



A SYSTEMATIC REVIEW ON IMPLEMENTATION OF TECHNOLOGY IN LEARNING ENGLISH

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Abstract: As one of the main challenges in education today, this systematic review examines the implementation of technological innovations in English language learning environments, considering social issues such as educational inequality and limited access to quality learning resources. Focusing on the development of English skills, the review analyzes how technology provides immediate materials tailored to those skills. Using the PRISMA 2020 methodology, the research evaluates 31 articles published in 2025 to demonstrate how technology facilitates personalized learning experiences by analyzing individual learner patterns. This personalization increases engagement and motivation through tailored resources. The review also highlights how technology improves accessibility for learners anywhere, as long as they have access to a device. The evidence suggests that as educational technologies evolve, their strategic integration into language education will significantly transform teaching methods and learning outcomes. This research emphasizes the importance of adapting pedagogical practices to fully harness technological potential in promoting effective language acquisition and provides valuable insights for future exploration of technology's role in education.

Keywords: Elementary Education, English Learning, Technology

ABSTRAK. Sebagai salah satu tantangan utama dalam pendidikan saat ini, tinjauan sistematis ini mengkaji implementasi inovasi teknologi dalam lingkungan pembelajaran bahasa Inggris, dengan mempertimbangkan isu-isu sosial seperti ketimpangan pendidikan dan terbatasnya akses terhadap sumber belajar yang berkualitas. Berfokus pada pengembangan keterampilan bahasa Inggris, tinjauan ini menganalisis bagaimana teknologi menyediakan materi langsung yang disesuaikan dengan keterampilan tersebut. Menggunakan metodologi PRISMA 2020, penelitian ini mengevaluasi 31 artikel yang diterbitkan pada tahun 2025 untuk menunjukkan bagaimana teknologi memfasilitasi pengalaman belajar yang dipersonalisasi dengan menganalisis pola pembelajar individu. Personalisasi ini meningkatkan keterlibatan dan motivasi melalui sumber daya yang disesuaikan. Tinjauan ini juga menyoroti bagaimana teknologi meningkatkan aksesibilitas bagi pembelajar di mana pun, selama mereka memiliki akses ke perangkat. Bukti menunjukkan bahwa seiring berkembangnya teknologi pendidikan, integrasi strategisnya ke dalam pendidikan bahasa akan secara signifikan mengubah metode pengajaran dan hasil belajar. Penelitian ini menekankan pentingnya mengadaptasi praktik pedagogis untuk sepenuhnya memanfaatkan potensi teknologi dalam mendorong pemerolehan bahasa yang efektif dan memberikan wawasan berharga untuk eksplorasi peran teknologi dalam pendidikan di masa mendatang.

Kata Kunci: Sekolah Dasar, Bahasa Inggris, Teknologi

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INTRODUCTION

This systematic review research examines the concern of technology on English. The rapid development of digital technology has influenced educational practices worldwide. In the context of English language learning, the integration of technology has become an essential tool to support effective teaching and learning. Cyberlearning offers opportunities for interactive, student-centered, and flexible approaches, which are crucial in improving language acquisition. In Indonesia, the adoption of technology in education has been growing steadily, supported by government initiatives and institutional efforts. However, challenges remain in

ensuring accessibility, teacher readiness, and system quality. This article examines the role of technology in English learning with a focus on its implementation in Indonesian elementary schools, using the study *Implementation of Cyberlearning in Elementary School* (Jupriyanto et al., 2025) as the primary source of analysis.

In the Indonesian context, technology adoption in education has accelerated in recent years. Cyberlearning, or online learning supported by digital platforms, has become an essential alternative to traditional face-to-face teaching. According to (Jupriyanto et al., 2025), cyberlearning in elementary schools provides opportunities for students to access learning materials anytime and anywhere, enabling greater autonomy and motivation in learning. This approach supports the government's efforts to improve the quality of English education by utilizing modern educational technology.

However, successful integration of technology is not without challenges. Issues such as limited infrastructure, insufficient teacher training, and varying levels of digital literacy among students often hinder the effectiveness of technology-based instruction (Wahono et al., 2025). Teachers play a crucial role in mediating technology for effective use in classrooms, as they must adapt pedagogical strategies to ensure that digital tools enhance rather than replace traditional learning practices (Charalampous & Darra, 2024).

Globally, several studies have confirmed the potential of technology to improve language learning. For instance, (Gavilan Tatin et al., 2025) showed that technology enhance learners' pronunciation, while. These findings are consistent with Indonesian studies that highlight the positive impact of integrating cyberlearning platforms into English classrooms (Jupriyanto et al., 2025).

Therefore, this research examines the implementation of technology in learning English, specifically in the context of cyberlearning in Indonesian elementary schools. It discusses the factors that influence successful integration, including system quality, information quality, and user satisfaction. This research contributes to the growing body of literature on technology-enhanced language learning by highlighting its benefits, challenges, and future implications for English education.

METHOD

This research employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework, which provides a structured guideline for conducting systematic reviews and ensuring transparency in the research process (Pratama & Sulistiyo, 2024). The method was chosen to enable a comprehensive analysis of how technology, particularly cyberlearning, is implemented in English learning contexts.

Phase 1: Identification Phase

The process began with the identification stage, where relevant studies were collected from electronic databases, with the primary source being the Education Resources Information Center (ERIC). Keywords such as “*technology in English learning*,” are employed. To provide local contextual insights, additional articles were sourced from Indonesian journals indexed in SINTA, which ensured that both global and national perspectives were included in the review.

Table 1. Source of Journals

Journals Source	Quantity	Keywords
ERIC	1260 articles	Implementation of Technology in Learning English

From the initial search conducted in the ERIC database, 1260 articles related to the keywords “Implementation of Technology in Learning English” are identified.

Phase 2: Screening Phase

In the screening stage, studies were assessed to confirm that they were published journals in 2025. Only articles written in English that directly addressing the integration of technology in English learning were considered. Studies that examined general ICT applications without explicit reference to language education were excluded (Pratama & Sulistiyo, 2024).

Phase 3: Eligibility Phase

The eligibility stage involved evaluating the collected studies based on inclusion criteria. Eligible articles were those that reported on the implementation of technology in English education, applied quantitative, qualitative, or mixed-method designs, and involved participants from elementary education levels. Furthermore, only studies that provided empirical evidence of the effectiveness of technology in supporting English learning were selected (Umar et al., 2025).

Table 2. Inclusion Criteria

Inclusion
Implementation of technology in English language learning
Indonesian country
Elementary education
Research methodologies, quantitative, qualitative, or mixed-method designs
Studies that evaluate the effectiveness of technology in enhancing English learning outcomes
Full text journal articles only on ERIC
Published in 2025

Those, the chosen researchs in the end focused on using technology to learn English as their primary media. With that, the papers can be outlined based on their criteria just like in figure 1.

Selection articles criterion	Did the researchers implement Technology in their studies?	Did these articles focus on utilizing Technology to learn English?
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Figure 1. Assesment criterion in choosing articles

Phase 4: Exclusion Phase

Finally, in the exclusion stage, only articles that doesn't met the high methodological standards were excluded, forming the final dataset for analysis. A PRISMA flow diagram was applied to illustrate the process of article identification, screening, eligibility, and inclusion. By adhering to the PRISMA framework, this study ensured methodological transparency and reduced potential bias in literature selection and analysis. This systematic approach provided a broad

yet rigorous overview of existing evidence, enabling the research to capture both global trends and Indonesian perspectives on the integration of technology in English education.

Table 3. Exclusion Criteria

Exclusion
Technology was not implemented in English learning
The studies did not access and evaluate Technology in English subject
Teaching and learning did not used technology

There are a total of 3 articles that provides the information about the benefit of technology in learning English. These articles have quantitative and mixed-method design that was can be seen on Table 4.

Table 4. Quantity of Journals based on Research Design

Research Design	Quantity
Quantitative Design	1
Mixed Method Design	2

Figure 2 illustrate the full process from the first Phase till fourth Phase in a more clear and detailed, based on The Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 checklist in conducting this systematic literature review.

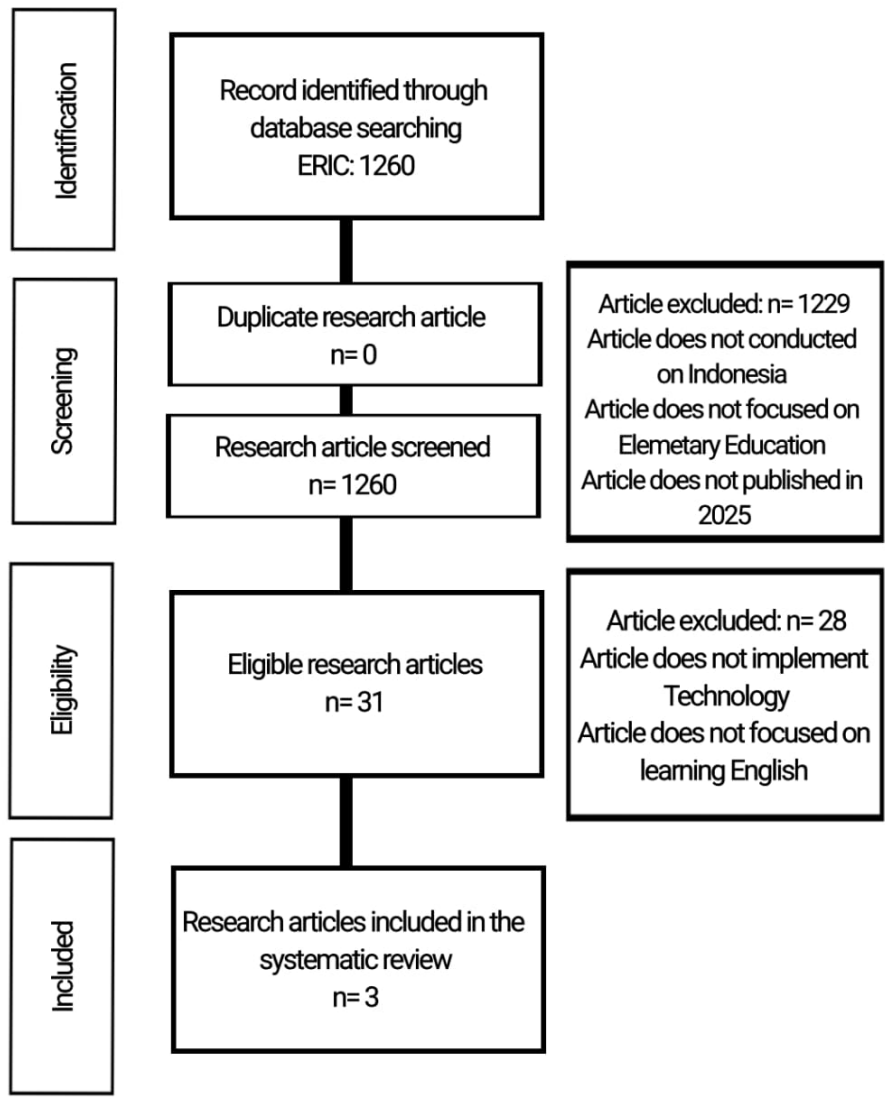


Figure 2. Stream Chart of the Research Article Selection Process

RESULTS

The findings of the research will be reviewed in-depth in this section. Cause of the nature of investigations, 3 articles were chosen to be selected in this systematic review after the earlier four phases of choosing eligible articles. A lot of different researchers have give their part on the role of implementation of technology in English learning, and these research going to be described in Table 5 below.

Table 5. Main Characteristics, Perspectives and perception of using Technology in learning English

Authors	Territory	Study Purpose	Participants	Discussion
EJ1479003	Indonesia	To investigate the current levels of digital innovation and digital resilience among elementary students, analyze the need for new learning media, and propose a solution in the form of a Smart System Adaptive Mobile Learning (SSAML) model that incorporates gamification and the Balinese Tri Kaya Parisudha philosophy	120 fifth-grade students and their teachers from elementary schools across Bali, selected through purposive sampling	<ul style="list-style-type: none">• The analysis revealed that elementary school students' digital innovation and resilience skills are low• While teachers support developing these skills, existing learning activities have not been effective in improving them• The study proposes the SSAML model as a solution. The discussion elaborates on how this system works:<ul style="list-style-type: none">○ Adaptive Learning provides personalized content○ Gamification (points, badges, challenges) increases engagement and motivates creative problem-solving○ The Tri Kaya Parisudha philosophy (Think Well, Speak Well, Act Well) is integrated to build critical thinking, ethical communication, and responsible digital behavior, thereby directly addressing the gaps in innovation and resilience
EJ1479011	Indonesia	To examine the implementation of reflective practice among language teachers by analyzing five dimensions (interpersonal, intrapersonal, critical, behavioral, strategic), identify the challenges they face, and explore its	198 language teachers from elementary schools in Bekasi. 180 completed a questionnaire, and 18 participated in in-depth interviews. Sampling was	<ul style="list-style-type: none">• Teachers demonstrated high levels of interpersonal reflection (strong student interaction, peer collaboration) and behavioral reflection (adapting teaching based on student feedback)• However, critical reflection (deep analysis of one's teaching methods) and strategic reflection (use of technology for reflection and long-term planning) were significantly weaker• Key challenges identified include time constraints, lack of institutional support, and insufficient professional development opportunities

		impact on improving teaching	probability-based (random)	<ul style="list-style-type: none"> The discussion recommends structured professional development programs, collaborative reflection groups (peer mentoring), and institutional policies that incentivize and support reflective practice to help teachers become lifelong learners
EJ1479170	Indonesia	To identify the key factors that determine the success of cyberlearning in Indonesian elementary schools and provide recommendations for its ideal implementation	Elementary school teachers from 25 schools in Central Java (a mix of state, private, and Islamic schools), selected through random sampling	<ul style="list-style-type: none"> Factor analysis revealed two main groups of factors influencing cyberlearning: <ol style="list-style-type: none"> System Quality & Information Quality: The stability, ease of use, and quality of the learning platform and its content Technology Mastery, Student & Teacher Characteristics: The digital skills of teachers and students, and their adaptability to the online environment A key finding was that many teachers used social media for instruction instead of dedicated learning platforms, indicating a gap in system quality The discussion provides recommendations for ideal practice: <ul style="list-style-type: none"> Change the mindset that online learning can be effective Establish clear regulations for platforms and assessment, moving away from social media Implement good time management, suggesting a hybrid model (e.g., 4 hours online for 8 hours of standard curriculum) to focus on developing advanced competencies



DISCUSSION

The findings, as summarized in Table 5, give out a multifaceted landscape characterized by promising innovations, significant challenges, and critical success factors. The discussion that follows synthesizes these findings into three central themes: (1) enhancing student engagement through adaptive and gamified learning, (2) the pivotal role of teacher readiness and reflective practice, and (3) systemic and infrastructural determinants of cyberlearning success.

Enhancing Student Engagement and Digital Resilience through Adaptive Learning

This research highlights a critical issue in the current educational landscape: the low levels of digital innovation and resilience among elementary school students. This underscores that mere access to technology is insufficient; students must also develop the skills to use it creatively and persevere through digital challenges. In response, the proposed Smart System Adaptive Mobile Learning (SSAML) model presents a sophisticated solution. By integrating adaptive learning, the system personalizes English language content to individual learner levels and patterns, directly addressing diverse student needs and promoting more effective skill acquisition.

Furthermore, the incorporation of gamification elements, such as points, badges, and challenges that serves as a powerful mechanism to increase student motivation and engagement. This approach transforms learning from a passive activity into an interactive and rewarding experience, encouraging creative problem-solving. Most notably, the model's grounding in the Balinese “Tri Kaya Parisudha” philosophy (Think Well, Speak Well, Act Well) provides a crucial ethical framework. This integration aims to build not only language skills but also critical thinking, ethical communication, and responsible digital behavior, thereby directly targeting the identified gaps in innovation and resilience (Jayanta et al., 2025).

The Crucial Role of Teacher Readiness and Reflective Practice

The success of technology integration is heavily dependent on the teachers who implement it. This research provides a nuanced analysis of teacher readiness through the lens of reflective practice. The results indicate that teachers are strong in interpersonal and behavioral reflection, demonstrating their ability to interact effectively with students and adapt their teaching based on immediate feedback. However, the study reveals a significant weakness in critical and strategic reflection. This suggests that while teachers can manage day-to-day classroom

dynamics, they often lack the time, training, or support to deeply analyze their long-term teaching methodologies or strategically leverage technology for professional growth and curriculum planning.

The identified challenges time constraints, lack of institutional support, and insufficient professional development are central to understanding this gap. Without structured support systems, the full potential of technology in the classroom remains untapped. The study's recommendations, including structured professional development, peer mentoring groups, and supportive institutional policies, are therefore essential. For technology to be implemented effectively, teachers must be empowered as lifelong learners who can critically evaluate and strategically integrate digital tools into their English language teaching practices (Rokhman Purnama et al., 2025).

Systemic Factors for Successful Cyberlearning Implementation

Beyond the classroom level, this research identifies the key systemic factors that determine the overall success of cyberlearning initiatives. The factor analysis reveals two primary groups: (1) System and Information Quality and (2) Technology Mastery and User Characteristics. The first group emphasizes that the stability, ease of use, and quality of the digital platform and its content are non-negotiable foundations. A telling finding that highlights a current shortcoming is the widespread use of social media for instruction instead of dedicated educational platforms. While pragmatic, this practice points to a significant gap in the provision of high-quality, secure, and pedagogically sound cyberlearning systems.

The second group of factors underscores the human element of the technological equation. The digital literacy of both teachers and students, along with their adaptability to online environments, is as important as the technology itself. The recommendations from this study provide a clear path forward: a shift in mindset to believe in the efficacy of online learning, the establishment of clear regulations and standards for platforms and assessment, and the implementation of strategic time management, such as a hybrid model. This hybrid approach could maximize the benefits of cyberlearning for developing advanced competencies without leading to digital fatigue, ensuring that technology serves the curriculum effectively (Jupriyanto et al., 2025).

In summary, the findings from these three studies paint a cohesive picture. The implementation of technology in learning English in Indonesian elementary schools is a complex process that requires a synchronized approach. It demands innovative, student-centered solutions like the SSAML model to boost engagement and build digital literacy from a young age. It relies on highly-skilled and critically reflective teachers who are supported by continuous professional development.

The evidence suggests that when these elements, adaptive student tools, empowered teachers, and a supportive system are aligned, technology can truly transform English language education. It moves beyond being a simple tool for content delivery and becomes a catalyst for personalized, engaging, and effective learning that can bridge educational gaps and prepare students for a digital future. Future research and policy initiatives should therefore focus on integrating these three pillars to harness the full potential of educational technology.

CONCLUSIONS

This research concludes that the implementation of technology in English language learning holds significant potential to transform educational practices, particularly in elementary education. The evidence demonstrates that technological tools facilitate personalized, engaging, and accessible learning experiences, which can enhance student motivation and skill acquisition. Adaptive systems and gamification are identified as key strategies for catering to individual learner needs and fostering crucial digital literacy.

However, realizing this potential is contingent upon addressing critical challenges. Successful implementation is not guaranteed by technology alone but depends on a synergistic support system. This includes continuous professional development to enhance teachers' strategic use of digital tools, alongside robust institutional frameworks that ensure high-quality infrastructure and clear pedagogical guidelines. Therefore, a holistic approach that aligns innovative technology, empowered educators, and supportive policies is essential for harnessing technology to achieve effective and equitable English language learning outcomes.

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