

School-Based Resilience Leadership Framework for Principals in Times of Disaster

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ABSTRACT

Disasters pose significant threats to schools, impacting their safety and operations. This study employs a phenomenological qualitative design to explore how school principals lead with resilience during disasters. Participants, selected for their experiences with human-induced (armed conflict, fire) and natural disasters (earthquake, pandemic, typhoon, volcanic eruption), demonstrated resilience through evidence-based decisions and proactive actions. In the pre-disaster phase, principals empower stakeholders through awareness campaigns and training. During disasters, they embody care and the culture of *bayanihan* (communal collaboration). Post-disaster, they drive adaptive and sustainable initiatives. These practices shaped a localized school-based resilience leadership framework to guide other school leaders.

Keywords: disasters, disaster management, resilience leadership

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Introduction

School leadership is crucial in disaster management, with principals' resilience greatly impacting emergency responses.

Documenting the practices of experienced leaders offers valuable insights for effective hazard management. However, principals often face challenges with limited resources and

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support during disasters (Potter et al., 2020), highlighting the need for better leadership and governance in schools.

Research by Mahmud et al. (2020) underscores the importance of leadership in crisis management, as seen in responses to the Aceh Earthquake (2004) and Fukushima Nuclear Disaster (2011). Effective leaders optimize resources and foster collaboration across disaster phases. O'Connor and Takahashi (2014) demonstrate the benefits of proactive and pastoral care strategies in New Zealand and Japan, while Fernandez et al. (2022) emphasize learning from past events to enhance future resilience.

Croweller (2022) advocates a relational leadership framework emphasizing accountability and care. Disasters disrupt school operations and cause significant learning loss (Khan et al., 2020; Save the Children, 2016; Yusuf et al., 2022). Many schools remain unprepared, underscoring the need for resilient leadership (Weiland, 2019).

Transformative and resilient leadership models are key for improving disaster prevention (Atienza, 2015; Wang et al., 2020). Bongo and Manyena (2015) argue that existing frameworks like the Sendai Framework underemphasize the role of school leadership in resilience, advocating for a shift towards sustainable development and highlighting principals' critical role in fostering resilience.

Literature Review

Schools crises like COVID-19 and Ebola led to global school closures and disruptions (Gómez, 2022; Merez, 2020). Environmental disasters

such as Typhoon Haiyan and the 2010 Haiti earthquake caused severe casualties and damage (Powell & Brack, 2019). Conflicts in Yemen and Congo further disrupt education (Kaldor, 2020; Lindstaedt, 2021). In Asia, the Philippines faces frequent severe impacts, including the Zamboanga siege and Marawi battle (Opulencia-Calub & Gough, 2019; Pulhin et al., 2021).

Asian schools focus on localized practices to build resilience, with education playing a crucial role (Pal et al., 2021). Challenges such as dysfunctional institutions and resource deficits hinder effective disaster management (Atienza, 2019; Shaw et al., 2021).

Resilient leaders are crucial for disaster response, adapting through stakeholder engagement and learning from past disasters (Direen, 2017; Southwick et al., 2017). Leadership capacity and professional development are essential (Norman & Binka, 2015).

Principals are vital for disaster resilience, affecting institutional recovery and adaptation (Harahap et al., 2022). They must be proactive, advocate for DRRM, and engage in ongoing training (Petal et al., 2015; Twigg, 2015). In Spain, resilient leadership has enhanced responses to crises, emphasizing the need for a resilience framework in disaster management (Olmo-Extremera et al., 2022; Pangandoyon et al., 2024).

Framework of the Study

This study explores principals' disaster management experiences through resilience leadership. Adapting Coombs' (2007) crisis management cycle into 'pre-disaster,' 'during disaster,' and 'post-disaster' phases, it highlights

principals’ roles in safeguarding school communities (Tipler et al., 2022).

Resilience leadership focuses on adaptive and relational strategies during disasters (Jenkins, 2015; Shelton, 2022). McEntire (2021) emphasizes resilience through planning, improvisation, and learning, enabling principals to lead with agility and compassion (Croweller & Tschakert, 2021).

Current DRRM practices face challenges needing innovation (Alcayna et al., 2016; Malahay & Estrope, 2018). This study proposes a localized resilience framework to guide school leaders beyond generic models, equipping them with essential disaster response skills (Rahma et al., 2024). It aims to address research gaps by showcasing principals’ resilience leadership as an effective practice model.

Research Questions

This study explores the experiences and strategic resilience practices of principals during times of

disasters. Specifically, it addresses the following questions:

1. What human-induced and natural disasters have principals encountered?
2. What resilience leadership strategies do principals use across different phases of disaster management?
3. What school-based resilience leadership framework can be developed in response to times of disasters?

Participants

Ten (10) principals were selected through purposive sampling. All participants had at least three years of experience in resilience leadership and disaster management.

Apart from the main participants, six (6) non-principals were included as additional

Table 1

Principals’ Profile

No.	Code	Region	Designation & Number of Years	Disaster Experienced
1	P1	CAR (Cordillera Administrative Region)	Principal, 4 years	Fire
2	P2	CAR	Principal, 10 years	Earthquake
3	P3	NCR (National Capital Region)	Principal IV, 10 years	Pandemic
4	P4	Region IV-A (CALABARZON)	Principal I, 3 years	Volcanic Eruption
5	P5	Region V (Bicol)	Principal II, 5 years	Volcanic Eruption
6	P6	NCR	Principal IV, 3 years	Typhoon
7	P7	Region VIII (Eastern Visayas)	Principal, 3 years	Typhoon
8	P8	BARMM (Bangsamoro Autonomous Region in Muslim Mindanao)	Principal, 3 years	Earthquake
9	P9	BARMM	Principal, 15 years	Armed Conflict
10	P10	BARMM	Principal I, 3 years	Armed Conflict

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Table 2

Non-principals' Profile

No.	Code	Region	Designation & Number of Years	Disaster Experienced
1	NP1	CAR	Head Teacher, 5 years	Pandemic
2	NP2	IV-A	SDRRM Coordinator, 3 years-	Volcanic Eruption
3	NP3	NCR	Project Development Officer DRRM, 5 years	Various disasters
4	NP4	Region V	Program Development Officer DRRM, 6 years	Various disaster
5	NP5	Region VIII	Head Teacher, 4 years	Typhoon
6	NP6	Region V	DepEd official	Various disasters

informants, and relevant documents were reviewed to ensure triangulation of data.

Methodology

This study employed a phenomenological qualitative design to investigate principals' experiences in disaster management (Petitmengin et al., 2019). An interview guide, adapted from Morrison (2017) and validated by experts in educational leadership and disaster management, was used. Data were collected through online and phone interviews lasting at least 30 minutes.

Data analysis followed Collaizzi's method (Praveena & Sasikumar, 2021), involving transcription, narrative extraction, and thematic development (Lindgren et al., 2020). Participants reviewed findings to ensure accuracy.

Ethical standards were upheld, including obtaining voluntary consent, maintaining anonymity with codes (e.g., 'P' for principals), and securely storing all data.

Results and Discussion

The study identifies two main themes: (1) Shared Experiences of Disasters, with sub-themes including Human-induced Crises and Natural Catastrophes; and (2) Strategic Practices for Leading Resilience, encompassing Prevention and Capacity Building, Proactive Actions, and Sustainable Solutions.

Principals Encounter in Times of Disasters

Principals have experienced both human-induced and natural disasters, leading to displacement, property damage, and operational disruptions. Their insights highlight the extensive impact of these emergencies on infrastructure and emotional well-being. These perspectives are crucial for developing effective disaster preparedness and response strategies for educational settings (Firdhous & Karuratane, 2018).

Table 3

Disaster Experiences of Principals

Codes and Sample Verbatim Responses	Categories	Themes	Description of Themes
Flaming Destruction and Conflict Displacement	Human-induced Crises	Shared Experiences: Disasters through the lens of principals	Human-induced crises are limited to fire and armed conflict.
<p>P1: “It was about 8 o’clock on March 8, 2019, in the evening when our school caught fire.”</p> <p>P10: “It was May 22, 2017 [when the siege happened]. At around 10 am there was already a commotion. There were really ISIS [members] who entered [the city].”</p>			
Earthquake, Pandemic, Typhoon, Volcanic Eruption Disruptions	Natural Catastrophes		The natural disasters are mostly meteorological.
<p>P2: “Three years ago, there was an earthquake in Baguio City.”</p> <p>P3: “I consider this COVID as a number one disaster. Most of our school activities were diluted, more or less delayed.”</p> <p>P6: “<i>Dito naranasan ko yung Ondoy [typhoon].</i>”</p> <p>(“It is here that I have experienced [Typhoon] Ondoy.”)</p> <p>P5: “<i>Pinakarami talagang naranasan namin dito hanggang ngayon is volcanic eruption.</i>”</p> <p>(“The disaster we have mostly experienced here until now is the volcanic eruption.”)</p>			

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Human-induced Crises

Schools are highly vulnerable to man-made disasters like armed conflicts and fires, impacting teachers and students significantly (Onigbinde, 2018; Opuencia-Calub & Gough, 2019).

Armed Conflict: The Marawi siege on May 22, 2017, led to widespread displacement and destruction. **P10** recalled, “ISIS entered the city... We were told to leave.” **P9** added, “Our homes and schools were destroyed... Nothing was left to go back to.”

Fire: On March 8, 2019, a fire in Benguet destroyed a school due to unresolved electrical issues. **P1** noted, “The school caught fire after I reported a spark.” Though repairs were planned, the fire occurred before they could be made, destroying rooms, books, and printers.

These events highlight the urgent need for effective disaster management and timely responses to reduce the impact on schools and communities.

Natural Catastrophes

Principals face significant challenges during natural disasters, including earthquakes, pandemics, typhoons, and volcanic eruptions, which disrupt school operations, damage assets, and displace students (Lim et al., 2015; Oliver-Smith, 2018).

Earthquakes: In quake-prone areas like Baguio and Cotabato, principals ensure safety through regular drills. **P2** emphasized, “Safety is everyone’s responsibility,” while **P8** noted, “There was a power interruption for more than 12 hours.”

Pandemic: COVID-19 severely impacted education. **P3** described it as “the mother of all disasters,” and **NP1** admitted, “We did not expect this. We are not prepared.” The pandemic led to anxiety and a shift to blended learning, with **NP1** noting, “We panicked about continuing quality education.”

Typhoons: Typhoons like Ondoy and Yolanda had devastating effects. **P6** said, “Our tagline became ‘We are a community, we are one,’” and **P7** reflected, “The school buildings are destroyed... there is no more education.” Typhoon Ulysses also caused significant flooding, affecting half of the students.

Volcanic Eruptions: Schools near Taal and Mayon Volcanoes regularly face disruptions. **P4** described the January 2020 Taal eruption: “Our school became an evacuation center... It was raining with ash.” **P5** managed class cancellations calmly during Mayon’s eruption: “I announced the cancellation of classes to avoid panic.”

Principals must exhibit resilience and adaptability to sustain school operations and support communities during crises. They are crucial in disaster management, fostering collaboration, mobilizing resources, and coordinating interventions. By using social media, managing resources transparently, securing donations, forming committees, and advocating for temporary learning facilities, principals ensure education continuity during recovery (Opuencia-Calub & Gough, 2019; Onigbinde, 2018).

Resilience Leadership Strategies

In times of disasters, principals are key to mitigating impacts through resilience leadership. Their strategic decisions guide mitigation,

Table 4

Resilience Leadership Practices of Principals

Codes and Sample Verbatim Responses	Categories	Themes	Description of Themes
P2: “Before disasters, you have prepared solutions to identified problems.”	Refocusing on Prevention	Strategic Practices: Leading	Strategic practices in the pre-disaster focuses on mitigation, prevention, and preparation.
P8: “My responsibility is to keep my students safe and to be alert all the time.”	Reinforcing Proactive Actions	Resilience in Times of Disaster	
P7: “It is essential for resourcefulness, resilience, and addressing the needs of our students, building the linkage, and collaboration.”	Reintegrating Sustainable solutions		Principals reinforce the proactive response during disasters.
			Sustainable solutions are enacted to build back better in the post-disaster.

prevention, and preparedness efforts before disasters, proactive response during crises, and sustainable recovery and rehabilitation afterward.

Prevention and Capacity Building

Pre-disaster management focuses on mitigation, prevention, and preparation. Principals develop contingency plans, raise awareness, conduct drills, and enhance capacity through training. **P1** emphasized integrating safety into classroom activities: “Integrate fire prevention into classroom activities and consult experts.” **P2** in Baguio stressed the value of contextualized drills: “Persistent drills foster a preparedness culture.” After the Taal eruption, **P4** highlighted the need for realistic drills and community engagement: “We need realistic

drills and community engagement based on needs assessment.”

During COVID-19, principals aligned local efforts with national strategies. **NP1** noted, “Maintaining education while complying with health protocols is essential.” Challenges included information dissemination and decision-making. **NP5** added, “Effective decision-making and safety measures are critical.” Preparedness involves ready Go Bags and coordination with Local Government Units; **NP4** emphasized, “Proactive planning and stakeholder engagement are essential.”

Principals drive strategic disaster management by engaging stakeholders and maintaining resilience. **NP3** highlighted the

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need to balance safety, health, and well-being: “Principals balance safety, health, and well-being, adapting strategies as needed.” Continuous collaboration and training are crucial. **P6** noted, “Involving all stakeholders and conducting regular training ensures readiness.” Effective disaster management requires proactive planning, strategic leadership, and ongoing improvement, with principals leading readiness through training, drills, and collaboration with the School DRRM team (Shah et al., 2020).

Proactive Actions

During disasters, principals emphasize agility, innovation, and communal support. **P2** stressed active involvement: “A leader must be fully immersed and not just delegate.” They model calmness and guide their teams; **P8** noted, “During an earthquake, I ensured student safety and stayed alert.” After a fire, **P1** swiftly coordinated resources and communicated with DepEd and local officials: “I arranged assistance and had the school ready. Humility and effective communication expedite support.”

During the Cotabato earthquake, **P8** used the emergency bell and reviewed actions: “This strengthened our support network and improved connections with parents and officials.” Amid the pandemic, **P3** adapted with a Learning Continuity Plan: “We implemented DepEd policies and reconfigured classrooms.” **P1** highlighted: “Leaders must be positive, decisive, and collaborative.” In eruptions, principals focused on hands-on leadership; **P4** suggested barcoded IDs for aid distribution.

For typhoons, **P6** emphasized quick decision-making: “We used Messenger for coordination and fostered a culture of care.” During the Marawi siege, **P10** managed with

optimism: “Trust and confidence helped us adjust,” using Facebook for updates and donations. Principals’ resilience and creativity in disaster responses reflect a strong culture of mutual assistance, enhancing their ability to address immediate concerns and drive change (Adlit & Martinez, 2023; Hayes & Derrington, 2023; Sahasranamam & Soundararajan, 2022).

Sustainable Solutions

In the post-disaster phase, school leaders focus on recovery and program adaptation. **P4**, after a volcanic eruption, prioritized safety and introduced Alternative Delivery Modes (ADM): “We cleaned, inventoried, and inspected buildings, then developed ADM modules.” During the pandemic, mental health was prioritized, with the SDRRM coordinator noting, “We focused on mental health and psychological first aid.” **P6** used storytelling and virtual modules to support mental health: “We engaged students and parents with storytelling and virtual resiliency modules.”

After typhoons, **P6** managed relocations and emphasized empathy: “I reminded teachers to empathize with relocated communities.” **P7** saw Yolanda as an opportunity for growth: “It led to stronger stakeholder collaboration and improved protocols.” They addressed classroom shortages through enhanced collaboration: “We strengthened partnerships to overcome classroom deficits.” Rehabilitation efforts were expanded with better coordination and safety inspections: “We requested LGU inspections immediately after disasters” (**NP5**).

P7 also improved home visitations and trauma support: “We integrated lessons with trauma-supportive activities.” **NP5** highlighted creative methods: “We used karaoke for learning,” while **NP1** adapted learning for

parental involvement: “We provided resources and adjusted for parents’ availability.” NP5 emphasized innovation: “Leaders become prepared and innovative, as shown by Project LIFE.”

In Marawi, psychosocial support was crucial: “Psycho-social activities and tent schools uplifted children” (P9). Principals view resilience as learning from adversity, using community support and adaptability. NP6 suggested, “A resilience framework should be part of the curriculum.” Post-disaster, principals integrate adaptive measures, turning challenges into opportunities for building stronger, disaster-resistant schools (Dunn, 2020; Mutch, 2023; Olmo-Extremera et al., 2022; Opabola et al., 2023).

School-based Resilience Leadership Framework

To tackle disaster management challenges, principals require a framework based on their experiences and relevant theories. This framework offers a localized guide for resilient actions and decisions (Cobanoglu & Demir, 2022). Integrating this approach into policy is essential for effective disaster risk reduction and management (Direen, 2017; Galigan et al., 2015), using findings from principals’ experiences, contextualized through a concept map.

In the pre-disaster phase, principals boost public awareness through tailored education activities like multi-hazard drills and first aid training (Yulianto et al., 2023). Effective disaster

Figure 1

Concept Map for the Framework

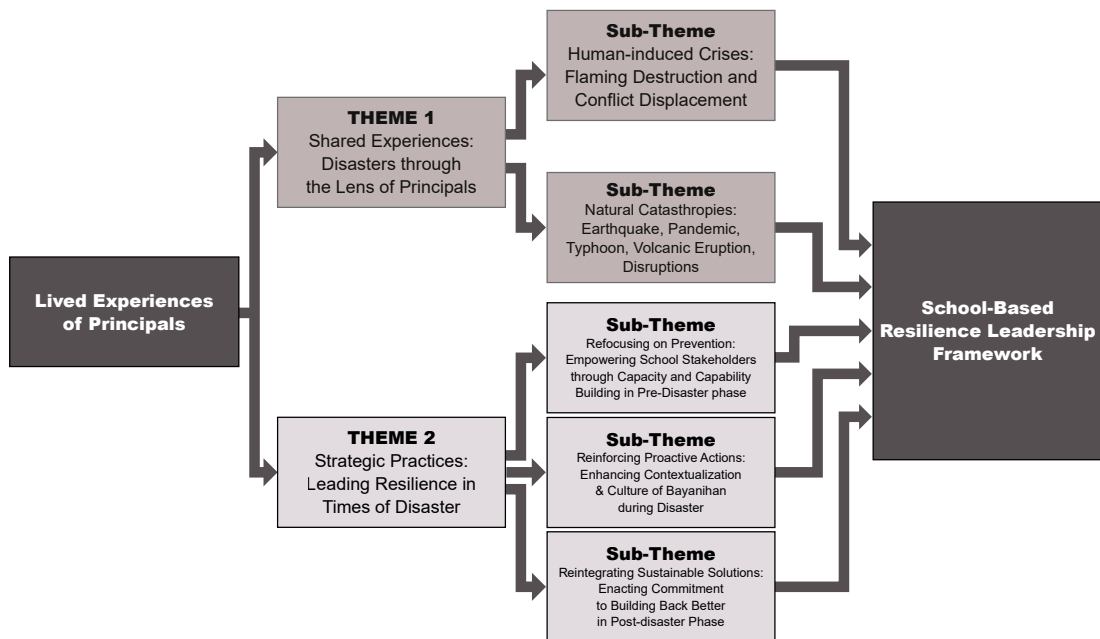


Figure 2

School-based Resilience Leadership Framework



risk reduction relies on strategic planning and collaboration.

During disasters, principals focus on agile responses, revealing the need for competencies such as readiness and adaptation (Gregg et al., 2022; Omari, 2021). Innovative strategies include using social media and community support to enhance resilience (Southwick et al., 2017).

Post-disaster, principals implement adaptive recovery strategies, providing psychosocial support and coordinating communication for rebuilding efforts (Parker, 2020). The framework—preparedness, proactive response, and sustainable recovery—strengthens principals’ resilience leadership in disaster management.

Implications

The findings emphasize the need for principals to strengthen resilience leadership by learning from peers (Croweller & Tschakert, 2021; Darter-Baah, 2015). Continuous development in resilience and multidisciplinary approaches is crucial for effective disaster management (Kendra et al., 2018; Masten, 2020). Principals should enhance mitigation, prevention, and preparedness efforts, with additional training in psychosocial first aid and mindfulness (Khazai et al., 2018; Pearson & Mitroff, 2019). Improved coordination with LGUs is vital for effective evacuation and shelter planning. Teacher Education Institutions (TEIs) should integrate resilience leadership into curricula. Implementing the proposed resilience leadership framework will help principals adopt effective, context-specific practices.

Conclusion and Recommendation

Principals have faced both human-induced disasters (e.g., fire, armed conflict) and natural disasters (e.g., earthquakes, pandemics, typhoons, and volcanic eruptions), each significantly impacting school operations. These challenges necessitate proactive leadership and strategic actions. Principals demonstrated resilience through targeted practices in disaster management. In the pre-disaster phase, they focused on training and capacity building. During disasters, they implemented contextualized interventions for effective rescue and relief. Post-disaster, their efforts were geared towards sustainable recovery and rebuilding. These practices contributed to the development of a school-based resilience leadership framework.

While current disaster management practices are documented, the unique resilience leadership of principals are still to be more widely shared. Moreover, it is suggested that additional sources of evidence of best-fit practices can be further evaluated for verification purposes. Most importantly, policy reviews may consider updating disaster management guidelines to include resilience leadership practices. The proposed framework is encouraged to be implemented for practice, then eventually be tested and refined for effectiveness. The study's scope was limited to common disasters, not emerging threats. Therefore, future research may explore the novel risks to develop targeted resilience models that effectively address these new challenges in the education sector.

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Statements and Declarations

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