



Teachers' Perspectives on the Effectiveness of Technology in Mitigating Educational Loss among English Language Learners

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Abstract:

This study aimed to investigate teachers' perspectives on the effectiveness of technology in mitigating educational loss among English language learners in governmental schools in Bethlehem. To achieve the study's objectives, the researchers used the descriptive approach through the design of the study instrument represented in a questionnaire consisting of (25) items. After verifying validity and reliability, it was distributed to a sample composed of (151) teachers who were selected by a simple random sampling method from the study population with a total of (317). Teachers' perceptions of technology's effectiveness in mitigating educational loss were moderate (3.33), with some areas showing high potential and others requiring targeted enhancements. The findings revealed no statistically significant differences in the mean scores for teachers' perspectives on the use of technology in teaching to mitigate educational loss due to the grade level they teach. Hence, there were statistically significant differences due to the years of experience favoring teachers with less than five years. Additionally, the analysis indicated statistically significant differences in teachers' perspectives due to academic qualifications. Teachers holding postgraduate degrees demonstrated significantly more favorable views on the effectiveness of technology in mitigating educational loss compared to those with only a bachelor's degree. The study recommended comprehensive training programs and instructional manuals for educators to improve proficiency in advanced educational technologies. It also suggested allocating

financial resources for essential technologies, maintenance, and repair, along with providing moral and financial incentives to promote their consistent integration.

KEYWORDS: Teachers' Perspectives, Effectiveness of Technology, Mitigating Educational Loss, Educational Loss, English Language

المستخلص

هدفت هذه الدراسة إلى استقصاء وجهات نظر المعلمين حول فعالية التكنولوجيا في الحد من الفاقد التعليمي لدى متعلمي اللغة الإنجليزية في المدارس الحكومية في بيت لحم. لتحقيق أهداف الدراسة، استخدم الباحثون المنهج الوصفي من خلال تصميم أداة الدراسة المتمثلة في استبانة تحتوي على (٢٥) فقرة. بعد التحقق من الصدق والثبات، تم توزيع الاستبانة على عينة مكونة من (١٥١) معلم تم اختيارهم بطريقة العينة العشوائية البسيطة من مجتمع الدراسة الذي بلغ عددهم (٣١٧). كانت وجهات نظر المعلمين حول فعالية التكنولوجيا في الحد من الفاقد التعليمي متوسطة (3.33)، حيث أظهرت بعض المجالات إمكانيات عالية في حين كانت هناك مجالات أخرى تحتاج إلى تحسينات مستهدفة. أظهرت النتائج أنه لا توجد فروق ذات دلالة إحصائية في متوسط درجات وجهات نظر المعلمين حول استخدام التكنولوجيا في التدريس للحد من الفاقد التعليمي بناءً على المرحلة الدراسية التي يقومون بتدريسها. ومع ذلك، كانت هناك فروق ذات دلالة إحصائية تعزى إلى سنوات الخبرة لصالح المعلمين الذين لديهم أقل من خمس سنوات من الخبرة. بالإضافة إلى ذلك، أشار التحليل إلى وجود فروق ذات دلالة إحصائية في وجهات نظر المعلمين بناءً على المؤهلات الأكاديمية، حيث أظهر المعلمون الحاصلون على درجات دراسات عليا وجهات نظر أكثر إيجابية حول فعالية التكنولوجيا في الحد من الفاقد التعليمي مقارنةً بأولئك الذين يحملون درجة البكالوريوس فقط. أوصت الدراسة بتنفيذ برامج تدريبية شاملة وأدلة تعليمية للمعلمين لتحسين مهاراتهم في استخدام التكنولوجيا التعليمية المتقدمة، كما اقترحت تخصيص موارد مالية لتوفير التكنولوجيا الأساسية وصيانتها وإصلاحها، بالإضافة إلى تقديم حوافز معنوية ومالية لتعزيز دمجها بشكل مستمر.

الكلمات المفتاحية: وجهات نظر المعلمين، فعالية التكنولوجيا، الحد من الفاقد التعليمي، الفاقد التعليمي، اللغة الإنجليزية.

INTRODUCTION

"Education is the most powerful weapon which you can use to change the world" (Mandela, 1990). Education aims not solely to acquire degrees but to enhance independent and critical thinking. The English language is taught worldwide because it is a global language and the language of science and technology. Therefore, it has become the essence of education. For example, it facilitates cross-cultural communication and offers better job opportunities. Moreover, English offers a vast range of information, like academic research and news, which allows people to stay connected to individuals as active participants who contribute to the development of their community. Therefore, English is not only a tool, but also a bridge to knowledge and development, and we should advocate the importance of strengthening its skills and competency.

In addition, technology, as a means of communication, provides a wide range of platforms and resources to teachers and students, contributing to revolutionary and innovative teaching methods and techniques. Thus, teachers, nowadays, rely heavily on technology regardless of the circumstances. However, the heavy reliance on technology created a heavy burden on educators and learners alike as they strive to balance the improvement of their skills with the integration of technology in education and the rapid advancements and upgrades in technology (Mandal et al., 2022). To sum up, integrating English and technology has transformed education and offered opportunities while simultaneously challenging educators and learners to adapt to its never-ending evolution.

E-learning encompasses two models of delivery: synchronous and asynchronous. Asynchronous e-learning refers to the use of platforms and resources and the connectivity with

peers and teachers without the need to be online at the same time. This strategy allows students to balance education and other responsibilities. In contrast, synchronous e-learning requires real-time interaction as students and teachers use video conferencing and chat to proceed with the learning process. Therefore, students and teachers experience less isolation as students can interact, ask questions, and receive answers immediately (Chourishi, 2012). In light of this, students need to possess and enhance different skills like time management and self-discipline to maintain engagement; they are also required to demonstrate active listening and effective communication skills to participate in real-time discussions and meet the intended objectives. Consequently, the ability of students to interact with peers and teachers is crucial in fostering a supportive learning environment, enhancing engagement, and promoting a deeper understanding of the material.

Reflecting on the past few years, we realize that COVID-19 has unexpectedly shifted our lives from familiar routines to new norms and values that continue to shape our daily experiences and perspectives. Education, as a pillar of society, faced a significant challenge in that period worldwide. The paradigm shift triggered the need to use innovative techniques to sustain the consistency of the educational process. Therefore, technology has manifested in most aspects of life and has become a reliable educational medium by employing different platforms (Al-Rasheedi, 2022).

In a similar vein, in Palestine, not only were Palestinians affected by COVID-19, but also later by other factors that complicated and interfered with the educational process. Following the pandemic, many closures and strikes obstructed the stability of the process, especially in government schools. In addition, since 2023, the ongoing war in Gaza has dramatically

affected education in both Gaza and the West Bank. Consequently, education in Palestine has encountered frequent interruptions over the last few years, creating an education gap that contributed to and still contributes to educational loss. Gupta et al. (2023) clarify that educational loss is a gap in a student's academic progress caused by interruptions and disruptions in the learning process such as school closures, strikes, pandemics, lack of resources, or any other factors that might hinder the engagement of students.

Educational loss is a multifaceted issue influenced by crises, socio-economic challenges, and educational transitions. Effective mitigation strategies include the use of interactive learning methods, educational games, and robust support systems. Addressing socio-economic and technological barriers is crucial for the successful implementation of these strategies. Therefore, intervention to mitigate educational loss is of paramount importance. Thus, much research has been conducted to construct a perspective on how to mitigate it. It direly impacts educational loss for learners and society (Ali et al., 2023).

Consequently, Palestinian schools and universities were compelled to take the initiative to resort to online platforms that served educational sectors. In the beginning, teachers took the initiative and used platforms like Zoom to continue lessons. However, as the platform was not initially paid for, many faced limitations in its use. Subsequently, government schools adopted Microsoft Teams for virtual lessons and e-schools as platforms despite the challenges faced in the use of technology at the very beginning of the virtual world of education. Other platforms were created to scaffold the learning process like the Thanaweya Online platform where videos, tests, past exams and other learning materials were provided for students to access.

Additionally, there is a competition called the Achievement and Excellence Award. This competition encourages teachers to develop and implement various strategies and teaching aids to foster creativity and empower both students and teachers (Ministry of Education, n.d). Therefore, the competition has played a significant role in mitigating educational loss, particularly during the COVID-19 pandemic, as it was designed to address the challenges associated with virtual learning.

Consequently, intervention to mitigate educational loss is of paramount importance. Much research has been conducted to construct a perspective on how to mitigate it. After nearly a year of COVID-19, education shifted towards hybrid learning by having students divided into smaller groups to attend school on specific days. This approach helped reduce crowded classrooms but still offered in-person engagement. Despite the remedial interventions, the educational loss was and is still a case to study and investigate its possible and applicable remedial approaches (Al-Rasheedi, 2022).

This study explores Palestinian English teachers' views on technology integration and its role in mitigating educational loss. By examining the effectiveness of virtual and hybrid learning, the research aims to provide insights into how technology can address educational gaps, particularly during crises like COVID-19 and political disruptions. Consequently, in this study, the researchers aim to explore the English language teachers' perspectives on the effectiveness of technology integration into teaching in Palestinian government schools and its role in mitigating educational loss.

Statement of the Problem

Educational loss in Palestine poses a significant challenge, influenced by a complex interaction of political, economic, and social factors that disrupt students' learning and

hinder their long-term academic progress. Political instability and ongoing conflict often result in frequent school closures, restricted mobility, and, in some cases, damage to educational infrastructure. These disruptions hinder students' ability to maintain continuity in their learning and limit their access to school facilities. Moreover, economic difficulties exaggerate this loss, as numerous families struggle to afford additional resources, leading some students to leave school early in order to provide financial support to their households. In the classroom, overcrowding and insufficient resources further undermine the quality of education, since many schools often lack crucial materials and access to technology that could facilitate modern, adaptive teaching practices. Psychological health challenges stemming from trauma and conflict stress influence students' focus and engagement in their education. Meanwhile, teachers, who face similar pressures, struggle with job satisfaction and effectiveness, which in turn affects the overall learning environment. Accordingly, it is crucial that we tackle these issues to promote educational equity. Teachers in Palestine have adopted a variety of creative and resourceful initiatives to mitigate educational loss, often adapting to challenging circumstances to support their students' learning. One of these aspects involves incorporating technology into their teaching methods and initiatives. As a result, the researchers are interested in investigating teachers' perceptions of the effectiveness of technology in mitigating educational loss among English language learners in governmental schools in Bethlehem.

Purposes of the Study

The purposes of the study are:

- To explore teachers' perspectives on the effectiveness of technology in mitigating educational loss among English language learners in governmental schools in Bethlehem.
- To examine whether teachers' perspectives on the effectiveness of technology in mitigating educational loss differ due to the grade level they teach, their years of teaching experience, and their qualifications.

Questions of the Study

This study seeks to answer the following questions:

- **First question:** To what extent do teachers perceive the effectiveness of technology in mitigating educational loss among English language learners in governmental schools in Bethlehem?
- **Second question:** Do teachers' perspectives of the effectiveness of technology in mitigating educational loss vary due to the grade level they teach?
- **Third question:** Do teachers' perspectives of the effectiveness of technology in mitigating educational loss vary due to their years of teaching experience?
- **Fourth question:** Do teachers' perspectives of the effectiveness of technology in mitigating educational loss vary due to their qualifications?

Null hypotheses of the study

The researchers converted the second, third, and fourth questions into the following null hypotheses:

- **First null hypothesis:** There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in teachers' perspectives of the effectiveness of technology in mitigating educational loss due to the grade level they teach.
- **Second null hypothesis:** There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in teachers'

perspectives of the effectiveness of technology in mitigating educational loss due to their years of teaching experience.

- **Third null hypothesis:** There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in teachers' perspectives of the effectiveness of technology in mitigating educational loss due to their qualifications.

Significance of the study

This research enhances the theoretical comprehension of educational loss and the function of technology in mitigating it in conflict-affected regions. An analysis of teachers' opinions on technology use contributes to the literature on educational recovery strategies and underscores findings related to educational theory about English language learning.

The results will provide practical suggestions for educators and policymakers, particularly regarding the distribution of resources for technology in Palestinian schools. The study's insights may guide professional development programs, providing educators with techniques to utilize technology effectively, thus addressing learning gaps and improving student engagement, motivation, and language proficiency.

This study provides novel insights into technology's impact on mitigating educational loss. It establishes a basis for future studies on technology-based interventions and offers valuable standards for comparative studies on educational loss in English language education worldwide.

Definition of Terms

This section defines essential terminology to ensure clarity and consistency within the research context.

Educational loss:

Educational loss refers to the drop or regression in learners' academic performance, information gain, or skill development resulting from interruptions in learning. These interruptions may stem from several circumstances, including extended school closures, suboptimal teaching methodologies, insufficient access to educational resources, socio-economic difficulties, or external emergencies such as pandemics or wars (Gupta et al., 2023).

Technology:

Technology in the educational context refers to the systematic utilization of technological instruments and techniques to improve the teaching and learning experience. It integrates pedagogical methods with technological advancements to provide a systematic, sequential, and adaptable learning environment. This involves the systematic arrangement of instructional resources using technology means to enhance the teaching-learning process, hence broadening the classroom environment to encompass both traditional and remote learning contexts (Mandal et al., 2022).

The researchers conducted a questionnaire to explore teachers' perspectives on technology's effectiveness in mitigating educational loss among English language learners in Bethlehem government schools.

Limitations of the Study

The study was applied and limited to the following:

1. The research population consisted of all the English language teachers working at governmental schools in Bethlehem, which is a city in Palestine.
2. The research was conducted during the first semester of the academic year 2024-2025.

3. The study was limited by the concepts and definitions mentioned in it.

REVIEW OF LITERATURE AND RELATED STUDY

Educational Loss in Palestine

Educational loss has resulted in a substantial gap and problem within the education system, hindering the achievement of established educational objectives. This gap has led to the loss of knowledge and information obtained by learners or an unproductivity in their learning at a specific level. This has led to the learner's inability to achieve the desired outcomes and goals of the educational process, whether in terms of the quantity, quality, or type of education required. The learner may experience an educational gap in just one subject, several subjects, or across all subjects as a result. Educational loss is the information and abilities that learners have failed to acquire owing to interruptions or delays in their educational experience, reflecting the degree of what they were anticipated to have attained in these areas (Pier et al., 2021).

Gupta et al. (2023) characterize educational loss as a partial or whole loss of information and abilities or a decline in academic advancement, typically resulting from extended disruptions or gaps in learners' education. Educational loss is a significant issue despite technological advancements and communication revolution. Factors contributing to this loss include limited access to learning applications, minimal interaction between teachers and learners, and teachers' failure to teach subject content directly. This lack of direct instruction leads to misunderstandings, resulting in a decline in learning outcomes, particularly in cognitive processes and attitudes (Uden & Liberona, 2023).

Al-Qahtani (2018) categorizes several factors contributing to educational loss, including social, economic, educational, developmental, and environmental factors. To illustrate, social factors encompass the devaluation of educators and their ineffective deployment in attaining educational objectives, resulting in a brain drain and the notion of teaching as just a channel for knowledge distribution. Economic issues include substandard school infrastructure, dependence on leased properties, and a lack of resources, intensified by poor planning and cooperation between the education system and the job market. Furthermore, educational problems cover the inefficient utilization of educational technologies, misconceptions regarding conventional vs contemporary education, and a deficiency in addressing social concerns and learners' demands. Organizational issues include resource and tool waste, administrative methodologies, inadequate quality management, and recurrent curriculum modifications. Environmental factors like earthquakes, volcanoes, floods, and wars can cause sudden emergencies, exacerbating the situation. The study by Arifudin et al. (2022) aimed to determine the form of learning loss, its causes, the efforts made to overcome it, and the quality of learning in public schools for secondary school learners in Indonesia. The researchers used a descriptive approach, which was suitable for the study's objectives. The data for the study were collected through surveys, interviews, and documentation. The results of the study indicated that the main form of learning loss experienced was that learners felt a significant reduction in learning, especially in face-to-face classroom settings with teachers. To prevent further learning loss, the BDR (Learning from Home) program was introduced. The researchers recommended that policymakers should focus on programs designed to accelerate recovery and use low-cost training and

communication methods to support teachers and engage parents in the process.

The COVID-19 pandemic has led to a significant increase in learning loss due to the transition to virtual learning environments and distance education. Teachers often lack the necessary technology and expertise, causing students to be unprepared for the next academic year. Additionally, not all students have access to educational technology resources, and weak teacher-student relationships contribute to this issue. Family income disparities also contribute to this issue, with not all parents providing the necessary technology, resulting in educational loss and academic performance disparities (Grogan et al., 2022). Bernhard et al.'s study (2022) investigated the impact of the COVID-19 pandemic on writing quality among first-grade learners in Norway. The researchers used an experimental approach, analyzing national assessments before and during the pandemic. The results showed a noticeable learning loss for learners who were tested shortly after online teaching, with lower writing quality, handwriting fluency, and attitudes compared to those tested a year earlier. The researchers recommended policymakers, educational leaders, and teachers address these negative impacts, particularly in writing.

Accordingly, the researchers explain that educational loss refers to the failure in academic performance and learning outcomes due to various factors such as crises, wars, trauma, and socio-economic challenges. The researchers identify several factors contributing to learning loss and disruption in education in Palestine, including occupation, school closures, road closures, arrests, displacement, poor living conditions, and economic situations. These factors have forced some students to leave school or the country to support their families or escape

difficult conditions. Additionally, ongoing war has disrupted education resulting in exacerbating the situation.

The educational loss in Palestine is a complex issue influenced by historical, economic, and socio-political factors. Historical disruptions include school closures, infrastructure destruction, and restricted access to learning spaces. Economically, poverty and unemployment lead students to abandon education, while inadequate resources and poorly equipped schools hinder effective teaching. Socio-political challenges like teacher strikes and lack of investment exacerbate the situation. Cultural attitudes and the psychological impact of living in a conflict zone further complicate the issue (Naser-Najjab, 2020). Ali et al. (2023) explored the role of educational games in compensating for educational loss and boosting student motivation during crises in Palestine and Iraq. It revealed that games enhance learning through fun, suspense, time-saving, and cooperation. However, challenges such as social, economic, technological, school-related, and psychological barriers exist. The study suggested that providing funding, preparing plans, and developing teachers' capabilities to implement educational games in teaching practices could overcome these challenges. The findings highlighted the potential of educational games in addressing educational challenges during crises.

Conflicts and economic instability have profoundly changed the educational scene in Palestine. The persistent occupation has imposed several direct and indirect obstacles on the Palestinian education system, resulting in educational deprivation. Alzaroo and Hunt (2003) examined the role of education as a coping strategy among Palestinian refugee children. It studied how the state of being a refugee affects perceptions of the value and importance of education. The study reviewed the development of a formal education system in

Palestine and discussed different approaches to education in different political contexts, particularly in the West Bank. Education serves as a key channel for maintaining consciousness of collective rights, particularly for those who have lost their property and whose identity is under threat.

The researchers clarify that education in Palestine has encountered several causes that contribute to learning and educational loss, besides the previously cited reasons. The problems include the occupation's continuous aggressions against the Palestinian people, such as the closure and destruction of schools, road barriers, and checkpoints that impede students and teachers from accessing their schools, particularly the ongoing war that began in 2023 and exacerbated the entire situation. Moreover, the recurrent arrests of teachers and students and the severe living and economic conditions in Palestine have compelled several students to abandon their education or emigrate to assist their families or evade challenging circumstances.

To mitigate the losses and consequences experienced in education, it is important to analyze and determine the factors contributing to learning loss and subsequently remedy them. Some countries have adopted educational strategies that incorporate effective and suitable teaching approaches aimed at the most vulnerable students. Educational experts advocate for the formulation of organized plans with explicit objectives tailored to individual learner groups, ongoing assessments across areas where students encounter difficulties, and the organization of enrichment sessions to promote learning. Contemporary educational technology must be included in the learning process, including instructors, students, and parents in performance monitoring. It is essential to address concerns such as school

dropouts and failures, emphasizing the instruction of basic courses (Al-Rasheedi, 2022). The study of Al-Anzi (2021) aimed to address learning loss in Saudi Arabia through a qualitative research approach. A structured interview with 17 participants, including teachers and educational supervisors, was conducted. The results showed that programs and mechanisms to address learning loss include flexible study schedules, improving teacher and student performance, scientific evaluation, technology application, and cooperation between educational authorities. The study recommended establishing programs to address learning loss in various subjects and conducting similar studies on education officials. The study suggested six strategies to address learning loss: using supportive teaching, implementing scientific evaluation, incorporating technology, and collaborating with educational authorities. The findings suggested that implementing these strategies could help improve educational outcomes for both male and female students.

The researchers suggest that collaboration between families and schools is crucial to prevent learning loss. This can be achieved by creating a supportive learning environment, encouraging parents to communicate with teachers and administrations, providing constructive feedback, and developing tailored training plans. Furthermore, to enhance education and mitigate educational loss, educators should experience professional training in contemporary technologies such as online instruction and internet utilization. This training should also focus on building effective communication skills and fostering strong relationships with students, particularly those who struggle with independent learning. Novel assessment techniques and pedagogical instruments can facilitate students' educational progression. Establishing online platforms and utilizing social media can create supportive learning

environments, ensuring continuity in education even during emergencies.

Effectiveness of Technology in Mitigating Educational Loss

The integration of technology in education has become a crucial element of contemporary pedagogy, revolutionizing conventional techniques and improving the learning experience. Technology has invaded our lives and become a part and parcel of it, especially in education. As a means of acquiring knowledge, technology has contributed to enhancing and shaping education in different forms. It has enriched personalized learning experiences and outcomes. Therefore, technology has contributed to the mitigation of educational loss as traditional classroom settings have been revolutionized due to the integration of technology into education like video conferencing, interactive apps, and digital tools. On the other hand, teachers' employment of technology in education needs careful planning to achieve the intended learning outcomes highlighting activities that satisfy learners' cognitive and social needs. Consequently, teachers should balance the students' needs with the technological tools employed in conveying knowledge, assessing performances, and engaging with learners (Mandal et al., 2022).

The use of technology in education is crucial for addressing students' needs and interests, particularly in project-based methodologies and evaluations. By providing assessment tools and platforms, technology supports capstone assessments as they assist in designing, collaborating, and showcasing projects effectively. Regardless of the students' socio-economic backgrounds and location, capstone assessments support access to resources and feedback reception. In addition, standardized tests have been found inadequate for measuring the students' achievements in performative assessments as these types of tests,

summative, assess the students' knowledge rather than preparing them for their future careers and real-life situations. Developing the students' engagement requires developing their skills and abilities. Consequently, assessments should be shaped to assess the student's ability to perform tasks and think deeply by providing evidence, making connections, asking evocative questions, etc. To illustrate, students, who are engaged in formative assessment by having the opportunity to perform student-led assessments, feel more responsible for their learning material like oral presentations, visual displays, and writing projects. Furthermore, this approach has significantly developed the student-teacher relationship. Hence, integrating technology into education not only addresses the evolving needs of students but also plays a vital role in mitigating educational loss (Jaquith, & Stosich, 2019). Technology provides tools that tackle students' needs, especially in the post-pandemic era where conventional assessment methods no longer prove their efficiency. To conclude, pairing technology with project-based and performative assessments fosters critical thinking and task engagement while overcoming challenges presented by educational loss.

Bridging educational gaps requires digital-based innovative solutions, particularly in remote areas and areas where conventional teaching is interrupted. These tools offer resources, support remote learning, and provide personalized learning experiences. However, the inadequate implementation of digital sources in education negatively affects the quality of learning and its outcome. Accordingly, to opt for effective tools, teachers need to tailor the tools to local contexts and make them a part of a wider strategy that aims at fostering infrastructure, training teachers, and addressing challenges like internet access. Digital tools can help reach marginalized students by providing

alternative ways of engaging with the curriculum and fostering more interactive and adaptive learning experiences. Strategic investments in technology can facilitate fair educational results, provided that these solutions do not exacerbate existing disparities in education but instead contribute to their resolution (Deichakivska et al., 2024).

The incorporation of technology in education elevates the teacher's function as a facilitator. Rather than merely delivering content, technology enables teachers to guide students in exploring and engaging with learning tools. This shift allows for more personalized, student-centered experiences, fostering critical thinking, collaboration, and deeper engagement, ultimately empowering students to take greater ownership of their learning (Uden & Liberona, 2023). A study by Tamim et al. (2011) aimed to investigate the impact of technology on learning. The second-order meta-analysis was the approach used in the study. It involved analyzing existing meta-analyses on technology's impact on student achievement to draw broader conclusions. This method synthesized results from multiple studies to identify overall patterns and effects. Additionally, the study employed a validation process to ensure that the findings were reliable and accurate. The study reviewed research on how technology affects student achievement in academic settings. It found that, overall, technology has a small to moderate positive impact compared to traditional methods. The study also revealed that technology used to support teaching had a slightly stronger effect than technology that directly teaches students. Additionally, the impact was more significant in K-12 settings than in postsecondary classrooms.

Educational technology has become an essential instrument in mitigating learning loss, notably by improving

student engagement, motivation, and academic achievement. Personalized learning systems, which customize educational content to the specific requirements and proficiency levels of learners, have shown significant potential in enhancing results through real-time feedback and targeted teaching. Studies demonstrate that adaptive technology can facilitate comprehension and assist learners across diverse competence levels. The efficacy of educational technology is contingent upon context, with inequities in access, teacher preparation, and infrastructure frequently affecting its impact (Uden & Liberonam, 2023). The study of Sharawneh (2024) aimed to identify the reality of using educational technologies in teaching to reduce learning losses and the difficulties faced by basic-stage teachers in public schools in the Southern Hebron Directorate of Education. A descriptive approach was used, with a questionnaire consisting of 54 items distributed on three axes. The study found no statistically significant differences between the reality of using educational technologies and the difficulties faced by teachers due to factors such as gender, academic qualification, and years of experience. The researcher recommended supporting teachers financially and physically, providing intensive and continuous training courses, and conducting related studies to address these challenges.

The researchers propose that the effectiveness of technology in teaching depends on how it is integrated into the learning process. For outcomes to be effective, technology is to be employed as a tool for teaching rather than a substitute for teaching, it is to be used to facilitate the teacher's role and the engagement of the students. In addition, adapting technological tools to serve educational objectives, focusing on enhancing the infrastructure of schools, and refining teachers' skills in technology is of paramount importance. The proper employment

of technology aligned with a strategic approach can bridge the education loss gaps, especially in underprivileged regions.

METHODS AND PROCEDURES

Research Method

The researchers employed a descriptive method to gather and evaluate data obtained from the English language teachers in the Directorate of Education/Bethlehem. The researchers conducted this method due to its relevance and suitability for the purposes of this study. The questionnaire was conducted online after obtaining permission from the head of the Directorate of Education in Bethlehem.

Population of the Study

The study population comprised (317) English language teachers employed in government schools within the Directorate of Education in Bethlehem during the first semester of the (2024/2025) academic year.

Sample of the Study

The sample of the study consisted of (151) teachers who comprise (47%) of the whole population using a simple random sampling method. Table (1) presents the descriptive statistics regarding the demographics of the respondents

Table 1. Descriptive statistical findings of the respondents' demographics

Features	Category	Numbers
Grade level taught	1-4	28
	5-9	80
	10-12	43
Experience	Less than 5 years	63
	5-10 years	59
	More than 10 years	29
Qualification	Bachelor's degree	99
	Post-graduate degree	52
Total		151

Table (1) presents the descriptive statistical findings of the respondents' demographics. The majority of respondents teach grades (5-9), followed by those teaching grades (10-12), and those teaching grades (1-4). In terms of teaching experience, most respondents have less than 5 years of experience, followed by those with 5 to 10 years of experience, and those with more than 10 years of experience. Regarding educational qualifications, the majority of respondents hold a bachelor's degree, while the remaining have a post-graduate degree.

Instrument of the Study

The researchers developed a comprehensive questionnaire titled "Effectiveness of Technology in Mitigating Educational Loss among English Language Learners in Governmental Schools in Bethlehem" to investigate teachers' perspectives on the role of technology in reducing educational loss. This instrument was developed based on a comprehensive understanding of educational loss and the role of technology in English language learning (Almekhlafi, 2010 ; Ahmad, 2016; Kiros, 2020).

The questionnaire is organized into two main sections:

1. Demographic information: Collects background details about participants to understand their teaching context (3 items).
2. Perspectives on the effectiveness of technology in mitigating educational loss: This section assesses teachers' views on how technology, such as interactive apps, digital resources, and collaborative tools, supports engagement, skill development, and educational continuity among English learners, particularly in mitigating learning gaps and losses (25 items).

Each item in the second section is rated on a five-point Likert scale, where responses range from Strongly Agree (5),

Agree (4), Neutral (3), Disagree (2), to Strongly Disagree (1) (Likert, 1932). This scale allows participants to indicate the extent to which they agree with each statement, providing valuable insights into their perspectives on the effectiveness of technology in minimizing educational loss in English language learning.

Scale Validity and Reliability

The questionnaire was reviewed by a panel of English language specialists, who provided feedback on linguistic accuracy, clarity, and alignment with the research objectives regarding technology's effectiveness in mitigating educational loss. Revisions were made due to their consensus. A pilot study was then conducted with (20) English teachers to ensure that the wording and instructions related to technology use were clear and understandable.

A pilot study was conducted to assess the reliability of the questionnaire, involving (20) English language teachers. The data were analyzed using Cronbach's Alpha, resulting in a reliability coefficient of (0.973), which is considered an excellent level of reliability for the purposes of this study.

Variables of the Study

The study is guided by the following variables:

Independent Variables

- Grade level taught (1-4, 5-9, 10-12)
- Teaching experience (Less than 5 years, 5–10 years, More than 10 years)
- Qualification (Bachelor's degree, Post-graduate degree)

Dependent Variable

- The scores of the teachers' responses regarding their perspectives on the effectiveness of technology in mitigating educational loss among English language learners.

Study Procedures

- Examined theoretical frameworks related to educational technology, educational loss, and mitigation strategies in language learning.
- Designed a questionnaire that targets English language teachers' perspectives on technology's role in mitigating educational loss.
- Collaborated with experts to refine the instrument, and ensure it covers demographic variables (e.g., teaching experience, grade levels taught) and relevant content.
- Tested the questionnaire to ensure its validity and reliability. Conducted a pilot study with a small sample of English language teachers to verify that the instrument accurately captures the intended data and produces consistent results.
- Distributed the questionnaire to English language teachers in Bethlehem's governmental schools. Used an online platform for ease of access and to ensure timely responses.
- Gathered the completed questionnaires and analyzed the data using appropriate statistical methods.
- Reflected on the findings, highlighting significant patterns and insights.

Statistical Treatment

To achieve the objectives of the study, answer its questions, and test its hypotheses, the researchers used the Statistical Package for Social Sciences (SPSS) to extract the means, standard deviations, Cronbach's Alpha reliability coefficient, independent samples t-test, one-way ANOVA, and the Least Significant Difference (LSD) test for post-hoc comparisons. To interpret the results, the researchers used the following scoring scale:

- Very Low (1.00 - 1.80)

- Low (1.81 - 2.60)
- Moderate (2.61 - 3.40)
- High (3.41 - 4.20)
- Very High (4.21 - 5.00)

RESEARCH FINDINGS

Results related to the first question

For the research question, "To what extent do teachers perceive the effectiveness of technology in mitigating educational loss among English language learners in governmental schools in Bethlehem?" descriptive statistical analysis was conducted to examine the data collected. This analysis summarized teachers' perceptions using measures such as mean, standard deviation and degree, providing insights into general trends, variability, and the perceived overall effectiveness of technology in addressing educational loss.

Table 2. The mean scores, the standard deviations and the degrees of the teachers' perspectives

Items	Mean Score	Standard deviation	Degree
1. Increasing access to resources, such as software and digital textbooks during class time, could significantly help reduce educational loss in English.	3.58	1.23	High
2. Technological tools help in tracking and reviewing students' task completion and progress, aiding in mitigating educational loss.	3.58	1.18	High
3. Utilizing online forums and discussion boards in English classes fosters peer-to-peer learning, which can enhance student understanding and mitigate educational loss.	3.53	1.09	High
4. Using online storytelling and creative writing	3.50	0.97	High

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platforms encourages students to express themselves in English, which can reduce educational loss.			
5. Incorporating podcasts and audio resources into English lessons enhances listening skills and engagement, contributing to a reduction in educational loss.	3.48	1.11	High
6. Balanced use of technology alongside traditional methods can enhance students' critical thinking and problem-solving skills, helping to mitigate educational loss in English language learning.	3.47	1.32	High
7. Technological tools have made it easier to provide English resources and supplementary materials to students outside of class time, helping to mitigate educational loss.	3.46	1.14	High
8. Technology plays a crucial role in bridging the learning gap for English language learners due to school closures or disruptions, helping to mitigate educational loss.	3.43	1.17	High
9. Engaging students in online English language competitions or challenges promotes active learning and contributes to reducing educational loss.	3.42	1.23	High
10. Using interactive quizzes and polling tools during online English lessons fosters real-time feedback and enhances learning, contributing to reducing educational loss.	3.39	1.32	Moderate
11. Using technology-based tools, such as video conferencing and language apps, enhances students' speaking skills in English and helps to mitigate educational loss.	3.39	1.29	Moderate
12. Technology (e.g., virtual field trips, real-world video resources, and online news articles) makes it easier for teachers to incorporate real-world contexts into English language learning.	3.38	1.08	Moderate

13. Using technology reduces students' anxiety about learning English, which helps mitigate educational loss.	3.34	1.26	Moderate
14. Students retain more of what they learn in English when technology is integrated into lessons.	3.31	1.05	Moderate
15. Technology helps in creating more interactive and communicative English language activities.	3.30	1.37	Moderate
16. Technological evaluative tools (e.g., online quizzes, language apps, and feedback tools) provide immediate feedback, helping to reduce educational loss in English language learning.	3.28	1.11	Moderate
17. Students who engage with technology-based English resources at home are better equipped to mitigate educational loss.	3.28	1.34	Moderate
18. Technology (e.g., adaptive learning platforms and language apps) supports differentiated instruction for students with varying proficiency levels.	3.25	1.32	Moderate
19. Technology-based activities are effective for enhancing students' English language skills.	3.23	1.22	Moderate
20. Integrating interactive activities (e.g. games) into technology-based English lessons increases student motivation and engagement, which contributes to reducing educational loss.	3.23	1.17	Moderate
21. Technology helps in addressing gaps in students' foundational English skills through targeted online exercises.	3.21	1.09	Moderate
22. Using technology in English language lessons (such as interactive apps, multimedia presentations, or online quizzes) increases student engagement in class activities.	3.09	1.09	Moderate
23. Utilizing online peer feedback tools in English assignments fosters collaborative learning and helps mitigate educational loss.	3.08	0.98	Moderate

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24. Students are more comfortable participating in online English lessons, which may help reduce educational loss.	3.01	1.38	Moderate
25. Incorporating social media platforms for collaborative English projects enhances student engagement and helps mitigate educational loss.	2.95	1.28	Moderate
Total	3.33	0.93	Moderate

As Table (2) presents, the overall mean score of teachers' perspectives on the effectiveness of technology in mitigating educational loss was (3.33), with a standard deviation of (0.93), reflecting a moderate degree of estimation. Out of the 25 items assessed, nine items were rated as high, and sixteen items were rated as moderate, indicating that while certain aspects of technological integration are well-received, there is scope for improvement in others. This suggests that while the use of technology shows promise in addressing and mitigating educational loss, further efforts are needed to optimize its effectiveness across all domains. Notably, no items were rated as low or very low, reflecting a generally positive outlook on the use of technology in mitigating educational loss. The highest mean score was attributed to the item "Increasing access to resources, such as software and digital textbooks during class time, could significantly help reduce educational loss in English" with a (3.58) mean score and (1.23) standard deviation emphasizing the importance of providing accessible digital tools. Conversely, the lowest mean score was assigned to the item "Incorporating social media platforms for collaborative English projects enhances student engagement and helps mitigate educational loss" with a (2.95) mean and (1.28) standard deviation, suggesting that social media usage for educational purposes is less favored or less effective. In conclusion, the table

indicates a generally moderate effectiveness of technology in mitigating educational loss, with certain areas demonstrating high potential and others requiring targeted enhancements.

The previous studies corroborate the findings of this study. Researchers such as Gupta et al. (2023) and Arifudin et al. (2022) emphasized the partial or complete loss of knowledge due to prolonged disruptions in education. The work of Bernhard et al. (2022) highlighted the decline in student performance during periods of online learning, similar to the challenges faced in Palestine. Furthermore, studies by Al-Anzi (2021) and Al-Rasheedi (2022) stressed the importance of targeted interventions, such as remedial programs and fostering stronger parent-teacher collaboration, to mitigate learning loss effectively. Furthermore, Arifudin et al. (2022) studied learning loss in Indonesian secondary schools, revealing a significant reduction in learning, particularly in face-to-face classrooms. Ali et al. (2023) found that educational games could compensate for educational loss and boost student motivation during crises in Palestine and Iraq. However, challenges like social, economic, technological, and psychological barriers need to be addressed. Tamim et al.'s (2011) study similarly used a second-order meta-analysis to examine the impact of technology on student achievement in academic settings. The findings showed a small to moderate positive effect with technology supporting teaching having a slightly stronger effect. The impact was more significant in K-12 settings.

Results related to the first null hypothesis

Based on the question, "Do teachers' perspectives on the effectiveness of technology in mitigating educational loss vary according to the grade level they teach?" the hypothesis states that there are no statistically significant differences, at the

significance level ($\alpha \leq 0.05$), in teachers' perspectives on the effectiveness of technology to mitigate educational loss due to the grade level they teach. To test the hypothesis, the researchers calculated the frequencies, means, and standard deviations of teachers' perspectives on the effectiveness of technology in mitigating educational loss, due to the grade level they teach, as shown in Table (3).

Table 3. Numbers, means and standard deviation due to the grade level the teachers teach

Grade level they teach	Mean	N	Std. Deviation
1-4	3.07	28	0.91
5-10	3.29	80	0.96
11-12	3.56	43	0.86
Total	3.33	151	0.93

Table (3) shows apparent differences in the mean scores of teachers' perspectives on the use of educational technology to mitigate educational loss, due to the grade levels they teach. These variations appear across three teaching levels: grades (1-4), (5-10), and (11-12). Teachers of grades (11-12) reported the highest mean score, with a mean value of (3.56) and a standard deviation of (0.86), indicating a high perception of technology's effectiveness in reducing educational loss. Teachers of grades (5-10) had a mean score of (3.29), while those teaching grades (1-4) reported a lower mean score of (3.07). To determine whether these differences were statistically significant, the researchers used a one-way ANOVA, as shown in Table (4).

Table 4. Results of one-way ANOVA due to the grade level the teachers teach

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.19	2	2.09	2.45	0.090
Within Groups	126.58	148	0.86		
Total	130.77	150			

Table (4) indicates that the calculated significance level (0.090) is greater than the statistical significance level ($\alpha \leq 0.05$). Therefore, the null hypothesis is accepted, indicating that there are no statistically significant differences in the mean scores for teachers' perspectives on the use of technology in teaching to mitigate educational loss, attributed to the grade level they teach.

Results related to the second null hypothesis

Based on the question, "Do teachers' perspectives on the effectiveness of technology in mitigating educational loss vary according to their years of experience?" the hypothesis posits that there are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in teachers' perspectives on the effectiveness of technology to mitigate educational loss due to their years of experience. To test the hypothesis, the researchers calculated the frequencies, means, and standard deviations of teachers' perspectives on the effectiveness of technology in mitigating educational loss, categorized by their years of experience, as shown in Table (5).

Table 5. Numbers, means and standard deviation due to the teachers' years of experience

Experience	Mean	N	Std. Deviation
Less than 5 years	3.46	63	0.89
5-10 years	3.09	59	0.96
More than 10 years	3.51	29	0.90
Total	3.33	151	0.93

The findings show apparent differences in the mean scores due to teachers' years of experience in using educational technology to mitigate educational loss. Specifically, teachers with more than 10 years of experience have the highest mean score (3.51) with a standard deviation of (0.90), indicating a high level of engagement with educational technology. Teachers with less than 5 years of experience follow, with a mean score of

(3.46) and a standard deviation of (0.89), while those with 5–10 years of experience have a lower mean score of (3.09) and a standard deviation of (0.96). To consider whether these differences were statistically significant, the researchers conducted a one-way ANOVA, as presented in Table (6).

Table 6. Results of one-way ANOVA due to the teachers' years of experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.30	2	2.65	3.13	0.047
Within Groups	125.47	148	0.85		
Total	130.77	150			

Table (6) shows that there are statistically significant differences in teachers' perspectives on the effectiveness of technology in mitigating educational loss due to their years of experience. The analysis yielded a significance level of (0.047), which is below the (0.05) threshold, indicating a statistically significant result. This indicates that the differences observed in the mean scores for teachers with varying years of experience are statistically significant. To investigate these differences, the researchers conducted a post hoc LSD (Least Significant Difference) test, which helps identify which specific groups differ significantly from each other in terms of their mean scores.

Table 7. Post hoc LSD multiple comparisons of teachers' perspectives on the effectiveness of technology in mitigating educational loss due to years of experience

(I) Experience	(J) Experience	Mean Difference (I-J)	Std. Error	Sig.
Less than 5 years	5–10 years	.36853*	.16681	0.029
	More than 10 years	-.04484	.20662	0.828
5–10 years	Less than 5 years	-.36853*	.16681	0.029
	More than 10	-.41337*	.20881	0.050

	years			
More than 10 years	Less than 5 years	.04484	.20662	0.828
	5-10 years	.41337*	.20881	0.050

* Statistically significant at ($\alpha \leq 0.05$)

The results from the Post Hoc LSD Multiple Comparisons indicate that there are significant differences in teachers' perspectives on the effectiveness of technology in mitigating educational loss due to their years of experience. Specifically, teachers with less than 5 years of experience reported significantly higher mean scores than those with 5-10 years of experience (Mean Difference = 0.36853, Sig. = 0.029), suggesting that teachers with less experience have a more favorable view of technology's effectiveness. However, no significant difference was found between teachers with less than 5 years of experience and those with more than 10 years nor between teachers with 5-10 years of experience and those with more than 10 years. The latter comparison was close to significance, suggesting that teachers with 5-10 years of experience may view technology's effectiveness slightly less favorably than those with more than 10 years, but the difference was marginal.

Results related to the third null hypothesis

To answer the question, "Do teachers' perspectives on the effectiveness of technology in mitigating educational loss vary due to their qualifications?", the researchers tested the hypothesis by using an independent sample T-test to determine if there were statistically significant differences at the significance level ($\alpha \leq 0.05$) in teachers' perspectives on the effectiveness of technology due to their qualifications. The results of this analysis are presented in Table (8).

Table 8. Results of the independent sample T-test analysis due to the qualification

Qualifications	N	Mean	Std. Deviation	d _f	t	Sig.
Bachelor's degree	99	3.15	0.95	14	3.3	0.001
Post-graduate degree	52	3.67	0.80	9	6	

Table (8) shows a comparison of teachers' perspectives on the effectiveness of technology in mitigating educational loss due to their qualifications. Teachers with a bachelor's degree have a mean score of (3.15) with a standard deviation (0.95), while those with a post-graduate degree have a mean score of (3.67) with a standard deviation (0.80). The t-test results indicate a significant difference between the two groups, with a significance level of (0.001), which is below the set threshold of ($\alpha \leq 0.05$). As a result, we reject the null hypothesis, which states that there are no significant differences in the perspectives of teachers due to their qualifications. Instead, we accept the alternative hypothesis, which suggests that teachers' perspectives on the effectiveness of technology in mitigating educational loss do vary due to their qualifications. This indicates that there are statistically significant differences between the two groups and teachers with a post-graduate degree have significantly more favorable perspectives on the effectiveness of technology in mitigating educational loss compared to those with a Bachelor's degree. The findings suggest that higher levels of academic qualification might influence teachers' attitudes or understanding of how technology can be leveraged to mitigate educational loss. This could be due to factors such as advanced training, greater exposure to research, or familiarity with technology integration in education that typically accompanies post-graduate studies.

A comparison between the findings of Sharawneh's (2024) study and the present results reveals notable contrasts

regarding the impact of years of experience and academic qualifications on perceptions of educational technologies. Sharawneh found no significant differences in the use of educational technologies due to factors such as gender, academic qualification, or experience among basic-stage teachers in Southern Hebron. This suggests that the effectiveness of educational technology use was perceived consistently across these demographic and professional categories. Sharawneh emphasized the need for financial and physical support to enable teachers to overcome challenges and effectively use educational technologies. In contrast, the present study indicates a statistically significant difference due to academic qualifications, where teachers with post-graduate degrees displayed significantly more favorable perspectives on the effectiveness of technology in mitigating educational loss compared to those with a bachelor's degree. This result suggests that higher academic qualifications may be linked to a greater appreciation or understanding of the potential benefits of educational technologies. Moreover, the present findings indicate significant differences in perspectives on the effectiveness of technology due to years of experience. Specifically, teachers with less than 5 years of experience reported significantly more favorable perceptions of technology's effectiveness in mitigating educational loss compared to those with 5–10 years of experience. This result suggests that less experienced teachers may be more optimistic about or adept at adopting educational technologies, possibly due to greater familiarity with newer digital tools or fewer entrenched habits in traditional teaching methods.

CONCLUSION

In conclusion, mitigating educational loss necessitates a thorough and multifaceted strategy customized to the distinct obstacles inherent in each educational setting. In the context of Palestine, this involves recognizing and confronting the increasing impacts of political instability, economic limitations, and social issues that profoundly affect the education system.

To reduce educational loss, it is crucial to implement new teaching practices and promote collaboration among vital stakeholders, including educators, policymakers, and community members. The integration of technology is crucial in this process, as it has shown the ability to augment teaching and learning experiences, close learning gaps, and boost educational results. By utilizing technology tools and assuring their accessibility, educators may establish resilient and adaptable learning environments that enable students to overcome obstacles and realize their academic potential.

RECOMMENDATIONS

Based on the findings of the study, the researchers offer the following academically oriented recommendations:

- Develop and implement comprehensive, intensive, and ongoing training programs to enhance educators' proficiency in utilizing advanced educational technologies. These programs should be supported by detailed instructional manuals tailored to the effective use of these tools within each school.
- Ensure the provision of essential educational technologies, particularly those with significant financial costs, which may be inaccessible for individual educators to purchase or produce independently.

- Allocate adequate financial resources to facilitate the maintenance and repair of educational technologies within schools, ensuring their longevity and usability.
- Provide both moral and financial incentives to educators to encourage the consistent and effective integration of educational technologies into teaching practices.

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