Very High level. Among the groups, the Principals have the highest overall mean ($M = 4.55$), and the Officers-in-Charge have the lowest mean ($M = 4.38$). No indicator is below the Very High level.

Table 4. Sustainable Recovery Practices of School Leaders After Disasters (“Build Back Better”)

Indicators	Principals (n=50) M ± SD	Head Teachers (n=50) M ± SD	Officers-in-Charge (n=50) M ± SD	Overall Weighted Mean (M)	Interpretation
A. Rebuilding and Rehabilitation of School Facilities					
1. Conducts immediate assessment of infrastructure damage after disasters.	4.60 ± 0.32	4.45 ± 0.41	4.40 ± 0.44	4.48 ± 0.39	VH
2. Coordinates with local and national agencies for reconstruction support.	4.58 ± 0.34	4.46 ± 0.39	4.38 ± 0.45	4.47 ± 0.40	VH
3. Prioritizes the rebuilding of classrooms and learning spaces for continuity of education.	4.55 ± 0.36	4.43 ± 0.42	4.39 ± 0.43	4.46 ± 0.40	VH
4. Ensures that reconstructed facilities comply with disaster-resilient design standards.	4.56 ± 0.35	4.44 ± 0.40	4.38 ± 0.44	4.46 ± 0.39	VH
5. Promotes eco-friendly and sustainable construction practices.	4.50 ± 0.38	4.38 ± 0.44	4.33 ± 0.47	4.40 ± 0.43	VH
6. Engages the school community in clean-up and repair drives.	4.53 ± 0.37	4.40 ± 0.43	4.36 ± 0.45	4.43 ± 0.41	VH
7. Documents facility damages for funding and reporting purposes.	4.52 ± 0.36	4.42 ± 0.41	4.35 ± 0.46	4.43 ± 0.41	VH

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8. Establishes temporary learning spaces when buildings are under repair.	4.55 ± 0.35	4.42 ± 0.42	4.37 ± 0.44	4.45 ± 0.40	VH
9. Monitors progress of reconstruction projects to ensure quality and timeliness.	4.57 ± 0.34	4.44 ± 0.40	4.40 ± 0.43	4.47 ± 0.39	VH
10. Advocates for budget allocation for preventive infrastructure improvements.	4.58 ± 0.33	4.45 ± 0.41	4.40 ± 0.44	4.48 ± 0.39	VH
Sub-Mean	4.56 ± 0.35	4.43 ± 0.41	4.38 ± 0.44	4.46 ± 0.40	VH
B. Restoration of Normal School Operations					
1. Implements an emergency action plan to resume classes promptly.	4.55 ± 0.36	4.42 ± 0.42	4.38 ± 0.44	4.45 ± 0.40	VH
2. Ensures psychological and emotional support for students and teachers.	4.58 ± 0.33	4.46 ± 0.39	4.40 ± 0.43	4.48 ± 0.38	VH
3. Coordinates with LGUs and NGOs for supplies and logistical assistance.	4.53 ± 0.37	4.40 ± 0.43	4.36 ± 0.45	4.43 ± 0.41	VH
4. Establishes alternative learning delivery modes during recovery.	4.50 ± 0.39	4.38 ± 0.44	4.33 ± 0.47	4.40 ± 0.43	VH
5. Communicates transparently with parents and stakeholders about recovery status.	4.54 ± 0.36	4.43 ± 0.41	4.38 ± 0.44	4.45 ± 0.40	VH
6. Schedules make-up classes and remedial programs for learning continuity.	4.52 ± 0.37	4.40 ± 0.42	4.35 ± 0.46	4.42 ± 0.42	VH
7. Strengthens coordination with teaching staff for curriculum recovery.	4.55 ± 0.35	4.42 ± 0.41	4.37 ± 0.44	4.45 ± 0.40	VH

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8. Encourages volunteerism among teachers and community members.	4.50 ± 0.39	4.39 ± 0.44	4.34 ± 0.47	4.41 ± 0.43	VH
9. Implements clear safety protocols before full reopening.	4.57 ± 0.34	4.45 ± 0.40	4.40 ± 0.43	4.47 ± 0.39	VH
10. Conducts evaluation of operational challenges encountered during recovery.	4.53 ± 0.37	4.41 ± 0.42	4.36 ± 0.45	4.43 ± 0.41	VH
Sub-Mean	4.54 ± 0.36	4.42 ± 0.42	4.37 ± 0.45	4.44 ± 0.41	VH
C. Enhancement of Organizational Learning (“Build Back Better”)					
1. Documents lessons learned from disaster response experiences.	4.60 ± 0.31	4.48 ± 0.38	4.43 ± 0.42	4.50 ± 0.37	VH
2. Conducts post-disaster review meetings to analyze successes and gaps.	4.58 ± 0.33	4.45 ± 0.40	4.40 ± 0.43	4.48 ± 0.39	VH
3. Updates the School Disaster Risk Reduction and Management (SDRRM) Plan regularly.	4.55 ± 0.35	4.43 ± 0.41	4.38 ± 0.44	4.45 ± 0.40	VH
4. Promotes the integration of DRRM concepts into the school curriculum.	4.53 ± 0.37	4.42 ± 0.42	4.35 ± 0.46	4.43 ± 0.41	VH
5. Engages teachers and students in identifying areas for improvement.	4.54 ± 0.36	4.44 ± 0.40	4.38 ± 0.44	4.45 ± 0.40	VH
6. Establishes partnerships with external agencies for training and capacity building.	4.57 ± 0.34	4.45 ± 0.39	4.40 ± 0.43	4.47 ± 0.39	VH
7. Uses technology to improve disaster readiness and monitoring systems.	4.52 ± 0.37	4.41 ± 0.42	4.36 ± 0.45	4.43 ± 0.41	VH

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8. Recognizes and rewards innovation in post-disaster school recovery practices.	4.50 ± 0.39	4.38 ± 0.44	4.33 ± 0.44	4.40 ± 0.43	VH
9. Encourages continuous learning on sustainable development principles.	4.56 ± 0.35	4.43 ± 0.41	4.38 ± 0.44	4.46 ± 0.40	VH
10. Embeds the “build back better” principle in school improvement planning.	4.59 ± 0.32	4.46 ± 0.39	4.41 ± 0.42	4.49 ± 0.38	VH
Sub-Mean	4.55 ± 0.35	4.43 ± 0.41	4.38 ± 0.44	4.45 ± 0.40	VH
Overall Mean	4.55 ± 0.35	4.43 ± 0.41	4.38 ± 0.44	4.45 ± 0.40	VH

Legend: 4.21–5.00 = Very High(VH); 3.41–4.20 = High(H); 2.61–3.40 = Moderate(M); 1.81–2.60 = Low(L); 1.00–1.80 = Very Low (VL)

Discussion

The fact that the ratings are consistently high in terms of preparedness, adaptive leadership, community engagement, and post-disaster recovery indicates that disaster risk reduction and management (DRRM) is highly institutionalized in the school system. The ratings are high because preparedness efforts are no longer on the periphery but are institutionalized as governance processes. The schools are regularly updating their DRRM plans, conducting drills, engaging coordinators, incorporating disaster education in the curriculum, and maintaining partnerships with external organizations. This is a result of institutionalization, which is a reflection of procedural consistency, regulatory congruence, and high compliance culture. The fact that there are organized response teams and drills is consistent with the finding that institutionalized DRRM structures are highly effective in improving preparedness (Atillo et al., 2025). Unlike low-resource settings, where there are still gaps between policies and practices, the findings above are indicative of relatively high levels of coherence. However, as Uddin et al. (2021) pointed out, high levels of self-reporting may also indicate response inflation or social desirability bias, especially in accountability-oriented settings.

Leadership commitment seems to play a crucial role in these high ratings. The principals show higher commitment levels in resource mobilization, policy enforcement, and strategic coordination, which explains why their ratings are always higher than those of the head teachers and officers-in-charge. This trend is consistent with findings on role-based perception, which suggest that authority, resource availability, and optimism bias influence compliance perception (Coyle, 2023). The high ratings, therefore, are a result of actual leadership commitment and the advantages that come with hierarchical systems. When principals have higher autonomy levels, DRRM practices become more transparent, coordinated, and systematized.

From the perspective of leadership theories, the results above support adaptive and distributed leadership theories. The leaders' focus on making quick, evidence-based decisions, consultative dialogue, delegation, and post-event analysis aligns with the primary processes of adaptive leadership, which involve sensemaking, flexibility, and learning from experience (Riggio & Newstead, 2023). The combination of documentation and after-action analysis is consistent with organizational learning theory and reflective practice theories (Akbaba Altun, 2025). In addition, the collective participation of teachers and community members is a characteristic of distributed leadership, whereby power is distributed among various stakeholders to improve system responsiveness. High levels of teacher participation are consistent with participatory resilience theories (Cvetković et al., 2024), while the integration of disaster knowledge into the curriculum is consistent with transformative education theories within the Education for Sustainable Development Goals framework (Guo et al., 2025). The schools as hubs of resilience are consistent with the community-focused approach advocated by Edmeade and Buzinde (2022).

The high ratings in post-disaster recovery efforts also reflect commitment to resilience governance and the "Build Back Better" approach advocated in the Sendai Framework (Collodi et al., 2021). The leadership role of principals in infrastructure recovery and preventive budgeting reinforces the importance of school leaders as key actors in crisis response efforts (Pagdilao & Paguyo, 2023). Adherence to disaster-resilient design and sustainable construction practices also reinforces Ngulube's (2024) argument that resilience must encompass long-term environmental and structural protection. Community engagement in recovery efforts also aligns with Beckham et al. (2023), who argue that social capital is a key driver of recovery. Regular updates in SDRRM plans also reflect knowledge management best practices outlined by Morante and Cerado (2025), while technology integration also reflects Tanesab (2020). All these trends suggest that adaptive leadership is not a one-off effort but a systemically ingrained process in decision-making, delegation, and problem-solving.

However, some risks still exist even with high performance ratings. First, the effectiveness of infrastructure resilience and early warning systems still pose structural risks. Even with effective procedural processes, structural vulnerabilities and ineffective monitoring tools will always be a risk. Second, leadership stratification still exists. The performance ratings of officers-in-charge indicate some unevenness in the distribution of leadership, expertise, and training opportunities. This can be a risk to the implementation of DRRM in schools because it may perpetuate dependency on the hierarchy. Even with the importance of shared leadership in distributed leadership theory, hierarchical imbalances can be a risk to true empowerment.

Third, high ratings could mask the risk of complacency. When institutions regularly receive ratings of “very high,” there could be a risk of stagnation, lack of critical reflection, and overconfidence. Müller et al. (2025) show that when institutions are faced with resource challenges, they can struggle with adaptive capacity, information asymmetry, and lack of autonomy. While the current results do not reflect this trend, caution must be exercised to avoid such pitfalls. Social desirability bias is still a concern for the current study’s methodology, as Uddin et al. (2021) have pointed out. Without triangulation through external audits, safety inspections, or performance evaluations, the current level of preparedness could be overstated.

Fourth, there are some subdomains that have relatively lower importance, such as innovation recognition and professional development. This could be due to a lack of institutional incentives for innovation, as proposed by Tanesab (2020), which might lower the motivation to solve problems creatively in the long run. On the other hand, although parent communication is still strong and consistent with the findings of Tambo et al. (2021), slightly lower ratings for parent education indicate that awareness does not necessarily lead to skill development.

Finally, the process of integrating adaptive leadership practices must develop into a system-wide learning architecture. While after-action review is a common practice, aggregation and policy integration are also necessary. Developing mechanisms for standardizing reviews, integrating lessons from across schools, and incorporating them into training curricula can help scale adaptation from episodic to institutional memory. This would implement the principles of resilience outlined in adaptive leadership and learning theory.

The strong ratings are made possible through institutionalized DRRM systems, visible principal leadership, systematic delegation, active community engagement, and resilience framework alignment. The results support leadership theories on adaptability, distribution, and learning (Riggio & Newstead, 2023; Akbaba Altun, 2025), as well as reflecting the literature on community resilience studies (Edmeade & Buzinde, 2022; Cvetković et al., 2024; Guo et

al., 2025). They also show alignment with the Sendai Framework's "Build Back Better" strategy (Collodi et al., 2021) and leadership-focused recovery strategies (Pagdilao & Paguyo, 2023; Ngulube, 2024; Morante & Cerado, 2025). However, persistent risks include infrastructure deficits, hierarchical disequilibrium (Coyle, 2023), the risk of optimism bias (Uddin et al., 2021), adaptive diffusion inequality (Müller et al., 2025), and the lack of innovation incentives (Tanesab, 2020). Thus, achieving and sustaining resilience not only requires the sustained high ratings but also a continuous process of interrogating, validating, and enhancing the systems that have produced these ratings.

Conclusion

The results show that there is a high level of disaster preparedness among schools and education sector stakeholders in Leyte and Southern Leyte in terms of updated DRRM plans, effective communication, and adaptive leadership among school administrators. Nevertheless, there is a notable missing link between disaster preparedness and the development of resilient and sustainable infrastructure, which is essential in the full implementation of disaster readiness. This shows that disaster planning and adaptive leadership are well-established concepts, but the physical and environmental aspects are not fully developed in the context of disaster preparedness. This shows that there is a great deal to be considered by school administrators regarding the implementation of disaster-resilient and eco-friendly infrastructure and capacity-building in the context of disaster preparedness.

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