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Exploring the Role of Artificial Intelligence for Revolutionizing English Language Learning of University-Level Students

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ABSTRACT

This study explores the transformative potential of Artificial Intelligence (AI) in enhancing English language learning among university-level students. As AI technologies continue to advance, their integration into language education presents new opportunities for personalized, scalable, and interactive learning experiences. This research aims to evaluate how AI can reshape traditional English language pedagogy by examining its impact on core linguistic competencies such as vocabulary acquisition, pronunciation, and speaking confidence. A quantitative survey involving over 100 university students was conducted to assess perceptions and outcomes associated with AI-assisted learning tools. The results indicate a generally positive attitude toward AI applications, with participants reporting noticeable improvements in language proficiency. Nonetheless, the study also highlights key challenges, including limited access to AI resources and a lack of familiarity with available tools among both students and instructors. These barriers hinder the effective adoption of AI in language education. The findings underscore the importance of targeted training, infrastructure development, and strategic integration of AI within blended learning environments. This research contributes to the growing body of literature on educational technology by offering empirical insights into the benefits and limitations of AI in second language acquisition at the tertiary level.

Keywords: *Artificial Intelligence, English Language Learning, Higher Education, Educational Technology, Blended Learning*

INTRODUCTION

English has become the global lingua franca, deeply embedded in domains such as education, technology, finance, and international trade. According to the British Council (2022), approximately 1.75 billion people worldwide speak English at a proficient level. In today's increasingly interconnected and competitive environment, English proficiency has transitioned from a desirable skill to a professional and academic necessity. As Tuxtayeva and Teshaboyeva (2024) observe, English has become the primary medium for communication in the realms of technological advancement and global innovation.

Despite its global relevance, traditional English language learning methods have struggled to meet learners' evolving expectations. Conventional approaches—such as the Grammar Translation Method and the Audiolingual Method—often emphasize rote memorization, mechanical drills, and structural mimicry. While these methods have historical merit, they frequently fail to foster communicative competence or long-term retention (Sanako, 2023). As a result, learners often report difficulties in applying acquired language skills to real-life conversational contexts.

Artificial Intelligence (AI) presents a powerful alternative to these outdated pedagogical models. Defined as the simulation of human cognitive processes by machines, such as learning, reasoning, and problem-solving, AI is reshaping educational experiences across disciplines (Russell & Norvig, 2010; Baker & Smith, 2019). The integration of AI into English language learning, especially through tools like chatbots and intelligent tutoring systems, offers unprecedented opportunities for personalized instruction, real-time feedback, and increased learner autonomy (Bansal & Khan, 2018). Platforms such as ChatGPT exemplify how AI can tailor content delivery, engage learners interactively, and simulate human-like conversation to boost language proficiency. However, overreliance on these tools may pose challenges, such as reduced critical thinking or decreased human interaction in learning.

This study is situated within the context of university-level students in Sanghar and seeks to explore the extent to which AI tools are revolutionizing English language acquisition. While the potential benefits of AI in education are widely acknowledged, empirical studies focusing on AI-enhanced English learning in rural or under-resourced settings remain limited. Therefore, this research addresses a critical gap by evaluating student perceptions, the effectiveness of AI tools, and the challenges associated with their implementation.

Research Questions

1. How does Artificial Intelligence enhance English language skills for ESL learners?
2. What are the perceptions of ESL learners regarding AI-powered language learning tools?
3. What challenges do ESL learners face in using AI tools to improve their English proficiency?

LITERATURE REVIEW

The application of Artificial Intelligence (AI) in education has become a transformative force, particularly in the field of language learning. With English functioning as a global lingua franca, mastering the language is now a crucial skill for effective participation in international business, education, and communication. However, conventional language teaching methods often fall short in engaging learners and fostering practical language use, thereby creating a need for more innovative and adaptive approaches.

Traditional Language Teaching Methods

Traditional methodologies such as the Grammar Translation Method and the Audio-lingual Method have long dominated language classrooms. The Grammar Translation Method emphasizes grammatical rules and vocabulary acquisition through text translation, with minimal focus on speaking and listening (Richards & Rodgers, 2014). Similarly, Larsen-Freeman and Anderson (2013) note that pronunciation and real-life communication are often overlooked in such methods. Howatt (1984) highlights that the rigidity and focus on written accuracy in these approaches stem from the demands of standardized testing in the 19th and 20th centuries.

In the Audio-lingual Method, students are trained through repetitive drills and memorization of dialogues. Brown (2007) points out that while this method may improve structural accuracy, it limits learner creativity, especially in unfamiliar communicative contexts. Sanako (2023) further criticizes the process

for failing to support long-term language retention. As Rivers (1964) argued decades ago, its decline stemmed from its inability to produce communicative fluency.

Communicative Language Teaching (CLT) emerged as a modern alternative, prioritizing meaningful interaction and real-world conversation over grammatical perfection (Hammer, 2015). Nevertheless, CLT has its own limitations, such as implementation challenges due to time constraints, insufficient resources, and a lack of teacher training in many contexts.

AI in Language Learning: Benefits and Applications

The integration of AI into education has redefined the pedagogical landscape, shifting from passive learning to a dynamic, learner-centered model. AI-powered systems offer adaptive learning pathways tailored to individual needs by monitoring progress and adjusting instructional difficulty accordingly (Holstein et al., 2021). Platforms like Squirrel AI and Carnegie Learning exemplify this adaptive capability using complex machine learning algorithms.

Numerous tools now support English language learners by offering instant feedback and personalized guidance. Applications such as Grammarly and Quillbot support writing improvement, while ELSA Speak focuses on pronunciation and oral fluency (Levy & Hubbard, 2023; Nguyen, 2024). These tools reduce dependence on instructors and empower students to manage their learning autonomously. Furthermore, AI offers flexible and on-demand learning opportunities, helping learners overcome scheduling and geographical constraints. Language apps like Duolingo and Rosetta Stone incorporate gamification and real-time progress tracking to enhance learner engagement and retention (Xie et al., 2021; Li, 2023).

Interactive chatbots and voice assistants simulate conversational environments, helping learners build confidence in speaking without the stress of human judgment (Xu & Warschauer, 2023). Intelligent Tutoring Systems (ITS), long present in educational settings, have been significantly enhanced by Generative AI, which introduces dynamic content generation and responsive feedback. According to Bandi (2023) and Maity and Deroy (2024), generative systems can produce personalized questions and interactions, sustaining learner interest and challenge. Liu et al. (2025) affirm that AI-backed ITS can replicate the benefits of one-on-one tutoring, an advancement previously unattainable at scale.

Challenges and Research Gaps

Despite its promise, the integration of AI into language education is not without significant challenges. Data privacy and ethical concerns are central issues, as AI systems rely on extensive personal data to operate effectively (Zawacki-Richter et al., 2019). Moreover, AI lacks the empathetic and motivational dimensions that human teachers provide, which are essential for language acquisition and learner confidence (Chatterjee & Bhattacharjee, 2020). Infrastructural and socioeconomic disparities also hinder AI adoption in under-resourced settings, exacerbating the digital divide (Luckin, 2018).

Furthermore, excessive reliance on AI may impair learners' critical thinking and interpersonal communication skills (Selwyn, 2019). Models trained on limited or biased datasets may produce linguistically inappropriate or culturally insensitive outputs, confusing learners or reinforcing inaccuracies (Floridia et al., 2018). These challenges suggest the need for balanced, ethically guided AI integration, supported by human facilitation and inclusive infrastructure.

The reviewed literature underscores the transformative role of AI in modernizing language education by providing adaptive, personalized, and engaging learning experiences. While traditional methods have laid foundational structures, their limitations necessitate the adoption of AI tools, particularly in ESL contexts. However, issues such as accessibility, ethics, and overdependence must be addressed to harness AI's

potential fully. Further research is needed to evaluate long-term learning outcomes, equitable access, and hybrid models that effectively combine human expertise with AI-driven instruction.

METHODOLOGY

This study adopted a quantitative research design, employing a descriptive survey approach to investigate the impact of Artificial Intelligence (AI) on English language learning among university students in Sanghar, Pakistan. The rationale for selecting a quantitative design lies in its capacity to generate objective measurements and facilitate statistical analysis of participants' perceptions, experiences, and challenges related to AI-based learning tools.

The target population comprised undergraduate students enrolled in English language courses at Sanghar University. Given time and access limitations, a non-probability convenience sampling method was used to recruit participants. This sampling approach enabled the researcher to efficiently gather responses from students who were readily available and willing to participate during the data collection period.

Data collection was carried out through a structured, self-administered questionnaire. The instrument was adapted from Nguyen (2024) and supported by additional validated frameworks from existing educational research databases such as ERIC (2024). The questionnaire consisted of three main sections: demographic information, students' experiences with AI tools in language learning, and perceptions of AI effectiveness and challenges. Items were measured using a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree."

Upon completion, the responses were compiled and analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics—such as means, standard deviations, and frequency distributions—were calculated to summarize student responses. Where applicable, inferential statistical tests (e.g., independent sample t-tests and one-way ANOVA) were conducted to examine significant differences based on demographic variables such as gender and academic year.

This methodological approach ensures a systematic understanding of how AI is perceived and utilized in English language learning, offering empirical insights into its educational impact within a university-level ESL context.

FINDINGS

Q1. How does Artificial Intelligence enhance English language skills for ESL learners?

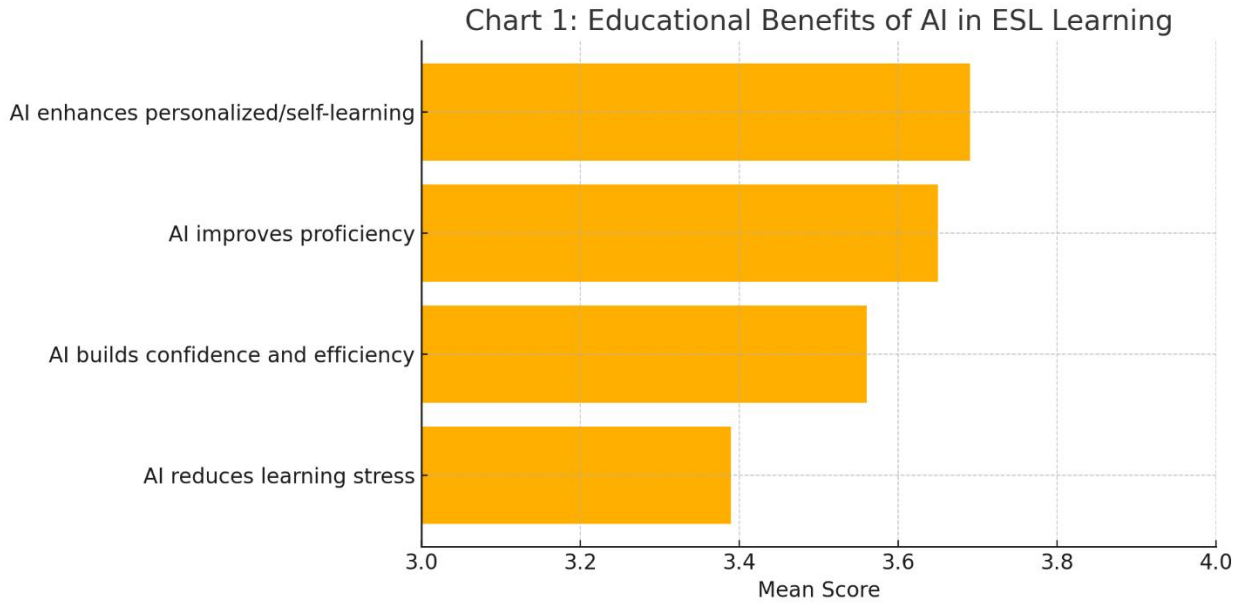

Chart 1: Mean Ratings for AI's Educational Benefits in ESL Learning

This chart includes mean scores for statements like personalization, proficiency, confidence, and self-learning. The findings suggest that students recognize the educational benefits of AI in improving core English language competencies. The highest agreement was observed for the statement that AI promotes personalized and self-paced learning (M = 3.69, SD = 1.08). Respondents also agreed that AI enhances skill acquisition and overall English proficiency (M = 3.65, SD = 1.02), especially in vocabulary, pronunciation, and speaking confidence. AI tools such as chatbots and speech recognition applications were perceived as supportive in real-time language correction and adaptive practice, aligning with the literature on generative and responsive AI systems in ESL contexts.

Students further reported that AI enhances learner autonomy (M = 3.71, SD = 1.02), reducing dependence on teacher-directed learning. This reflects the transition from passive to active learning described by Holstein et al. (2021) and reinforces Nguyen's (2024) argument on AI-facilitated self-regulated learning. However, while AI-supported learning reduces anxiety through trial-and-error learning (M = 3.39, SD = 1.12), mixed responses indicate uncertainty about its consistency in building resilience and long-term fluency.

Q2. What are the perceptions of ESL learners regarding AI-powered language learning tools?

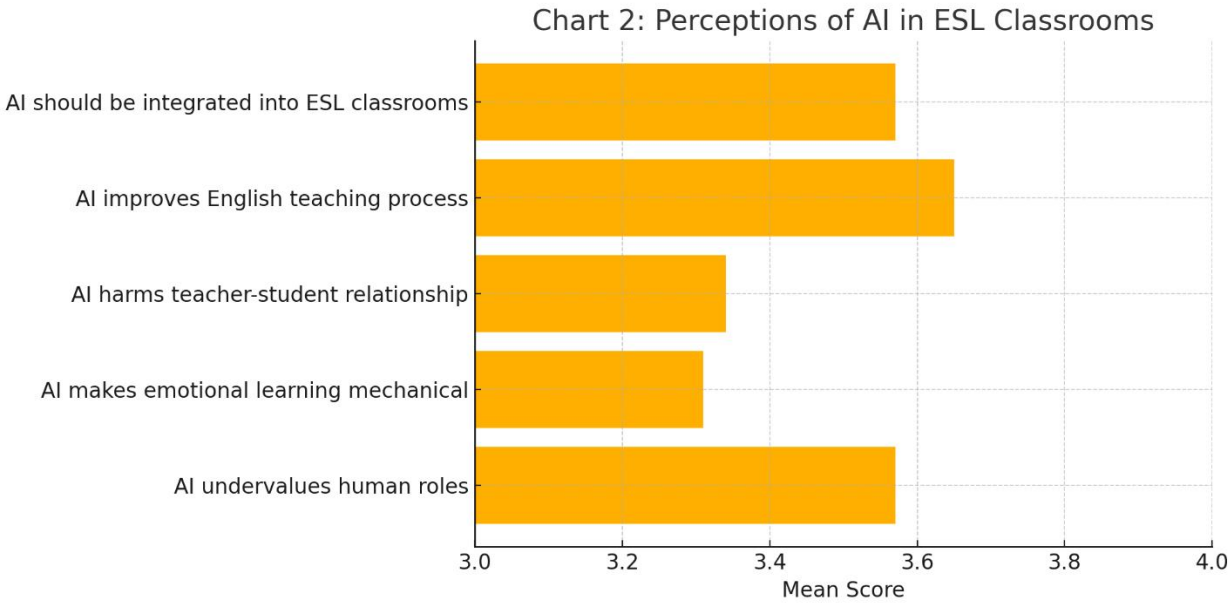

Chart 2: Perceptions of AI in the ESL Classroom (Positive vs. Critical)

Overall, student attitudes toward AI in ESL classrooms were positive. The view that AI should be integrated into ESL classrooms received strong support (M = 3.57, SD = 1.05), with confidence in its ability to improve the English Language Teaching (ELT) process (M = 3.65, SD = 0.98). Respondents appreciated AI's ability to encourage interaction (M = 3.51, SD = 1.03), aligning with communicative approaches to language learning.

However, concerns were evident. A significant number of students believed AI could lead to unemployment and undermine the value of human teachers (M = 3.57, SD = 1.16). Additionally, some perceived that AI weakens emotional and interpersonal connections in learning environments, as shown by moderate mean values for statements such as AI harming teacher-student rapport (M = 3.34, SD = 1.11) and making emotional learning mechanical (M = 3.31, SD = 1.14). These findings support Selwyn's (2019) and Chatterjee & Bhattacharjee's (2020) concerns about the human dimension of education being overlooked by technology-heavy systems.

Q3. What challenges do ESL learners face in using AI tools to improve their English proficiency?

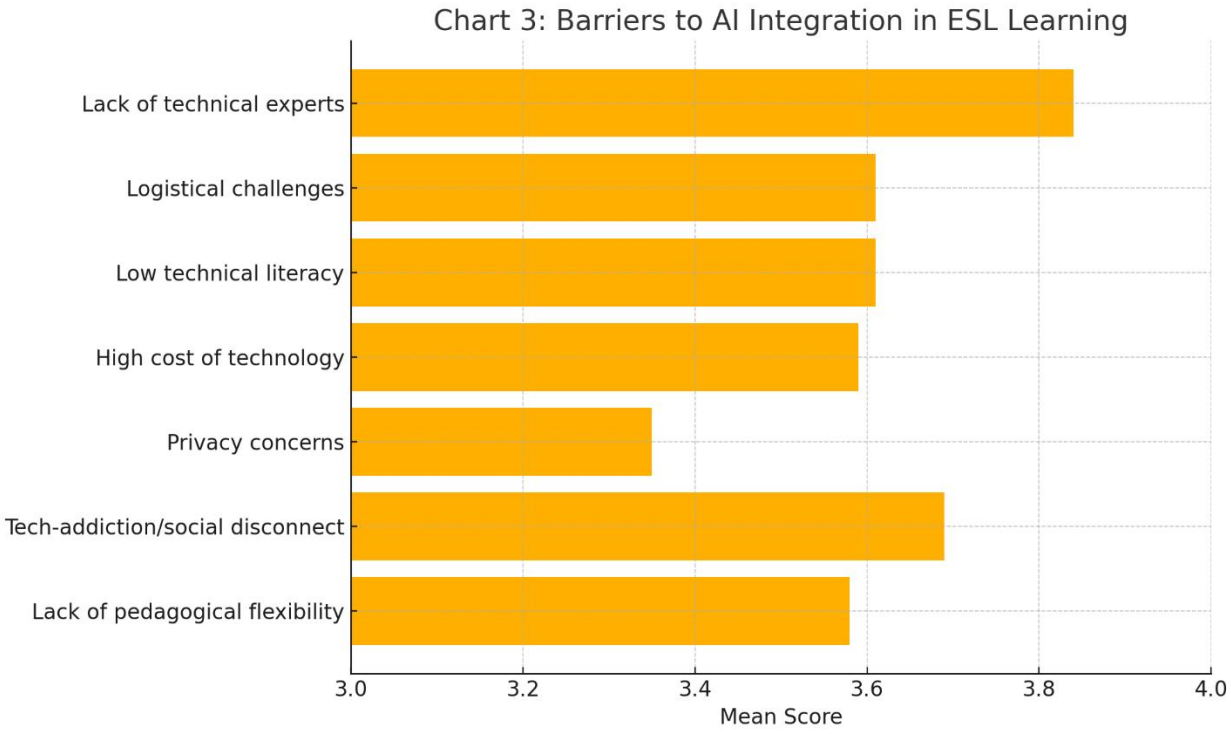

Chart 3: Key Barriers to AI Integration in ESL Contexts

Several barriers to effective AI integration were identified. The lack of technical experts to implement and manage AI systems in educational contexts was the most prominent concern (M = 3.84, SD = 0.95). Respondents also highlighted logistical issues such as unstable electricity, limited internet, or lack of hardware (M = 3.61, SD = 0.98), reflecting the digital divide in under-resourced settings (Luckin, 2018).

Participants expressed concerns regarding technical literacy gaps (M = 3.61, SD = 1.04), particularly among instructors unfamiliar with AI interfaces. Cost-related challenges also emerged, with the belief that expensive and underdeveloped technologies can hinder adoption (M = 3.59, SD = 0.93). These barriers point to infrastructure and training gaps consistent with findings by Zawacki-Richter et al. (2019).

Ethical and psychosocial concerns were also raised. Students were moderately concerned about data privacy (M = 3.35, SD = 1.10) and the fear that AI would produce tech-dependent, socially disconnected graduates (M = 3.69, SD = 0.93). Pedagogically, respondents noted that AI-based learning lacks flexibility to cater to diverse learning needs (M = 3.58, SD = 1.00), suggesting current AI systems may not yet support inclusive, differentiated instruction in ESL settings.

SUMMARY OF FINDINGS

The study reveals that while university students generally support the integration of AI in ESL learning and recognize its potential to enhance language skills and learning autonomy, they also express valid concerns. These include fears about job displacement, emotional detachment, ethical dilemmas, and technical/logistical barriers. Thus, successful implementation of AI in language education requires addressing both the enabling factors (e.g., personalization, autonomy, interactivity) and challenges (e.g., access, expertise, human connection) to achieve balanced, learner-centered outcomes.

DISCUSSION

This study set out to explore the role of Artificial Intelligence (AI) in transforming English language learning for university-level ESL students in Sanghar. The quantitative data reveals a generally positive learner disposition towards AI-based instruction, with nuanced concerns regarding human connection, ethical implementation, and accessibility. These findings contribute to the growing body of evidence that AI, when effectively integrated, can serve as a catalyst for redefining traditional pedagogical models.

The study's findings affirm that learners perceive AI as beneficial in improving language proficiency, particularly in speaking, vocabulary development, and pronunciation. These results align with Holstein et al. (2021), who emphasized the potential of AI to create adaptive learning environments that respond to learner input in real time. Similarly, Levy and Hubbard (2023) highlighted that AI tools such as Grammarly and ELSA Speak offer targeted feedback, thereby reinforcing writing and pronunciation skills. This mirrors the present study's results, where students indicated strong agreement that AI facilitates self-directed and personalized learning (M = 3.69; M = 3.71).

Moreover, AI's potential to support autonomy, a key factor in language retention and long-term success, was evident. This supports Nguyen's (2024) conclusion that AI empowers learners to engage with material at their own pace, fostering confidence and intrinsic motivation. These benefits contrast sharply with traditional methods like the Grammar Translation and Audio-lingual approaches, which prioritize rote memorization and structural drills over learner agency (Richards & Rodgers, 2014; Brown, 2007). As the literature shows, such traditional methods often lack communicative relevance and can hinder spontaneous speech generation (Sanako, 2023). In this context, AI emerges not just as an enhancement but as a necessary evolution in language pedagogy.

While AI was recognized for promoting interactive and engaging learning experiences (M = 3.54), participants also expressed concern about its inability to replicate the emotional and relational aspects of traditional instruction. Moderate agreement with statements like "AI harms the teacher-student relationship" (M = 3.34) and "AI makes emotional learning mechanical" (M = 3.31) reveals a tension between cognitive utility and emotional detachment. This reflects concerns raised by Chatterjee and Bhattacharjee (2020), who argue that while AI can optimize instructional delivery, it lacks the affective and empathetic responsiveness of human educators. Selwyn (2019) similarly warns of over-mechanization in education, where emotionally intelligent feedback—a crucial factor in ESL contexts—is sacrificed for efficiency.

Interestingly, while generative tools like ChatGPT and conversational AI offer simulated interaction, Xu and Warschauer (2023) caution that such simulations may not provide authentic emotional reciprocity, potentially leading to reduced learner motivation over time. The concern that AI may lead to learner disengagement if overused or implemented poorly was echoed by some participants, who indicated AI can become monotonous if not complemented by creative or human-driven engagement strategies.

Despite the perceived pedagogical benefits, the study uncovered significant barriers to AI implementation, particularly in low-resource settings. The most prominent was the lack of AI technical expertise in educational institutions (M = 3.84), followed by logistical challenges related to infrastructure (M = 3.61), digital literacy gaps (M = 3.61), and affordability of tools (M = 3.59). These findings are consistent with Zawacki-Richter et al. (2019), who found that successful AI adoption in education often hinges on institutional readiness, digital infrastructure, and teacher training.

Additionally, Luckin (2018) emphasizes that equitable access to AI tools is critical in ensuring that technological advancement does not exacerbate existing inequalities. In line with that, participants in this study expressed concerns about the digital divide and lack of inclusive pedagogical design, especially for

ESL learners with diverse backgrounds and learning needs. The moderate rating for pedagogical inflexibility (M = 3.58) suggests that while AI can personalize to some extent, it still struggles to offer the nuanced, culturally aware, and inclusive strategies required in multilingual learning environments.

A recurring theme in the findings was anxiety surrounding AI's psychosocial impact. The concern that AI could produce socially disengaged, tech-dependent graduates (M = 3.69) is significant, particularly in ESL contexts where communication and interpersonal competence are paramount. These concerns parallel Floridia et al. (2018), who argue that AI tools trained on biased or limited datasets may perpetuate linguistic or cultural inaccuracies, impeding learners' social adaptability and critical language awareness.

Moreover, data privacy emerged as a notable ethical issue (M = 3.35). As AI systems rely heavily on user data for personalization, this raises concerns about informed consent, algorithmic transparency, and surveillance. These concerns highlight a gap in current research: the intersection of AI use in ESL learning and digital ethics remains under-explored, particularly in non-Western contexts.

The findings affirm that AI should not be seen as a replacement for educators but as a supplementary tool. While students acknowledge the instructional value of AI, through personalized learning, self-pacing, and automated feedback, there is clear resistance to complete automation. Participants recognized the motivational role of AI's gamified design, but equally emphasized the enduring value of human guidance in maintaining creativity, empathy, and critical thinking in the classroom.

This aligns with Luckin's (2018) proposition for a "human-centric AI model" in education, where AI is used to enhance, not substitute, teacher roles. Similarly, Bandi (2023) argues for hybrid frameworks where generative AI supports differentiated instruction while educators remain responsible for relational and ethical oversight.

The critical analysis of this study suggests that for AI to revolutionize ESL learning truly, stakeholders must focus not only on technological access but also on pedagogical design, human oversight, and learner inclusivity. Institutional investment in infrastructure, capacity-building, and ethical standards is essential. Moreover, future implementations should prioritize blended learning models where human-AI collaboration enhances both cognitive and affective domains of language acquisition.

CONCLUSION

This study concludes that Artificial Intelligence (AI) holds significant potential to transform English language learning at the university level by promoting personalized, self-paced, and autonomous learning experiences. The findings reveal that ESL learners perceive AI tools as effective in enhancing language proficiency, confidence, and engagement, particularly through real-time feedback, adaptive learning paths, and accessible digital platforms. These insights affirm the growing body of research suggesting that AI can complement and elevate traditional pedagogical methods when appropriately applied. However, the study also underscores several critical concerns. Emotional detachment reduced human interaction, and the mechanization of learning emerged as notable drawbacks. Learners voiced anxieties about the loss of teacher-student rapport, the potential overreliance on automated systems, and ethical issues related to privacy and social development. Furthermore, structural barriers, including limited access to trained AI experts, inadequate digital infrastructure, and affordability, pose challenges to widespread and equitable implementation.

Therefore, the integration of AI into ESL teaching must be approached thoughtfully. A hybrid model that blends the efficiency and scalability of AI with the empathy, adaptability, and relational depth of human educators is recommended. Such a model ensures that the cognitive benefits of AI do not come at the cost of emotional or ethical shortcomings. For AI to serve as a true enabler of educational advancement, institutions must invest in building digital literacy, developing inclusive infrastructure, and implementing

regulatory frameworks that safeguard ethical standards. Without such measures, there is a risk of deepening educational inequalities and compromising the holistic development of learners. The future of AI in language education lies not in replacement but in collaboration, where technology supports and human pedagogy leads.

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