'Together We Will Win' – Innovation and Collaboration in Emergency Teaching in Temporary Learning Spaces

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'ביחד ננצח' – חדשנות ושיתופיות בהוראה בחירום במרחבי למידה זמניים

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Abstract

This study examined the integration of technological tools in teaching and learning processes within temporary learning spaces established for evacuated children and adolescents following the brutal attack on Israel on October 7, 2023. The research investigated the occurrence of collaborative learning and teaching processes among educators and between learners in these spaces, while assessing the achieved level of collaboration. The e-CSAMR model, was used to evaluate the level of technology integration (Substitution, Augmentation, Modification or Redefinition) and the quality of learning through teamwork (from sharing to collaboration). Additionally, Mindtool framework (Jonassen, 2020) was utilized to examine which teaching and learning processes were promoted by technology integration in the temporary learning spaces. Data analysis demonstrated that technological tools were utilized in a limited capacity within temporary learning spaces, primarily at basic integration levels such as Substitution and Augmentation. However, in certain instances, volunteers visiting these spaces introduced students to specialized technological tools that provided meaningful enhancement to their learning experience. Additionally various collaborative processes emerged within the educational team, driven by the urgent need for pedagogical and emotional support in rapidly established emergency settings. Many of these processes demonstrated high levels of collaboration as defined by the e-CSAMR model. Our analysis of student teamwork identified collaborative processes across three levels of e-CSAMR model including the high levels: cooperation and collaboration. This research advances understanding of teaching and learning processes in temporary environments, highlighting challenges and opportunities for innovation, and the contribution of collaboration among learners and between educators during this complex period.

Keywords: teaching and learning process in emergency time, educator collaboration, learner collaboration, technology integration levels, e-CSAMR framework.

Introduction

Following the October 7, 2023 attack, dozens of entire communities in southern and northern Israel were evacuated. Thousands of children and adolescents were left without schooling, and

temporary emergency learning spaces were gradually established to address their needs. The goal of this study was to examine if and how **technological tools** were incorporated into teaching and learning processes within these temporary learning spaces for displaced youth. Additionally, the study sought to explore the extent and nature of **collaborative teaching and learning** processes between instructors and students in these spaces, including levels of collaboration.

Literature Review

The thoughtful integration of technology in education can enhance teaching and learning in both regular settings (Prasetyo, 2024) and emergencies (Oniskovets, 2023). Research shows that effective technology use in emergencies depends on teachers' techno-pedagogical knowledge (Ovcharuk et al., 2023) and access to suitable technological resources for teachers and students (Londar & Pietsch, 2023).

Techno-pedagogical frameworks have been developed to assess the degree, quality, and characteristics of technology integration. The e-CSAMR (e-collaboration and SAMR-Substitution, Augmentation, Modification or Redefinition) framework, for instance, is a conceptual model for evaluating technology's role and quality in education (Shamir-Inbal & Blau, 2021). The e-CSAMR framework builds upon the SAMR model (Puentedura, 2014), which identifies four **levels of technology integration**: Substitution (replacing analog tools without altering learning processes), Augmentation (enriching learning activities with minor functional improvement), Modification (significant redesign of tasks due to essential technological integration), and Redefinition (redesign of the learning process and creation of challenging learning tasks where students become active learners and content creators).

Moreover, the e-CSAMR framework assesses also the **level of collaboration** that accompanies the use of technology. This model defines three levels of collaboration (Blau, 2011; Salmons, 2008): Information sharing (an exchange of knowledge, skills, or expertise among individuals or communities), Cooperation (division of roles for a joint product, where each participant contributes independently), and Collaboration (the highest level of shared learning, where all participants contribute interactively to improve each other's work and outcomes).

To comprehend the **pedagogical basis** underpinning technology integration in the emergency learning spaces, we utilized **Mindtools framework** (Jonassen, 2020), which maps types of technology used in teaching and learning according to underlying pedagogical theories: technologies that support behaviorist learning theories (learning from), those aligned with cognitive learning theories (learning about), and those fostering constructivist learning theories (learning with).

Research on **technology use in emergency teaching context**, such as natural disasters, epidemics, or wartimes, shows that teachers often use technology for traditional, teacher-centered methods, reflecting behaviorist approaches and lower pedagogical integration (Shamir-Inbal et al., 2023). This is attributed to time constraints and limited techno-pedagogical knowledge (Jimoyiannis & Koukis, 2023; Ovcharuk et al., 2023). However, some studies suggest emergencies can drive techno-pedagogical innovation, pushing teachers to adapt their methods and leverage technology to meet specific needs (Kasperski et al., 2023; Sytnykova et al., 2023).

In emergency settings, teachers frequently confront emotional challenges due to the need to adapt their teaching methods swiftly to changing circumstances, concerns about student welfare, and the impact of the crisis itself (Velykodna et al., 2023; Yang et al., 2023). Peer collaboration

has been found to be an effective coping strategy for such challenges (Velykodna et al., 2023). The literature describes various **collaborative strategies among teachers** during emergencies, such as teamwork for adapting lesson plans and solving problems (Danylchenko-Cherniak et al., 2023), sharing effective strategies (Gi et al., 2024), mentoring in advanced methods (Delcker & Ifenthaler, 2021), discussing new school policies, sharing experiences, and providing emotional support (Yang et al., 2023).

Regarding the effect of collaboration among teachers, research findings indicate that teachers who engage in collaborative practices during emergencies demonstrate higher levels of resilience when facing the challenges of teaching in complex situations (Danylchenko-Cherniak et al., 2023). In addition, teacher collaboration enhances their sense of self-efficacy in coping with the existing situation (Knopik & Domagala, 2022) and even strengthens their confidence to try and implement new teaching methods (Sirk, 2024).

Emergencies can cause emotional challenges for students, such as anxiety, restlessness, and depression (Mali et al., 2023). **Student collaborative learning**, where students work in pairs or small groups, can help address these issues (Sarwat et al., 2024). The literature highlights many benefits of collaborative learning during emergencies: enhancing resilience, reducing isolation, promoting well-being, boosting motivation, maintaining engagement, and improving academic performance (Antonis et al., 2023; Cecchini et al., 2024; Danylchenko-Cherniak, 2023; Mali et al.,2023).

However, there is a notable gap between the potential of collaborative learning in emergencies and its actual implementation. Studies show that teachers often use collaborative activities at basic levels, like discussions or simple role distribution (Shamir-Inbal et al., 2023). This may be due to the rapid transition to emergency learning, which limits the time available to develop more complex activities (Kasperski et al., 2023; Sidi et al., 2023).

Research Questions

This study examines whether and how technological tools were integrated into teaching and learning processes in the temporary learning environments established for evacuated children and adolescents during the 'Iron Sword War'. It also explores whether, and to what extent, collaboration took place between educators and between learners within these emergency learning environments. The research questions examined in the study are:

1. What types of technologies, if any, are integrated into temporary emergency learning environments? What is the **level of technology integration** according to the e-CSAMR framework in this context? Which pedagogical approaches are reflected in these environments according to Mindtools framework?

2. According to the e-CSAMR model, what are the levels of **collaboration among pedagogical teams**, if any, in these temporary emergency learning environments? Do these environments encourage the highest level of teamwork between educators?

3. According to the e-CSAMR model, what are the levels of **collaboration among learners**, if any, in these temporary emergency learning environments? Do these environments foster the highest level of teamwork between learners?

Methodology

This research utilizes a multiple case study approach (Yin, 2018) based on the principles of the mixed methods approach (Creswell, 2021). The findings of this research crosscheck the self-report data from 10 interviews with analysis of actual participants' behavior in temporary emergency learning environments in 5 observations. The analysis was conducted on the level of categories (rather than individual participant/observation level). The unit of analysis in the interviews was a statement (rather than a participant). The analysis was not exclusive; that is, the same statement could belong to several categories.

The current sample included eight female teachers and two male teachers, with professional experience ranging from two to thirty years. The interviewees were homeroom and subject-matter teachers who specialized on one or more of the core discipline: language, math, or English as a second language. They taught in temporary settings that served students from both the public and religious public education systems, across elementary, middle, or high-school levels. The observations were also conducted in diverse temporary settings serving students from the public and religious public education systems at all grade levels.

The analysis of interviews and observations was conducted using two types of coding: (1) **Bottom-up coding** - The collected data underwent thematic analysis (Braun & Clarke, 2006, 2019), through which we developed categories based on recurring themes and patterns. (2) **Top-down coding** - Coding into categories aligned with the elements of the theoretical frameworks described in the literature review: the e-CSAMR framework (Shamir-Inbal & Blau, 2021), which explores levels of technology sophistication and collaboration among the participants, as well as Mindtools framework (Jonassen, 2020), which maps technological tools according to the underlying learning theories behind their integration.

Findings

Integration of Technological Tools in Teaching and Learning Processes

The first research question explored whether technological tools were integrated into the teaching and learning processes in the temporary learning spaces, the level of integration, and the types of tools used. Table 1 shows the number and percentage of statements for each level of technology integration (e-CSAMR model), including representative quotes from interviews and observations.

Table 1. Levels of Technology Integration Identified in Interviews and Observations

Level of Technology Integration Interviews: N=14 Observations: N=17	**Representative Quote**
Substitution Interviews: 5; 36% Observations: 6; 35%	"We try to diversify because these are heterogeneous classes, with different levels in mixed lessons, so we use as many learning channels as possible to reach as many students as possible. That's why I project videos using a projector and also conduct formal instruction." (Interview E.)
	"The teacher used a projector and a laptop to display the question to the class." (Observation N.)
Augmentation Interviews: 5; 36% Observations: 8; 47%	"There are also laptops in the space, which I think the teachers bring with them. The children can access various Ministry of Education-approved websites and practice different subjects there." (Interview R.)
	"The lesson consisted of individual work on digital assignments using phones on the 'Kapish' website. The teacher explained at the beginning of the lesson how to log in using Gmail or a code she provided." (Observation A.)
Modification Interviews: 4; 28% Observations: 3; 18%	"We also have a special room where they go... There is a projector that projects on the floor, and the platform becomes a game. You can play one team against another and jump on tiles, which are actually regular flooring but become game tiles thanks to the projector. It's something special they have... They love playing on it. Suddenly, the girls become soldiers. It draws them in." (Interview T.)
	"Afterward, the children went outside the building to the nearby area of the 'temporary school' and practiced using their phones to photograph from different angles and explore the impact of these angles on the photo, following the instruction given in the first part of the lesson." (Observation D.)
Redefinition	N/A

The findings reveal limited technology integration in teaching and learning processes within temporary educational spaces. Most examples indicate lower levels of integration, where technology did not transform traditional practices, with limited occurrences of the Modification level .

Similar trends were observed in the analysis of the types of technology found in interviews and observations according to Mindtools framework (Jonassen, 2020). Table 2 shows the number and percentage of statements for each type of technology, with representative quotes from interviews and observations.

Table 2. Types of Technology Identified in Interviews and Observations

Type of Technology Integration Interviews: N=14 Observations: N=17	**Representative Quote**
Learning from technology Interviews: 12; 86% Observations: 14; 82%	"I do use the projector to show videos. Also, credit to... (the hosting institution) for providing us with all the technological tools we need... whether it's using their computers, which are very expensive equipment..." (Interview T.)
	"At the beginning of the lesson, the teacher explained to the children about the sense of vision using a presentation projected on the large classroom screen." (Observation N.)
Learning about technology Interviews: 1; 7% Observations: 0	"This week, a guy came with a huge number of laptops. He conducted an activity, something really nice, an application I wasn't familiar with: animation, various things not available on every computer. He taught them how to use it. The kids were really excited..." (Interview Y.)
Learning with technology Interviews: 1; 7% Observations: 3; 18%	"Sometimes we let them play 'Kahoot' games in pairs. They don't get computers; they use their phones, and some teachers assist with that. For example, in Kahoot, they use their phones. We also let them use their phones to search for information." (Interview E.)
	"The children used the phones they brought to class to take pictures of slides they liked during the instruction. Later, they used their phones to practice taking photos according to the photography principles the teacher taught, exploring how these principles affected different photos and images." (Observation D.)

It is evident that even when categorizing the types of technological tools based on Jonassen's model, the vast majority of technological use reflected a "learning *from* technology" process, with fewer instances of 'learning about' technology or constructivist approaches like 'learning with'.

Collaboration Between Educators and Among Learners

The second research question examined whether collaboration occurred among educators during emergency teaching and learning, and at what level, based on the e-CSAMR model. Analysis of interviews and observations revealed a high frequency of collaboration between educators. Table 3 shows the number and percentage of statements for each level of educator collaboration, including representative quotes from interviews and observations.

Table 3. Levels of Collaboration Among Educators Identified in Interviews and Observations

Level of Collaboration Interviews: N=73 Observations: N=16	**Representative Quote**
Information Sharing Interviews: 13; 18% Observations: 1; 6%	"We have an amazing counselor... she is with us, providing us support, sometimes in group discussions, sometimes on a personal level for students. Both individually and in the classroom." (Interview T.)
	"The teacher shared that she got the idea for an English assignment through the 'Kapish' website from a colleague at the temporary center who advised her to use the site." (Observation A.)
Cooperation Interviews: 40; 55% Observations: 15; 94%	"Today, I had many staff members with me in class, who came, I believe, as volunteers like me. In this specific class, which is problematic in terms of the students, there were three other staff members. They sit next to students who we know struggle more. There is a lot of staff support." (Interview S.)
	"Since the class consists of young students, Grades 1-2, there are always at least three staff members present, some of whom are volunteers. They move between the children, mainly during individual work, assisting and encouraging them." (Observation N.)
Collaboration Interviews: 20; 27% Observations: 0	"We have weekly team meetings where we prepare for the week. We hold meetings to plan, discuss issues, and brainstorm potential solutions together." (Interview K.)

The findings reveal high levels of collaboration among educators, especially cooperation and information sharing, driven by emergency teaching needs and external volunteer support.

The third research question examined whether collaboration occurred among learners during emergency teaching and learning, and at what level, in accordance with the e-CSAMR framework. Table 4 shows the number and percentage of statements for each level of learner collaboration, including a representative quote.

Table 4. Levels of Collaboration Among Learners Found in Interviews and Observations

Level of Collaboration Interviews: N=15 Observations: N=14	**Representative Quotation**
Information Sharing Interviews: 4; 27% Observations: 7; 50%	"The thing I missed most was engaging in social and emotional processes in the classroom, more than just working with booklets and similar activities. I was happy when we moved to the tent that allowed student discussions. This is something that will always be important, regardless of the learning method." (Interview, T.)
	"The instructor used a large screen connected to her laptop to project various photographs, demonstrating and discussing with students the principles of light's impact on photography." (Observation, D.)
Cooperation Interviews: 6; 40% Observations: 4; 29%	"In a regular classroom, we try to bring in materials, provide time for games, and include board games. We also brought puzzles and some competitive games, to teach them not only social rules but also game rules, such as waiting for their turn." (Interview, K.)
	"At the beginning of the lesson, the teacher started with a social game. She asked all students to move to the back of the class, where the game took place. Each student took their turn, and the girls have maintained order." (Observation, T.)
Collaboration Interviews: 5; 33% Observations: 3; 21%	"During this period, they cannot sustain attention for conversation, but they are task-oriented. They respond well to questions. I specify that we are answering questions one, two now, and I allow them to work in groups. They sit and collaborate." (Interview, T.)
	"After assigned duties were completed by a designated student listed on the classroom roster, the girls prayed. Part of the prayer was recited aloud together, while the rest was silent." (Observation, T.)

These findings indicate various levels of learner teamwork, with an emphasis on cooperation and information sharing, while deeper collaborative learning was observed less frequently.

Discussion

Integration of Technological Tools in Teaching and Learning Processes

The findings reveal limited technology integration in teaching and learning processes within temporary educational spaces. Most examples indicate lower levels of integration, where technology did not transform traditional practices. Teachers focused on creating a stable, secure environment rather than advanced technology use. This aligns with literature showing that

teachers often adopt traditional strategies in emergencies, with low technology integration due to time constraints (Shamir-Inbal et al., 2023) or limited techno-pedagogical knowledge (Velikodna et al., 2023). Additionally, some temporary environments lacked basic teaching and technological infrastructure, consistent with studies highlighting resource absence as a key barrier (Londar & Pietsch, 2023).

Nevertheless, there were instances of exposure to techno-pedagogical innovation, primarily facilitated by resources provided by hosting institutions or volunteers who conducted activities or lessons in the temporary learning environments. As one of the teachers described it: *"We also have a special room where they go... There is a projector that projects on the floor, and the platform becomes a game."* (T.) This finding aligns with research that identifies emergency situations as potential catalysts for pedagogical innovation (Kasperski et al., 2023; Sytnykova et al., 2023).

When categorizing the types of technological tools based on Jonassen's model, it is evident that the vast majority of technological use reflected a "learning from technology" process, wherein the source of knowledge represented by the technological tool, remains central, delivering or reinforcing previously shared knowledge. This approach provides students with limited opportunities for exploration or self-expression. However, some instances were identified where the emergency context facilitated constructivist learning experiences, involving both "learning about" and "learning with" technology, largely enabled by volunteer-led activities in the temporary learning spaces. An example of this can be seen in the words of interviewee Y: *"This week, a guy came with a huge number of laptops. He conducted an activity... an application I wasn't familiar with: animation, various things not available on every computer. He taught them how to use it. The kids were really excited..."* These findings are consistent with previous studies that recognize emergencies as potential catalysts for pedagogical innovation (Kasperski et al., 2023; Sytnykova et al., 2023).

Collaboration Between Educators and Among Learners

The high frequency of educator collaboration, observed in interviews and observations, stemmed from two main factors: the urgent need for pedagogical and emotional support in established emergency educational settings, and the heavy responsibility of caring for children facing emotional challenges, difficult memories, and unstable living conditions. These needs led educators to seek mutual support. Additionally, during the Iron Swords War, a strong desire to volunteer created a significant pool of personnel, further facilitating collaboration among pedagogical teams. As one of the interviewees described it: *"So we're all together in this space: helping each other; there's no ego at all, we're not coming for ourselves, so it's fun. There's always a response from the team when needed."* (S.) These findings, which show collaborative learning in temporary environments, stand out and are significant in light of the existing literature. Previous studies emphasize the potential of collaborative learning during emergencies to enhance resilience, reduce disconnection, promote well-being, boost learning motivation, maintain engagement, and improve academic performance (Antonis et al., 2023; Cecchini et al., 2024; Danylchenko-Cherniak, 2023; Mali et al., 2023).

However, the relatively high frequency of more basic levels of collaborative strategies aligns with findings from prior research. According to these studies, in times of emergency, teachers tend to integrate lower-level collaborative strategies, mainly due to time constraints and lack of advanced pedagogical knowledge (Shamir-Inbal et al., 2023).

Conclusion

The findings reveal both **challenges and opportunities** in the integration of technology and collaborative processes within emergency education settings. While technology integration largely remained at basic levels such as Substitution and Augmentation, which reflects the immediate need to establish stability and routine under challenging conditions. At the same time, instances of **pedagogical innovation** driven by volunteers and external support highlight the potential for transformative teaching and learning experiences, even in crisis environments.

The study also demonstrates the power of **collaboration among educators** as a critical mechanism for addressing emotional and pedagogical challenges. Teachers relied on teamwork to adapt swiftly, provide mutual support, and develop meaningful activities for their students. Similarly, **collaborative learning among students**—even at varying levels—helped foster emotional resilience, reduce isolation, and maintain motivation.

These findings highlight that while emergencies present significant challenges, they can also act as catalysts for innovation. To fully leverage these opportunities, structured support, adequate technological resources, and targeted training are essential. These elements not only foster emotional resilience and stability among students and teachers but also ensure the delivery of meaningful, high-quality learning experiences in emergency educational environments.

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