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Building Resilient Education Systems: A Thematic Synthesis of Post-Disaster Recovery Strategies

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Abstract

This study aims to identify key components of effective post-disaster educational recovery by conducting a thematic synthesis of nine recent and methodologically robust qualitative studies. The selected articles focus on educational systems in disaster-affected regions and reflect current developments in the field. Thematic analysis revealed four core domains essential to recovery: (1) structured mental health and psychosocial support, (2) teacher resilience and professional support, (3) community engagement for localized recovery, and (4) flexible curriculum design responsive to disrupted learning. Findings show that while mental health interventions are increasingly recognized, they are often temporary and insufficiently integrated into policy. Teachers, despite their central role in recovery, are frequently excluded from planning processes. Community collaboration emerges as a key driver of culturally relevant and sustainable education, while curriculum adaptability helps meet diverse student needs. The study concludes by proposing a holistic model of educational resilience and recommends that policymakers prioritize inclusive, trauma-sensitive, and system-wide strategies to better prepare schools for future disasters.

Keywords: Community Engagement, Curriculum Adaptation, Educational Policy, Post-disaster Education, Teacher Resilience

1. INTRODUCTION

As one such disaster, earthquakes have devastating effects on education systems, disrupting learning environments, displacing both students and teachers, and stretching tenuous resources (Rodriguez et al., 2018). The challenge to learning continuity is further compounded by damage to physical infrastructure, including school buildings, classrooms, and educational materials. In addition to structural damage schools have to cope with, the psychological harm it creates in students and teachers can lead to higher dropout rates, lower performance in the education system, and long-lasting social hurdles if not addressed properly (Peek, 2019). Moreover, such disruptions to education due to earthquakes can have socio-economic impacts, especially in developing countries with limited access to education (UNESCO, 2020).

Natural and technological disasters—including earthquakes—often exacerbate existing inequalities within education systems, particularly impacting marginalized communities in rural or under-resourced areas by disrupting access to schooling and learning continuity (Mizunoya et al., 2019). Literature shows that the educational recovery process is a formidable challenge in low-income communities that lack the necessary financing and resources to successfully execute reconstruction projects, while alternative education options are also scarce (Buckland, 2005).

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Neglect due to destruction of school facilities not only hinders the faster recuperation of education but negatively affects the long-term development of damaged countries, causing gaps in generations in terms of education generation gulf and hence reflects indecisiveness in the nations' progress (Petal, 2011).

These challenges will need to be addressed through a three-pronged approach of emergency response strategies, sustainable policy frameworks and long-term educational resilience-building efforts. Governments, NGOs, and international agencies (e.g., UNESCO, UNICEF, World Bank) are integral to the process of shaping educational policy at these times—and, critically, the implementation of these policies continues to unfold over a period of time since the earthquake. These organizations focus on quick responses, like the rapid establishment of temporary learning spaces, as well as the medium- to long-term strengthening of education systems, teacher training, and teaching disaster response in the curriculum (UNESCO, 2020). As community participation is one of the principal components of successful recovery programs, educational responses must be contextually relevant and sustainable (Izadkhah and Hosseini, 2005).

Notwithstanding these coordinated efforts, there remain specific challenges towards optimal implementation and sustainability of post-earthquake education policies, especially in impoverished contexts (Buckland, 2005). There are barriers, including insufficient financial resources, a lack of alignment among stakeholders, and systemic inefficiencies in disaster risk governance (Komatsu and Rappleye, 2017). Moreover, disaster response policies often prioritize short-term recovery at the expense of long-term resilience, and educational institutions are left vulnerable to future earthquakes (Shin et al., 2014). Despite efforts to establish disaster preparedness training for educators and school administrators, the majority of schools do not possess a larger institutional capacity to efficiently respond to future seismic events across the board, adding another layer of difficulty to the recovery process (Norris et al., 2015).

Furthermore, access to post-earthquake education varies considerably, underscoring the need for inclusive policies that cater to the unique needs of vulnerable populations such as children with disabilities, ethnic minorities, and displaced families. Interventions to ensure equitable access to education after an earthquake must take particularized contexts into consideration and may include mobile learning programs, remote education technologies, and community-led educational initiatives (Shin et al., 2014). Digital learning platforms have become a crucial means for educating the population in the post-disaster phase by enabling students to study even in a situation where the physical school infrastructure is not in place (Huang et al., 2021). Moreover, Izadkhah and Hosseini (2005) highlight the importance of integrating DRR proactively into national curricula, which helps to create a culture of preparedness and resilience among students and teachers. Research indicates that incorporating disaster risk reduction (DRR) training as a part of the curriculum prepares the schools better to face future seismic events, ensuring minimal education interruption (Peek, 2019).

By reviewing these past interventions, we can better understand what works when it comes to education in the wake of disaster, what does not, and how we can build better systems for teaching children in disaster-endangered areas. Further research is necessary to longitudinally assess the effects of the policies; evaluate best practices in order to adapt proposals to local socio-economic contexts; and stimulate crosscutting collaborations to strengthen resilience to new earthquakes within education systems. Through the development of more effective policy measures and a more holistic approach to post-disaster education, stakeholders can strengthen and enable educational institutions to withstand future earthquakes, allowing students to have a stable and continuous learning experience.

2. LITERATURE REVIEW

2.1. Theoretical and Policy Framework for Post-Disaster Education Resilience

Disasters impact not only the physical environment but also social and institutional structures, with education systems among the most severely affected. Loss of school infrastructure, interruptions in educational continuity, and the psychological trauma experienced by students and teachers necessitate a multidimensional approach to post-disaster educational planning. In this context, the Sendai Framework for Disaster Risk Reduction (2015–2030) emphasizes the need to strengthen the resilience of educational facilities, stating that "…disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, should be substantially reduced by 2030" (UNDRR, 2015, p. 12). Furthermore, the framework calls for the inclusive engagement of children, women, persons with disabilities, and all vulnerable groups in disaster risk reduction processes.

The Sendai Framework also highlights the role of education systems not only in knowledge transfer but as platforms for community-based psychosocial recovery, awareness-building, and resilience development. It notes that children and youth are particularly vulnerable to disaster risks and that schools should function as environments that foster risk awareness and empower individuals to act. This perspective directly supports the thematic focus of the current study, including school-centered rehabilitation, curriculum adaptation, and rebuilding through social solidarity in post-trauma settings.

In the Turkish context, the Türkiye Afet Sonrası İyileştirme Programı (TASIP) report similarly stresses the importance of protecting the mental and social well-being of children in post-disaster education. The report emphasizes the critical role of the student-teacher-parent triad, stating that "psychosocial support activities aim not only to manage trauma but also to strengthen social cohesion" (TASIP, 2025). It also underscores the necessity of integrating structural components such as inter-institutional coordination, school leadership, and teacher resilience into disaster management strategies (TASIP, 2025). Additionally, the report highlights that returning children to safe, structured, and sustainable school environments is a cornerstone of the recovery process.

This comprehensive framework provides both theoretical and practical grounding for the present study's recommendations related to psychosocial support, teacher well-being, community collaboration, and curricular flexibility in disaster-affected educational settings.

In addition to the foundational insights provided by global policy frameworks such as the Sendai Framework for Disaster Risk Reduction and national initiatives like Türkiye's Post-Disaster Recovery Program (TASIP), interdisciplinary theoretical perspectives deepen our understanding of how education systems can recover and evolve in the aftermath of natural disasters. Theories emerging from psychology, disaster management, and educational resilience provide a conceptual lens to evaluate not only infrastructural and organizational responses, but also the emotional, cognitive, and social dimensions of recovery. Incorporating these frameworks—particularly resilience theory, disaster risk reduction (DRR) models, and crisis management strategies—into educational planning ensures a more holistic and sustainable approach to rebuilding education in disaster-affected contexts.

Interdisciplinary research bridging psychology, disaster management, and educational theory informs post-earthquake education structures. These frameworks emphasize the critical need for policymakers, educators, and stakeholders to establish robust and sustainable educational systems that can adapt and thrive in the aftermath of such events. Related theories are resilience theory (Masten, 2014), disaster risk reduction (DRR) models (Wisner et al., 2004), and crisis management frameworks (Henderson and Milstein, 2003) that are the main in post-earthquake education. Drawing on resilience theory, we argue that the adaptive capacities of educational

systems, as expressed through preparedness, social cohesion, and institutional flexibility, help them to absorb and recover from disasters (Masten, 2014). Implementing resilience-oriented policies in schools enables them to be resilient and continue providing educational services during any disruptions. Resilience through adversity in education goes past the basic structures and into the emotional and cognitive spaces that teachers and students occupy as they learn, mend, and rebuild (Masten, 2014). Recent research points to social capital and community engagement as driving forces in building resilience in schools after earthquakes and the need for neighborhood engagement in the recovery planning process to optimize school resilience (Peek, 2019).

Likewise, DRR models emphasize the importance of disaster preparedness curriculum in schools and structural resilience built into schools for future seismic disasters (Wisner et al., 2004). Such models stress the importance of integrating disaster education into national curricula to instill lifelong skills for risk reduction. Research shows that students who receive disaster preparedness education are more likely to take proactive steps in an emergency and contribute to community-wide disaster reduction efforts (Izadkhah and Hosseini, 2005). These models highlight the importance of pre-disaster planning, risk assessment, and integration of disaster education into the school curriculum. Studies provide evidence that school-based DRR programs increase students' understanding and preparedness for these disasters to decrease future risk (Izadkhah and Hosseini, 2005). The focused guidance of crisis management frameworks underscores that effective leadership involves ensuring systematic implementation of strategies for response, including communication strategies that facilitate collaborative efforts in approaching educational reforms necessitated by an earthquake (Henderson and Milstein, 2003). Appropriate crisis management of resistance in educational institutions includes the preparation of contingency plans, the composition of rapid emergency response teams, and simulation exercises of the response of students and teachers to an emergency. Research shows that schools that regularly hold earthquake drills and include disaster preparedness in their curricula have improved emergency response skills and lower injury rates during actual disasters (Komatsu and Rappleye, 2017). Besides, effective communication strategies between educators and emergency responders can improve outcomes during a crisis.

2.2. Post-Earthquake Educational Recovery

Existing empirical research underscores the short-term, medium-term, and long-term challenges of recovery in post-earthquake education. The repercussions of such disasters are not limited to infrastructure damage; they also have profound psychological, social, and logistical implications for both learners and educators. Post-earthquake recovery efforts can be more effective with government support, community involvement, and crisis adaptability in educational institutions. The immediate, medium, and longer-term challenges in meeting education needs during post-earthquake recovery have been documented by research. Immediate response efforts include creating temporary learning spaces, providing psychological support, and restoring critical educational functions (UNESCO, 2020). Early evidence showed that temporary schools and alternative learning spaces were effective in preventing learning loss and offering psychosocial support to students experiencing trauma (Bonanno et al., 2010). In post-disaster environments, psychological intervention programs like Trauma-informed Teaching have been indicated to increase student well-being and engagement. Community-driven recovery programs that incorporate parents and community organizations in decision-making processes have been shown to yield better learning outcomes and greater institutional recovery. Community-led alternatives to governmental responses have proved effective in some situations, as they leverage local knowledge and address particular educational and cultural needs (Izadkhah and Hosseini, 2005).

Education is often prioritized post-disaster, with medium- to long-term strategies that include reframing schools with earthquake-resistant structures, incorporating disaster education, and training educators to teach in post-trauma contexts (Petal, 2011). An international tsunami

warning system is being established based on lessons from the Indian Ocean disaster (Nakamura et al., 2006), and school reconstruction programs must meet seismic safety regulations and involve the local community, so as to secure sustainability and local ownership (Komatsu and Rappleye, 2017). Moreover, one important remaining component in effective recovery is to train educators on the impact of trauma on learning (Shin et al., 2014). Hybrid and blended (where instruction includes digital formats, in addition to traditional face-to-face) learning models have also been suggested, as a way to continue normal education in disaster-affected areas, especially where the physical infrastructure of schooling has not been quickly repaired. Based on research from digital learning platforms, we find that students in earthquake-prone areas experience educational disruptions when they lack access to online resources, and this knowledge can be retained over time if the access is sustained (Huang et al., 2021).

Recovery over time stresses long-term systemic policy changes, sustainable funding of education, and community-led programs that build resilience (Komatsu and Rappleye, 2017). Studies have shown that having sound policy frameworks in place fosters faster education recovery than those without when faced with disasters (Norris et al., 2015). That said, these efforts will only be sustainable in the long run if they are integrated into broader community resilience efforts that connect education to other efforts. Policies for educational recovery should address not only rebuilding schools but also how to ensure teacher training, mental health support, and flexible curricula that can adapt to a disaster-prone context (Peek, 2019). There is great potential in low-income settings (where internet access remains limited) for mobile technologies and offline digital resources (Shin et al., 2014). Also, to enhance student engagement in disaster education and preparedness, gamification techniques in e-learning have been identified.

2.3. Effective Post-Earthquake Educational Policies: Four Case Studies

There are numerous case studies that exemplify successful post-earthquake education policies. In the 2011 Tohoku term in Japan, this was organized by government initiatives to ensure students affected were able to access digital learning platforms or mobile classrooms (Shin et al., 2014). Japan's approach emphasizes the need for using technology to continue education even after a disaster. Particularly, digital education platforms enabled students to access a wealth of learning resources, limiting educational disruptions resulting from schools closing. And in Japan, the government also assimilated DRR principles in school curricula to ensure that students would not only learn such facts, but also have the knowledge and skills needed to respond to the next natural disaster.

In Nepal, for example, local community-led initiatives were the key to the re-establishment of schools after the 2015 earthquake, including the integration of education on disaster preparedness in the school curriculum (Dhungana et al., 2017). The only way we were able to build back education systems that are strong and relevant culturally was through the input of local organizations and community members. In Haiti, post-earthquake reconstruction exemplified similar lessons, as international aid played a critical role in rebuilding educational infrastructure to facilitate alternative learning opportunities (Alexander, 2018). The lessons through Haiti's experiences should be highlighted, thoroughly examined, and implemented to achieve lasting, sustainable solutions. This is critical not only to end the cycle of repeated needs for international economic help after natural disasters such as hurricanes, but to break the habit of rebuilding the same flood-prone infrastructure by the same builders over and over again. Through learning these lessons, opportunities exist to adapt strategies and approaches to build resilience, minimize the risks for future disasters, and foster more sustainable, stable, and secure development in vulnerable regions. It covers all three cases and highlights the importance of the government's commitment, strong community impact, and international support to guarantee sustainable recovery in the education sector.

2.4. Existing Research and Policy Implementation Gaps

While educational recovery strategies for post-earthquakes have evolved, gaps still exist in the aperture of long-term policy monitoring and evaluation. This focus on immediate recovery has led to the neglect of long-term educational resilience, as a relatively small number of quantitative studies examining the role of post-disaster interventions in promoting educational resilience, however, mostly only report on temporary recovery (Norris et al., 2015). Longitudinal studies are necessary to track the effectiveness of educational policies over time and identify best practices in different socio-economic contexts. Moreover, we still know very little about adaptive learning strategies that may have potential for distinct population groups (e.g., children with disabilities, linguistic minorities, and displaced students) who may have additional difficulty in accessing equitable education opportunities after disaster.

One major gap in the existing literature is that no systematic assessment framework has been developed to evaluate the effectiveness of post-disaster education policies. Although many initiatives are rapidly implemented following an earthquake, the impact of initiatives on educational continuity and resilience over the long term is seldom investigated (Peek, 2019). Such tools would help better gauge the effectiveness of policy interventions across geographic and socio-economic settings.

Additionally, little attention is paid to how local community engagement can bolster education recovery efforts. Previous studies highlight that educational institutions with deep community involvement traverse more smoothly through natural disasters; however, very few empirical studies exist on best practices for local participation in the post-earthquake school context (Komatsu and Rappleye, 2017). That said, future research should explore how parent-teacher associations, the local government, and grassroots organizations can work together to implement sustainable recovery programs that take into account not only short-term disruptions but also long-term educational resilience.

A second gap lies in the need for examining psychological and social support systems in educational structures after earthquakes. Trauma-informed teaching has been found to assist impacted students; however, there is little research on the efficacy of how these strategies can be incorporated into a normal curriculum (Bonanno et al., 2010). More research is needed to address how mental health interventions at these levels can be integrated into teacher training and classroom management in disaster-prone contexts, to help both students and teachers in such regions.

Yet, digital learning technologies also offer many opportunities and challenges for education recovery in a post-earthquake context. Online learning programs have demonstrated efficacy in maximizing educational continuity when physical infrastructure suffers damage, but unequal access to technology persists throughout various populations (Shin et al., 2014). Therefore, it is crucial to conduct more research on implementing low-cost, scalable solutions that can deliver digital educational material in disaster-prone regions, especially in low-income communities with limited access to technology.

Last but not least, a key challenge remain — being able to coordinate policy development in education recovery post-earthquake. A great deal of recovery work is fragmented and carried out in separate office of bureaucracy as well as diverse NGO's and international organization desperate in raising funds (Buckland, 2005). Academics should turn to future research examining governance frameworks that can enhance inter-agency collaboration and facilitate coordinated, harmonized responses to post-earthquake educational disruptions.

Filling the research gaps in post-disaster education recovery is essential for developing large-scale strategies to support educational systems in earthquake-prone regions. While natural disasters

disrupt learning environments by causing psychological trauma, displacing students and educators, and damaging infrastructure, existing recovery efforts often lack a comprehensive, evidence-based framework that integrates psychosocial support, teacher resilience, community engagement, and curriculum adaptation (Masten and Osofsky, 2010; Winthrop, 2018). Many studies primarily focus on short-term recovery, leaving the long-term impact of educational policies and strategies underexplored, which is crucial given that the effects of disasters on education can persist for years (Norris et al., 2015). Longitudinal studies are needed to evaluate the effectiveness of various interventions over time and determine the most successful strategies across different socio-economic contexts (Izadinia and Beauchamp, 2021). Despite progress in this field, monitoring and evaluation mechanisms remain insufficient, particularly regarding the educational trajectories of vulnerable student populations, such as children with disabilities, linguistic minorities, and displaced students, who often face barriers in accessing quality post-disaster education (Sokal et al., 2020). Moreover, while mental health support is crucial, many disaster-affected schools fail to provide sustained emotional assistance, leaving students vulnerable to long-term distress (Bonanno, 2020). Similarly, teachers experience secondary trauma and burnout, yet institutional support for their well-being and professional adaptation remains inadequate (Luthar, 2017). Additionally, community engagement, though vital, is often fragmented, leading to disparities in educational recovery efforts and resource allocation (Winthrop, 2018). Schools also face challenges in reintegrating students into structured learning environments, as curriculum adaptation lacks standardization, making it difficult to address learning gaps and emotional distress effectively (Norris et al., 2015). Given these challenges, this research seeks to synthesize qualitative findings to develop a holistic framework that strengthens mental health support, teacher resilience, community partnerships, and adaptive learning strategies. By identifying best practices and gaps in existing recovery models, this study aims to provide practical recommendations for policymakers, educators, and disaster response agencies to build a more resilient, inclusive, and sustainable education system in disaster-affected regions. The following questions were asked for this purpose.

1. What are the psychological and emotional support interventions to improve students' well-being and resilience in post-disaster educational settings?
2. What are the effective strategies for supporting teachers' emotional well-being and professional roles after a disaster?
3. What are the contributions of community and external support to the recovery and sustainability of disaster-affected schools?
4. What are the effective curriculum and instructional adaptations in ensuring academic continuity and student engagement in post-disaster learning environments?

3. METHOD

This study was conducted by employing the thematic synthesis method. This method is similar to the analysis of qualitative data collected in primary research, but requires systematic coding of findings from primary research and the generation of descriptive and analytical themes (Nicholsan et al., 2016). Thus, the results of the thematic synthesis can help researchers to identify gaps in the literature, policy makers to assist decision-making processes, and practitioners to develop new implementation methods (Kanadlı, 2019). The thematic synthesis process is given in Figure 1.

3.1. Literature Review Process

The studies included in the present study were obtained by searching the databases of YÖK Thesis Catalogue (2025), Google Academy/Scholar (2025), ERIC (2025), ULAKBİM (2025), EBSCO (2025), and Proquest Digital Dissertation (2025), Publish or Perish (2025). The search was carried out by two different researchers using similar search terms. The keywords ‘post-earthquake education’, ‘post-disaster education’, ‘earthquake education policy’, and ‘disaster

education policy' were entered into the search engine. In consequence of the conducted literature search, approximately 20 records were obtained in which post-earthquake educational practices were investigated.

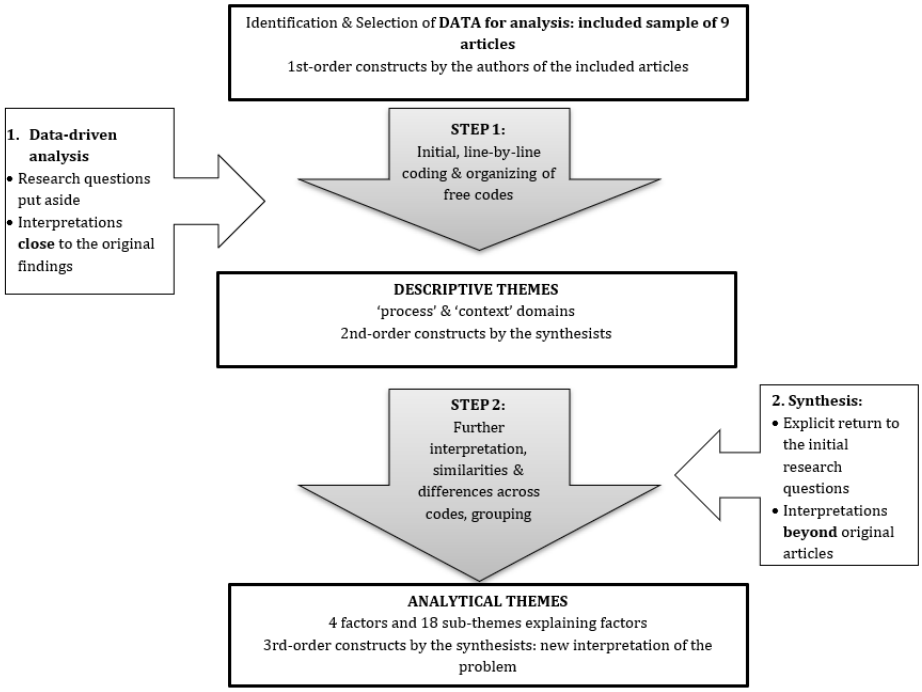

Figure 1. Thematic synthesis process developed by the authors

3.2. Criteria for Inclusion of Studies

In the studies incorporated within the synthesis, perspectives were solicited from participants who engaged in research conducted between 2010 and 2025, with the objective of examining post-earthquake practices. The thematic synthesis was predicated on the assumption that the direct expressions of the participants or the themes and codes that emerged in the study would be reported. The studies included in the synthesis met the following criteria: (i) they were conducted after an earthquake between 2010 and 2025, (ii) they elicited opinions from individuals who experienced the earthquake, (iii) the direct statements of the participants or the themes and codes that emerged in the study were reported, and (iv) they were qualitative or mixed method research.

In the thematic synthesis, studies that received opinions without experiencing the earthquake were excluded. Accordingly, nine studies with qualitative findings (qualitative or mixed method) were included in the thematic synthesis (see Table 1 for characteristics of included studies). According to Table 1, it was determined that one of the nine studies included in the thematic synthesis was a mixed method (quantitative + qualitative) and eight of them were qualitative methods. A total of 640 participants were consulted in these studies, and their opinions on post-earthquake practices were collected. The countries included in these studies were Malaysia, Nepal, Indonesia, New Zealand, the United States and Canada. The following table details the characteristics of the studies included in the thematic analysis.

3.3. Evaluation of the Quality of the Studies

A checklist comprising 12 criteria, as proposed by Harden et al. (2006), was utilized to ascertain the quality of the studies incorporated within the thematic synthesis. Although not a universal principle, Harden et al. (2006) proposed that studies which met fewer than 7 out of the 12 criteria should be evaluated as 'low', those which met 7-9 criteria as 'medium', and those which met 10-

12 criteria as 'high' quality. The recommendation was made that medium and high-quality studies be included in the thematic synthesis.

Table 1. Characteristics of the studies included in the thematic analysis

Study	Aim	Study Group	Region	Measurement Method	Statistic Method	Pub. Type
Bikar et al., 2021	To examine how the primary school teachers enabled the student to be resilient during and after the disaster	32	Malaysia	Interview	Qualitative	Article
Baumann et al., 2021	To examine how post-disaster educational reconstruction supports students' well-being, empowers teachers' supportive roles, and strengthens school environments and the resilience of the education system	19	Nepal	Interview, artworks/projects	Qualitative	Article
Basnet, 2020	To examine the immediate experiences and the impacts of the earthquake to head teachers, teachers, and students	22	Nepal	Interview	Qualitative	Article
Sianturi, 2020	To investigate the preparedness and response of students with visual impairments to earthquake emergencies in Surabaya, Indonesia.	44	Indonesia	Interview	Qualitative	Article
Pratt et al., 2019	To investigate the psychoemotional experiences of high school students during and after the 2011 Christchurch earthquake and to explore how these students coped with the disaster and the long-term effects on their emotional well-being and academic progress.	4	New Zealand	Interview	Qualitative	Article
Cox et al., 2017	To explore the lived experiences of youth aged 13–22 during the recovery period after a disaster	39	The USA, Canada	Interviews, artworks/projects	Qualitative	Article
O'Toole and Friesen, 2016	To examine how teachers functioned as first responders in the aftermath of the 2011 Christchurch earthquake and how they managed their emotions both immediately and 18 months later	20	New Zealand	Interview & Self-Report Questionnaires	Mixed Method	Article
Mutch, 2016	To examine the role that schools played in responding to and recovering from the 2010–2011 Canterbury earthquakes in New Zealand	25	New Zealand	Interview	Qualitative	Article
Ormandy, 2014	To investigate the experiences of Ōpāwa Primary School in Christchurch, New Zealand, following the 2010–2011 earthquakes	435	New Zealand	Interview, artworks/projects	Qualitative	Article

3.4. Synthesis of Qualitative Findings

The thematic synthesis method was used in the analysis of qualitative findings. This analysis method has three stages (Thomas and Harden, 2008). In the first stage, direct quotations or basic concepts extracted from qualitative research are coded by reading them line by line. In the second stage, the codes obtained from the first stage are grouped by comparing them according to their similarities and differences. It is therefore evident that descriptive themes are created. In the third stage, these themes are compared, and suggestions are produced regarding the practices that should be implemented in the aftermath of an earthquake. Consequently, analytical themes are produced.

4. FINDINGS

4.1. Synthesis of Qualitative Findings

A total of nine studies, which had been assigned a quality score of 'medium' or 'high' in the initial screening process, were selected for inclusion in the thematic synthesis. The qualitative findings of these studies, that is to say, the direct quotations contained within the findings or the code definition tables of the researchers, were subsequently extracted and entered into the qualitative data analysis software known as MAXQDA. In the first stage of the thematic synthesis, the qualitative data entered into the program was subjected to a line-by-line coding process. In the subsequent stage, the codes with highly similar definitions were consolidated into a single code through the expansion of the code definition. The newly formed codes were then subjected to a comparative analysis to identify their commonalities and divergences.

(i) psychological and emotional support,
(ii) support for teachers and school staff,
(iii) community and external support, and
(iv) curriculum and learning adaptations

Each theme was associated with several factors influencing post-disaster educational recovery. Some requirements that affect students' well-being and learning in the aftermath of the earthquake have been determined.

(i) Psychological and Emotional Support

Addressing the psychological and emotional well-being of students is paramount in post-disaster contexts. Schools implement various strategies to foster resilience and provide mental health support, including:

- Learning Through Play
- Free Counselling Services
- External Agency Collaboration
- Group Therapy Sessions
- Explicit Wellbeing Teaching
- Seminars on Anxiety Management
- Well-Being Games
- Art as Therapy
- Breathing and Relaxation Techniques

(ii) Support for Teachers and School Staff

Teachers play a critical role in supporting students during the recovery process; however, their own emotional well-being must also be addressed. Key interventions for educators include:

- Teacher Readiness Programs
- Professional Development in Counselling
- Emotional Readiness Assessments
- Recognition of Teachers' Emotional Investment
- Special Support for Vulnerable Teachers

(iii) Community and External Support

The role of the community in post-disaster recovery is indispensable. Schools benefit from strong collaborations with parents, external organizations, and local authorities. The key community-driven interventions include:

- School-Parent Collaboration

• Parenting Courses and Home Visits
• External Counsellors and Mentors
• Temporary Learning Centres
• Strengthening School-Community Relationships
• Safe Zones for Students and Families

(iv) Curriculum and Learning Adaptations
A structured and adaptive curriculum plays a vital role in restoring academic stability and fostering resilience among students. The primary curriculum modifications identified include:

• Re-establishing Routines
• Emergency Response Training and Drills
• Earthquake Safety Curriculum
• Encouraging Competition and Collaboration
• Developing Student Autonomy
• One-on-One Mentorship
• Outdoor Activities for Reintegration

In the third stage of the thematic synthesis, two researchers discussed the characteristics of policies based on good practices in the aftermath of an earthquake, considering descriptive themes, and the following analytical themes (hypotheses/suggestions) emerged as a result of the discussion.

4.2. Analytical Themes

Psychological and Emotional Support

(1) Schools must adopt trauma-sensitive approaches by embedding psychosocial support into daily learning environments.
(2) A three-tiered system should be implemented, providing universal emotional support, targeted interventions for at-risk students, and specialized care for those experiencing severe trauma.
(3) Schools should utilize structured play, art therapy, and interactive activities to help students process trauma in a non-threatening manner.
(4) Schools must recognize diverse student needs and provide individualized counselling and mental health support.
(5) Training in coping mechanisms such as relaxation techniques and mindfulness can improve students' ability to manage stress and anxiety.
(6) Long-term partnerships with mental health organizations can provide expertise and ongoing emotional support.

Support for Teachers and School Staff

(1) Institutions must acknowledge teachers' emotional distress and provide appropriate support.
(2) Schools should integrate peer support groups and professional counselling services to enhance teacher resilience.
(3) Professional development should focus on equipping teachers with psychological first aid and trauma-sensitive pedagogy.
(4) Schools must allow flexible return-to-work policies, accommodating teachers' emotional readiness.
(5) Specialized interventions should be available for teachers who are single parents or primary caregivers, ensuring they receive additional assistance.

Community and External Support

(1) Schools should function as multi-service centers, offering psychological support, food security programs, and disaster recovery resources.
(2) Engaging parents in school-based initiatives can foster a sense of collective responsibility and enhance student well-being.
(3) Schools should collaborate with NGOs, faith-based organizations, and local authorities to extend recovery resources.
(4) Schools must create designated safe spaces where students and families can access counselling and engage in community-building activities.
(5) In cases where formal schooling infrastructure is compromised, community-based learning centres should be established.

Curriculum and Learning Adaptations

(1) Schools must phase in structured learning environments to accommodate students' cognitive and emotional recovery.
(2) Educational systems should incorporate disaster risk education to prepare students for future crises.
(3) Personalized learning strategies should address varying levels of cognitive readiness among students.
(4) Encouraging self-reliance and independent study can foster long-term resilience and adaptability.
(5) Movement-based and nature-oriented activities can serve as effective stress-relief mechanisms.
(6) Educational recovery should emphasize teamwork, problem-solving, and social-emotional learning.
(7) One-on-one mentorship or peer-support groups should be implemented to assist students in navigating academic and emotional challenges.

5. DISCUSSION

When the studies in the literature were examined, it was seen that there was a limited number of studies on the process of continuing post-disaster education and on teachers' and learners' well-being. Within the scope of this study, it was aimed to create a comprehensive framework for determining post-disaster education policies by examining the prominent good practices carried out by the state and schools. The results of the thematic analysis shed light on the complex aspects of educational recovery following a disaster, highlighting the interrelated functions of psychological assistance, teacher strength, community involvement, and adjustments to the curriculum. Each theme explored points out important factors necessary for establishing lasting, trauma-sensitive educational settings in areas impacted by disasters.

5.1. Psychological and Emotional Support: A Foundation for Student Recovery

One of the most significant findings is the importance of trauma-informed psychological support in fostering student resilience. The research highlights the need for integrating structured mental health interventions within school systems, including counseling services, play-based therapy, relaxation techniques, and peer support programs. These interventions align with existing literature, which suggests that post-trauma interventions should prioritize emotional regulation strategies and safe spaces to allow students to process their experiences (Bonanno, 2020; Masten and Osofsky, 2010).

However, while schools play a vital role in providing emotional support, challenges such as limited access to mental health professionals, stigma around seeking psychological help, and lack of sustained funding can hinder the effectiveness of these interventions. Future research should explore ways to integrate school-based mental health support within long-term educational policies, ensuring that disaster-affected students receive continuous psychological assistance beyond the immediate recovery period.

5.2. Teacher Resilience: Addressing Secondary Trauma and Professional Challenges

The findings indicate that teachers are not only facilitators of student recovery but also victims of secondary trauma, often facing emotional burnout, anxiety, and role strain in disaster settings. While professional development in trauma-informed teaching and psychological first aid has been identified as a key intervention, the effectiveness of these programs remains highly dependent on institutional support and resource availability (Alkhalaf and Tanrıseven, 2025; Luthar, 2017).

One of the major challenges is balancing teacher well-being with professional responsibilities. Schools that provide structured emotional support for teachers, flexible reintegration programs, and peer-support groups are better equipped to retain and empower educators post-disaster. However, some research suggests that teachers' personal circumstances (e.g., single parenting, economic instability) further complicate their ability to cope (Sokal et al., 2020). This calls for a targeted approach in supporting teachers with individualized well-being plans, financial assistance, and reduced workloads where necessary.

5.3. Community and External Support: Strengthening Educational Recovery through Collaboration

The role of community involvement and external partnerships in post-disaster education recovery cannot be overstated. The findings emphasize that strong school-community relationships, NGO collaborations, and parental engagement contribute to a more sustainable and holistic recovery process. This aligns with studies that show community-driven educational interventions lead to greater student well-being, improved attendance, and enhanced resilience-building efforts (Winthrop, 2018).

However, there are several challenges to effective community engagement. Limited governmental coordination, funding constraints, and disparities in community resources often create inequities in educational recovery, where well-funded schools recover faster than under-resourced institutions (Izadinia and Beauchamp, 2021). Future research should explore mechanisms for ensuring equitable access to community-based educational recovery programs, particularly in low-income or high-risk regions.

5.4. Curriculum and Learning Adaptations: Ensuring Academic Continuity and Resilience

The findings highlight the need for flexible, student-centered curriculum adaptations that facilitate gradual reintegration into academic routines while addressing students' emotional and cognitive needs. Strategies such as competency-based learning, disaster education, mentorship programs, and outdoor experiential learning have been identified as effective tools for engaging students and promoting autonomy post-disaster. These findings align with research suggesting that a structured yet adaptable curriculum helps mitigate the long-term academic impact of disaster-related disruptions (Norris et al., 2015). Erol and Özdemir (2024, 62) also emphasized the importance of establishing personal communication with students, organizing activities for harmony and bonding, and providing academic support to ensure equal opportunities.

However, challenges remain in ensuring that curriculum modifications do not compromise academic standards or widen existing learning gaps. Schools that experience prolonged closures or infrastructure damage may struggle to provide quality education, leading to disparities in student achievement. Therefore, policymakers must prioritize the integration of digital learning,

emergency response education, and competency-based assessment models to ensure equity and continuity in post-disaster education systems.

6. CONCLUSION AND IMPLICATIONS

The thematic synthesis of qualitative findings underscores the critical role of structured psychological, pedagogical, and community-based interventions in post-disaster educational recovery. The analytical themes developed in this study provide a framework for policymakers, educators, and humanitarian organizations to design effective and context-sensitive recovery programs. By integrating trauma-informed practices, teacher support systems, community collaboration, and curriculum adaptations, educational institutions can facilitate sustainable resilience-building for both students and teachers.

These findings are strongly aligned with the principles outlined in the Sendai Framework for Disaster Risk Reduction (2015–2030), which emphasizes the need to reduce the disruption of basic services such as education and to ensure the inclusion of vulnerable groups—including children and youth—in disaster risk planning and response (UNDRR, 2015). Likewise, the Türkiye Afet Sonrası İyileştirme Programı (TASIP) reinforces the importance of psychosocial support for students, the emotional resilience of teachers, and inter-institutional coordination as fundamental components of education system recovery (TASIP, 2025).

This study highlights that schools must be recognized not only as sites of academic instruction but also as community anchors for emotional healing and resilience-building. Future research should focus on longitudinal studies to assess the long-term impact of recovery interventions and explore best practices for sustainable post-disaster education policies. Moreover, context-based frameworks should be developed to support adaptive and inclusive education systems, particularly for students with diverse needs.

By adopting holistic and evidence-based recovery strategies, education systems can be better prepared to respond to future crises, ensuring that students, educators, and communities are supported effectively and equitably in the aftermath of disasters.

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