

Multi-level Emergency Remote Teaching Framework for K–12 Distance Education: A Stakeholder-based Qualitative Study

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Abstract: This study develops a multi-level Emergency Remote Teaching (ERT) framework for K–12 distance education, grounded in the experiences of students, teachers, parents, and administrators during the COVID-19 pandemic. Prior ERT research has predominantly focused on single stakeholder groups or produced descriptive findings without synthesizing perspectives into a structured response model. Using a qualitative case study design, semi-structured interviews were conducted with 100 participants (25 per stakeholder group) selected through maximum variation sampling. Thematic content analysis was employed to identify convergent and divergent priorities across groups, which were subsequently mapped onto the five layers of the Holistic Analytical Layer Framework (HALF): policy, system, program, course, and activity, based on their functional relevance to each layer. Findings indicate that digital infrastructure functions as a foundational system-level prerequisite shared across all stakeholder groups, while pedagogical, psychosocial, and governance priorities diverge by role. Teachers emphasized assessment reliability and instructional continuity; students highlighted engagement and psychosocial support; parents stressed communication and guidance mechanisms; while administrators prioritized governance flexibility and decision-making autonomy. The resulting framework positions ERT not as an isolated emergency improvisation but as a coordinated, multi-layered response architecture that aligns stakeholder expectations across interconnected educational layers and supports the coordination of policy, infrastructure, programmatic planning, and instructional practices during crisis periods. The study contributes to the distance education literature by transforming multi-stakeholder perspectives into an integrated framework and extending the application of HALF to emergency education contexts. For e-learning practice, the framework offers school administrators and policymakers a concrete diagnostic tool for auditing crisis-preparedness across governance, infrastructure, and instructional layers, while offering teacher educators a basis for designing professional development that addresses both technical and psychosocial readiness for remote instruction. Given its single-region, qualitative design, the framework should be understood as a context-sensitive foundation for future empirical validation rather than a universally transferable model.

Keywords: Emergency remote teaching, Distance education, K–12, Stakeholder perspectives, Crisis preparedness, Digital equity

1. Introduction

The coronavirus, first identified in China in December 2019, rapidly evolved into a global pandemic, profoundly disrupting social, economic, and educational systems worldwide (Bozkurt, 2020). The crisis challenged established perceptions of work, education, and social life, compelling individuals and institutions to navigate unprecedented circumstances (Balci, 2020). Although the immediate health influences of the pandemic have diminished, its long-term consequences continue to reshape educational practices, technological engagement, and institutional preparedness (Zhao, 2020).

The pandemic accelerated transformations already underway in Information and Communication Technologies (ICT), digital learning environments, and evolving conceptions of knowledge and 21st-century skills (Kyllonen, 2012; McLoughlin and Lee, 2007; Van Weert, 2006). These developments sped up ongoing debates about digital transformation, educational flexibility, and institutional resilience (Aktan, 2021).

During the pandemic, ERT was widely implemented as a temporary solution to sustain educational continuity. In the post-pandemic discourse, it has frequently been stated that certain emergency distance education practices will continue to shape future educational models (Telli Yamamoto and Altun, 2020). Similar institutional statements were made by the Ministry of National Education (MoNE, 2020). These reflections highlight a broader recognition that education systems were insufficiently prepared for large-scale disruptions and must develop structured preparedness strategies for future crises (Brooks et al., 2020; Han, Demirbilek and Demirtaş, 2021).

Within the scope of K–12 ERT research, studies have largely focused on stakeholder perceptions of distance education (e.g., Ball, 2022; Kruczek et al., 2022), evaluations of emergency practices (e.g., Fiş Erümit, 2021; Gören et al., 2020; O'Keefe et al., 2020), identification of challenges encountered during implementation (e.g., Trust and Whalen, 2021), the broader effects of the pandemic on educational processes (e.g., Apaydın and Manolova Yalçın, 2024; Parveen et al., 2022), and recommendations for the post-pandemic period (e.g., Javorsky et al., 2022; Nisiforou, Kosmas and Vrasidas, 2021; Sofianidis et al., 2021). Although some studies have incorporated multiple stakeholder groups, research simultaneously involving students, teachers, parents, and administrators remains limited. Furthermore, even studies that include multiple stakeholders tend to present descriptive findings or fragmented recommendations rather than synthesizing these insights into a comprehensive and operational framework. This pattern is empirically documented in the literature. Bond (2021), in a living rapid systematic review of 89 K–12 ERT studies across five international databases, identified the underrepresentation of diverse stakeholder perspectives as a critical gap, noting that research remained predominantly teacher-focused. Saroglou and Kostas (2023) similarly found, in a systematic review of 46 K–12 ERT studies, that teachers constituted the primary sample in 67.3% of studies, while only one study incorporated all stakeholder groups, including parents. Al Mazrooei et al. (2022), drawing on 51 studies indexed in Web of Science and Scopus, likewise confirmed that K–12 ERT research has largely been confined to teacher and student experiences, producing taxonomies of challenges rather than governance-oriented response architectures. Even in studies that incorporate multiple stakeholder groups (e.g., An et al., 2022), findings remain largely descriptive and role-specific, offering limited guidance for developing integrated crisis-response frameworks. Accordingly, the present study adopts the HALF as an integrative analytical lens that systematically aligns governance, infrastructural, pedagogical, and psychosocial dimensions within a coherent multi-level architecture. This approach enables the synthesis of stakeholder experiences and expectations into a structured ERT framework for K–12 education, thereby extending existing research beyond descriptive accounts toward a governance-oriented model for crisis preparedness and educational continuity.

Despite the proliferation of pandemic-related research, a significant gap persists in translating multi-stakeholder experiences into a structured, multi-layered response model for K–12 distance education. Existing research often examines isolated perspectives, thereby overlooking the interconnected and systemic nature of educational ecosystems. More importantly, few studies attempt to transform qualitative stakeholder insights into a coherent governance-oriented framework capable of guiding future crisis preparedness. Unlike prior studies that list stakeholder challenges without integrating them into a systemic model, the present study moves beyond descriptive aggregation by mapping stakeholder expectations onto the hierarchical layers of the HALF framework, thereby generating a governance-oriented framework that organizes stakeholder priorities within a coherent multi-level structure rather than presenting them as a thematic list of recommendations.

Rather than offering a fragmented list of recommendations, this study integrates the perspectives of students, teachers, parents, and administrators into a structured Emergency Remote Teaching framework for K–12 distance education. By employing the HALF as a synthesis mechanism, the study proposes a multi-level model encompassing policy, system, program, course, and activity layers. In doing so, it moves beyond descriptive reporting to develop a stakeholder-driven, operational roadmap aimed at strengthening institutional resilience and sustaining educational continuity in future crisis-driven disruptions. Accordingly, this study seeks to answer the following research question:

- How do the experiences and expectations of students, teachers, parents, and administrators shape the requirements for sustaining educational continuity during crisis-driven disruptions in K–12 education?

2. Theoretical Framework

2.1 Distance Education

Distance education can be defined as a planned, institutional, and administrative process in which students and teachers are not in the same environment, different technologies are used, and course designs and teaching methods are determined by the nature of distance education (Moore and Kearsley, 2011).

Considering both the above definition and other definitions in the literature (Hawkins, 1999; Holmberg, 1995), it can be stated that the primary purpose of distance education activities is to maintain education and training activities with the help of technologies that can contribute to education by providing people with time-space flexibility (Özbay, 2015).

2.2 Emergency Remote Teaching

ERT allows learners to safely access educational activities and materials during crisis periods, unlike planned, voluntary distance education (Hodges et al., 2020). Bozkurt and Sharma (2020) defined ERT as online education activities carried out in an unplanned and improvised manner due to force majeure, such as epidemics, wars, or disasters. Although the concept of ERT, which entered our lives during the COVID-19 pandemic, appears similar to that of distance education, there are many differences between the two. When these differences are examined, it is seen that distance education is a preference, while ERT is a necessity; distance education offers permanent solutions, while ERT provides temporary solutions to crisis periods; distance education activities are carried out in a planned and systematic manner, while ERT activities are improvised (Hodges et al., 2020).

2.3 Holistic Analytical Layer Framework

HALF was proposed by Karaman and Kurşun (2020) as a conceptual tool to guide both research and practice in distance education. The framework emerged in response to persistent challenges in the field, including terminological inconsistencies, the dominance of face-to-face education assumptions in distance education research, methodological ambiguities, and the gap between theoretical discourse and practical implementation.

HALF conceptualizes distance education systems as interconnected and multi-layered structures rather than isolated instructional environments. Within this perspective, the components of the distance education process and their interrelationships are organized across five hierarchical yet interdependent levels: policy, system, program, course, and activity. This layered structure enables the alignment of governance decisions, infrastructural capacities, curricular organization, instructional design, and classroom-level practices within a coherent analytical framework.

The policy level represents the broadest and most strategic dimension, where national or institutional distance education policies are formulated, and long-term goals are established. The system level encompasses technological infrastructure, including software, hardware, and organizational support mechanisms that sustain the implementation of distance education. The program level focuses on the structural organization of diploma or certification programs delivered through distance education. The course level addresses the design, implementation, and evaluation of individual courses in alignment with program-level principles. Finally, the activity level, considered the core operational layer, includes the design and execution of specific instructional activities. At this level, variables such as learning environment, tools and materials, participant roles, timing, interaction patterns, and instructional configurations are determined.

From a theoretical standpoint, HALF aligns with systems-oriented approaches in education by recognizing the interdependence among institutional layers. In crisis contexts such as emergency remote teaching, disruptions at one level inevitably influence those at other levels. Therefore, analyzing ERT exclusively at the classroom or course level may overlook broader structural determinants. By organizing stakeholder experiences across these five interconnected layers, HALF serves as an integrative synthesis mechanism that transforms qualitative insights into a structured, operational response model. In this study, the framework serves as an analytical lens to systematically map stakeholder recommendations onto governance, infrastructure, programmatic, and pedagogical dimensions, thereby enabling the development of a coherent multi-level ERT framework for K–12 distance education.

3. Method

This study used a qualitative case study design (Merriam, 1988). The case study approach was selected because it enables an in-depth exploration of complex educational phenomena within their real-life contexts. In the context of ERT, where multiple stakeholder perspectives intersect within dynamic institutional environments, a case study design allows for a comprehensive examination of experiences, practices, and contextual conditions. The case in the current study concerns the emergency remote teaching experiences of students, teachers, parents, and administrators within the K–12 education system of a single northeastern province of Türkiye during the 2020–2021 academic year.

As widely acknowledged in educational research (Gall, Gall and Borg, 2007), case studies are particularly suitable for investigating contemporary events over which researchers have limited control. By focusing on stakeholder experiences during the pandemic, this approach provides insight not only into how educational processes unfolded under crisis conditions but also into the structural and systemic factors that shaped those experiences

(Yin, 2018). Consequently, the case study design facilitated the identification of context-sensitive recommendations and the development of a structured framework grounded in lived realities.

3.1 Research Group

Participants were recruited from public schools in a province in Türkiye's northeast during the 2020–2021 academic year, a period characterized by intensive ERT implementation. The province was selected as it reflects diverse socio-economic and technological conditions, thereby providing a suitable context for examining variations in distance education experiences.

The study sample consisted of 100 participants: 25 teachers, 25 students, 25 school administrators, and 25 parents. To ensure representation across educational stages, three schools were selected from each of the primary, middle, and high school levels (Grades 1–12), for a total of 9 schools. Participants were then recruited voluntarily from these schools.

Maximum variation sampling, a purposive sampling strategy, was employed to capture a broad spectrum of experiences and contextual differences (Suri, 2011). This approach enables the exploration of rich and diverse perspectives rather than aiming for statistical generalization. To enhance variation, schools were selected to represent different institutional characteristics, including project high schools, academically selective (qualified) high schools, village schools, and transportation-centered schools. This diversity allowed the study to reflect differences in technological infrastructure, student profiles, and administrative capacity, thereby strengthening the transferability of findings. In addition, variation was ensured across educational level (primary, middle, and high school), geographic location (urban, peri-urban, and rural), and stakeholder role (teacher, student, parent, and administrator).

3.2 Data Collection Tools

Data were collected through semi-structured interviews designed for each stakeholder group. Semi-structured interviews were preferred as they allow for in-depth exploration of participants' lived experiences while maintaining flexibility to probe emerging themes (McMillan and Schumacher, 2010). This approach was particularly well-suited to capturing nuanced perspectives on emergency remote teaching practices during the pandemic.

The development of the interview protocols followed a systematic process. First, a comprehensive literature review of emergency remote teaching and distance education was conducted, resulting in an initial question pool. The draft interview forms were then reviewed by two field experts—one Professor and one Assistant Professor—to ensure content relevance and clarity. Based on their feedback, revisions were made prior to pilot testing.

The pilot study involved two participants from each stakeholder group. Following the pilot interviews, necessary revisions were implemented, including refining question wording, reordering items for clarity, and removing redundant prompts. To enhance linguistic accuracy and comprehensibility, the finalized forms were reviewed by a language expert with eight years of experience in Turkish Language Teaching.

Due to pandemic-related restrictions, all interviews were conducted online via Zoom. With participants' informed consent, interviews were audio-recorded to ensure accuracy and prevent data loss. Each interview lasted approximately 20–25 minutes.

3.3 Data Analysis

The qualitative data were analyzed using thematic content analysis. Content analysis was selected as it enables the systematic examination of textual data and facilitates the identification of patterns, categories, and themes aligned with the research purpose (Krippendorff, 1980; Patton, 2002). The analysis aimed to transform stakeholder narratives into structured thematic categories that could be systematically mapped onto the layers of the HALF.

The analysis process followed a structured coding procedure (Zhang and Wildemuth, 2009). First, all interview recordings were transcribed verbatim and reviewed multiple times to ensure transcription accuracy. During this stage, transcripts were cleaned and anonymized. Second, an initial coding scheme was developed through open coding. To enhance consistency, eight interviews selected randomly were jointly coded by the researchers to establish shared definitions, coding boundaries, and interpretative alignment. Following this calibration phase, the remaining transcripts were divided between the two researchers for independent coding. To protect

participant confidentiality, each participant was assigned a coded identifier: T (Teacher), S (Student), P (Parent), and A (Administrator), followed by a number (e.g., T-3, S-15).

To ensure inter-coder reliability, 20 randomly selected interviews were re-coded independently by both researchers after the initial coding phase. Inter-coder agreement was calculated at the category level using Cohen's kappa coefficient based on the consistency of coding across identified meaning units. The resulting kappa value was $\kappa = .86$, indicating almost perfect agreement between coders. Discrepancies were discussed and resolved through consensus to finalize the coding structure.

To further enhance analytical rigor, the preliminary coding structure and thematic categorizations were reviewed by two external field experts. Based on their feedback, three types of revisions were implemented: removing codes deemed conceptually inconsistent; refining or renaming codes for clarity and precision; and merging overlapping codes to improve conceptual coherence. This iterative refinement process ensured both internal consistency and external validation of the analytical framework. Themes were mapped onto the HALF layers only after the completion of thematic analysis. Codes were first derived inductively from the data and subsequently organized within the HALF structure according to their functional relevance to each layer. Consistent with theory-guided thematic analysis, the framework served as an analytical lens for organizing findings rather than as a deductive coding template (Braun and Clarke, 2006).

3.4 Reliability and Validity

In qualitative research, rigor is commonly evaluated through the criteria of credibility, transferability, dependability, and confirmability rather than traditional notions of validity and reliability (Guba, 1981; Guba and Lincoln, 1994; Yıldırım and Şimşek, 2013). Accordingly, several strategies were implemented to enhance the study's trustworthiness.

To ensure credibility, expert and peer feedback were obtained at multiple stages of the research process, including the development of the interview protocols and the data analysis phase. In addition, voluntary participation and prolonged engagement with the data through repeated transcript review strengthened interpretive accuracy.

Transferability was supported by providing detailed descriptions of the research context, sampling strategy, participant characteristics, and analytical procedures, thereby enabling readers to assess the applicability of findings to similar contexts.

To enhance dependability, interviews were audio-recorded and systematically transcribed. Inter-coder consistency was evaluated using Cohen's kappa coefficient, and coding decisions were reviewed collaboratively to ensure procedural stability (see Data Analysis section).

Finally, confirmability was ensured through a comprehensive audit trail. All raw data, coding files, and analytical notes were digitally archived to enable external review and ensure that findings were grounded in the data rather than in researcher bias.

4. Findings

This section presents the findings derived from the qualitative analysis of stakeholder perspectives regarding educational practices during crisis periods. The data, organized around six main themes, were interpreted through the HALF to provide a multi-layered understanding of ERT requirements. Frequency counts reported in the table are intended to indicate the relative salience of themes across stakeholder groups rather than to support statistical inference; they are presented as a transparency measure consistent with the qualitative nature of the study, following established practice in qualitative content analysis (Krippendorff, 1980; Patton, 2002). The distribution of stakeholder recommendations and their frequencies are summarized in Table 1.

Table 1: Thematic Analysis of Teacher, Student, Parent, and Administrator Views on Educational Strategies in Times of Crisis

Theme	Subtheme / Code	Teacher (f)	Student (f)	Parent (f)	Administrator (f)
1. Educational Planning and Implementation	Evaluation of absenteeism	20	6	9	—
	Hybrid education models	10	6	7	9
	Development of instructional content and materials	14	5	7	—
	Regulation of lesson duration	13	4	7	12
	Small-group instruction	—	7	—	—
	Ensuring active participation in lessons	—	8	—	—
2. Supportive and Preventive Practices	Remedial education planning	5	4	9	10
	Classroom management strategies	—	4	—	10
	Guidance and counseling services	—	—	—	3
	Education on screen and technology addiction	—	2	—	—
3. Capacity Building and Professional Development	Professional development for teachers	18	—	—	—
	Training on technology use	13	13	10	17
	Parental education programs	—	—	10	—
	Student mentoring and peer-support practices	—	—	9	—
4. Governance and Structural Arrangements	Definition of legal responsibilities	—	—	—	9
	Participation in decision-making processes	—	—	—	9
	Timely dissemination of official decisions and information	—	—	—	15
	Crisis and emergency preparedness planning	—	—	—	10
	Development of implementation guidelines	—	—	—	3

Theme	Subtheme / Code	Teacher (f)	Student (f)	Parent (f)	Administrator (f)
5. Equity and Access in Education	Access to the internet and digital devices	22	16	11	22
	Provision of printed learning materials	—	—	10	—
	Ensuring educational continuity in rural areas	—	—	—	6
	Use of mobile and digital learning tools	—	2	—	—
6. Assessment, Evaluation, and Monitoring	Assessment and evaluation practices	15	—	—	13
	Reliability of online assessments	—	5	3	10
	Alternative assessment methods	—	—	—	4
	Monitoring of student performance	—	3	—	—

The thematic distribution in Table 1 indicates that, while certain challenges, particularly access to digital infrastructure, are universally recognized, stakeholders prioritize interventions differently based on their functional roles within the educational ecosystem. The following analysis interprets these findings across the systemic layers defined in HALF.

Access to internet connectivity and digital devices emerged as the most frequently cited barrier across all stakeholder groups (total $n = 71$), indicating a foundational system-level prerequisite for educational continuity. While teachers and administrators emphasized infrastructure provision, parents offered a pragmatic alternative: printed learning materials ($n = 10$), highlighting a policy-level solution to digital inequities. The lived experience behind this finding was particularly acute in rural settings. One student explained:

“Our house is in a village, and we could not get internet connected. They should provide internet connectivity to our village, or if that is not possible, they should distribute printed materials to students living in villages” (S-15).

A parent similarly described the financial burden of adaptation:

“When the process began, we bought a tablet and had internet installed at home so that my son could attend lessons” (P-14).

These accounts indicate that digital inequality was experienced not only as a technological challenge but also as an economic burden for families.

Governance-related themes were almost exclusively articulated by administrators, who emphasized timely dissemination of official decisions ($n = 15$), clarification of legal responsibilities ($n = 9$), and crisis preparedness planning ($n = 10$). One administrator stated:

“Administrators should be given more authority to make decisions based on the conditions of their own region. During periods when the pandemic was less severe, they should be able to decide on hybrid education or alternative approaches” (A-23).

Another emphasized the procedural dimension:

“Attendance requirements should be enforced for students, and assessment and evaluation must be conducted. Necessary measures should be taken to ensure that assessment and evaluation are carried out reliably” (A-9).

These findings indicate that administrators attached particular importance to decision-making processes, institutional responsibilities, and crisis preparedness.

Capacity building emerged as a multidimensional program-level requirement. Teachers (n = 18) and administrators (n = 17) strongly advocated professional development and technology training, framing ERT as a competence-based challenge. Parents broadened this perspective by emphasizing parental education (n = 10) and student mentoring practices (n = 9), suggesting that educational continuity extends beyond institutional boundaries into the home-learning environment. An administrator captured this multi-stakeholder dimension of capacity development:

"Administrators and teachers must definitely be included in the decision-making process. Technology use training should be provided for parents, teachers, and students" (A-8).

This finding suggests that stakeholders viewed technology-related competencies as a shared responsibility involving multiple actors.

Additionally, administrators underscored classroom management strategies (n = 10), whereas students uniquely highlighted the need for guidance on technology addiction (n = 2). These findings indicate that program-level preparedness must incorporate academic, technological, and psychosocial dimensions. Students directly articulated the psychosocial burden of ERT. One student described the cumulative anxiety of sustained distance learning:

"I was very anxious this year because of the high school entrance exam. Schools were closed, and I could not follow the lessons well through distance education. Over time, this situation began to cause me serious stress" (S-5).

Another student highlighted the protective role of in-school guidance:

"During the guidance sessions with our classroom teacher, I learned to take deep breaths and think about positive things when I felt overwhelmed. I was also glad that my teacher paid attention to me" (S-17).

Some students additionally expressed a preference for hybrid instructional arrangements:

"I strongly believe that in such situations, some lessons should be held face-to-face with the necessary precautions. Spending so much time in front of a computer made it difficult for me to concentrate, and I could not understand the lessons well" (S-7).

These accounts demonstrate that students experienced emergency remote teaching not only as an academic challenge but also as a psychosocial experience affecting well-being and engagement. Teachers also reported several assessment-related difficulties during emergency remote teaching.

"Internet disconnections during examinations and the lack of security in online assessments are among the problems that must be acknowledged. Students were also forced to answer questions on small screens, which posed an additional challenge" (T-3).

In response to these challenges, some administrators described alternative monitoring practices:

"For students preparing for high-stakes exams, we organized online practice tests as a substitute for the face-to-face mock exams we could not conduct, and in this way we tried to monitor student achievement" (A-8).

Overall, the findings reveal both shared and stakeholder-specific priorities regarding educational continuity during crisis periods. While access to digital infrastructure emerged as a common concern across groups, other issues—including governance, capacity building, psychosocial support, and assessment practices—were emphasized differently according to stakeholders' roles and responsibilities within the educational system.

4.1 Synthesis of Findings: An ERT Framework for K–12 Education

The synthesis of findings demonstrates that stakeholder recommendations do not operate as isolated interventions but as interdependent elements embedded within a layered educational ecosystem. Rather than aggregating themes descriptively, the HALF was employed as an integrative synthesis mechanism to reorganize stakeholder expectations across policy, system, program, course, and activity levels.

Importantly, the analytical positioning of themes within the framework was determined not by frequency or magnitude but by their functional relevance to sustaining educational continuity during crisis conditions. This functional mapping enabled the transformation of dispersed qualitative insights into a structured and operational ERT architecture for K–12 education.

The comparative analysis indicates that stakeholder priorities extend across multiple interconnected layers of the educational system. By aligning stakeholder priorities within the hierarchical yet interdependent layers of the HALF, the study advances a coherent crisis-response model grounded in lived experience rather than abstract prescription (see Figure 1).



Figure 1: ERT Framework for K–12 Education Based on Stakeholder Findings and the HALF (Developed by the authors based on Karaman and Kurşun's (2020) HALF)

As illustrated in Figure 1, the proposed ERT framework operationalizes stakeholder-derived expectations across five interconnected layers. At the policy level, equity and hybridity are positioned as normative standards, reframing digital access as a foundational policy priority and hybrid flexibility as a structural safeguard rather than a temporary accommodation. At the system level, infrastructure provision is integrated with participatory governance, suggesting that technological readiness must be complemented by administrative agility and decentralized decision-making to enable context-responsive implementation. At the program level, the framework extends beyond curricular continuity to incorporate psychosocial resilience, including digital well-being, addiction prevention, and value-based education, thereby signalling a shift from academic recovery toward holistic learner protection. At the course level, procedural formalization addresses concerns about reliability and accountability while encouraging a transition toward process-oriented, diversified assessment practices. Finally, at the activity level, the inclusion of external instructional actors, such as education faculty students and mentors, introduces a collaborative instructional model aimed at alleviating teacher overload and fostering distributed responsibility.

Collectively, the framework aligns governance, infrastructure, programmatic, and pedagogical expectations across the layers defined in the HALF, providing a coherent structure for translating stakeholder-derived priorities into a crisis-response model.

5. Discussion

The ERT framework proposed in this study, synthesized from multi-stakeholder experiences, demonstrates that crisis-period education extends beyond a technical modality shift and instead constitutes a multi-layered systemic transformation. The findings indicate that sustainable emergency remote teaching requires coordinated alignment across infrastructural, administrative, pedagogical, and psychosocial dimensions.

At the system level, the pronounced demand for hardware, software, and stable internet connectivity confirms that infrastructure is a foundational prerequisite for ERT. While prior studies have identified digital inequality as a structural barrier (Bozkurt and Sharma, 2020; Jackson, 2021), the present study advances this discussion by revealing a rare cross-stakeholder consensus regarding access. Unlike role-specific concerns observed in other

thematic areas, digital equity emerged as a universally articulated necessity. This convergence suggests that unresolved infrastructural disparities render pedagogical innovations at higher layers structurally fragile.

In addition to infrastructure, administrators emphasized management autonomy and dedicated crisis budgets, echoing findings by Thornton (2021) and Yoskovitz and Schechter (2023). However, this study reframes these demands not merely as managerial preferences but as requirements for systemic flexibility. By institutionalizing decentralized authority, the proposed framework challenges centralized, uniform crisis responses and instead promotes context-sensitive adaptation, consistent with World Health Organization (WHO, 2020) recommendations regarding localized decision-making during public health disruptions.

At the activity level, the recommendation to involve education faculty students and group advisors signals a structural reconfiguration of instructional responsibility. While Avcı and Akdeniz (2021) documented increased teacher burnout during pandemic teaching, the present findings propose a distributed instructional model as a resilience strategy. This transition from the “isolated teacher” paradigm toward a “supported instructional team” reflects broader shifts in professional identity aligned with contemporary lifelong learning perspectives (Van Weert, 2006).

Similarly, the call for centralized material distribution underscores the need for content standardization to alleviate the time-intensive burden of producing individual materials, a concern long emphasized in the distance education literature (Rowntree, 1990). At the program level, stakeholder emphasis on screen dependency and digital addiction (Iivari, Sharma and Ventä-Olkkonen, 2020; King et al., 2020) broadens the scope of ERT beyond academic continuity. Within the layered logic of the HALF, this indicates that crisis-responsive education must incorporate a preventive dimension that safeguards psychosocial well-being alongside instructional delivery.

At the course level, tensions surrounding assessment and evaluation reveal an unresolved balance between institutional accountability and online reliability. While systematic assessment has been emphasized in distance education research (Cabi, 2016; Özdoğan and Berkant, 2020), participants in this study articulated a need for alternative, process-oriented evaluation strategies to mitigate reliability concerns associated with remote examinations (Koç, 2021). The advocacy for small-group instruction and active participation further reinforces learner-centered design principles (Cavanaugh, 2001), suggesting that effective ERT requires a pedagogical shift from broadcast-oriented instruction toward interaction-intensive engagement structures. Beyond confirming earlier findings, the present study suggests that the tension between institutional accountability and learner-centered evaluation represents not only a technical challenge but also a governance issue requiring coordinated responses across course and program layers. Despite this apparent convergence around assessment reform, stakeholder priorities differed substantially by role. Teachers framed assessment primarily as an issue of institutional validity and procedural reliability. In contrast, parents showed limited direct engagement with formal assessment structures, instead prioritizing their children’s psychosocial well-being and academic support at home. This tension between systemic accountability and relational care mirrors the findings of Huber and Helm (2020), who observed that institutional actors and family stakeholders frequently operate with differing priorities during crisis-period education.

Taken together, these dimensions—infrastructure, administrative autonomy, instructional collaboration, psychosocial protection, and assessment reform—operate not as isolated interventions but as interdependent components of a layered governance challenge. It should be acknowledged, however, that identifying convergent stakeholder concerns is a necessary but not sufficient basis for developing a comprehensive governance model. The proposed framework represents a first-order synthesis of stakeholder priorities organized through the analytical lens of HALF. Its translation into institutional policy would require iterative validation across diverse regional and socio-economic contexts.

6. Conclusion and Recommendations

This study offers a comprehensive roadmap for K–12 education during crisis periods by synthesizing the multi-perspective experiences of students, teachers, parents, and administrators into a structured, multi-layered framework. Organized through the HALF, the proposed model moves beyond temporary, reactive solutions and advances a systemic resilience approach grounded in governance, infrastructure, pedagogy, and psychosocial support.

The findings demonstrate that successful ERT cannot be reduced to technological delivery alone; rather, it requires coordinated consistency across policy, system, program, course, and activity levels. Although stakeholders expressed growing acceptance of digital integration, the sustainability of this transformation

remains contingent upon addressing structural inequalities, particularly those related to digital access and connectivity.

A central conclusion of this study is the necessity of stakeholder-specific yet systemically aligned support mechanisms. Teachers require pedagogical autonomy, professional development, and workload redistribution, whereas students and parents emphasize psychosocial protection, reliable communication, and clear governance structures. Consequently, future crisis preparedness should adopt an ecosystem-centered rather than teacher-centered orientation, integrating hybrid flexibility with inclusive and context-sensitive implementation strategies.

From a policy and practice perspective, several implications emerge. The following implications are presented in order of structural dependency, from foundational prerequisites to pedagogical adaptations, rather than as an exhaustive or equally weighted list. First, national curricula should incorporate emergency-ready modular structures that enable continuous transitions between face-to-face, online, and hybrid modalities without compromising learning outcomes. Second, digital equity should be regarded as a foundational policy priority, with hardware provision and reliable internet access serving as essential prerequisites for disadvantaged students. Third, assessment regulations should shift from high-stakes, exam-centered models toward continuous, process-oriented, and diversified evaluation strategies better suited to remote contexts. Fourth, school counseling systems should integrate digital well-being frameworks to address screen dependency, gaming risks, and other psychosocial vulnerabilities identified by stakeholders. Finally, collaborative governance structures should institutionalize localized administrative autonomy and formalize partnerships with external actors, such as education faculty and students serving as instructional mentors, to decrease teacher overload and enhance distributed responsibility.

For future research, the proposed ERT framework should be examined through longitudinal implementations and tested across diverse socio-economic regions of Türkiye to evaluate its adaptability, scalability, and long-term systemic impact. The framework should be interpreted with caution, as it emerged from a single regional context during an exceptional historical period. Its applicability to other settings should therefore be evaluated through context-sensitive adaptation rather than direct transfer.

7. Limitations

Despite its contributions to the conceptualization of a multi-level ERT framework, this current study has some limitations that warrant consideration. First, data were collected exclusively through semi-structured interviews conducted via digital platforms (Zoom). Although this approach ensured continuity of data collection during social distancing measures, it may have inadvertently limited participation among stakeholders with restricted digital literacy or those experiencing screen fatigue. Consequently, certain voices, particularly those most affected by digital exclusion, may be underrepresented in the findings.

Second, the study was conducted with 100 participants (25 per stakeholder group) in a specific regional context. While maximum variation sampling was employed to enhance diversity and transferability, the socio-cultural and infrastructural characteristics of the selected region inevitably shape the nature of the findings. Therefore, the proposed framework should be interpreted as context-sensitive rather than universally generalizable across all K–12 settings in Türkiye.

Finally, as a qualitative case study, the research prioritizes depth of insight over statistical representativeness. The objective was not to produce generalizable prevalence estimates but to construct a theoretically informed, stakeholder-driven framework. Future studies may strengthen the empirical robustness of the model by adopting mixed-method designs that integrate large-scale quantitative validation with qualitative contextual analysis across diverse socio-economic regions and educational levels. Longitudinal investigations would further help assess the sustainability and adaptive capacity of the proposed framework over time.

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