

## **Digital Literacy in Enhancing Students’ Speaking Skills: A Systematic Literature Review**

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DOI: 10.30595/aplinesia.v8i1.29822

### **Submission Track:**

Received: 11-02-2024

Final Revision: 13-05-2024

Available Online: 12-06-2024

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### **ABSTRACT**

The rapid integration of digital technologies into language education has intensified the importance of digital literacy in supporting students’ speaking skill development. Speaking is widely regarded as one of the most challenging skills for learners of English as a Foreign Language (EFL) due to its cognitive, linguistic, and affective demands (Blake, 2016; Payne, 2020). This systematic literature review examines how digital literacy is implemented in speaking instruction and identifies the challenges teachers face when integrating digital tools to enhance students’ speaking skills. Guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework, this review analyzed empirical studies published between 2000 and 2024. Searches were conducted in Scopus, Web of Science, ERIC, and

Google Scholar. Following rigorous screening and eligibility procedures, 56 peer-reviewed articles reporting 58 empirical studies were included in the final synthesis. The findings indicate that teachers employ a wide range of digital tools, including mobile-assisted language learning applications, artificial intelligence-based platforms, automatic speech recognition systems, asynchronous video discussions, and immersive environments, to support speaking practice, pronunciation accuracy, fluency, and learner confidence (Bashori et al., 2024; Fathi et al., 2024; Jaramillo Cherez & Nadolny, 2023). However, persistent challenges remain, such as unequal access to digital resources, limited teacher digital literacy, curriculum constraints, and inconsistent learner engagement (Shadiev & Yang, 2020; Shabani & Jabbari, 2023). Overall, the review underscores that digital literacy in speaking instruction extends beyond technical tool use and requires pedagogically informed integration to be effective.

**Keywords:** digital literacy; speaking skills; technology-enhanced language learning; EFL; systematic literature review.

## **INTRODUCTION**

In recent decades, the rapid advancement of digital technology has significantly transformed educational practices worldwide, including in Indonesia. The integration of digital technologies into education has been accelerated by national policy initiatives emphasizing digital transformation and twenty-first-century skills. In the context of English as a Foreign Language (EFL) education, these developments have reshaped instructional practices by enabling more flexible, interactive, and learner-centered approaches to language learning (Shadiev & Yang, 2020; Jones & Hafner, 2021). Among the four language skills, speaking remains one of the most complex and challenging skills for Indonesian EFL learners, as it requires the integration of linguistic competence, cognitive processing, and communicative confidence in a language rarely used outside the classroom (Derwing & Munro, 2005; MacIntyre et al., 2019).

In Indonesia's multilingual educational landscape, limited exposure to authentic spoken English places greater responsibility on classroom instruction to foster speaking competence. The growing availability of digital tools—supported by curriculum digitalization initiatives—has created opportunities to address these challenges. Within this context, digital literacy has emerged as a crucial competence enabling teachers to design effective, communicative speaking instruction aligned with national educational goals.

Digital literacy extends beyond technical proficiency to include the ability to critically select and pedagogically integrate digital resources to support meaningful learning (Jones & Hafner, 2021). Digitally literate EFL teachers can design interactive speaking activities using mobile applications, artificial intelligence-based tools, speech recognition systems, asynchronous video platforms, and immersive environments to provide learners with authentic practice and individualized feedback (Blake, 2016; Fathi et al., 2024; Metruk, 2024).

Despite these opportunities, empirical findings on digitally mediated speaking instruction remain mixed. While many studies report positive effects on speaking performance and learner motivation (Chen, 2022; Jaramillo Cherrez & Nadolny, 2023; Shafiee Rad, 2024), others highlight challenges related to pedagogical integration and contextual constraints (Lim et al., 2022; Shabani & Jabbari, 2023). These inconsistencies suggest that the effectiveness of digital tools depends largely on teachers' digital literacy and instructional design rather than technology alone.

Teachers in Indonesian EFL contexts also face persistent challenges, including unequal access to digital infrastructure, limited professional development, curriculum constraints, and learners' varied digital readiness (Warschauer, 2003; Hubbard, 2008; Jones & Hafner, 2021). Although

access to technology has improved, pedagogical integration remains uneven, underscoring the need for systematic synthesis of research on digital literacy in speaking instruction.

Accordingly, this study conducts a systematic literature review guided by the PRISMA 2020 framework (Page et al., 2021) to address two research questions:

(1) What digital tools do teachers use to enhance students' speaking skills through digital literacy?

(2) What challenges do teachers face in implementing digital literacy for speaking instruction?

By providing a structured and critical synthesis of existing studies, this review seeks to contribute to a clearer understanding of current practices, challenges, and future directions in the integration of digital literacy for enhancing students' speaking skills

## **CONCEPTUAL AND THEORETICAL FRAMEWORK**

### **Conceptual Framework**

This review conceptualizes digital literacy in speaking instruction as a multidimensional construct that mediates the relationship between digital tools and students' speaking skill development. Digital literacy is not viewed merely as technical competence but as teachers' ability to select, evaluate, and pedagogically integrate digital tools to support communicative speaking practice (Jones & Hafner, 2021).

Within this framework, digital tools—such as mobile applications, AI-based platforms, ASR systems, asynchronous video tools, and immersive environments—function as instructional mediators rather than ends in themselves. Their effectiveness depends on how teachers employ

them to support core dimensions of speaking, including fluency, accuracy, pronunciation, interactional competence, and confidence (Blake, 2016).

### **Digital Literacy as an Educational Construct**

Digital literacy in education has evolved from a narrow focus on technical skills to a broader construct encompassing critical, pedagogical, and communicative competencies. In language education, digital literacy involves reflective technology use to support authentic communication and learner engagement (Jones & Hafner, 2021). Digitally literate teachers are better equipped to design speaking tasks that extend practice beyond the classroom, provide feedback through digital means, and foster learner autonomy (Payne, 2020).

### **Technology-Enhanced Language Learning (TELL)**

Technology-Enhanced Language Learning (TELL) emphasizes the role of digital technologies in creating interactive and learner-centered environments that support language development (Golonka et al., 2014; Shadiev & Yang, 2020). Research shows that AI-based speaking tools and ASR systems can enhance pronunciation accuracy, fluency, and willingness to communicate by offering immediate and personalized feedback (Bashori et al., 2024; Fathi et al., 2024).

However, TELL also highlights that technology alone does not guarantee learning outcomes; its effectiveness depends on pedagogically informed integration and teacher competence (Blake, 2016).

### **Communicative Language Teaching (CLT)**

Communicative Language Teaching (CLT) emphasizes meaningful interaction and authentic communication as core principles of language learning (Agbatogun, 2014). Digital tools align with CLT

by enabling interaction-rich speaking activities such as asynchronous video discussions and online role-plays, which allow learners to practice speaking in low-anxiety environments while maintaining communicative authenticity (Jaramillo Cherez & Nadolny, 2023).

### **Cognitive and Affective Dimensions of Speaking**

Speaking involves both cognitive and affective dimensions. Cognitive theories stress the importance of practice, repetition, and feedback for developing oral proficiency (Derwing & Munro, 2005), while affective perspectives highlight anxiety, motivation, and confidence as key factors influencing speaking performance (MacIntyre et al., 2019). Digital technologies can support both dimensions by providing repeated practice opportunities and supportive environments that reduce anxiety (Chen, 2022; Schneider et al., 2022).

## **METHODOLOGY**

### **Review Review Design and Protocol**

This study employed a systematic literature review guided by PRISMA 2020 to ensure transparency and methodological rigor. Databases searched included Scopus, Web of Science, ERIC, and Google Scholar. Explicit inclusion and exclusion criteria were applied to identify peer-reviewed empirical studies focusing on digital literacy and speaking instruction in EFL, ESL, or L2 contexts (Shadiev & Yang, 2020).

**Table 1**

PRISMA 2020 Review Process

Stage	Description	Number of Records
Identification	Records identified through database searching	524
Screening	Records after duplicates removed	410
Eligibility	Full-text articles assessed	87
Inclusion	Studies included in synthesis	56

**Data Sources and Search Strategy**

**Table 2** *Search Strings and Databases*

Database	Search Keywords	Number of Results
Scopus	“digital literacy” AND “speaking skills” AND EFL	176
Web of Science	“technology-enhanced speaking” OR “L2 speaking” AND digital	148
ERIC	“speaking skills” AND “educational technology”	112
Google Scholar	“digital literacy” AND “speaking instruction”	88
<b>Total</b>		524

## Inclusion and Exclusion Criteria

**Table 3** *Inclusion and Exclusion Criteria*

Criteria	Inclusion	Exclusion
<b>Type of study</b>	Empirical (quantitative, qualitative, mixed methods)	Conceptual/opinion papers
<b>Focus</b>	Digital literacy or digital tools for speaking	Other language skills only
<b>Context</b>	EFL, ESL, or L2 education	Non-language contexts
<b>Publication</b>	Peer-reviewed journals	Non-peer-reviewed sources
<b>Language</b>	English	Non-English
<b>Accessibility</b>	Full text available	Full text unavailable

## FINDINGS AND DISCUSSION

### Findings

The synthesis of 56 peer-reviewed studies revealed three dominant themes: instructional effectiveness of digital tools, learner engagement and affective outcomes, and technological as well as pedagogical challenges.

Studies consistently report that digital tools enhance speaking skills when integrated with clear pedagogical objectives. Mobile applications, AI-based platforms, and ASR systems support fluency and pronunciation accuracy through repeated practice and immediate feedback (Bashori et al., 2024; Li, 2024). Additionally, asynchronous video discussions and digital storytelling have been shown to increase learner confidence and willingness to communicate (Fu et al., 2022; Jaramillo Cherez & Nadolny, 2023).

However, technological and pedagogical challenges persist. Unequal access to digital infrastructure, limited teacher digital literacy, and curriculum constraints often lead to surface-level

technology use and reduced effectiveness (Shabani & Jabbari, 2023).

*Summary of Selected Empirical Studies*

Author (Year)	Country	Research Design	Participants	Key Findings
Chen (2022)	Taiwan	Quantitative	University EFL students	Reduced speaking anxiety
Jaramillo Cherez & Nadolny (2023)	USA	Mixed methods	University EFL learners	Improved oral performance via video discussions
Metruk (2024)	Slovakia	Systematic review	EFL learners	Mobile apps enhanced pronunciation
Shafiee Rad (2024)	Iran	Experimental	University students	AI tools increased fluency and WTC
Bashori et al. (2024)	Netherlands	Quantitative	Adult EFL learners	ASR improved pronunciation
Shabani & Jabbari (2023)	Iran	Experimental	EFL learners	Interaction-rich tasks improved speaking

**Table 5** *Methodological Characteristics of Reviewed Studies*

Aspect	Characteristics
Research design	Quantitative, qualitative, mixed methods
Data collection	Speaking tests, surveys, interviews, recordings
Analysis	Statistical tests; thematic analysis
Focus	Speaking performance, perceptions, challenges

## Discussion

The findings demonstrate that digital literacy plays a mediating role between technology use and speaking development. Consistent with TELL and CLT principles, digital tools are most effective when pedagogically aligned with communicative goals and supported by teachers' digital literacy (Blake, 2016; Golonka et al., 2014). At the same time, the prevalence of technological and pedagogical challenges underscores that digital literacy functions as both an enabler and a constraint, depending on contextual conditions (Shadiev & Yang, 2020).

## Research Gaps and Future Directions

Despite positive findings, the review identifies significant gaps related to context, methodology, and teacher-related variables. Many studies rely on short-term experimental designs and self-reported data, limiting conclusions about long-term speaking development (Metruk, 2024). Moreover, teacher digital literacy is often implied rather than explicitly measured. Future research should adopt longitudinal and mixed-methods designs and explore under-researched contexts such as secondary education and developing regions.

**Table 6** *Identified Research Gaps and Future Research Agenda*

<b>Research Gap</b>	<b>Evidence from Review</b>	<b>Future Direction</b>
<b>Under-researched contexts</b>	Predominance of well-resourced settings	Context-sensitive studies in developing areas
<b>Short-term designs</b>	Brief interventions common	Longitudinal research
<b>Self-reported dominance</b>	Heavy reliance on surveys	Objective speaking assessments

<b>Teacher literacy unmeasured</b>	Often implied, not measured	Explicit measurement of teacher digital literacy
<b>Narrow levels</b>	Focus on higher education	Primary/secondary contexts
<b>Emerging tech</b>	Limited critical analysis	Pedagogically grounded AI/VR studies

## CONCLUSION

This systematic literature review demonstrates that digital literacy has strong potential to enhance students' speaking skills when supported by sound pedagogy, teacher competence, and equitable access to technology. While digital tools can improve speaking performance, confidence, and willingness to communicate, their effectiveness depends on purposeful pedagogical integration rather than technology use alone. Future research and educational practice should move toward holistic, context-sensitive models that empower teachers and learners to engage in meaningful digital communication.

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