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Remote Teaching and Learning in Emergencies

A Rapid Evidence Review

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Authors
Julia Pacitto
Amal Hayat
Jess Hinks
Aime Parfait Emerusenge
Asma Rabi
Noor Ullah

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Reviewers

David Hollow

About EdTech Hub

EdTech Hub is a global research partnership. Our goal is to empower people by giving them the evidence they need to make decisions about technology in education. Our evidence library is a repository of our latest research, findings, and wider literature on EdTech. As a global partnership, we seek to make our evidence available and accessible to those who are looking for EdTech solutions worldwide.

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Rapid Evidence Reviews

This publication is one part of a series of Rapid Evidence Reviews (RERs) produced by EdTech Hub. The purpose of the RERs is to provide education decision-makers with accessible, evidence-based summaries of good practice in specific areas of EdTech. The reviews initially focused on topics that were particularly relevant in the context of widespread global challenges to formal schooling as a result of the Covid-19 pandemic, but now extend to cover further areas. All the RERs are available at https://edtechhub.org/research/.

Contents

Abbreviations and acronyms

ASAL	Arid and semi-arid Lands
EdTech	Educational technology
EEF	Education Endowment Foundation
ERT	Emergency remote teaching
EYFS	Early Years Foundation Stage
GEC-II	Girls' Education Challenge II
HIC	High-income country
ICT	Information and communications technology
INEE	Inter-agency Network for Education in Emergencies
IRI	Interactive radio instruction
IVR	Interactive voice response
LMIC	Low- and middle-income country
OPT	Occupied Palestinian Territories
PFA	Psychological First Aid
RER	Rapid Evidence Review
SSA	Sub-Saharan Africa
TPD	Teacher Professional Development
UN	United Nations
WWW	Wasichana Wetu Wafaulu (Let Our Girls Succeed)

Executive summary

This Rapid Evidence Review (RER) provides a synthesis of recent evidence relating to good practice in pedagogies and teaching practices for emergency remote learning. This review should be read in conjunction with EdTech Hub's RER on Education in Emergencies (↑Barnes et al., 2025).

The main aim of this review is to provide education decision-makers, funders, and implementers (among others) with a clear understanding of the available global evidence on effective practices in teaching when students are educated remotely during emergencies, and crucially, to assess the relevance of this evidence for low- and middle-income contexts.

This RER reviews evidence generated between 2010 and 2024 on EdTech implementations in various crisis contexts, including conflicts, situations of violence and oppression, environmental disasters, and public health emergencies such as the Covid-19 pandemic. The focus is on literature covering emergency remote teaching (ERT) practices and pedagogies across primary, secondary, and higher education.

Following a screening process involving relevance and quality checks (see Section 2), 50 sources were identified for analysis. During the thematic analysis process, data was organised according to the following themes:

1. Instructional design for remote learning in emergency contexts
2. Student engagement and interactivity in ERT
3. Assessment, feedback, and pedagogical adaptation in remote teaching during emergencies
4. Well-being, 'Maslow before Bloom', and pedagogies of care in ERT
5. Teacher training and support in ERT.

Key findings

The findings of the RER are organised by the five themes listed above, and the key findings of each are summarised below.

Regarding overall instructional design for remote learning in emergencies

- Core pedagogical principles remain of central importance: effective teaching practices, such as structured instruction, personalised and active learning, and feedback, are essential in remote teaching, just

as they are in face-to-face settings. However, the ways in which these pedagogies are enacted require significant adaptation for remote contexts, particularly in emergency situations.

- The optimal balance of synchronous and asynchronous instruction varies depending on the age group and context, but a mix is often beneficial, and access to asynchronous content can act as an equaliser in emergency contexts with limited connectivity.
- In remote teaching during emergencies, the principle 'less is more' is often applicable to decisions regarding priority content. Curricula need to be streamlined, prioritising key subjects or content, and focusing on quality over quantity.
- Clear communication is vital to ensure all stakeholders understand the changes associated with a shift to remote learning in emergency situations.

Regarding student engagement and interactivity in ERT

- Promoting student engagement is a significant challenge in remote learning, which can be exacerbated further by the additional challenges faced by students in emergency contexts. Building teacher presence and fostering interactions among students and between students and teachers is crucial to effective remote learning.
- Teacher presence helps bridge the 'geographical, pedagogical, and psychological gap' in remote learning in emergencies.
- Caregiver involvement in learning is vital for the success of remote learning, particularly at the primary level; caregivers can successfully carry out teaching tasks as facilitators and learning partners during remote learning in crisis contexts.
- Contextual factors in emergency and low-income contexts, including wartime conditions, lack of time, and limited literacy skills can present challenges to caregiver engagement.

Regarding assessment, feedback, and pedagogical adaptation in remote teaching during emergencies

- Regular formative assessment and feedback are important for monitoring student progress and maintaining engagement in ERT.

- However, developing appropriate assessment strategies for remote learning environments across educational levels and in both high-tech and lower-tech contexts presents significant challenges.
- Feedback channels from learners and caregivers to teachers and education decision-makers help enable productive adaptation, which can drive improvements in remote teaching and learning. This is especially important in fast-evolving crisis contexts and when trialling new interventions within a given crisis context.

Regarding well-being, 'Maslow before Bloom', and pedagogies of care in ERT

- Prioritising students' well-being is paramount in ERT, and 'pedagogies of care'—emphasising empathy, patience, and understanding—is crucial. In crisis settings, it may be necessary to prioritise 'Maslow before Bloom', i.e., to address basic needs before cognitive learning.
- Pedagogies of care can be enacted through practices such as offering extra flexibility and patience with deadlines, adapting the volume of learning content to avoid overwhelming students, regular wellness check-ins between teachers and students, and creating meaningful spaces for peer interaction.
- Teachers play a vital role in supporting students' emotional needs; however, this creates an additional burden on teachers as they assume this expanded role during emergencies.

Regarding teacher training and support in ERT

- Adequate teacher training and support are critical enablers of effective remote teaching.
- However, significant gaps in training and support, particularly in digital skills, were evident, especially during the Covid-19 pandemic. This lack of support contributed to teacher burnout.
- Digital communities of practice can be a valuable resource for teacher support during crises, offering spaces for information exchange and emotional support.

A crucial and cross-cutting finding from this RER is the lack of rigorous evidence on the effectiveness of specific pedagogies and teaching strategies in ERT, or on the interplay between technology and pedagogy in remote learning during crises. The majority of the literature is specific to

the Covid-19 pandemic, highlighting a need for additional research focused on other emergencies and protracted crises. Additionally, there is a lack of rigorous evidence on remote pedagogical approaches from emergency settings in low- and middle-income contexts. The above findings should therefore be read with these limitations in mind.

1. Introduction

EdTech Hub's goal is to ensure that EdTech contributes to improving learning outcomes for children worldwide, regardless of their location or circumstances. We partner with national governments and the global education sector to build systems that can sustainably integrate EdTech into education policy and practice. We do this by building the evidence base around EdTech, identifying what works and under what conditions.

Building understanding of how to ensure learning continuity and minimise learning loss for children and young people impacted by crisis is a critical and urgent global priority. The Covid-19 pandemic has dramatically reshaped the global education landscape, and at the time of writing, the world is experiencing record levels of displacement due to natural disasters and escalating conflicts (↑UN News, 2024). Two hundred and twenty-two million school-age, crisis-affected children urgently need educational support (↑INEE & Geneva Global Hub for Education in Emergencies, 2023).

Against this backdrop, EdTech Hub has been tasked with producing a series of Rapid Evidence Reviews (RERs) on topics related to education in emergencies. This RER synthesises available global evidence about effective practices in teaching when students are educated remotely during emergencies.

It is now well understood that *how* EdTech is used is more important than *what* EdTech is used, and this is particularly pertinent in the context of emergencies (↑Tauson & Stannard, 2018). This is why conversations in the sector are now beginning to shift 'from EdTech to Pedtech' (↑Aubrey-Smith & Twining, 2024), as researchers and implementers seek to put pedagogy at the front and centre of conversations about technology in education. There is, thus, a need to understand the current state of evidence on how teaching methods and practices can be optimised to drive the effectiveness of tech-supported emergency remote learning. Equally critically, we need to understand how technologies can be harnessed in the service of effective teaching practices and pedagogies when teacher and student are separated by space and/or time during periods of crisis and associated school closures.

1.1 Aim of the RER

The primary aim of this RER is to provide education decision-makers, funders, and implementers (among others) with a clear understanding of the available global evidence about effective practices in teaching when students are educated remotely during emergencies, and crucially, to

assess the relevance of this evidence for low- and middle-income contexts. Within this, the additional aims are to:

- Synthesise available global data on the pedagogies, teaching methods, and practices that are effective in supporting remote learning during emergencies, highlighting examples of good practice underpinned by evidence.
- Examine this evidence in relation to the specific contextual factors that may impact the feasibility and applicability of this evidence in crises in low- and middle-income contexts.
- Identify critical gaps in the literature on emergency remote teaching (ERT) and learning, and suggest avenues for future productive research to address these gaps.

1.2 Scope and key definitions

The RER adopts the following definitions for three central terms:

Remote learning: This study adopts ↑UNICEF & EdTech Hub's (2022, vi) definition of remote learning as:

> *"[...] a method of learning where the teacher and learner are not physically present together in an academic institution for reasons related to accommodation and/or in response to emergency situations."*

Relatedly, remote teaching is understood to be a shift in instructional delivery to an alternative remote mode due to crisis circumstances (↑Hodges et al., 2020; ↑Iglesias-Pradas et al., 2021). Commentators have rightly emphasised the importance of avoiding equating ERT with online learning or more traditional distance education (↑Barbour et al., 2020). As ↑Thumvichit et al. (2021, p. 184) explain:

> *"While the function of distance education is to provide access to learning when learners and information sources are separated by time and/or distance* [...] *emergency remote teaching is about creating short-term access to learning while constrained by a crisis, rather than (re)creating an instructional ecosystem."*

↑Hodges et al. (2020) and ↑Iglesias-Pradas et al. (2021) also emphasise the 'temporariness' of emergency remote teaching and learning, and the sources collated for this RER typically correspond with this definition. In this review, forms of teaching and learning that include a significant remote component are also included, even if they are not fully remote, for example, hybrid learning, which "encompasses both remote and in-person experiences in the delivery of education content" (↑UNICEF &EdTech Hub, 2022, vi).

As EdTech Hub's recently published RER on Education in Emergencies (↑Barnes et al., 2025) covers the broader topic of EdTech in emergencies, this review adopts a narrower focus on emergency remote teaching in order to synthesise global evidence on the pedagogies, teaching methods, and practices linked to effective remote learning during crises. This RER therefore deliberately focuses less on the technology itself and more on the pedagogical practices and methods that educators have used to support and enhance remote learning in emergencies. For this reason, we recommend reading this RER in conjunction with the associated RER on Education in Emergencies (↑Barnes et al., 2025).

Education in Emergencies: As per the ↑INEE (2024) glossary, the following framing of the types of crisis typical to education in emergencies is used for this review:

> "[...] *common situations of crisis in which education in emergencies is essential include conflicts, protracted crises, situations of violence, forced displacement, disasters, and public health emergencies*" (↑INEE, 2024).

EdTech: The following definition of educational technology (EdTech) has been adopted for this review: "Technologies—including hardware, software, and digital content—that are either designed or appropriated for educational purposes" (↑Hennessy et al., 2021, p. 8). The term 'Information and communications technology' (ICT) is also used to refer to hardware and software for learning.

1.3 Review structure

We present our methodological approach in Section 2, including details of the literature search strategy, the inclusion criteria, and methodological limitations. Section 3 includes detailed findings under the five themes that emerged from a thematic analysis of the identified literature. Finally, Section 4 synthesises the evidence reviewed.

2. Methodology

The methodological approach for this RER is informed by the Cochrane Collaboration Rapid Reviews Methods Group guidance on producing rapid reviews (↑Garritty et al., 2021). This permits a rigorous and systematic approach while defining the scope narrowly enough so that it can be completed within a rapid time frame. The details of this approach are presented below.

2.1 Search and screening process

The research process comprised a systematic sequence of searching and screening conducted in Google Sheets. The first step in locating relevant materials for review was to define the inclusion criteria. To be included, sources had to:

- relate to remote learning or distance education and emergencies and/or crisis as defined above;
- have been published between 2010 and 2024;
- contain details on pedagogical practices or teaching strategies for remote or distance education during emergencies;
- contain evidence indicating the effectiveness of, or promising good practices related to, pedagogies and teaching strategies for remote teaching in crisis settings.

Initial searches also prioritised countries classified as low- or lower-middle-income by the ↑World Bank (no date). However, faced with a lack of available literature from low- and middle-income countries (LMICs), the screening criteria were subsequently widened to also include resources from upper-middle and high-income contexts, with the understanding that the relevance of the findings of these studies for LMICs would be critically interrogated as part of the analysis for this RER.

Keywords relating to emergency remote teaching were then combined into comprehensive search strings (see Annex), which were then input into both Google Scholar and the main Google search engine in order to capture both academic and grey literature. Given that programme data is often published in the form of reports rather than journal articles and the fact that the most recent data may not be available in journals due to lengthy review processes, it was considered necessary to include grey literature within the search criteria.

The search results were then subjected to an initial screening round, in which titles and abstracts (or introductions) were screened according to the inclusion criteria. Relevant results were recorded in Google Sheets until no new relevant hits had been recorded for at least two pages. Additional sources were added to the search results through snowball sampling.

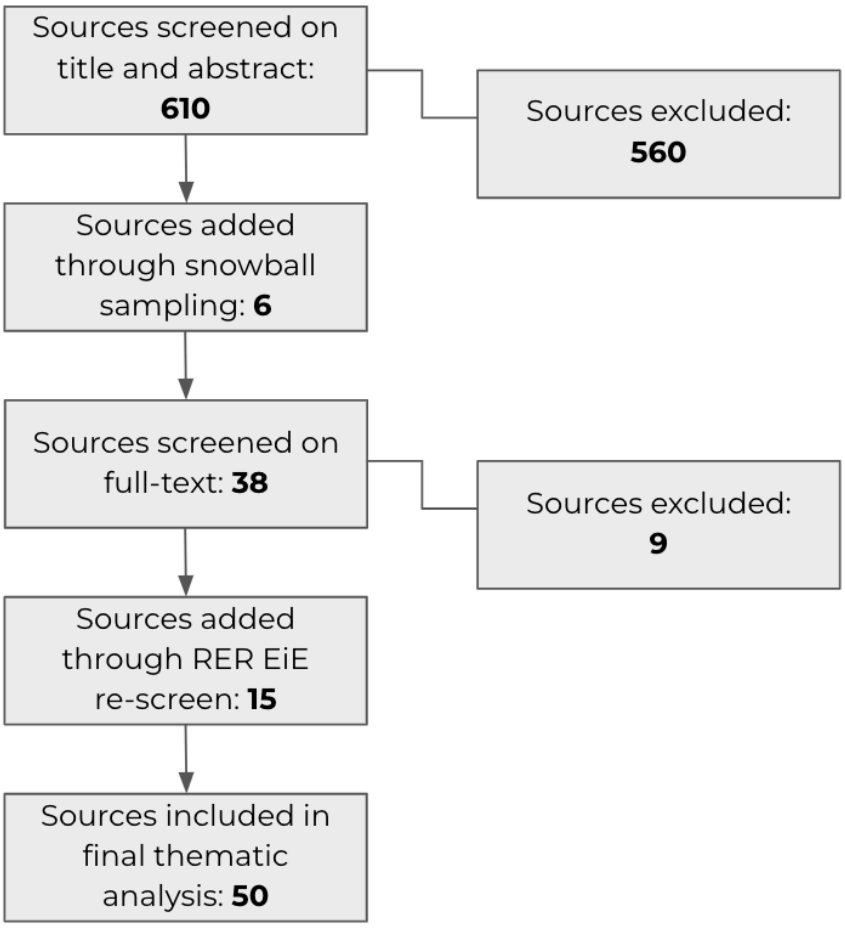
All sources meeting the inclusion criteria were then screened for a second time. In the second round of screening, the source content was assessed for quality: the research team evaluated the rigour of the methodology adopted, the accuracy of spelling and grammar used, and the reputability of the authoring and/or publishing organisation.

Initially, it was planned to only accept sources that scored highly in all of these areas. However, after initial searches revealed a lack of high-quality, rigorous studies on the given topic, allowances were subsequently made to include sources that scored moderately on one or two of the above metrics, particularly for studies focused on LMICs. Sources that passed this screening process were then analysed in full according to an analytical framework in Google Sheets. The framework was developed in accordance with the research questions and informed by patterns identified during the screening process.

After the initial screening process, and upon realising the skew of sources toward Covid-19 and high-income contexts, the decision was made to take one further step to diversify the RER content without requiring additional, time-intensive searches, by re-screening the references in the RER on Education in Emergencies specifically for content on pedagogies and teaching practices in ERT. Through this, an additional 15 sources were retrieved and analysed.

The results of this three-stage screening process are summarised in Figure 1 below.

Figure 1. *Search and screening results*



2.2 Limitations

This RER has five limitations:

1. Searches were only conducted in English due to time constraints. Conducting searches in other languages may have enabled us to identify a greater amount of relevant evidence.
2. Occasionally, resources were behind paywalls, and some of these were still unavailable even after institutional access credentials had been entered. Therefore, these sources had to be excluded.
3. Despite attempts to focus the search on low- and middle-income contexts through targeted search strings, a limited number of sources on LMICs were retrieved, and it was therefore necessary to expand the search criteria to include research on emergency remote teaching in high-income countries (HICs). To prioritise insights from LMICs, a lower threshold for acceptance in terms of the source quality was ultimately implemented. However, sources

from LMICs with significant grammatical errors that impaired comprehension were excluded from the analysis.

4. Despite various attempts to diversify the types of sources retrieved, the literature available on remote teaching pedagogies and methods was heavily focused on the Covid-19 crisis, with only a small number of studies retrieved that focused on other crises. Even when search string parameters were limited to sources from 2010 to 2019, very little literature was retrieved that discussed remote teaching in contexts outside of Covid-19.

5. Overall, a lack of robust data on the topic was retrieved. Some of the sources initially identified through the searches contained information about how EdTech has been used in crisis settings, especially during the Covid-19 pandemic. However, many did not make specific reference to pedagogies and teaching strategies relating to this use of EdTech, and were therefore excluded. Of the sources that do discuss pedagogies and teaching practices, most provide examples of practice, with some offering primarily self-reported data related to effectiveness and student satisfaction, as well as improvements in student well-being linked to specific modalities of teacher–student engagement and support. However, scant robust quantitative evidence linking ERT pedagogies and teaching methods to learning outcomes was retrieved through this review. This gap underscores an urgent need for empirical data on pedagogies and teaching methods that support remote learning during crises.

2.3 Overview of the analysed sample

Details on the sources, data, methodology, types of emergency covered, and contexts for the 50 sources that made up the final sample are given below.

- **Type of source:** 24 sources are journal articles, 16 are reports, 2 are evaluations, 2 are guidance documents, 3 are working papers, 1 is a book chapter, 1 is an article pre-print, and 1 is a background paper.

- **Type of data/methodology:** 9 sources are desk reviews that incorporate and analyse secondary data, and 2 sources are guidance documents from reputable experts in the field. Of the 39 sources that include primary data, only 2 are randomised controlled trials (RCTs). The sources typically comprise a combination of qualitative

and quantitative surveys, interviews/focus groups, and case study approaches.

- **Types of emergency:** 41 sources focus on the Covid-19 pandemic. Four sources refer to multiple crises, or to emergencies more broadly. Two sources relate to climate or natural disasters. Three sources relate to situations of conflict or violence.
- **Focus contexts:** Sources on the Covid-19 pandemic relate to a wide variety of contexts, across low-, middle-, and high-income settings. One source focuses on the current war in Ukraine, and another on violence in North-Eastern Nigeria, with one article covering the political unrest and educational restrictions in Afghanistan since 2022. Sources on natural disasters cover both HICs (New Zealand earthquake, Hurricane Katrina) and LMICs (Pakistan floods).
- **Educational Level:** 7 sources discuss research relating to primary-level education, 6 focus on secondary-level and 12 on higher education. Twenty-five sources covered a mix of educational levels. Sources covering a mix of levels predominantly focus on primary and secondary levels (K–12), but some also cover pre-primary or higher education.

It is important to underline here that a high proportion of sources (82%) relate to the Covid-19 pandemic. This is despite multiple attempts to diversify the type of emergency covered in this review through both targeted search strings and the re-screening of articles included in the RER on Education in Emergencies (↑Barnes et al., 2025). This will be discussed further in the conclusion, but it is clear from this rapid review that while there is an important and growing amount of evidence relating to the effectiveness of EdTech in emergencies (as ↑Barnes et al., 2025 demonstrate), there remains a clear gap in research focusing more specifically on remote pedagogies and teaching practices in emergency contexts beyond the Covid-19 pandemic. The pandemic fundamentally altered the evidence landscape for emergency remote teaching and learning, and has clearly been the driving force behind a rapid proliferation of research on emergency remote teaching, so it makes sense to cautiously see what promising practices we can draw out of this evidence for future emergencies.

3. Thematic analysis: Promising approaches to remote teaching and learning during crises

This section examines insights from the literature about promising pedagogies and teaching practices for remote learning during crises. The review findings are presented according to the following five themes:

1. Instructional design for remote learning in emergency contexts (Section 3.1)
2. Student engagement and interactivity in ERT (Section 3.2)
3. Assessment, feedback, and pedagogical adaptation in ERT (Section 3.3)
4. Well-being, 'Maslow before Bloom' and pedagogies of care in ERT (Section 3.4)
5. Teacher training and support in ERT (Section 3.5).

Wherever possible, this review prioritises data or findings related to the effectiveness of teaching practices and pedagogical approaches adopted during remote instruction emergencies. An approach is deemed effective if there is strong evidence that it contributes to positive learning outcomes (both academic and socio-emotional) or positive psychosocial well-being outcomes. However, due to a lack of robust effectiveness data in the literature, the review also covers promising good practice, which is understood to encompass approaches for which there is some, perhaps limited, evidence linked to positive learning or well-being outcomes. It also includes guidance from reputable, expert sources that are grounded in experience.

3.1 Instructional design for remote learning in emergency contexts

Research emerging from the Covid-19 pandemic and other EiE settings underscores that while foundational teaching practices, such as structured instruction, personalised learning, and effective assessment, remain essential, their application to remote teaching often necessitates significant modifications to in-person educational delivery models. This section synthesises key findings on instructional design for remote delivery, with particular attention to the balance of synchronous and

asynchronous instruction, the reshaping of curriculum and content, and the central role of clear communication during the transition to ERT.

Pedagogical principles, remote pedagogies

↑McAleavy & Gorgen's (2020) rapid evidence summary, undertaken at the outset of the Covid-19 pandemic, summarises what was then known about best practice in teaching when school students are educated by distance learning with the aim of informing educators' responses to school closures during the pandemic. They report that the general principles of effective pedagogy remain consistent across face-to-face and remote teaching, but that remote teaching presents specific challenges. In particular, they identify the domains in which the remote teacher, as the face-to-face teacher, must be proficient in, namely:

- Planning and teaching well-structured lessons (structure)
- Adapting teaching to meet individual needs (adaptation)
- Accurate and productive use of assessment (assessment).

Other sources synthesising secondary data on both remote learning and EdTech in emergencies form similar conclusions, variously asserting that core principles of pedagogy—such as active learning, personalised learning, clear explanations, scaffolding and feedback, engagement, and content that hooks onto previous learning—remain key to effective learning regardless of context (↑Bharti & Musthafa, 2023; ↑Education Endowment Foundation (EEF), 2020; ↑Guglielmi et al., 2021; ↑Tauson & Stannard, 2018).

However, the specific challenges associated with remote teaching necessitate significant adjustments in how each of these pedagogical principles is put into practice. It is important that remote teaching does not "[...] try to mimic the entirely synchronous teacher-student engagement of the conventional school" (↑McAleavy & Gorgen, 2020, p. 2).

Studies also highlight that, in the design of remote learning interventions, teacher input is critical, as teachers "are able to best design the learning experiences that harness those tools with which students are familiar and make most sense for their learning" (↑Doucet et al., 2020, p. 17).

Balancing synchronous and asynchronous instruction

When discussing how best to translate effective pedagogies into a remote learning setting, various sources explore the balance between using synchronous and asynchronous content in remote teaching, with some

nuances in the findings. The ↑EEF's (2020, p. 4), evidence review found that in remote learning, teaching quality is more important than how lessons are delivered, and there was no clear difference in outcomes "between teaching in real time ("synchronous teaching") and alternatives ("asynchronous teaching")." However, subsequent research undertaken during the Covid-19 pandemic is perhaps indicative of some level of nuance in this assertion. For example, ↑Horváth's (2023) study, which surveyed over 4,000 teachers in Hungary regarding remote teaching practices during the pandemic, identified some of the specific pedagogical strategies that teachers perceived as particularly successful with specific groups of learners. The study found that for primary students , a loosened structure with more supportive teacher behaviour, more formative-type feedback, and more asynchronous learning opportunities was the most appropriate approach. In contrast, for lower secondary learners, more teacher control, summative feedback, and synchronous learning opportunities were more effective. Other research from HICs echoed these findings, with a study from the UK concluding that the most effective approach to distance learning may be "phase-dependent" with "pre-made asynchronous and paper-based materials being more commonly used in primary settings, while live teaching was more popular in secondary school settings" (↑Müller & Goldenberg, 2021, p. 7).

Other Covid-19 pandemic-related, evidence-informed expert guidance suggests using a 'mix' of both synchronous and asynchronous learning for distance learning, while acknowledging that this mix will depend on what type of distance learning is feasible within the given context (↑Doucet et al., 2020).

At the higher education level, providing asynchronous content, such as pre-recorded lessons or lectures, and supplementary asynchronous activities is also assessed within the literature as performing an equalising function. This may be particularly relevant for LMICs, as it enables students with poor internet connectivity to access learning content and provides them with the flexibility to organise their learning schedules around other responsibilities (↑Kaminskyy, 2024; ↑Koh & Daniel, 2022). Other commentators similarly describe how it may be necessary to vary the types of asynchronous/synchronous learning activities for maximum learner engagement" (↑Clum et al., 2022, p. 335). This highlights how different methods for delivering educational content can serve different and complementary functions: self-paced e-learning resources offer flexibility, while synchronised lectures promote student–teacher interactions (↑Fan Su et al., 2024).

Ultimately, as ↑Lennox et al. (2021) assert, the trends in the data from the Covid-19 pandemic indicate that what really matters for student learning are the interactions among educators, learners, and educational materials. This issue of interactivity in remote learning is explored in more detail in Section 3.2.

Curriculum and content: Less is more

In discussing the effective adaptation of education to suit a remote learning context, available research also emphasises the ways in which curriculum and content may need redesigning to better suit this alternative teaching and learning modality. ↑INEE's (2022) research indicates that, in contexts where teaching shifts rapidly from an in-person to a distance format, it is vital to carefully consider how to translate activities into a distance format. The literature emphasises the importance of prioritising particular subject content or foci when changing the modality of instruction in order to reduce costs and use time more efficiently (↑Barron Rodriguez et al., 2021; ↑INEE, 2022).

In terms of curriculum and educational content, some literature suggests that it is unrealistic to replicate the pace and type of work that would be done at school (↑Doucet et al., 2020), and that, when adjusting material to suit the online context, the focus should be on quality, not quantity (↑Ahmadi et al., 2024; ↑Ahmed & Opoku, 2022). Reducing or condensing content was highlighted by other research as a key practice to enable effective remote learning (↑Barron Rodriguez et al., 2021; ↑Clum et al., 2022; ↑Fan Su et al., 2024).

The importance of clear communication

Given the significant shifts in delivery methods and educational content essential for transitioning to remote learning during emergencies, another theme in the literature is the importance of clear and consistent communication and messaging, ensuring that learners, caregivers, and teachers are fully informed of the modified plans for educational instruction during crises. Clear, structured communication is consistently identified as a foundational element in the effective transition to remote learning during emergencies. Evidence emphasises the importance of establishing communication protocols at the system level—typically coordinated by departments or districts—to ensure concise, timely messaging during school closures (↑Doucet et al., 2020). At the school and class levels, setting clear expectations for students and caregivers is crucial for maintaining learning continuity (↑Ahmadi et al., 2024; Fan Su et al., 2024; ↑Mackey et al., 2012).

Teachers play a central role in bridging the communication gap, particularly in contexts where online platforms are newly introduced. For instance, Afghan teachers reported prioritising communication with both students and parents to clarify instructional expectations and next steps (↑Khlaif et al., 2020). Additionally, leveraging widely used social media tools—such as WhatsApp, Facebook, and other messaging platforms—proved effective for disseminating guidance and critical updates, especially in low-resource contexts (↑Shraim & Crompton, 2020).

3.2 Student engagement and interactivity in ERT

Student engagement represents a pressing challenge in emergency remote teaching (ERT), with sources highlighting the challenges faced by teachers in establishing and maintaining student engagement in remote learning (↑Ahmed & Opoku, 2022; ↑Toquero & Toquero, 2023). Although challenging, particularly in low-resource settings, a key mechanism for promoting engagement in ERT involves fostering interactivity and support among teachers, caregivers, and peers. Engagement in ERT is shaped by multiple, interrelated dimensions: student–content, student–teacher, and student–student interactions. Among these, teacher presence has emerged as a particularly salient factor. The literature reviewed for this study highlights several positive practices for promoting interactivity among learners, teachers, and caregivers, which are outlined below.

Building remote teaching presence

Teacher presence has become an important concept in studies on remote learning. Pioneered by Canadian academics Anderson and Garrison from their research into university-level distance education, many researchers in the field of remote learning have endorsed the importance of the concept, and according to ↑McAleavy & Gorgen (2020, p. 2), available research on remote learning "highlights the importance of developing and maintaining 'teaching presence', in order to ensure that learners thrive when studying remotely". Their review of literature on remote teaching and learning concludes that a well-designed programme for remote learning will include frequent and diverse opportunities for teachers to demonstrate 'presence'.

↑Barnes et al. (2025) emphasise the importance of multimodality in EdTech in emergencies, but within that, we see evidence that links more specifically to the issue of teacher presence in remote learning. In a number of studies, the impact of a given technological learning intervention was increased if the intervention was accompanied specifically by scaffolding linked to increasing teacher presence and

teacher–student interaction. The literature reviewed for this RER, specifically relating to ERT, also highlights the importance of teacher presence in remote learning during emergencies. This is seen to perform an even more vital role as it also serves an important function in supporting the well-being of learners dealing with a situation of uncertainty and instability (↑Ahmadi et al., 2024; ↑INEE, 2022; ↑Khlaif et al., 2020; ↑Mackey et al., 2012; ↑Rose et al., 2021; ↑Toquero & Toquero, 2023; ↑UNESCO, 2020).

However, some sources are indicative of nuances in this discussion, particularly in relation to low-resource settings. In ↑Abou-Khalil et al.'s (2021) study of emergency online learning during the Covid-19 pandemic, 313 university students participated in surveys in two lower-resource settings — Lebanon and India. Results indicated that 'student–content' engagement strategies, e.g., screen-sharing, reading summaries, and listening to class recordings, were perceived to be most effective in engaging students in online learning, and significantly more effective than both student–teacher engagement strategies (such as question and answer sessions) and student–student interactions (e.g., group chat and collaborative work). ↑Abou-Khalil et al. (2021) suggest that in low-resource settings, students may have different needs that cause them to prioritise access to educational content; in contexts where access to full and complete course content is not assumed and can be hindered by slow internet connections and lack of required technologies, students may value student–content engagement strategies more than in higher-resource settings. Access to sufficient educational resources was also highlighted by ↑Ahmadi et al. (2024) in their study of remote emergency education in Afghanistan since 2020. The study underscores the importance of access as a fundamental factor in improving the efficiency of online learning among secondary learners, demonstrating that student engagement with content is a critical enabling factor in low-resource settings and should not be overlooked.

Building remote peer-to-peer support

↑Abou-Khalil et al.'s (2021) study notwithstanding, across diverse emergency education contexts, peer interaction emerges as a critical component not only for academic engagement but also for students' emotional resilience. Literature across different educational levels highlights that opportunities for students to connect with one another — through structured group work, informal check-ins, or peer discussion forums — contribute to both learning and psychosocial well-being (↑Ahmadi et al., 2024; ↑Clum et al., 2022; ↑Doucet et al., 2020; ↑Khan et al., 2021). For instance, following Hurricane Katrina in the USA in

2005, student and faculty accounts highlighted how class discussions and student-to-student interactions provided emotional support and a shared space for dealing with the aftermath of the disaster (↑Clum et al., 2022). In contrast, overly teacher-centred approaches that limit peer interaction, such as lecture-style formats, are associated with reduced engagement and increased isolation (↑Khan et al., 2021).

In online settings, active learning strategies—such as discussion forums, live Q&A sessions, online polling, and breakout rooms—can help to strengthen relational dynamics between students and teachers as well as among peers, which is perceived to contribute to both student engagement in learning and socio-emotional outcomes (↑Bharti & Musthafa, 2023; ↑Koh & Daniel, 2022; ↑Toquero & Toquero, 2023). Similarly, students in China who felt socially supported by both teachers and peers reported significantly higher levels of engagement in remote language learning during the Covid-19 pandemic (↑Thumvichit et al., 2021).

Fostering teacher–student and peer-to-peer interactivity in lower resource settings

In some lower-resource settings not served by online learning, while teacher presence, peer support, and student engagement were still considered key contributors to student learning and well-being in ERT, the precise forms that this took reflected the specific options available to teachers in these settings. Some of these efforts can be categorised under the rubric of remote teaching, as they took place via phone calls or WhatsApp messaging, but others reinstated a physical teacher presence to support broader remote learning strategies by displacing student–teacher engagement from the classroom to the home or community setting. These strategies can be considered under the rubric of 'hybrid learning', as they incorporate both remote and face-to-face components.

↑Jacob & Ensign's (2020) study of transactional radio instruction in the context of the Boko Haram insurgency in North-East Nigeria reports improvement in literacy and numeracy skills among displaced and out-of-school learners within six months of them listening to the programme. However, the combination of *mobile classroom visits* with radio instruction was shown to be more effective. Beneficiaries of both learning modalities outperformed those who only had access to the radio programme by 25% (↑Jacob & Ensign, 2020, p. 40). Community-based learning was also used as a strategy to reach marginalised learners who did not have access to technology at home during the Covid-19 pandemic; for example, in Northern Nigeria, where learners gathered in community

centres to listen to radio lessons and receive additional support from trained teachers and facilitators (↑Wawire et al., 2023).

In the Girls' Education Challenge (GEC-II)[1] projects examined by ↑Rose et al. (2021), community-based teachers were also considered to be 'instrumental' in supporting girls' ongoing engagement with learning, maintaining motivation and reducing the risk of drop-out. This learning and well-being support was often implemented through community-based models, which combined home-based and phone-based support for girls. In a three-country qualitative case study on middle-school teachers' responses to school closures during the Covid-19 pandemic, teachers from the Occupied Palestinian Territories (OPT) also described the strong relationships that they developed with students' families. Additionally, they described home visits as a practice that they implemented to support students, particularly those with disabilities (↑Khlaif et al., 2020, p. 104). However, in the same study, teachers in Libya highlighted that this approach was not possible for them because of the levels of violence and the spread of Covid-19.

As described in the GEC-II study, phone-based learning took place either through messaging platforms such as WhatsApp or phone calls. Teachers providing phone-based learning used calls primarily to answer learners' questions on home learning resources, which were a mix of paper-based and tech-based resources, rather than providing content-based instruction. For example, teachers from a GEC-II project in Ghana encouraged students to prepare questions about their Ghana Learning TV lessons so teachers could provide structured feedback and instruction. According to the authors:

> *"This two-way model overcame a major challenge in home-based learning, which was the lack of teacher-led guidance and risk of learners losing motivation or momentum when they encountered challenges."* (↑Rose et al. 2021, p. 35)

Another study on the effectiveness of EdTech across the GEC also emphasises the enduring importance of community-based teachers in supporting remote learning via radio in Kenya during Covid-19-related school closures (↑Pacitto et al., 2023). The Let Our Girls Succeed — Wasichana Wetu Wafaulu (WWW) programme in the Arid and Semi-Arid Land (ASAL) areas of Kenya established reading camps facilitated by remedial teachers at the community level as part of their multimodal response to the school closures, which can be described as

[1] The Girls' Education Challenge ran from 2012 to 2024. Funded by the UK's Foreign, Commonwealth and Development Office (FCDO), it was the largest global fund dedicated to girls' education, with a commitment to reach the most marginalised girls in the world.

hybrid as they involved a mixture of remote (radio and paper-based) and face-to-face instruction. Using a mixed-methods approach, including surveys and learning assessments with 640 primary-level girls, ↑Amenya et al. (2021) found that radio lessons were not associated with higher performance in reading and mathematics, *except* where girls listened to the radio in groups as part of these reading camps. This points to the importance of both student–teacher engagement and peer-to-peer engagement in supporting and consolidating learning. According to the authors:

> *"Reading camps were found to have mitigated against the constraints of some girls not living with literate household members. The peer-learning element of the reading camps was also a motivating factor that provided structure to girls' days through periods of prolonged school closures"* (↑Amenya et al., 2021, p. 2).

In ↑Angrist et al.'s (2020) study of SMS/phone-learning support in Botswana during the Covid-19 pandemic, an intervention consisting of weekly SMS messages containing maths problems was sent to parents' phones. This was tested against an intervention that included a weekly 15- to 20-minute phone call in addition to the weekly SMS. The call was put on speaker, allowing both students and parents to hear the facilitator and engage with it, providing additional learning support, motivation, and accountability. Findings show that while both groups demonstrated statistically significant learning gains, the positive effects (percentage level gains on Annual Status of Education Report [ASER] tests) were twice as high in the phone call plus SMS group, compared to the SMS-only group.

A key benefit of one-to-one calls with caregivers or students is that they enable the delivery of personalised learning support tailored to the individual learner. However, as ↑Islam et al. (2022) note, "one-to-one call approaches" are not necessarily scalable, especially in low-resource settings, due to the high reliance on human resources. ↑Angrist et al. (2020, p. 26) also acknowledge the difficulties in scaling phone calls, suggesting that targeting low-performing students yields the highest returns, with both texts and phone calls closing a substantial gap between low- and high-performing students. They recommend that direct phone calls at scale "might consist of weekly teacher phone calls to the bottom 5 to 10 percent of their class."

Caregiver participation in ERT

It is well established that teaching in emergencies is not limited to trained professionals. They include any individual assuming teaching tasks in formal and non-formal settings (↑INEE, 2022). As ↑Barnes et al. (2025) assert,

caregivers play a crucial role in mediating learners' use of EdTech during emergencies and may also take on tasks that would typically be performed by teachers in circumstances where children are learning from home. ↑Lennox et al. (2021) describe how, in the context of the Covid-19 crisis, parents became 'frontline responders' who were engaged in children's learning as never before. As ↑Aurino et al. (2022) affirm, research on remote learning programmes in high-income contexts shows that caregiver participation is key to the children's learning.

The studies reviewed here highlight the importance of caregiver participation in remote learning in low- and middle-income contexts. ↑Dreesen et al.'s (2020) report compiling information from UNICEF offices in 120 countries described how, during the Covid-19 pandemic, countries were engaging with caregivers to help them both support learning and provide psychosocial support for children (e.g., in Bhutan, Cameroon, Ecuador, Eswatini, Guatemala, Oman), with some countries supporting caregivers via tutoring materials, webinars/helplines to answer their questions (e.g., in North Macedonia and Uruguay) and peer-to-peer support groups (e.g., in Montenegro and Oman). ↑Angrist et al.'s (2020, p. 26) findings in Botswana point to the vital role played by parents in remote learning, causing them to ascertain that parents, in both urban and rural contexts, "with light additional support can partially substitute schooling by serving as at-home teachers."

↑Islam et al. (2022) conducted an RCT on audio lessons for primary school children in Bangladesh, utilising an interactive voice response (IVR) system developed through the interactive radio instruction (IRI) method. IRI is a method that allows learners to pause and respond to questions and exercises verbally, and to engage in physical and intellectual activities with any member of their household while the programme is 'on air'. In this study, caregivers played a crucial role in following the instructions and interacting with the learners accordingly. They saw statistically significant positive effects in learning outcomes from the intervention. One of the key findings from the study was that:

> *"For a successful distance learning solution, caregiver involvement is crucial. Caregiver roles need to be specific, and the curriculum must allow them to participate as facilitators, learning partners, etc. Moreover, they also need to be nudged regularly"* (↑Islam et al., 2022, p. 10).

The authors also explained that the design of the intervention was informed by prior evidence on contributing factors in the effectiveness of feature-phone-based educational interventions. Through their literature review, they identified a significant difference between studies with positive effects and those with null effects. Studies observing positive

effects randomised the treatment among a subset of families who opted into the intervention, whereas studies with null effects worked with all the children enrolled in the relevant schools and grades. They concluded that caregivers who opted for participation might have been more interested in using the intervention and in engaging more with their children's education. Based on this conclusion, they established three key factors that influenced their design: targeting an appropriate group of students, motivated caregiver–child dyads, and caregiver engagement.

The studies by ↑Islam et al. (2022) and ↑Angrist et al. (2020) both focus on primary learners, and other research similarly indicates that caregiver involvement and support is particularly important at the primary level, where children are less able to learn independently and where it can be more difficult for teachers to adapt age-appropriate content into digital formats for younger learners (↑Kaminskyy, 2024).

There are, however, significant considerations in emergency and low-income contexts that pose potential challenges to caregiver engagement in children's remote learning. Speaking from the context of the war in Ukraine, ↑Kaminskyy (2024) highlights the difficulties of maintaining high levels of parental support during wartime conditions. Other sources highlighted inequalities in LMIC settings that can also affect parents' capacities to support their children's learning:

> *"Most teachers shared that those students from a low-income background have been affected adversely during the pandemic. In most cases, parents from low-SES groups did not have the time or efficacy to support or supervise their children's learning"* (↑Khan et al., 2021).

This finding is also reflected in the context of the Pakistan floods, where findings from a case study involving 89 parents and teachers indicated that families lacked time and sometimes literacy skills to support their children's learning, particularly in the earlier phases of the crisis when families were more focused on their survival needs (↑Mazari et al., 2023). This suggestion is also substantiated by ↑Aurino et al. (2022), who found that nudge messaging designed to increase caregiver engagement with their children's remote learning was only effective when caregivers had a minimum level of schooling.

↑Guglielmi et al. (2021) developed a number of guiding principles for distance learning in emergencies based on their evidence review, some of which seem particularly pertinent in the face of the above challenges. These include the development of strategies to support families with varying abilities and capacities for distance learning at home, and the creation of materials with simple tips for caregivers to structure learning,

as well as information on radio, TV, and online opportunities. Any pedagogical strategy for remote learning that involves caregivers must therefore take a contextualised approach that understands and accounts for caregiver abilities and capacities to support learning at home, with an appreciation of the demands and pressures that crises place on caregivers.

3.3 Assessment, feedback, and pedagogical adaptation in ERT

Assessment and feedback emerged as critical elements of effective Emergency Remote Teaching (ERT) during this review, particularly in navigating the challenges of maintaining student engagement and learning outcomes during crises. Both assessment strategies and feedback channels have been emphasised as essential tools in contributing to the establishment of a strong teacher presence in remote learning, and for bridging the pedagogical and psychological distance between teachers and learners in remote learning contexts (↑Doucet et al., 2020; ↑Guglielmi et al., 2021; ↑McAleavy & Gorgen, 2020).

Formative and summative assessment in ERT

↑Guglielmi et al.'s (2021, p. 17) report on 'what works' to support learning outcomes for girls in emergencies, which collected data through a rapid evidence review and expert consultations, found that "distance teaching presence, including feedback between teacher and learner, promotes stronger learning outcomes and builds social and emotional skills." Other sources conclude that timely and regular feedback through formative assessment is a key part of the toolkit for overcoming the "geographical, pedagogical, and psychological gap between the teacher and learner" in a distance learning environment (↑Doucet et al., 2020), and provide information that informs the dialogue between teacher and learner in online learning environments (↑McAleavy & Gorgen, 2020). However, several sources highlight the significant challenges of developing appropriate formative and summative assessments for remote learning contexts, across all educational levels and in both higher-tech and lower-tech learning environments (↑INEE, 2022; ↑Moretti-Pires et al., 2021).

In terms of the specific strategies adopted for assessment in ERT, ↑Wawire et al.'s (2023) scoping review of Covid-19 responses in sub-Saharan Africa (SSA) affirms that monitoring student progress is critical to ensuring that learners receive a high-quality education, and highlights that assessment practices in SSA focused on take-home quizzes and homework, social media and web-based assessment platforms, high-stakes examinations and evaluation of learning loss. Upper grade and examination classes were

prioritised in most countries. In the higher educational context, innovative assessment approaches have been reported, including oral assessments via video calls, asynchronous assignments with open-book formats, randomised digital quizzes, and video-recorded student presentations (Moretti-Pires et al., 2021).

On a broader scale, digital platforms were employed in various countries to monitor learning outcomes and support summative assessment during the Covid-19 pandemic. In Egypt, for instance, students registered on the Egyptian Knowledge Bank (EKB) platform using their national ID, whereas vulnerable groups without access to legal identification/birth registration accessed the platform through an open portal. Various other countries, including Serbia, South Africa, Kazakhstan, and Azerbaijan, also incorporated assessment tools into their digital platforms (↑Dreesen et al., 2020).

In terms of impact, regular formative assessment was assessed in the literature as contributing to positive student perceptions of remote teaching at the higher education level in high-income settings (UAE) (↑Ahmed & Opoku, 2022), and reported as key to effective remote teaching by teachers working at lower secondary levels in lower-income contexts (OPT, Afghanistan, Libya) (↑Khlaif et al., 2020). Frequently assessing student learning and providing feedback (i.e., formative assessment) was also reported to be helpful in refugee students' higher-education distance learning journeys in Egypt (↑Center for Learning in Practice, 2021). Equally, ↑Rose et al.'s (2021) study links teacher feedback to sustained motivation and engagement with learning by primary and secondary learners. However, assessments of the relative effectiveness of different formative and summative assessment models in remote learning were not available within the literature retrieved.

Feedback and adaptation during crises

Alongside feedback directed from teachers to students, the establishment of feedback channels from learners and caregivers to teachers and education decision-makers also emerged within the literature as a critical component of effective remote pedagogies, and as a mechanism that enables productive adaptation in the experimental delivery of remote teaching during crises. This issue of adaptation and responsiveness links to broader conceptual discussions about pedagogical resilience, which has been understood as the capacity of teachers or education systems to positively adapt in the face of changing external conditions, such as during crises (↑Clum et al., 2022; Zara et al., 2022). The importance of both feedback loops and iterative adaptation during the rapid implementation

of a new modality of instruction during a crisis is highlighted across several sources (↑Ahmed & Opoku, 2022; ↑Doucet et al., 2020; ↑Moorhouse, 2020). For example, according to ↑Doucet et al. (2020, p. 19): "Setting up the guidelines for how teachers are going to teach and then listening to feedback from students, parents, and staff is key to improvement."

One example of productive adaptations to remote teaching during the Covid-19 pandemic was evidenced in ↑Ahmed & Opoku's (2022) study of university-level remote teaching in the UAE during the pandemic. As reported in interviews with instructors, one of the main concerns during remote teaching was the difficulty in determining whether students were actually following lectures online. To overcome these concerns, several instructors adapted their delivery to employ better techniques that promote student engagement, such as verbal and periodic questioning, and active teaching approaches by randomly selecting students to answer short questions.

At the system level, during the pandemic, countries deployed low-tech tools such as SMS (Tanzania), chatbots (Mongolia), and platforms like U-Report (The Gambia and Moldova) to gather feedback from parents and stakeholders, thereby informing real-time improvements in remote education (↑Dreesen et al., 2020). According to ↑Barron Rodriguez et al. (2021), education systems that embedded robust monitoring and evaluation mechanisms, as well as a culture receptive to feedback, were more successful in tailoring remote learning to the evolving needs of teachers and learners (↑Barron Rodriguez et al., 2021). Together, these findings underscore the importance of assessment, feedback, and iterative pedagogical adaptation, particularly in rapidly evolving and unpredictable crisis contexts, as well as when trialling new or untested interventions within a specific crisis context.

3.4 Well-being, 'Maslow before Bloom' and pedagogies of care in ERT

Another key theme in a number of the sources reviewed for this RER (across all educational levels) centred around well-being, the role that teachers play in supporting students' well-being during ERT, and good practices relating to this (↑Ahmed & Opoku, 2022; ↑Clum et al., 2022; ↑Doucet et al., 2020; ↑Green et al., 2020; ↑Müller & Goldenberg, 2021; ↑Rose et al., 2021; ↑Thumvichit et al., 2021; ↑Toquero & Toquero, 2023). In their evaluation of Girls' Education Challenge (GEC-II) programmes focusing on teachers and teaching, ↑Rose et al. (2021, p. x) describe how teachers were

at the front line of providing both adapted learning opportunities and critical well-being information and pastoral support:

> *"During school closures, the role of teachers expanded from a primarily educational one to encompassing a broader range of support functions. Community-based female educators in particular were instrumental in monitoring girls' wellbeing and mitigating their risk of dropping out of schools/educational spaces."*

Pedagogies of care

Pedagogies of care is another theme present across several sources (↑Ahmed & Opoku, 2022; ↑Corcuera & Abel Alvarez, 2021; ↑Green et al., 2020; ↑Kasperski et al., 2023; ↑Müller & Goldenberg, 2021; ↑Toquero & Toquero, 2023). This can be understood as relating to practices of empathy, patience and understanding in teachers' behaviour and teaching approaches to accommodate the difficulties students face in relation to the sudden shift to remote education. In ↑Toquero & Toquero's (2023) content analysis of university students' written reflections during remote learning during the Covid-19 emergency, pedagogies of care emerged as one of the key themes. Students advocated for teachers to be patient and understanding with students as they faced the complexities of studying at home during the pandemic.

↑Doucet et al.'s (2020, p. 8) independent report written in March 2020 to inform the work of Education International and UNESCO during Covid-19 education disruptions also strongly affirms the primacy of health, safety, and well-being considerations when developing plans for remote teaching and learning, i.e., 'Maslow before Bloom' (see also ↑Müller & Goldenberg, 2021). The report collated evidence gathered through crowdsourcing, research, and discussions, on the good practices of teachers worldwide in relation to distance (remote) learning and online resources. It suggests that, "schools and teachers must operate with an understanding of the complexities of home lives and or the mental, emotional and physical strain their communities are facing" (↑Doucet et al. 2020, p. 8).

Enacting pedagogies of care in ERT

In their case study of emergency remote educational design of an undergraduate nursing programme in New Zealand during the Covid-19 pandemic, ↑Green et al. (2020, p. 917) describe how educators enacted pedagogy of care through a carefully sequenced, 'phased design' with the gradual introduction of additional elements over time. The aim of this approach was to "not overwhelm participants in a moment of stress". ↑Müller & Goldenberg's (2021) study, which comprised focus group

discussions and an online survey with 400 primary and secondary school teachers based in the UK about their experiences of teaching remotely during the pandemic, revealed that the most effective strategies to support student well-being include regular phone calls or messages to students and providing space for them to interact with peers. Teachers also found that regular, extended breaks between lessons, including screen-free days, were effective in supporting students' well-being. The adaptation of content and timetabling in situations of remote learning can therefore serve two functions, not only in support of student learning, but also in promoting student well-being.

In their study of remote language teaching in the USA and Germany at the K–12 and post-secondary levels, ↑Kissau et al. (2024) found that group 'wellness checks' were an effective strategy in enabling teachers to create a sense of community during remote learning (see also ↑Green et al., 2020 for a similar observation).

Guidance and recommendations established in the early stages of the Covid-19 crisis also advocated for practices that echoed these pedagogies of care during ERT. A document published by UNESCO, drawing from experiences of member states in delivering distance learning programmes during Covid-19 education disruptions, makes the following recommendation:

> *"Teachers should devote time to discussing students' emotional and psychological state. Their ability to maintain positive, compassionate, and meaningful relationships with their students may help students deal with COVID-19-related stress and trauma"* (↑UNESCO, 2020, p. 33).

There is, however, also some evidence that teachers felt that those additional responsibilities were linked to the poorer performance of students during that time. In ↑Thumvichit et al.'s (2021) systematic review of language education during the Covid-19 emergency, they reference a national-scale survey undertaken by ↑Moser et al. (2021) involving language teachers from Pre-K–12 and post-secondary education in the USA. In this study, the authors found that despite implementing effective pedagogical principles, academic outcomes were lower, which teachers attributed to the fact that a lot of their attention during this time was focused on students' 'basic needs'. ↑Rose et al. (2021) also emphasised the "additional time and resources" required from teachers in providing pastoral or psychosocial support to learners, and questioned how well-equipped teachers were to play this more pastoral role. This links into a broader discussion around teacher training and support in ERT, which is explored in Section 3.5 below.

3.5 Teacher training and support in ERT

The final theme arising from this review centres around the role played by teacher training and support in enabling effective remote teaching during emergencies. Available research also highlights significant gaps in teacher training and support during emergencies, as well as their impact on teacher well-being in such contexts.

The critical role of training and support in remote teaching

The critical role played by teacher training and support in enabling effective remote teaching during emergencies is highlighted in numerous sources covering all educational levels (↑Barron Rodriguez et al., 2021; ↑Cameron et al., 2024; ↑Dreesen et al., 2020; ↑Ferri et al., 2020; ↑McAleavy & Gorgen, 2020; ↑Muñoz-Najar et al., 2021; ↑Rose et al., 2021). Some sources also asserted the importance of continued TPD in gender-responsive digital pedagogies in particular, to support girls' learning outcomes during remote learning (↑Guglielmi et al., 2021; ↑Rose et al., 2021), while other sources highlighted the importance of adjusting TPD during the Covid-19 crisis "to reflect the expanded roles and responsibilities of [...] teachers, including issues such as remote or adapted pedagogies, psychological first aid (PFA), and Covid-19 safety" (↑Rose et al., 2021).

In their report for the World Bank, ↑Muñoz-Najar et al. (2021) explain that teacher training and support with remote learning are critical. They describe how 73% of countries reported providing teachers with special training for remote learning during the Covid-19 pandemic, and 89% reported providing instructions on distance instruction. Detailed information about the content and delivery methods adopted in training on remote teaching during crises, as well as the relative efficacy of these methods, was not evident in much of the literature retrieved for this review. However there are some interesting examples of good practice.

↑Barron Rodriguez et al.'s (2021) related report for the World Bank highlights some initiatives used during the Covid-19 pandemic to train teachers, such as the organisation Nova Escola in Brazil, who partnered with Facebook and created the project "Educação em Rede" to train over two million teachers in digital and pedagogical skills during the pandemic. They also identified a system developed in Uruguay whereby teachers could access a comprehensive toolkit of teaching resources such as discussion forums, virtual training, and guidelines for remote teaching through 'CREA', a learning management system that teachers had been using for several years, and cite data on effectiveness reporting that 90% of

Uruguayans were satisfied or very satisfied with the remote training they received during the pandemic.

Some literature refers to the adoption of communication methods to create digital communities of practice (CoP), suggesting that these forums can be both a source of information, a space for learning and exchange of best practices for remote teaching, and can also perform a social-emotional function for teachers working in a crisis context, building a sense of community and providing a safe space for teachers to share their struggle and concerns (↑Barron Rodriguez et al., 2021; ↑Clum et al., 2022; ↑Green et al., 2020; ↑Shraim & Crompton, 2020; ↑Ulla & Perales, 2021). In one study, collaboration among colleagues was determined to be "instrumental in improving the student and faculty experience" (↑Clum et al., 2022, p. 332).

Critical gaps in training and support for remote teaching

Many sources, however, also identified a critical lack of teacher training or inexperience with the delivery of online and distance education, and/or a lack of access to support or training in digital skills or remote pedagogies as a key barrier to effective remote teaching in emergencies (↑Cameron et al., 2024; ↑Center for Learning in Practice, 2021; ↑INEE, 2022; ↑Khlaif et al., 2020; ↑Mazari et al., 2023; ↑Moorhouse, 2020; ↑Wawire et al., 2023). Literature from LMICs in particular indicates that only a limited number of teachers were able to benefit from TPD on remote teaching during the Covid-19 pandemic (↑Wawire et al., 2023).

To provide specific examples, in their study on learning at the primary level in Bangladesh during the pandemic, ↑Khan et al. (2021, p. 14) report that "82% of the [201] surveyed teachers shared that they did not have any training that would prepare them for remote teaching during crisis." Similarly, in a study of the Rwandan context, a survey of almost 300 secondary school leaders and teachers in August 2020 found that less than half of school leaders, and less than a third of teachers, had received guidance on how to continue schooling during Covid-19-related school closures (↑Cameron et al., 2024). ↑Muñoz-Najar et al. (2021) also highlight that inadequate teacher training significantly impedes the effective implementation of remote learning. For example, in Brazil, more than 60% of school principals felt that "insufficient training of teachers" was a key hurdle for implementing and developing remote learning" (Secretaria de Educação Básica and Ministério du Educação 2021, as cited in ↑Muñoz-Najar et al., 2021, pp. 39–40).

Indeed, teachers in ↑Khlaif et al.'s (2021) study suggested that unequal learning outcomes were linked to teachers' varying levels of experience. This chimes with the broader literature on use of EdTech in emergencies and displaced settings, which asserts the importance of not just initial teacher training, but also continuous professional development, which has been shown to positively correlate with successful EdTech uptake (↑Center for Learning in Practice, 2021; ↑Tauson & Stannard, 2018).

The issue of training is also closely linked with the broader question of effective pedagogies for remote learning, as, in remote settings, "pedagogical effectiveness will be circumscribed by the digital skill levels of the teacher to a greater extent than in a conventional setting" (↑McAleavy & Gorgen, 2020, p. 4). In other words, without the requisite digital skills, it is more difficult for teachers to practically implement effective teaching practices in an online setting (↑Moorhouse, 2020). At the higher education level, sources indicate that digital skills and the ability for teachers to be creative and innovative in the use of digital tools were key contributors to positive perceptions of remote teaching during the Covid-19 pandemic (↑Ahmed & Opoku, 2022).

Teacher well-being and burnout during remote teaching in crises

As well as not serving learners well, the lack of teacher training and support during the Covid-19 pandemic was shown through the literature to have had significant negative impacts on teachers themselves. In a background paper for the UNESCO global education monitoring report, sampling 70 teachers from 17 countries, ↑Burns (2023, p. 42) found that:

> *"During COVID-19 pandemic school lockdowns, this failure to provide technology training, particularly in online technologies, was viewed by many teachers as a dereliction of duty and took an emotional toll on teachers. Because teacher training in technology had been overlooked in so many education systems—including wealthy ones—the process of teaching online was 'chaos'."*

Furthermore, while ↑Muñoz-Najar et al. (2021) suggest that 78% of countries did report providing professional, psychosocial, and emotional support for their teachers during the Covid-19 pandemic, they emphasise that there is little evidence related to the effectiveness of this support for teachers, and indeed existing global evidence that teachers struggled with burnout and anxiety over this time (see also ↑Khan et al., 2021. ↑Barron Rodriguez et al. (2021) also highlight specific cases, such as Peru, where teacher support systems presented too much of an administrative burden for teachers, generating burnout and discontent. Equally, ↑Rose et al. (2021) highlight

how teachers' well-being was comparatively overlooked during the Covid-19 crisis, and teachers in their study expressed concern about the need for more support for their own well-being.

Synthesis and conclusions

This RER examines existing literature on effective pedagogies and teaching practices for remote learning during crises. It confirms that core pedagogical principles remain essential for successful remote instruction, with teaching quality being the crucial factor for delivering effective remote education. However, transitioning these principles into ERT contexts presents significant challenges, requiring creativity, adaptability, and strong digital and pedagogical skills to adapt instruction effectively. While teacher training and support to foster these skills are critical enablers in ERT, significant gaps in this support have been evident in recent crises (Covid-19 in particular), impacting both teacher effectiveness and well-being in crisis contexts.

This RER also highlights the interconnectedness between instructional design and student well-being in remote learning during times of crisis. Adaptation of content and structure in the shift to remote learning, and the reassertion of core pedagogical principles like student–teacher and peer interaction are shown to serve a dual purpose; they are key to promoting student engagement and learning, but are also a core facet of a pedagogy of care, promoting student well-being in crisis contexts.

Although the insights from the available literature are instructive for decision-makers and researchers, perhaps the most critical finding of this RER is the notable absence of discussion relating to pedagogy within much of the EdTech literature screened for this review. Where pedagogy is addressed, there is a significant gap in rigorous evidence on the effectiveness of pedagogical approaches and teaching strategies that have been commonly adopted in remote teaching during crises, and even less discussion on how these link to broader pedagogical beliefs.

Sources provide examples of good practice, with some, primarily self-reported data related to effectiveness and student satisfaction, and improvements in student well-being linked to specific modalities of teacher–student engagement and support. However, there is scant robust quantitative evidence linking ERT pedagogies and teaching methods to learning outcomes, or on the interplay between technology and pedagogy in driving remote learning outcomes. This complements the finding in the RER on Education in Emergencies (↑Barnes et al., 2025) that there is a lack of robust data on the effectiveness of EdTech implementation in emergency contexts, and the literature focusing on EdTech implementation provides very little insight on how EdTech can be

integrated into teaching, or how to best prepare teachers to carry out this integration.

Furthermore, the literature available on remote teaching pedagogies and methods is heavily focused on the Covid-19 crisis, with only a few studies that focus on other crises. Although a pertinent source of evidence on remote education, this literature represents a focus on a very specific type of crisis; learnings from it may have useful but limited application for other types of crisis.

Recommendations for future research

Building on the insights gained from this rapid evidence review, we propose two key recommendations to guide future research efforts in remote teaching and learning:

1. **Build better evidence by adopting a 'pedagogy-first' mindset in future research on remote teaching and learning in emergencies**

As decision-makers, implementers, and educators working on EiE in LMICs begin to build on the lessons of the Covid-19 pandemic, it is important that resources are allocated to building robust evidence on how to maximise the effectiveness of remote teaching during emergencies by aligning technological tools with sound pedagogical values and approaches.

2. **Rethink the parameters of 'ERT' to account for situations of chronic or protracted crises**

Partly because of the heavy emphasis on the Covid-19 pandemic, the papers examined for this RER—typically correspond with the established definitions of ERT that emphasise temporariness and urgency. However, in future research, it will be important to examine effective pedagogies and teaching methods for remote teaching and learning in situations of chronic or protracted crisis. Such situations may lack the urgency and time-limited components of the most prominent definitions of ERT; however, at the same time, the volatility and disruption endemic to such contexts mean that they are not settings where standard practice in online or distance education can simply be implemented in a 'business as usual' manner. Considering how the lessons outlined above may (or may not) be applicable to protracted crises, as well as how contingency planning for remote or hybrid learning in disaster-prone and chronic crisis contexts can incorporate effective pedagogical principles and teaching methods, is a strategic avenue for further exploration.

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Annex: Search strings

For Google Scholar:

- ("remote teaching" OR "student-centred remote teaching" OR "remote education" OR "distance education") AND ("emergency" OR "crisis" OR "low- and middle-income countries" OR "natural disasters") AND ("teaching best practices" OR "pedagogy" OR "teaching strategies") NOT ("covid-19" OR "pandemic")
- ("pedagogy" OR "teaching methods" OR "teaching best practices" OR "pedagogical techniques") AND ("remote teaching" OR "distance learning" OR "remote learning") AND "emergencies"
- ("pedagogy" OR "teaching methods" OR "teaching best practices") AND ("remote teaching" OR "distance learning")
- ("remote teaching" OR "student-centred remote teaching" OR "remote education" OR "distance education") AND ("conflict" OR "earthquake" OR "floods" OR "natural disasters") AND ("teaching best practices" OR "pedagogy" OR "teaching strategies")
- "remote instruction" AND ("emergency education" OR "education in emergencies" OR "crisis-affected education") AND ("effectiveness" OR "impact") AND ("pedagogical strategies" OR "best practices teaching")
- ("remote teaching" OR "student-centred remote teaching" OR "remote education" OR "distance education") AND ("conflict" OR "earthquake" OR "floods" OR "natural disasters") AND ("teaching best practices" OR "pedagogy" OR "teaching strategies")
- ("digital pedagogical strategies" OR "teaching best practices" OR "teaching guidance") AND ("remote teaching and learning" OR "remote education" OR "distance education" OR "distance learning") AND ("natural disasters" OR "earthquakes" OR "floods" OR "hurricane" OR "conflict")
- ("pedagogy" OR "teaching methods" OR "teaching best practices" OR "pedagogical techniques") AND ("remote teaching" OR "distance learning" OR "remote learning") AND "emergencies" Date range: 2010-2019

- ("pedagogy" OR "teaching methods" OR "teaching best practices" OR "pedagogical techniques") AND ("hybrid" OR "blended learning") AND ("crisis" OR "emergency")

For Google main:

- pedagogical practices, distance learning, remote teaching
- best practices, distance learning, remote teaching, emergencies
- best practices for remote education distance learning in emergencies and crisis
- best teaching practices for distance learning, remote education, conflict, crisis
- remote learning, emergencies
- pedagogy, remote learning, crisis
- pedagogy teaching best practices for remote education distance learning in emergencies and crisis (1 Jan 2010—31 Dec 2019)
- teaching strategies practices for distance learning remote education in emergencies conflict crisis disaster (Jan 1, 2010 – Dec 31, 2019)