

# Shifting to crisis-responsive blended learning: Secondary school students' experiences during environmental and social disruptions

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## Abstract

This qualitative study investigated secondary school students' perceptions and experiences of modified blended learning during crisis conditions requiring face-to-face class suspensions in the Philippines. During a crisis period characterized by extreme heat index, transportation strikes, and flooding, a private school shifted from an 80% face-to-face, 20% online model to a 30% face-to-face, 70% online format. A total of 242 students participated in a survey with open-ended questions exploring their experiences with the modified format. Descriptive analysis revealed that 61.2% expressed positive satisfaction, while 30.6% reported moderate satisfaction and 8.3% poor satisfaction. Thematic analysis identified five major themes: (1) The Convenience-Learning Effectiveness Paradox, (2) Infrastructure as Educational Barrier, (3) Crisis-Driven Adaptation Acceptance, (4) Social Learning Disconnection, and (5) Individual Learning Diversity and Adaptability. Findings revealed that students simultaneously appreciated practical benefits while experiencing significant learning challenges, demonstrating complex negotiations between educational convenience and effectiveness during crisis-responsive adaptations. The study provides insights for developing resilient educational systems that maintain learning continuity while addressing student needs during emergency conditions.

**Keywords:** online learning, hybrid learning, crisis-responsive education, high school, educational adaptation

## **Shifting to crisis-responsive blended learning: Secondary school students' experiences during environmental and social disruptions**

### **1. Introduction**

Educational institutions worldwide increasingly face disruptions requiring rapid adaptation of learning delivery methods while maintaining educational quality and accessibility (Stewart & Lowenthal, 2023). In the Philippines, where environmental emergencies and social challenges frequently interrupt traditional education, schools must develop adaptive strategies ensuring learning continuity while prioritizing student safety (Tarricone et al., 2021). Blended learning models have emerged as critical response mechanisms, combining face-to-face and online components to address diverse learning needs during emergency situations (Kumar et al., 2021). During a recent crisis period, confluence of conditions including extreme heat index levels, transportation strikes, and flooding necessitated face-to-face class suspensions and shifts to alternative learning modalities across Philippine schools. These concurrent challenges created urgent needs for alternative learning delivery maintaining educational progress while protecting student health and safety. The modified blended learning response—shifting from traditional 80% face-to-face, 20% online format to crisis-responsive 30% face-to-face, 70% online arrangement—represented significant pedagogical adaptation requiring rapid implementation without extensive preparation.

Research consistently demonstrates blended learning effectiveness across diverse learning conditions, with Li and Wang's (2022) meta-analysis of 84 studies involving 30,377 K-12 students revealing significant improvement in student performance, particularly in cognitive domains. However, effectiveness depends on technological infrastructure, pedagogical design, and individual characteristics. Huang (2021) demonstrated that perceived usefulness and ease of use significantly affect learning motivation, influencing satisfaction in blended environments—relationships that become particularly relevant in crisis contexts where rapid transitions may lack adequate preparation or training. Crisis-responsive education has emerged as a critical research area following global emergency remote teaching experiences. Stewart and Lowenthal (2023) developed comprehensive models for crisis-based education, emphasizing that distance education requires specialized knowledge often lacking during emergency transitions. Educational technology implementation challenges during emergencies are well-documented, with Anthony and Miller (2023) identifying persistent technology access disparities during crisis periods, emphasizing needs for leaders to actively frame equitable distance education and prioritize universal digital access. Equity concerns are particularly relevant in developing contexts where infrastructure limitations and socioeconomic disparities create significant online learning barriers.

Research on blended learning in Philippine contexts reveals specific regional opportunities and challenges. Villanueva et al. (2024) applied Community of Inquiry framework to investigate interactions in Philippine K-12 schools, uncovering themes of best of both worlds, learning anytime and anywhere, and technology-enhanced learning. Co (2025) examined student evaluations across senior high school grade levels and academic strands, finding variations in student perceptions based on academic track, with STEM students reporting more positive evaluations of online learning components while identifying common challenges including excessive workload and internet connectivity issues. Samson et al. (2023) found Philippine private university students showed positive attitudes toward blended learning, though effectiveness correlated significantly with technological self-efficacy and academic support — confirming that infrastructure and institutional conditions shape blended learning outcomes even in relatively well-resourced local settings.

Student perspectives reveal complex negotiations between convenience and learning effectiveness. Kabigting (2022) explored Filipino ESL learners' blended experiences, identifying themes including self-directed learning trends, connectivity challenges, and student-teacher collaborative learning importance. Jadaone et al. (2022) found senior high school students' college preparedness was influenced by home conditions, connectivity, and inadequate

teacher intervention during blended learning, though students developed important coping mechanisms including embracing independent learning, utilizing internet resources, and seeking multiple assistance sources.

Resilient pedagogy research offers frameworks for maintaining educational quality during crisis conditions. Clum et al. (2022) emphasized resilient pedagogy describes abilities to intentionally shift instructional tactics given environmental changes, with case study analysis revealing institutions with prior crisis management experience were better positioned for effective emergency responses. Evangeline (2025) examined evolving leadership roles in crisis preparedness blended learning, emphasizing needs for transformational, adaptive, distributed, and equity-focused models. Rismawati et al. (2025) explored agile management principles integration into blended frameworks as strategic reactions to disruptions, demonstrating how adaptable, inclusive, feedback-oriented strategies improve educational resilience.

Despite growing research on blended learning and crisis-responsive education, significant gaps remain in understanding student perspectives during rapid transitions in non-pandemic crisis conditions. Most existing research focused on COVID-19 responses, with limited attention to other environmental or social emergencies requiring adaptation (Clum et al., 2022). Additionally, studies predominantly examined planned implementations rather than emergency adaptations requiring rapid transition with minimal preparation. The problem addressed centers on limited understanding of student perceptions during emergency educational adaptations, particularly in Southeast Asian contexts where cultural, technological, and socioeconomic factors significantly influence outcomes (Al-Marouf et al., 2022). The Philippine context, characterized by frequent natural disasters and infrastructure challenges, provides critical insights for understanding educational resilience during various emergency types (Mackey et al., 2012).

This research significance extends across educational practice and policy dimensions. For practitioners, findings provide evidence-based insights into student responses to crisis-driven adaptations in non-pandemic contexts which is a perspective underrepresented in existing literature. For policymakers, research offers guidance on developing resilience strategies that maintain learning quality during emergencies, with the Philippine context offering transferable insights for similarly situated developing nations. The purpose of this study was to explore secondary school students' perceptions and experiences of modified blended learning implemented during crisis conditions requiring face-to-face class suspensions and alternative learning modalities. Specifically, it aimed to explore the following:

- What aspects of the modified blended learning model (30% face-to-face, 70% online) do students find most beneficial during crisis conditions?
- What specific challenges do students encounter in the modified blended learning format during crisis-responsive implementation?
- How do students perceive the effectiveness of online classes and face-to-face meetings within the modified model in supporting their learning goals?
- What recommendations do students provide for improving crisis-responsive blended learning implementations?

## **2. Methodology**

This study employed a qualitative descriptive research design to explore student perceptions and experiences of modified blended learning during crisis conditions. The approach utilized thematic analysis to understand the depth and complexity of student experiences while providing descriptive demographic context to characterize the participant population.

The study population consisted of secondary school students enrolled at a private educational institution in the Philippines during crisis conditions requiring face-to-face class suspensions and modified blended learning

implementation. A total of 242 students participated, representing a comprehensive sample across grades 7-12. All participants experienced both the original blended learning model (80% face-to-face, 20% online) and the modified model (30% face-to-face, 70% online) during the crisis period, enabling comparative evaluation of their experiences with both formats.

The data were collected through an electronic survey administered at the conclusion of the crisis-responsive implementation period. The instrument included basic demographic items, satisfaction ratings, and seven open-ended questions exploring student experiences with the modified model, face-to-face meeting perceptions, online class experiences, teacher effectiveness, learning goals impact, format preferences, and improvement recommendations. The qualitative questions were designed to capture authentic student voices and experiences across multiple dimensions of the blended learning adaptation.

Data analysis began with descriptive statistics to characterize participant demographics and satisfaction patterns. The primary analysis employed Braun and Clarke's (2006) six-phase thematic analysis framework, progressing from data familiarization through initial code generation, theme identification, theme review, theme definition, and report production. Initial coding across all 242 responses generated comprehensive codes that were organized into major themes through iterative pattern recognition and refinement processes. In-vivo coding preserved authentic student language, including natural English-Filipino code-switching reflecting the cultural learning context. The analysis maintained focus on understanding student perspectives and experiences rather than quantifying responses.

### **3. Results and Discussion**

#### *3.1 Participant Characteristics and Satisfaction Overview*

The participants (242) represented diverse demographics across secondary education levels, with senior high school students comprising the majority (91.7%, n=222) and junior high school students representing 8.3% (n=20). The predominance of senior high students aligns with research indicating that older adolescents demonstrate greater self-regulation capabilities in blended learning environments (Xu et al., 2023). Gender distribution showed 60.3% female and 36.8% male participants, which is consistent with female enrollment patterns in Philippine private secondary schools and research suggesting females may be more receptive to educational technology integration (Samson et al., 2023).

The academic track distribution revealed significant STEM dominance (69.0%), followed by HUMSS (13.6%), ABM (5.8%), and GAS (3.3%). This STEM concentration is particularly relevant given research demonstrating that STEM students typically exhibit higher technological self-efficacy and more positive attitudes toward digital learning modalities (Co, 2025; Villanueva et al., 2024). The high academic performance levels, with 84.7% performing at proficient or advanced levels, suggest a well-resourced student population that may have differential access to technology and home learning environments compared to broader Philippine educational contexts.

Regarding satisfaction with the modified blended learning model, 61.2% of students expressed positive perceptions (48.8% good, 12.4% excellent), while 30.6% reported moderate satisfaction and 8.3% expressed dissatisfaction. This satisfaction distribution reflects the complex, variable outcomes characteristic of crisis-driven online learning transitions, where student attitudes have been shown to significantly mediate satisfaction even in severely disrupted contexts such as post-disaster displacement settings (Özbay, 2026), yet the substantial moderate satisfaction group (30.6%) suggests significant ambivalence that warrants deeper investigation. The relatively low proportion expressing excellent satisfaction (12.4%) indicates that even among accepting students, the crisis-driven adaptation was viewed as adequate rather than optimal, supporting the need for qualitative exploration of student experiences beyond satisfaction metrics.

**Table 1**  
*Participant Characteristics and Satisfaction level*

Characteristic	Category	n	%
Academic Level/Track	Junior High School (Grades 7-10)	20	8.3
	Senior High STEM	167	69.0
	Senior High HUMSS	33	13.6
	Senior High ABM	14	5.8
	Senior High GAS	8	3.3
Gender	Female	146	60.3
	Male	89	36.8
	Other/Prefer not to say	7	2.9
Academic Performance	Advanced (90% and above)	102	42.1
	Proficient (85-89%)	103	42.6
	Approaching Proficient (80-84%)	34	14.0
	Developing (75-79%)	3	1.3
Satisfaction with Modified Blended Learning Model	Excellent	30	12.4
	Good	118	48.8
	Fair	74	30.6
	Poor	20	8.3

### 3.2 Thematic Analysis Findings

Five major themes emerged from the qualitative analysis, revealing the complex nature of student experiences during the educational format transition.

#### ***Theme 1: The Convenience-Learning Effectiveness Paradox***

This theme represents the most significant finding of the study, revealing a fundamental tension where students simultaneously appreciated the practical benefits of the modified blended learning model while experiencing concerns about the quality of their educational experience. This paradox demonstrates the complex negotiations students engage in when evaluating crisis-responsive educational adaptations, recognizing both instrumental advantages and pedagogical limitations within the same system.

Students consistently valued logistical conveniences, particularly relief from transportation challenges and weather-related concerns during the extreme heat period. Student #14 articulated this comprehensively: *"What I like about the modified blended learning is that I can still spend more time with my family back in the province... I can also gain more sleep and rest unlike the usual, because I don't need to wake up so early."* The transportation relief was particularly significant, with Student #176 elaborating: *"The convenience as a student who lives in the province... It is hard for me to travel to Manila for classes because I cannot endure the hot climate."* However, learning effectiveness concerns were equally prominent. Student #33 captured widespread struggles: *"I find it very draining. Most of the students do. It's hard to learn something and understand something when it is being discussed online. Mahirap makipag-communicate online at mahirap silang ma-reach. Pero pag f2f, nandyan agad"* [It's difficult to communicate online and it's hard to reach them. But with face-to-face, they're there immediately].

This finding extends Huang's (2021) research on perceived usefulness and ease of use in blended learning by demonstrating how these perceptions become complex during crisis conditions when convenience factors may override effectiveness concerns. The paradox also aligns with Kumar et al.'s (2021) emphasis on blended learning flexibility while revealing the challenges students face when rapid transitions lack adequate preparation. This tension suggests that effective crisis-responsive education must acknowledge and address these competing priorities rather than assuming students will accept trade-offs without concerns.

#### ***Theme 2: Infrastructure as Educational Barrier***

This theme reveals how technological infrastructure serves as a fundamental determinant of learning success, with connectivity issues, device limitations, and digital equity concerns creating systematic barriers to effective participation in the modified blended learning model. The infrastructure challenges represent more than technical

inconveniences; they constitute structural impediments that limit educational access and create inequitable learning opportunities. Internet connectivity emerged as the most pervasive technical barrier. Student #229 described persistent connectivity challenges: *"It is helpful, but also the opposite at the same time, considering that a lot of students are having a hard time accessing online resources. Sometimes there would be synchronous classes, but sometimes asynchronous."* Student #48 detailed specific learning disruptions: *"My experiences in online classes is not good because sometimes I keep on disconnecting and lagging when we have a poor connection in the house."*

Digital equity concerns were sophisticated analyzed by Student #22: *"One of the challenges is ensuring equal access to technology and internet connectivity for all students. Not all students may have access to reliable internet connection or necessary devices, which can create disparities in learning opportunities."* Student #113 illustrated device limitations: *"My unpleasant experience during online meetings is when I am using my phone because my younger brother also has classes. I need to use my phone instead which is difficult for me."*

These findings align with Anthony and Miller's (2023) identification of persistent technology access disparities during crisis periods, confirming that infrastructure limitations become acute during rapid educational transitions. The systematic nature of these barriers affecting both students and teachers supports Mulenga and Shilongo's (2024) emphasis that digital equity challenges persist despite technological advancements. The students' ability to articulate both technical and equity dimensions of infrastructure problems demonstrates their sophisticated understanding of systemic educational barriers, extending beyond individual inconveniences to recognize broader implications for learning access and quality.

### ***Theme 3: Crisis-Driven Adaptation Acceptance***

This theme demonstrates students' sophisticated understanding of the modified blended learning model as a necessary institutional response to crisis conditions, particularly the extreme heat index, transportation strikes, and flooding that characterized the implementation period. Rather than simply accepting or rejecting the changes, students engaged in contextual evaluation, recognizing legitimate health and safety concerns while maintaining awareness of educational trade-offs. Students demonstrated clear understanding of the heat index as a driving factor. Student #16 explained: *"The thing that I liked the most about the modified blended learning was the less stress it brought me since the heat index was and is still really high, so having less face to face days helped a lot."* Student #240 emphasized health protection aspects: *"The good thing about online class is that we saved money from our allowance for commuting a lot and also lessen our risk to heat stroke as the heat index during this month is very high."*

The recognition of multiple concurrent crisis factors was evident in Student #87's comprehensive analysis: *"[Due to the] unexpected high heat index... and moderate to heavy flooding... I believe the modified blended learning model should be implemented again next school year to protect students and teachers."* Despite experiencing learning challenges, students recognized institutional care through the modified implementation. Student #103 demonstrated mature perspective: *"Despite all of my negative comments regarding the online class, I still think that the modified blended learning model was truly a wonderful move by [the school] since they acted on the students' best interest [in terms of the heat index]."*

This finding contributes to crisis-responsive education literature by demonstrating student agency and contextual awareness during disruptions. Unlike previous research primarily examining institutional or teacher perspectives (Clum et al., 2022; Evangeline, 2025), this study reveals students can evaluate changes within broader social and environmental contexts. The students' ability to separate personal preferences from institutional decision-making contexts reveals educational maturity that supports Mackey et al.'s (2012) arguments for incorporating student perspectives into crisis planning. This acceptance provides important insights for educational leaders implementing emergency adaptations, suggesting that transparent communication about crisis conditions can facilitate student buy-in even when learning experiences are compromised.

#### ***Theme 4: Social Learning Disconnection***

This theme reveals how the modified blended learning format significantly disrupted the social dimensions of learning, affecting peer interactions, group collaborations, teacher-student relationships, and the overall sense of learning community that students valued in traditional classroom settings. The social disconnection represents more than interpersonal inconvenience; it constitutes a fundamental disruption of the relational and communal dimensions of learning including peer interaction, collaborative work, and teacher-student immediacy that students regard as inseparable from their sense of belonging in an educational community.

Group work and peer collaboration emerged as major challenges. Student #13 detailed coordination difficulties: *"the challenge is when the activities given are groupings... we are unable to have time for practice since the school days are only Monday and Wednesday... it's not always possible because some parents don't allow their child to go."* The modified format affected teacher-student relationship quality and immediacy. Student #13 explained accessibility issues: *"For example sometimes teachers tend to not respond to our messages or they reply but it's already a day after so it's hard to reach out to teachers."* Student #3 highlighted the loss of immediate support: *"I find it challenging to ask for questions and to learn efficiently because there is no in-person contact with the teacher."*

Students expressed missing the intangible sense of learning community. Student #51 captured social dimension loss: *"...it is not helpful because I feel so lonely kapag nasa loob ako ng bahay kase walang mga classmates na nakakahalubilo"* [because there are no classmates to interact with]. Student #89 questioned engagement quality: *"And this way, the teachers and students actually meet unlike online class where teachers usually just teach or just send a recording, like where is the engagement in that?"*

This finding aligns with research on social presence importance in blended environments (Villanueva et al., 2024) while extending understanding by demonstrating how social disconnection becomes particularly acute during crisis adaptations when students lack time to develop alternative social learning strategies. The loss of peer collaboration and teacher-student interaction immediacy supports Community of Inquiry framework emphasis on social presence as a critical blended learning component (Samson et al., 2023). The finding challenges assumptions about digital natives' comfort with online learning, revealing that even technologically capable students value face-to-face social interactions as fundamental to their educational experience.

#### ***Theme 5: Individual Learning Diversity and Adaptability***

This theme reveals significant individual variation in how students self-regulated and responded to the modified blended learning model, shaped by differences in learning preferences, personal home environments, and self-discipline capacities. These individual differences demonstrate that crisis-responsive education cannot be uniformly applied, requiring context-sensitive strategies that account for diverse learner needs and circumstances.

Some students demonstrated strong self-regulation skills and thrived in the increased autonomy. Student #181 exemplified successful adaptation: *"It helps me reach my learning goals in a way that I find my own pace in learning. The modified learning model made my learning goals attainable and easy to implement on my own."* Student #122 found flexibility beneficial: *"...it became more flexible in my schedule and I can have time to study by my own."*

Conversely, many students struggled without external structure and accountability. Student #111 articulated this clearly: *"There is nothing I like about modified blended learning model, it's very challenging since for me I prefer face-to-face meetings and excel more in that learning modality. I find myself having a difficult time focusing and absorbing the lesson during the online classes."* This response reflects not a general rejection of online learning, but a distinct learning style preference which is the student's difficulty is rooted in personal self-regulation and modality fit rather than systemic effectiveness concerns already captured in Theme 1. Student #143 demonstrated self-awareness about personal challenges: *"It affected my learning goals in such a way that it's a problem within*

*myself. I became complacent with the deadlines because I was resting too much."*

Personal circumstances significantly influenced student experiences. Student #14 demonstrated how family proximity enhanced learning: *"For me, it helped me a lot... I can now be with my family most of the time so I had more courage and I strive harder."* Student #232 showed how living arrangements affected focus: *"No, it made me unmotivated to join online classes... it's so annoying in the house as the construction on the other side of the road makes it harder to concentrate."*

This finding extends research on self-regulated learning in blended environments (Xu et al., 2023; Pramesworo et al., 2023) by demonstrating how individual differences become pronounced during crisis conditions when external support structures are reduced. The variation in adaptation success supports Kabigting's (2022) findings on diverse student experiences during educational transitions while providing specific insights into factors that influence differential outcomes. The students' self-awareness about their learning needs and challenges suggests that crisis-responsive planning should incorporate individualization strategies addressing diverse preferences and circumstances rather than assuming uniform student responses to emergency adaptations.

### *3.3 Cultural Authenticity and Linguistic Context*

Throughout the responses, students naturally code-switched between English and Filipino, particularly when expressing emotions or frustrations. This linguistic pattern reveals the authentic voice of Filipino students and adds cultural depth to the findings. Examples include Student #124's *"Hawak ko yung oras ko"* [I control my time], Student #67's *"Nakakatamad"* [Makes me lazy], and Student #33's *"Mahirap makipag-communicate online"* [It's difficult to communicate online]. This code-switching pattern demonstrates students' comfort in expressing complex educational experiences in their natural linguistic repertoire, providing authentic cultural context that enriches understanding of their perspectives.

#### ***Thematic Integration and Theoretical Implications***

The five themes do not exist in isolation but interact in complex ways that reveal the multifaceted nature of student experiences during crisis-responsive educational adaptations. The Convenience-Learning Effectiveness Paradox provides the overarching framework within which students navigate other challenges. Infrastructure barriers constrain the potential benefits of convenience while crisis-driven acceptance provides contextual justification for accepting trade-offs. Social disconnection represents one of the key effectiveness losses students experience, while individual diversity explains why students respond differently to the same system. From theoretical perspectives, findings contribute to emerging crisis-responsive education frameworks by demonstrating the importance of student perspectives in understanding educational resilience. The study supports and extends Mackey et al.'s (2012) work on blended learning for academic resilience by providing empirical evidence of student experiences during crisis adaptations. The complex negotiations revealed suggest crisis-responsive education theory must account for the dynamic, multidimensional nature of student responses rather than assuming linear relationships between interventions and outcomes.

#### ***Practical Implications for Educational Practice***

The findings suggest several critical considerations for institutions developing crisis-responsive capabilities. First, successful adaptations require proactive infrastructure resilience as a foundational rather than ancillary concern. The systematic nature of technical barriers affecting both students and teachers indicates that crisis planning must prioritize robust technological systems and equity measures before emergencies occur. Second, social learning preservation emerges as essential for maintaining educational quality during transitions. The significant impact of social disconnection on student experiences suggests that crisis-responsive models must incorporate specific strategies for maintaining peer collaboration, teacher-student relationships, and learning community connections even in primarily online formats. Third, individualized support strategies are crucial for addressing diverse student needs during crisis adaptations. The variation in student adaptation success indicates

that effective emergency responses must account for different learning preferences, self-regulation capabilities, and personal circumstances rather than implementing uniform approaches. Finally, transparent communication about crisis conditions and institutional reasoning can facilitate student acceptance of necessary adaptations, even when learning experiences are compromised. The students' demonstration of crisis-driven acceptance suggests that clear explanations of health and safety considerations can support student buy-in for emergency educational changes.

### 3.4 Policy Implications and Broader Significance

From policy perspectives, findings support the need for educational systems to develop more flexible crisis management approaches beyond simple technology deployment. The complex student responses suggest policy frameworks should address infrastructure equity, social learning preservation, and individualized support as core resilience components rather than secondary considerations. The cultural context evidenced through natural English-Filipino code-switching provides important insights into how crisis-responsive education must account for linguistic and cultural factors in implementation. The authentic student voices demonstrate the importance of culturally responsive approaches that honor natural communication patterns and cultural contexts in educational research and practice.

## 4. Conclusions

This study provides important insights into learner navigation of emergency educational adaptations. Research reveals that while most students expressed general acceptance of crisis-responsive modifications, their experiences were characterized by complex negotiations between practical convenience and learning effectiveness concerns. The five major themes identified demonstrate the multifaceted nature of student responses to rapid educational change during emergency conditions. The study's most significant contribution lies in revealing how students simultaneously appreciate practical benefits while maintaining awareness of potential learning compromises during crisis adaptations. This challenges simplistic assumptions about student responses and highlights the sophisticated ways learners evaluate trade-offs between convenience and effectiveness. Research also demonstrates that infrastructure barriers, social learning disruption, and individual adaptation differences become particularly acute during rapid transitions, requiring specific attention in crisis-responsive educational planning.

Several important limitations should be considered when interpreting findings. The research was conducted at a single, well-resourced private educational institution in the Philippines, which may limit generalizability to public schools or institutions with different resource levels, as private schools typically have better technological infrastructure and more flexible administrative structures. Additionally, the study examined student perspectives from one specific crisis period involving extreme heat, transportation strikes, and flooding, meaning responses may differ during other types of emergencies with different characteristics, duration, or intensity. Future research should investigate long-term impacts of crisis-responsive adaptations on student learning outcomes and trajectories. Longitudinal studies could examine how emergency educational transition experiences influence subsequent engagement and success. Research should explore the effectiveness of different crisis-response strategies and their differential impacts on diverse student populations. Cross-cultural studies could examine how different contexts influence student responses during crisis adaptations.

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