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Research Paper

Technology-Supported English Language Learning: Effectiveness and Limitations

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ABSTRACT

Digital tools like mobile apps, speech recognition software, and collaborative platforms can help students improve their language skills. Research shows that mobile apps are good for learning vocabulary and pronunciation. AI-based speech recognition helps with speaking by giving instant feedback. These tools make students more motivated and engaged. But there are still challenges, such as unequal access to technology, the possibility of shallow learning experiences, Lack of Authentic Interaction and Communication Practice. This paper examines how technology help improve English language learning by focusing on reading, writing, speaking, and listening skills specifically. It highlights the importance of thoughtfully integrating these tools into teaching so they complement traditional approaches rather than replace them entirely. The results indicate that while technology can significantly enhance language learning but success relies on implementing it properly.

Keywords: *Technology, English Language Learning, Digital Tools*

Digital technologies are being increasingly integrated into English language learning. I provide a new way for developing reading, writing, speaking, and listening skills. A large number of research has examined the efficacy of these technologies in order to ascertain the effectiveness of these digital tools. Review studies indicate that technology-assisted language learning can yield positive outcomes such as improved student engagement, motivation, and confidence Shadiev (2022). At the same time, reviews of literature highlights limitations and cautions, including concerns about shallow learning, reduced real-world communicative practice, over-reliance on automated feedback, and contextual challenges.

Effectiveness of Digital Tools in Developing Language Skills

Speaking and Pronunciation

A large number of studies have found that technology can considerably improve students' speaking abilities. Automatic Speech Recognition (ASR) technologies that provide corrective feedback (e.g., instant prompts on mispronounced words) have been demonstrated to be effective in improving pronunciation accuracy and fluency (Ngo et al., 2024). ASR,

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particularly in peer group situations, generated better results than when used separately. These findings indicate that voice recognition technology, when combined with feedback and collaborative practice, can significantly improve oral output skills. In addition, Ma et al. (2025) conducted an empirical study on Chinese undergraduate EFL learners using an AI-powered mobile app for speaking practice. Over a 10-week experiment, the group that used the AI speech app for after-class speaking tasks performed significantly better than the control group that did not use the app. The app group performed better in pronunciation and fluency, but the differences in vocabulary and grammatical usage were not statistically significant. This suggests that AI-powered speaking applications (which use ASR, text-to-speech, and automated feedback) can help learners overcome limited exposure to spoken English and improve their pronunciation and speaking fluency in a relatively short amount of time. These research, along with many others, show that digital voice technology can help students acquire speaking abilities when employed in pedagogically sound ways.

Listening Comprehension

The advantages Technology not only limited to speaking and pronunciation it also supports development of listening comprehension. Digital media and artificial intelligence (AI) tools have added interactive and adaptive features to listening practice. For example, Xiao (2025) conducted a randomised controlled study in which Chinese EFL university students improved their listening skills using an AI-powered speech recognition system. Over several weeks, the experimental group (which received listening exercises with real-time ASR feedback and transcript support) demonstrated significant improvements in listening comprehension when compared to a control group following traditional approaches. Furthermore, the technology-enhanced group reported higher levels of "flow" and lower levels of listening anxiety across pre-, post-, and follow-up. These findings reveal the significance of listening tools that can enhance the learning experience and decrease affective barriers (such as anxiety) by providing rapid feedback and control. Other studies Kacetl and Klimova (2019) have similarly found that multimedia tools (e.g., annotated video clips, interactive podcasts) can improve listening skills by allowing learners to control playback, access captions, and receive quick clarification, all of which help comprehension. The literature clearly demonstrates the benefits of technology in developing listening skills, particularly when tools are intended to adapt to learners' competency levels and give immediate feedback that scaffolds the listening process.

Reading and Vocabulary Development

Effects of Digital technologies on reading abilities of students seem to vary depending on the situation. literature shows both favourable and unfavourable results. On the one hand, integrating technology into reading exercises can increase participation and encourage learning, that lead to enhancement of vocabulary and reading comprehension. A controlled trial using digital storytelling to teach reading at a Turkish English preparatory program was carried out by Akdoğan (2023). While the control group adhered to a conventional curriculum, the experimental group used online resources (like Google Docs and multimedia platforms) to create and share digital stories. The experimental group outperformed the control group in terms of vocabulary acquisition and reading comprehension after the intervention. According to the qualitative assessment of the participants, the digital storytelling technique promoted active language use and was regarded as a stimulating, creative, and attractive practice. Students emphasised the importance of collaborative online tools for content development and the relevance of storytelling as an alternative evaluation. This study is consistent with previous research indicating that technology-mediated reading assignments such as WebQuests, digital story projects, and e-books with interactive

annotations can improve learners' comprehension of texts and motivate them to read critically thereby improving comprehension. Furthermore, mobile vocabulary applications (such as spaced-repetition flashcard apps) have demonstrated improvement in word retention in context. On the other hand, several concerning outcomes of researches have surfaced. Salmerón et al. (2023) conducted a large-scale analysis of data from over 290,000 middle-school children in the United States and discovered that excessive daily usage of digital devices in language classes was associated with lower reading comprehension. The authors interpret this "screen inferiority" impact. In view of prior research indicating that students frequently use shallow reading practices on digital devices, such as skimming texts, multitasking, or being easily distracted, which can hinder deep comprehension. Meta-analyses of researches have found a tiny but constant benefit of print reading over screen reading in terms of comprehension. This suggests that digital reading may lead to reduced engagement and an overestimation of understanding. These mixed findings imply that, while digital technologies might improve reading skills (particularly through interactive and collaborative techniques), teachers must be cautious about how digital reading is implemented. To ensure that children read texts on digital resources critically than superficially, structured instruction and focused exercises are needed. In conclusion, technology provides exciting possibilities for enhancing reading, such as adaptive e-reading platforms and digital storytelling, but its efficacy depends on cautious integration that promotes active reading techniques rather than passive screen scrolling.

Writing Skills:

Technology has substantially changed how writing is taught and developed today. Tools that give feedback and help with editing are now very common. Studies show that using technology in writing helps students write more (increases the amount they write) and improves their work's quality. For example, a study by Wen and Walters (2022) at elementary-level writing, found that technology use led to better-organization, clarity and, error free and extended writing when digital tools were used. These improvements are due to the features like easy text edits, word processors for drafting, revisions and multimedia aids making it engaging especially to young learners. At higher level ESL learner tend to experience significant boost through AI-writing assistants. For example, Mahapatra (2024), studied the effect of ChatGPT as a formative feedback tool in academic writing course for ESL Students Undergraduate students participated in this study by writing essays and receiving iterative feedback from ChatGPT on their structure, language use, and content over a number of writing cycles. When compared to a control group, the results demonstrated a significant improvement in students' academic writing skills among experimental group. Students also reported positive perception regarding AI use in academic writing. The study concludes that with appropriate guidance and training, AI can serve as effective writing tool in large classes AI-based tools can support language learners by giving instant feedback on grammar, vocabulary, and style. However, Researchers warn that these tools should be used alongside human feedback, not instead of it. Students need to stay involved in the learning process to really gain from using technology. In general, studies show that digital tools ranging from basic word processors to advanced AI support writing development by helping learners write more and improve their work through repeated feedback.

Limitations and Critiques of Digital Language Learning Tools

Despite the positive evidence mentioned earlier, researchers have found important issues and challenges in using technology for language learning. These criticisms help us understand

that technology isn't a perfect solution; it has pros and cons that teachers and students should think about.

Shallow Learning and Reduced Deep Processing:

A key issue is that some digital platforms might promote superficial learning rather than true language learning. Reading on screens often leads to understanding text in a shallow way, which can undermine comprehension. Many language learning apps focus on small bits of content and repetitive exercises for vocabulary and grammar that are easy to use but don't help develop advanced language skills. Heil et al. (2016) found that popular English learning apps mostly focused on single words or phrases, not real communication, meaning they were "decontextualized." Users typically do match or fill-in-the-blank activities aimed at memorization instead of contextual usage with these types of tools This method can lead to quick improvements in specific areas like word recall or basic grammar rules. As a result, it may happen that though learners score well within the app's environment achieving high scores but speaking authentic conversations outside remain difficult and comprehending texts naturally remains daunting Klimova (2017) pointed out that mobile learning is effective for studying vocabulary as it's easy to break down into small parts suitable for smartphones. However, it's not clear if apps are good at teaching more complex skills like natural language use or writing detailed essays. The main concern is that digital tools often focus on the simpler aspects of language learning, such as word lists and basic phrases and don't automatically help with difficult areas, like critical reading. This doesn't mean technology can't aid deeper learning; some studies indicate it can when used wisely. But without careful planning, there's a risk students might complete many game-like lessons yet still lack true proficiency beyond what the app offers.

Lack of Authentic Interaction and Communication Practice:

Many digital tools for learning languages face criticism because they don't fully support communication. Studies on how people learn languages emphasize the importance of practicing with others, preferably in person or through live conversations, to improve speaking skills. Most language apps and software can't mimic human interactions well enough. As one critique says, "language learning apps have limited resources and don't promote real conversation." Some apps include features where you can listen or repeat phrases into a microphone but these are often scripted and lack the surprise elements found in natural talks. These platforms usually don't offer back-and-forth exchanges that require learners to understand their partner's responses or practice impromptu talking exercises. Andersen (2019) noted that feedback from mobile apps is often quite basic. For example, pronunciation tools might just say if a word spoken by the user is right or wrong without giving detailed guidance like a teacher or native speaker would. Also, not many apps include role-playing scenarios or tasks designed to mimic real interactions; most use multiple-choice questions and single-word answers instead. This means learners may do well in set activities but still struggle with actual conversations. Shadiev and Yang (2020) analyzed various studies on computer-assisted language learning (CALL), finding that talking face-to-face cannot be fully replaced by technology—it should complement human interaction rather than substitute it altogether.

Over-Reliance on Automation and Impact on Cognitive Skills:

With AI becoming more common in language education, experts are worried that students might depend too much on these systems. If learners blindly trust the feedback or translations from AI, they may skip the hard work needed to really learn. A study by Zhai, Wibowo, & Li (2024) showed that relying heavily on AI tools like chatbots and writing

assistants can lower a student's ability to think critically and make decisions over time. For instance, if a student lets an AI fix all their grammar mistakes without thinking about it themselves, they'll miss out on learning those corrections using the tool. Tools such as ChatGPT can create whole paragraphs for students; when misused (like doing assignments for them), this clearly harms their learning process. The researchers found many users can't judge how accurate or reliable these AI outputs are and end up trusting them even when they're wrong or filled with fake information ("hallucinations").

CONCLUSION

In short, studies show that technology plays a complex role in learning English. On the positive side, digital tools can greatly help improve language skills by increasing exposure to English and offering personalized practice and feedback not possible in traditional classrooms. Research shows clear benefits like better pronunciation with speech recognition programs, more fluent listening with AI support while reducing anxiety, improved reading and vocabulary through interactive media, and higher-quality writing thanks to digital feedback. These results match teaching trends focused on student-centered approaches rich in feedback. They suggest that when used wisely, technology can aid development across all four main language areas: speaking, listening, reading, and writing. However, researchers warn against relying too much on tech alone. It can't replace important human aspects of learning languages such as real communication or cultural understanding.If used without proper guidance, it might lead to shallow learning or neglect critical thinking and spontaneous communication important in language education.

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Conflict of Interest

The author(s) declared no conflict of interest.

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