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# Beyond Traditional Teaching: A Systematic Review of Research on the Role of Technology in Teaching English Language Skills for Saudi University Students

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***Abstract*—This systematic review analyses the influence of technology on the teaching of English language skills to Saudi university students, emphasizing digital technologies, pedagogical frameworks, contextual variables, and research quality. Using PRISMA guidelines, 17 empirical research published between 2021 and 2025 were examined. The results show that Learning Management Systems (like Blackboard), mobile-assisted language learning tools (like WhatsApp), multimedia resources, and new artificial intelligence (AI) applications like automatic writing evaluation systems are all being used by the language teachers. Technology integration yielded primarily advantageous results, particularly in enhancing speaking, reading, and writing skills; nevertheless, grammar and pronunciation were insufficiently examined. The review emphasizes that the efficacy of technology is significantly influenced by institutional infrastructure, the digital proficiency of instructors, and access to specialized professional development. In terms of approach, the majority of studies utilized mixed-methods and perception-based designs, exhibiting a scarcity of experimental and longitudinal research. There were substantial gaps found in skill-specific methods, AI integration beyond writing, and rigorous outcome measurement. The study signifies that integrating technology-enhanced EFL instruction with evidence-based instructional methods and continuous institutional support is vital for attaining measurable language gains and supporting Saudi Vision 2030's goals of digital transformation and human capital development.**

***Index Terms*—EFL teaching, digital technologies, artificial intelligence (AI), English language skills, systematic review**

## I. Introduction

The significance of English language instruction in Saudi universities is paramount. As the global landscape continues to evolve, English has emerged as a dominant lingua franca in business, science, and technology (Mehriddinovna, 2025; Hasanova & Abdullayeva, 2025; Al-Seghayer, 2023; Barnawi & Al-Hawsawi, 2016). For students in Saudi Arabia, mastery of English is essential for academic achievement and improving employability in a competitive labor market (Al-Amri & Awaji, 2023; Melibari, 2025). In light of the Kingdom's Vision 2030 plan, which seeks to diversify the economy and enhance diverse areas such as tourism and technology, the demand for English-speaking experts is anticipated to increase (Banafi, 2025). Consequently, providing pupils with robust English language proficiency can greatly enhance their engagement in international discourse and commerce, fostering both personal and national growth (Ndiaye et al., 2024; Al-Mwzaiji & Muhammad, 2023; Althobaiti, 2025; Ismail & Namaziandost, 2025). Additionally, training in the English language acts as a way to gain access to a vast array of academic materials and research (Tulasi et al., 2025). Students who are able to grasp the language are able to engage with modern research and advancements in their particular sectors, which allows them to enhance both their academic knowledge and their practical skills (Harerimana et al., 2024). Not only do these exchanges improve the experiences of individual students, but they also contribute to the overall improvement of the educational system within the Kingdom. Singh et al. (2022) underscored the essential function of education and training in promoting economic growth in accordance with the UN Sustainable Development Goals and Saudi Vision 2030. Additionally, the development of English language programs in Saudi colleges helps to promote cultural interchange and understanding among a variety of different communities (Aldawood & Almeshari, 2019). Not only does this exposure enhance the quality of the educational experience, but it also helps pupils develop a sense of awareness and responsibility toward the world. Through this experience, they gain an appreciation for diversity and acquire a broader worldview, both of which are vital in the interconnected society of today (Al-Wossabi, 2016). In light of this, the role of English language teaching in Saudi universities extends beyond the simple acquisition of a language; rather, it is a means of preparing students to thrive in a global environment that is both diverse and dynamic.

In order to improve the efficiency of English language instruction, educational institutions have the opportunity to investigate novel pedagogical approaches, which include the use of technology and interactive methods that are designed to accommodate a variety of learning styles (Alruwaili, 2024). It is essential for educational institutions to evaluate and modify their course offerings in order to cater to the requirements of their students as educational practices continue to undergo change (Hameed, 2024). It is possible to further ensure that the teaching that is offered is in line with the best practices that are used internationally by participating in continual professional development for educators. In the end, giving English language instruction a higher priority in Saudi universities would not only give students more academic power, but it will also contribute to the Kingdom's larger socio-economic goals (Ismail & Namaziandost, 2025).

In this time of swift technological progress, the field of education is undergoing notable transformations, especially in the area of language acquisition (Al Fraidan & Alaliwi, 2024; Bejaković & Mrnjavac, 2020; Donoso et al., 2020). For Saudi university students studying English, the incorporation of technology has gained significant importance, providing innovative approaches to improve language learning and proficiency (Banafi, 2025; Noorwali & Sabir, 2025). While traditional teaching methods hold significant value, they may not completely accommodate the varied learning styles and needs of contemporary learners (Almohideb, 2025). Because of this, teachers need to learn how to use digital tools in the classroom. This knowledge is necessary for helping students become more tech-savvy and literate, which will help them deal with future problems and take advantage of possibilities in a tech-driven world (Ma & Ismail, 2025). Several studies underscore a transition from conventional education to online learning, accentuating the significance of English proficiency and digital literacy as crucial EFL competencies for effective global communication and information access (Hemajothi & Jain, 2022; Kumbo et al., 2023; Murcia et al., 2018).

## II. Literature Review

An increasing number of studies highlight how important technology is to improve English language instruction and learning for Saudi Arabian university students. The incorporation of Artificial Intelligence (AI) into English as a Foreign Language (EFL) teaching has emerged as a hallmark of contemporary pedagogical innovation in Saudi Arabia, primarily influenced by national educational reforms in accordance with Vision 2030. Previous syntheses of Saudi EFL research indicate a significant focus on higher education and writing proficiency, with quantitative approaches prevailing in the discipline. For example, Al-Nafjan and Alhawsawi (2022) did a scoping review of 133 studies on tertiary EFL writing in Saudi Arabia. They found that most of the research focused on undergraduate students, their perceptions, and computer-assisted language learning. There was not much research that used qualitative methods or theory-informed designs. This disparity underscores the necessity for more pedagogically informed research, especially in nascent fields like AI-mediated language learning.

The swift transition to online English language instruction in Saudi institutions amid the COVID-19 pandemic exposed both structural obstacles and revolutionary prospects that directly influence ongoing discussions around AI inclusion in Saudi EFL settings. According to Al-Samiri (2021), Saudi universities were somewhat ready for digital migration through platforms like Blackboard. However, the change brought up big problems with student motivation, digital readiness, internet connectivity, and the validity of assessments.

Alsowat (2017) noted that Saudi EFL research predominantly focuses on reading and writing skills, while speaking, listening, pronunciation, and vocabulary receive scant attention. The majority of studies were executed at the university level, resulting in little exploration of school situations. These findings indicate that despite English proficiency being regarded as a national priority, empirical data is still incomplete, resulting in a deficiency in comprehending how modern technologies—particularly AI—can facilitate holistic language development across several skills.

In this changing world, digital transformation has been recognized as a driver of long-lasting English language learning in Saudi higher education. Al Fraidan and Alaliwi (2024) stressed that digital platforms like Madrasati and Blackboard Collaborate have improved evaluation methods, teamwork, and fairness in education. Their review shows that using technology in the classroom helps students learn in a way that works for them and gives them constant feedback. This aligns English education with goals for national growth and getting students ready for the workforce. Even while digital technologies are becoming more common in Saudi classrooms, frameworks for teaching AI are still not very well defined.

Recent systematic reviews underscore the growing significance of AI in EFL education. Alshumaimeri and Alshememry (2024) recorded the use of machine learning, speech recognition, intelligent tutoring systems, and generative AI in EFL classes, finding that AI applications can enhance language proficiency through adaptive feedback and personalized learning pathways. Still, they also found big problems, such as ethical issues, teacher preparation, and the chance of becoming too dependent on technology. This shows how important it is to have appropriate integration plans that are specific to Saudi Arabian schools.

ChatGPT has become a game-changing AI tool for teaching English. Al-khresheh (2024) discovered that ChatGPT helps students become more independent, motivated, involved, and fluent by giving them rapid feedback and chances to practice speaking. The review, however, does point out some possible problems, such as cheating in school, relying too much on content made by AI, and not developing critical thinking abilities as well. These worries show how important it is for teachers to be involved and for AI literacy to be structured so that it is used in a way that is good for learning.

Faisal (2024) showed that ChatGPT may improve teaching, research writing, inclusivity, and student involvement in Saudi higher education. This helps achieve the Vision 2030 goals of academic excellence and preparing students for the future workforce. Faisal also stressed, though, that institutional rules and professional growth are important to get the most out of AI while reducing its hazards, especially in language learning situations where independent thinking and real conversation are important.

In addition to language outcomes, the emotional aspects of AI-assisted EFL learning have garnered heightened interest. AlTwijri and Alghizzi (2024) stated that AI technologies enhance learners' motivation, engagement, and attitudes while alleviating anxiety. Their systematic analysis indicated that empirical data on affective components is still few and methodologically inconsistent, necessitating further rigorous investigations to demonstrate causal relationships between AI integration and emotional involvement in Saudi EFL classes.

Zakaria et al. (2025) investigated the influence of generative AI on the critical thinking and writing abilities of ESL learners at the cognitive level. AI tools were discovered to improve writing quality and analytical skill; nevertheless, overdependence on AI correlated with reduced autonomous learning. The authors promote explicit AI literacy programs to balance technology support with the development of higher-order thinking abilities. This suggestion is especially pertinent for Saudi EFL situations, where academic integrity and learner autonomy are important educational goals.

Ismail and Namaziandost (2025) identified EFL education as a strategic catalyst for the transformation of Saudi Arabia's digital economy from a broader policy standpoint. Their review connects English language skills to digital literacy, job readiness, and long-term development. It stresses the necessity for English for Specific Purposes (ESP) and industry-aligned curricula. They say that good execution of EFL policy can speed up the growth of human capital, which supports the idea that AI-enhanced language instruction can help achieve Vision 2030 goals.

In order to uncover recurring themes and approaches, Başar et al. (2022) examines recent research (2016–2020) on the use of technology in teaching English as a second language. Suyo-Vega et al. (2024) synthesize innovative pedagogical practices in higher education and emphasize the significance of integrating technology to improve teaching efficacy. Their findings indicate a consistent focus on technological tools as means to enhance language instruction. Similar to this, AlHarbi (2022) examines how machine learning is used in English language training, highlighting the variety of uses and the potential of AI-driven techniques to improve and customize language learning. Although there is hope in these technical developments, the literature also emphasizes the need for more study into successful teaching methods. More context-specific research is needed, as Sabiri's (2019) comprehensive review on ICT in EFL education highlights current gaps, especially in the context of Middle Eastern nations like Saudi Arabia. Pedagogical strategies like Project-Based Learning (PBL) and Task-Based Language Teaching (TBLT) have been thoroughly examined in larger contexts, with Song et al. (2024) and Mudinillah et al. (2024) highlighting their beneficial effects on critical thinking abilities and language proficiency. Their findings indicate possible application and the need for localized study to effectively adapt these approaches within Saudi EFL classrooms, despite the fact that these reviews are not Saudi-specific.

From the viewpoint of EFL instructors in Saudi universities, the literature indicates that artificial intelligence—especially tools like ChatGPT—presents considerable pedagogical potential to improve students' language proficiency, motivation, engagement, and writing quality through tailored feedback and adaptive learning opportunities. Teachers are getting more help from AI-supported instruction to deal with problems that keep coming up, like huge class numbers, short contact hours, and different needs of students. Digital platforms also make it easier to assess students in real time and work together to learn in line with Vision 2030 goals. Educators, on the other hand, are concerned about the over-reliance that students have on artificial intelligence (AI), the potential threats to academic integrity, and the potential damage to students' ability to think critically and write independently. Furthermore, current research underscores deficiencies in teacher preparedness, inconsistent focus on speaking and listening skills, and an absence of context-specific pedagogical frameworks for AI integration. The literature underscores the necessity for Saudi EFL teachers to receive specialized professional development, explicit institutional policies, and training in AI literacy to ensure technology acts as pedagogical support rather than a substitute for instruction, allowing educators to harmonize innovation with human oversight while promoting sustainable language learning outcomes.

## III. Research Methodology

The study carefully looks at the current studies on how technology affects the teaching of English language skills to university students in Saudi Arabia. It follows PRISMA principles for methodological rigor (Page et al., 2021). The review process had a number of structured steps, including figuring out the study's goal, coming up with research questions, creating a review procedure, doing a thorough search of the literature, systematically screening and selecting studies, pulling out useful data, and putting together the results. Each step was about making sure that everything was consistent, reliable, and in line with the study's goals.

### *A. Research Problem*

This systematic review seeks to thoughtfully explore the current body of research regarding the influence of technology on the instruction of English language skills among university students in Saudi Arabia. The aim is to shed light on the advantages and obstacles related to technological tools, evaluating their influence on different facets of

language teaching, such as speaking, listening, reading, and writing skills. Therefore, the primary goals of the study are to address the following research questions.

1. What types of technologies and digital tools have been used to teach English language skills to Saudi university students?
2. What theoretical frameworks and pedagogical approaches underpin these technology-mediated interventions?
3. What are the reported effects of these technologies on English language skill outcomes (listening, speaking, reading, writing, vocabulary, grammar, pronunciation)?
4. What contextual factors (e.g., institutional infrastructure, instructor training, cultural attitudes, language policy) influence technology effectiveness in Saudi universities?
5. What methodological approaches and quality levels characterize the empirical research in this area?
6. What are the gaps and recommendations for future research and practice?

*B. Research Objectives*

The following are the objectives of the present study–

- Systematically identify empirical studies that investigate the use of technology for teaching English to Saudi university students.
- Appraise the methodological quality of retrieved studies.
- Synthesize findings about types of technologies, pedagogical approaches, and outcomes across studies.
- Identify contextual enablers and barriers specific to Saudi higher education.
- Produce evidence-based recommendations for researchers, practitioners, and policymakers.

*C. Search Strategy*

The goal of this step was to find the databases that were most important for this systematic review. We used a number of databases for the search, such as ERIC, Google Scholar, Wiley Online Library, Web of Science, Taylor & Francis, Springer, Scopus, and Sage Journals. We tried several different research methods, such as looking at the abstracts, adding or removing different research terms (such as variations, synonyms, and hyponyms), and searching manually. Studies published in English from 2021 to 2025 (the last five years) that present empirical data (quantitative, qualitative, or mixed methodologies) were accepted for review. These studies used combinations of terms related to Saudi Arabia, English language instruction (EFL/ESL), technology (AI tools, CALL, MALL, LMS, apps, YouTube, podcasts), and language skills (listening, speaking, reading, writing, vocabulary, grammar, pronunciation).

*D. Eligibility Criteria*

After implementing the original search technique, the studies to be incorporated into the keyword map were selected based on the subsequent inclusion and exclusion criteria. This framework maintained methodological rigor and relevance across the whole evaluation process. The review's inclusion criteria mandated empirical research studies (quantitative, qualitative, or mixed-methods) within educational contexts pertaining to English as a Foreign Language (EFL) or English for Specific Purposes (ESP). Digital skills, digital literacy, ICT integration, educational technology, and AI practices in EFL settings were some of the main topics. The main focus was on teaching English as a foreign language, with a focus on digital skills, design of curriculum, teaching methods. Research published for five years from 2021 to 2025 was considered, indicating progress in the incorporation of digital skills in Saudi Arabia. To keep the focus on empirical investigations, non-empirical works like conceptual papers and literature reviews were not allowed. In addition, studies that were not written in English and those that did not expressly address digital skills or technology use in an English as a Foreign Language environment were not included. Furthermore, publications that were only available in abstract form and did not provide access to the full text were not considered for complete data extraction and analysis.

*E. Screening Process*

The systematic review adhered to PRISMA principles, commencing with a search that yielded 310 documents. After removing duplicates and for other reasons, 260 records were checked for their relevance to EFL teaching utilizing digital skills in Saudi Arabia. This led to 100 articles being eligible. A full-text review eliminated 83 papers without empirical evidence, a distinct EFL focus, teachers' perspective or sufficient digital skill integration. A total of 17 empirical studies shown in Table 1 fulfilled the inclusion criteria and responded to the research questions. Fig. 1 shows the steps taken to find and choose the literature used in this investigation.

TABLE 1
REVIEWED ARTICLES

| Author(s) & Year | Methodology | Technology / Tool | Category | Targeted Skills | Pedagogical Purpose | Key Findings |
|---|---|---|---|---|---|---|
| Albatti (2022) | Qualitative interviews | Institutional e-learning platforms | LMS / E-learning | Integrated skills | Online course delivery | Supported continuity of instruction |
| Al-Khresheh et al. (2025) | Qualitative | LMS + educational apps | Digital integration | Integrated skills | Curriculum delivery | Dependent on teacher competence |
| Alsalem (2024) | Mixed methods | CoGrader | AI-based assessment | Writing | Automated feedback | AI assisted but did not replace teachers |
| Khafaga (2021) | Mixed methods | Blackboard Collaborate | LMS / Virtual classroom | Integrated skills | Synchronous teaching | Flexible learning with technical challenges |
| Al Mahmud (2022) | Mixed methods | Blackboard Collaborate | LMS | Speaking | Speaking practice | Improved motivation and interaction |
| Alshraideh (2021) | Mixed methods | Online videos | Multimedia | Listening, vocabulary | Skill reinforcement | Increased engagement |
| Albogami & Algethami (2022) | Mixed methods | WhatsApp | MALL | Speaking | Asynchronous speaking | Reduced anxiety |
| Sarhandi et al. (2022) | Mixed methods | Mobile phones | MALL | Integrated skills | Mobile instruction | Effective but underutilized |
| Alshammari et al. (2021) | Case study | iPads | Tablet-based | Integrated skills | Interactive learning | Engagement improved |
| Alzamil (2021) | Quantitative | Online platforms + email | Online communication | Speaking | Feedback | Preference for face-to-face |
| Algethami (2022) | Survey | Online platforms | E-learning | Integrated skills | Remote instruction | Assessment concerns |
| Metwally & Bin-Hady (2025) | Mixed methods | AI tools | AI integration | Integrated skills | Teacher training | Strong need for AI training |
| Alshaie et al. (2025) | Mixed methods | AI technologies | AI competence | Integrated skills | Teaching quality | Moderate improvement |
| Alasmari (2021) | Quasi-experimental + interviews | Internet Reciprocal Teaching via Blackboard | Online reading strategy | Reading | Online reciprocal teaching | Significant gains in reading comprehension |
| Aldayel (2024) | Qualitative interviews | Online teaching platforms | Emergency online learning | Integrated skills | Pandemic teaching | Engagement and communication challenges |
| Albaqami & Alzahrani (2022) | Mixed methods | Online platforms (LMS) | Online transition | Integrated skills | Emergency remote teaching | Positive attitudes but low readiness |
| Alshehri (2024) | Quantitative survey | LMS, presentation software, online assessment tools, video conferencing tools, multimedia resources | Technology integration / Professional development | Integrated skills | Enhancing engagement, assessment, content delivery, feedback, collaboration, and course management | extensive use of LMS and digital tools but viewed professional development as inadequate and expressed mixed perceptions about its impact on students' language skills. |

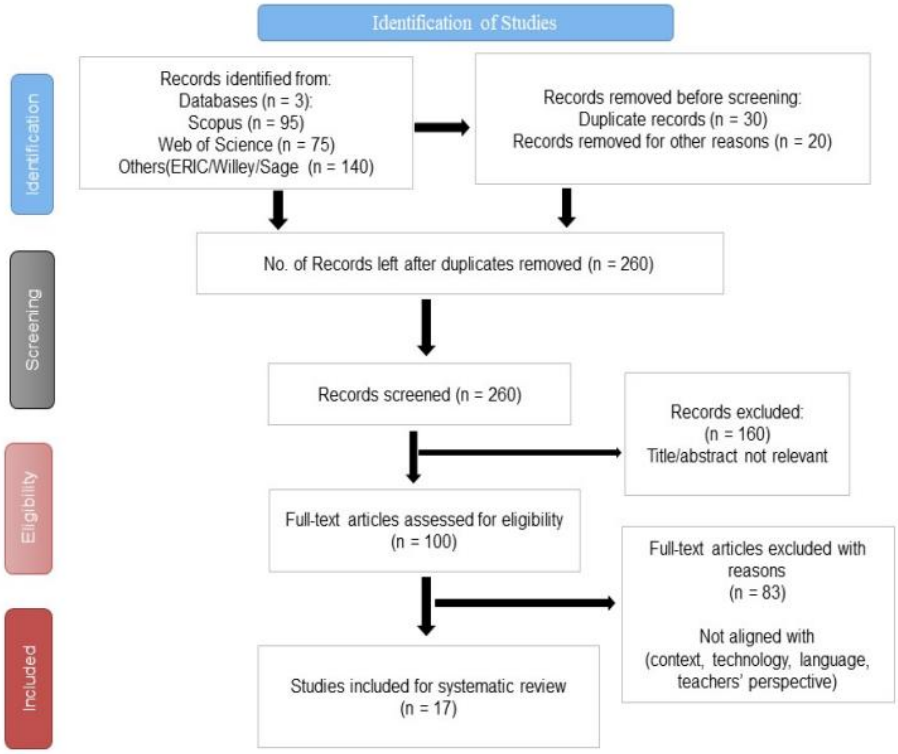


Figure 1. PRISMA Flowchart Depicting the Process of Article Retrieval and Screening

### *F. Coding Reliability*

To keep the review process consistent and open, a single reviewer used a structured coding framework based on the predetermined inclusion and exclusion criteria at all stages of screening and data extraction. Articles were coded based on important factors like the type of research design, the type of technology used, the type of educational setting, and the English language skills that were targeted. To improve coding reliability, the reviewer repeatedly checked the extracted data and eligibility choices at every step of the PRISMA workflow to make sure they were in line with the research goals. Inter-rater reliability could not be determined due to the presence of a single reviewer; however, internal consistency was enhanced through the repeated validation of coding decisions and the systematic documentation of exclusion justification. This reflective coding process helped reduce personal bias and made sure that the method was rigorous, even though there was only one reviewer.

## IV. Results and Discussion

This systematic review examined 17 empirical studies focused on the use of digital technologies in English as a Foreign Language (EFL) instruction within Saudi higher education. The studies, released between 2021 and 2025, utilized diverse methodologies and identified 2022 as the year with the most publications (6 studies) and 2021 as the year with the second most (5 studies). This shows that more and more academics are interested in how digital technologies can be used in education since educational institutions switched to online classes during or after the COVID-19 lockdown. In 2024 and 2025, there were only three studies each year, which showed that people were less interested in this area. Surprisingly, in 2023, there were no publications about how teachers in Saudi higher education use digital technologies to teach English as a Foreign Language (EFL). Figure 2 shows the trend of publications over the years in more detail.

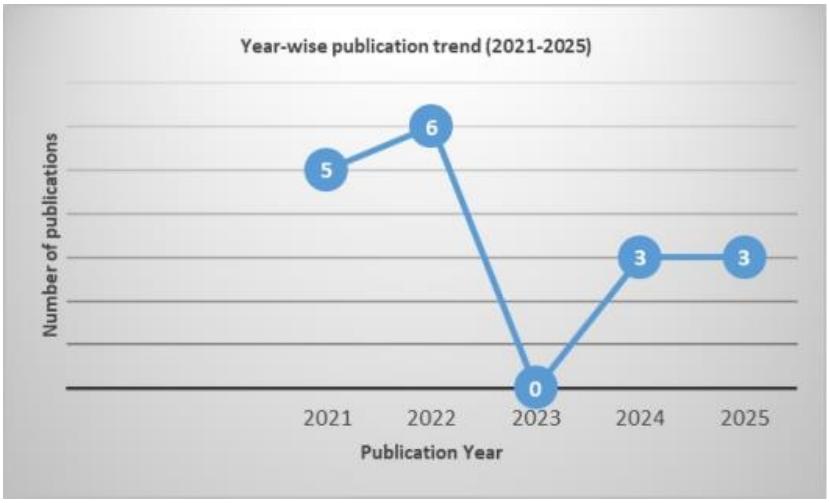


Figure 2. Year-Wise Publication Trend of Studies on Use of Digital Technologies in EFL Instruction Within Saudi Higher Education From the Teachers' Perspective

The evaluation procedure for this study entailed synthesizing findings to tackle six distinct research questions, each of which is examined and explored individually in each of the following sections.

*A. Digital Tools and Technologies Employed in EFL Instruction at Saudi Universities*

The studies that were examined show that Saudi universities have used a wide range of digital technologies in their EFL classes. Learning Management Systems (LMS), especially Blackboard Collaborate, have become the most popular tools for teaching, testing, and interacting in the present moment (Khafaga, 2021; Al Mahmud, 2022; Albaqami & Alzahrani, 2022). During the shift to COVID-19, online teaching platforms became the primary means to deliver courses. However, teachers said they had problems with engagement and digital readiness (Aldayel, 2024; Albaqami & Alzahrani, 2022). People often used mobile-assisted language learning (MALL), which includes WhatsApp and smartphone-based instruction, to help them practice speaking and study on their own (Albogami & Algethami, 2022; Sarhandi et al., 2022). Online videos and other multimedia technologies were used to help students improve their listening skills, learn new words, and stay motivated (Alshraideh, 2021). Recently, tools based on artificial intelligence (AI), like CoGrader, have been developed to help with writing assessment and feedback. However, these tools are more like helpers than replacements (Alsalem, 2024; Alshaie et al., 2025; Metwally & Bin-Hady, 2025). Structured online pedagogical techniques, such as Internet Reciprocal Teaching (IRT), exhibited substantial improvements in reading comprehension when utilized through Blackboard (Alasmari, 2021). Overall, the results show that Saudi higher education EFL contexts are moving away from emergency remote instruction and toward more varied digital ecosystems that include LMS platforms, mobile apps, multimedia materials, and new AI technologies. This discussion answers the first research question.

*B. Theoretical Frameworks and Pedagogical Approaches*

The second research question assesses the theoretical frameworks and pedagogical approaches underpinning these technology-mediated interventions. The technology-mediated interventions examined exemplify learner-centered and interaction-focused pedagogical methodologies rooted in constructivist, sociocultural, and communicative language teaching concepts. Learning Management Systems and virtual classrooms (e.g., Blackboard Collaborate and institutional e-learning platforms) facilitated synchronous instruction, collaboration, and the continuity of learning, highlighting social interaction and scaffolded knowledge construction (Albatti, 2022; Khafaga, 2021; Albaqami & Alzahrani, 2022). Mobile-Assisted Language Learning tools, such as WhatsApp and cellphones, made it easier for students to practice speaking and learn on their own by letting them do asynchronous speaking activities, which lowered emotional obstacles like fear (Albogami & Algethami, 2022; Sarhandi et al., 2022). Multimedia materials and tablet-based training facilitated active engagement and multimodal learning in accordance with constructivist principles (Alshraideh, 2021; Alshammari et al., 2021). AI-based tools like CoGrader and other AI technologies were used in formative assessment and teacher-support systems. They focused on learning through feedback instead of automating instruction (Alsalem, 2024; Alshaie et al., 2025). Internet Reciprocal Teaching using Blackboard and other strategy-based online teaching methods put cognitive and metacognitive reading strategies into practice, which led to significant improvements in reading comprehension (Alasmari, 2021). These approaches collectively exemplify a hybrid pedagogical framework that integrates digital delivery, communicative practice, assessment-driven instruction, and strategy-oriented learning, emphasizing the pivotal role of teacher competence and professional development in facilitating technology efficacy (Al-Khresheh et al., 2025; Alshehri, 2024).

*C. Effects of Technology on English Language Skill Outcomes*

The third research question evaluated the effects of technology on English language skill outcomes. Technology-mediated education was found to have varying effects on various English language abilities across all of the research that were examined. Speaking was found to be the skill that was improved the most consistently. Learning management systems (LMS) and mobile-assisted language learning tools (like Blackboard Collaborate and WhatsApp) were found to facilitate increased interaction, reduced anxiety, and improved learner motivation through synchronous and asynchronous speaking practice (Al Mahmud, 2022; Albogami & Algethami, 2022; Alzamil, 2021). Structured online pedagogies, such as Blackboard-delivered Internet Reciprocal Teaching, improved reading comprehension (Alasmari, 2021). AI-based automated feedback systems like CoGrader improved writing growth by providing timely formative assessment, although instructor judgment was still needed (Alsalem, 2024). Multimedia, including online videos, improved participation and receptive skills in listening and vocabulary (Alshraideh, 2021). Conversely, grammar and pronunciation results were hardly explicitly addressed, highlighting significant deficiencies in skill-specific digital intervention. Although numerous studies indicated enhancements in integrated language skills via LMS and online platforms, educators exhibited ambivalent views concerning technology's overall influence on students' language proficiency, primarily crediting efficacy to pedagogical integration and instructor expertise rather than technology in isolation (Al-Khresheh et al., 2025; Alshehri, 2024).

*D. Contextual Factors Influencing Technology Effectiveness*

The fourth research question evaluated the contextual factors influencing technology effectiveness. In Saudi universities, the success of technology-mediated English instruction was greatly affected by things like the institution's infrastructure, how well-prepared the teachers were, and the availability of professional development. Learning Management Systems and online platforms facilitated the continuity of instruction during emergency remote teaching; however, various studies indicated technical difficulties and concerns regarding assessment reliability that hindered pedagogical effectiveness (Khafaga, 2021; Algethami, 2022; Albaqami & Alzahrani, 2022). Instructor competency proved to be a critical determinant, with effective digital integration predominantly reliant on educators' technological proficiency and pedagogical preparedness, rather than mere platform accessibility (Al-Khresheh et al., 2025; Alshehri, 2024). While educators usually exhibited favorable attitudes towards technology use, restricted access to customized professional development and inadequate institutional support diminished the efficacy of digital technologies on language learning outcomes (Aldayel, 2024; Alshehri, 2024). Cultural preferences for face-to-face interaction additionally affected student engagement in online speaking activities (Alzamil, 2021), while the rapid COVID-19–driven transition showed gaps between national digital objectives and classroom-level preparation. These findings collectively demonstrate that technological efficacy in Saudi EFL contexts is influenced by systemic support frameworks, teacher training initiatives, and existing pedagogical standards, highlighting the necessity for synchronized institutional strategies that align with language policy goals.

*E. Methodological Approaches and Research Quality*

The fifth research question examined the methodological approaches and research quality. The empirical literature on technology-mediated EFL instruction in Saudi universities predominantly employs mixed-methods and descriptive research designs, with a majority of studies utilizing questionnaires, interviews, and perception-based measures instead of controlled experimental methodologies. Mixed-methods designs were predominant, combining surveys and interviews to assess both attitudinal and instructional aspects (e.g., Khafaga, 2021; Albaqami & Alzahrani, 2022; Alshehri, 2024), whereas qualitative studies concentrated mainly on teacher experiences and institutional preparedness (Albatti, 2022; Aldayel, 2024). A small number of research utilized quasi-experimental designs with quantifiable learning outcomes, namely Alasmari (2021), which exhibited statistically significant improvements in reading comprehension. Sample sizes were highly variable and frequently tiny, predominantly relying on convenience sampling, which limited generalizability. Outcome measures often prioritized perceptions, involvement, and self-reported efficacy, with a limited number of research offering skill-specific achievement data. In general, the research that was reviewed gives useful background information, but the methods used weren't always very rigorous. This shows that more long-term, experimental, and skill-focused studies are needed to make stronger evidence-based claims about how well technology works in Saudi university EFL settings.

*F. Research Gaps and Recommendations for Future Research and Practice*

The sixth research question analyzed the existing knowledge gaps and proposed recommendations for future research and practice. The literature assessment identifies significant deficiencies in research design and instructional application. Empirical data is inconsistent across language skills; speaking and integrated skills are the most studied, but grammar, pronunciation, and vocabulary development are seldom analyzed through focused digital interventions. Most studies use perception-based data and short-term designs, which shows that there is a need for long-term and experimental research that examines at skill-specific learning effects. Also, low institutional support and professional development that wasn't personalized enough always made technology less successful. This shows how important it is to keep training teachers in a way that meets their EFL teaching demands. The latest AI applications are still not being fully explored besides writing assessment. This shows that there are still chances to look into how they could be used for individualized feedback and help with pronunciation. Future study should utilize rigorous mixed or experimental

approaches, include larger and more varied samples, and investigate culturally responsive digital pedagogies. From a practical standpoint, Saudi institutions would gain from coordinated institutional strategies that incorporate infrastructure development, ongoing professional learning, and technology use integrated with the curriculum to guarantee that digital advances result in quantifiable language improvements.

### *G. Aligning Research Gaps With Saudi Vision 2030*

The deficiencies recognized in the existing corpus of Saudi EFL technology research—specifically the scarce application of experimental methodologies, inconsistent representation of language competencies, and inadequately customized professional development—underscore a discordance between classroom practices and the overarching educational reform objectives of Saudi Vision 2030. National policy stresses digital innovation, human capital development, and global competitiveness. However, the studies we looked at show that technology integration is still mostly based on perception, with mixed evidence of measurable language gains and ongoing problems with teacher readiness and institutional support. The lack of grammar, pronunciation, and AI-enhanced tailored learning shows that there are even more chances to use new technology to help people learn certain skills. To achieve the goals of Vision 2030, future research needs to go beyond emergency adoption and focus on evidence-based digital pedagogy through longitudinal and experimental studies. At the same time, universities need to invest money into long-term, EFL-specific professional development and technology strategies that are in line with the curriculum. To make sure that digital transformation leads to real improvements in English proficiency and job preparedness, it is important to strengthen the link between research, practice, and policy.

## V. Conclusion

This review indicates that Saudi university EFL contexts have adopted a diverse array of digital tools—including LMS platforms, mobile applications, multimedia resources, and emerging AI technologies—resulting in favorable outcomes, especially in speaking, reading, and writing, while grammar and pronunciation remain relatively underexamined. The efficacy of these technologies is consistently influenced by contextual factors, including institutional infrastructure, instructor preparedness, and access to EFL-specific professional development, with much of the current evidence depending on perception-based and short-term methodologies. These data indicate a disparity between swift technological integration and enduring educational effectiveness. In accordance with Saudi Vision 2030's focus on digital transformation and human capital enhancement, forthcoming initiatives should highlight stringent, skill-oriented research methodologies in conjunction with cohesive institutional strategies that unify curriculum, technology, and ongoing teacher development. Enhancing this association is crucial to guarantee that digital innovation results in quantifiable improvements in English proficiency and aids in the development of internationally competitive graduates.

### *A. Findings*

The review shows that Saudi universities are using more and more digital tools in their EFL classes. These tools include Learning Management Systems (like Blackboard), mobile-assisted language learning tools, multimedia resources, and new AI applications like systems that automatically grade writing. These tools have mostly had good effects, especially on improving speaking, reading, and writing skills, getting students more involved, and making them less anxious about communicating. But grammar and pronunciation are still not well-studied areas of technology-mediated learning. The success of these technologies depends a lot on the context, such as the school's infrastructure, the teacher's digital skills, and the availability of focused professional development. AI technologies are also usually employed as support systems for teaching rather than as independent systems, especially when it comes to writing assessment. Most studies use perception-based, mixed-methods designs with little experimental or longitudinal evidence, which makes it harder to apply the results to other situations and makes them less reliable. Overall, integrating technology into the classroom is in line with the goals of Saudi Vision 2030, but there is still a gap between using technology and seeing quantitative improvements in language acquisition.

### *B. Implications*

The findings have a great deal of significant pedagogical, institutional, and policy implications. In terms of teaching, the integration of AI and digital tools necessitates a shift toward learner-centered, interactive, and feedback-driven teaching approaches that combine technology with sound instructional strategies rather than relying on tools alone. Teachers are very important when it comes to using technology because they make sure that AI improves cognitive engagement and critical thinking instead of replacing them. The effectiveness of technology-enhanced EFL instruction relies on ongoing investment in infrastructure, dependable digital access, and constant, context-specific professional development for educators. Advanced technology, including AI tools, may not be used effectively if there aren't enough training and support mechanisms. From a policy perspective, aligning EFL instruction with Saudi Vision 2030 requires coherent strategies that integrate curriculum design, digital innovation, and workforce-oriented language skills. The findings also show that there is a gap between technological innovation and evidence-based educational practices to ensure that digital transformation leads to tangible improvements in English proficiency and employability outcomes.

### *C. Recommendations for Future Research*

Future research must emphasize more stringent and theory-based approaches, such as experimental, quasi-experimental, and longitudinal designs, to ascertain causal links between the use of technology and language acquisition outcomes. There is a distinct necessity for targeted inquiries, especially concentrating on under-explored domains such as grammar, pronunciation, and vocabulary enhancement in AI-assisted contexts. Furthermore, subsequent research should investigate the extensive uses of AI beyond writing, encompassing its potential in speaking assessment, training in pronunciation, and adaptive learning systems. Extensive studies with varied samples from multiple Saudi universities are crucial for improving generalizability. Research must also investigate the influence of AI literacy, teacher training frameworks, and culturally relevant pedagogies on the enhancement of technology integration. Finally, it is advisable to pursue interdisciplinary research that connects EFL instruction with employability, digital competencies, and the objectives of Vision 2030, to guarantee that forthcoming innovations significantly enhance both educational quality and national development goals.

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