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THE EFFECT OF ARTIFICIAL INTELLIGENCE AND CHATBOTS ON ENGLISH LANGUAGE TEACHING PRACTICES IN PAKISTAN

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Abstract

The rapid advancement of digital technologies has accelerated the integration of Artificial Intelligence (AI) and chatbot-based applications in English Language Teaching (ELT), particularly within developing educational contexts such as Pakistan. This study examines the impact of AI and chatbots on ELT practices in Pakistani schools, colleges, and higher education institutions, with a focus on their pedagogical potential to enhance instructional effectiveness, learner autonomy, and student engagement. AI-powered tools facilitate personalized learning by providing immediate feedback, adaptive language practice, and interactive conversational opportunities tailored to learners' proficiency levels. In the Pakistani context—where large class sizes, limited instructional resources, and varying levels of English proficiency pose persistent challenges—AI and chatbot technologies offer innovative support mechanisms for both teachers and learners. However, the study also highlights key challenges related to technological infrastructure, digital literacy, teacher preparedness, and ethical concerns surrounding data privacy and academic integrity. The paper further discusses the future prospects of AI-driven tools in reshaping ELT methodologies in Pakistan and emphasizes the need for informed pedagogical integration and policy-level support to ensure effective and equitable implementation.

Keywords: *Artificial Intelligence, Chatbots, English Language Teaching, Pakistan, Educational Technology, Personalized Learning, Digital Pedagogy, Language Acquisition*

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1. Introduction

Traditional practices in English Language Teaching (ELT) have largely relied on face-to-face instruction, printed textbooks, and teacher-centered classroom methodologies. While these approaches have long shaped language education, advancements in digital technology have expanded the possibilities for more interactive, flexible, and learner-centered pedagogical practices (Chapelle, 2001;Zaman, M. et al., 2025). In recent years, Artificial Intelligence (AI) and chatbot technologies have emerged as innovative tools with the potential to significantly reshape how English is taught and learned.

Artificial Intelligence refers to computational systems designed to perform tasks that typically require human cognitive abilities, including language processing, speech recognition, and adaptive feedback generation (Russell & Norvig, 2021). Within this domain, chatbots function as AI-driven conversational agents that enable learners to engage in simulated dialogue, thereby providing opportunities for real-time language practice and increased exposure to target language input (Fryer & Carpenter, 2006). Such tools are particularly valuable in language learning contexts where opportunities for authentic interaction are limited.

The integration of AI and chatbots into ELT represents more than a technological trend; it reflects a pedagogical response to longstanding challenges in language education, including learner diversity, limited instructional time, and unequal access to quality resources (Chapelle & Sauro, 2017). As English continues to function as a global lingua franca, proficiency in the language has become increasingly essential for academic, professional, and social mobility (Crystal, 2003; Jenkins, 2015). AI-driven tools offer scalable and cost-effective solutions capable of supporting personalized learning pathways and accommodating varied learner needs. Nevertheless, alongside their pedagogical benefits, these technologies also raise concerns related to teacher readiness, ethical use, and the pedagogically sound integration of AI into classroom practice. This study therefore examines both the potential contributions and the challenges associated with the use of AI and chatbots in English Language Teaching.

1.1. Problem Statement

Despite the growing global integration of Artificial Intelligence (AI) and chatbot technologies in English Language Teaching (ELT), their pedagogical adoption within Pakistani educational institutions remains limited, uneven, and under-researched. Traditional ELT practices in Pakistan are often constrained by large class sizes, teacher-centered methodologies, limited access to authentic language input, and insufficient opportunities for individualized feedback. While AI-powered tools and chatbots have the potential to address these challenges by supporting personalized learning, interactive practice, and learner autonomy, many educators lack adequate training, technological infrastructure, and pedagogical guidance for effective implementation. Consequently, there is a critical need to empirically examine the impact, challenges, and instructional implications of AI and chatbot integration in Pakistani ELT contexts to inform evidence-based teaching practices and policy decisions.

1.2. Research Aim

This study aims to examine the integration of Artificial Intelligence (AI) and chatbots in English Language Teaching (ELT) in Pakistan, focusing on their impact on teaching practices, student learning experiences, and overall language acquisition.

1.3. Research Objectives

- To investigate the ways in which AI and chatbot technologies enhance students' English language learning experiences.
- To identify the pedagogical benefits and challenges of incorporating AI and chatbots in ELT classrooms.
- To evaluate the effectiveness of AI and chatbot-based tools in developing different language skills, including reading, writing, listening, and speaking.
- To examine the implications of AI and chatbots for teachers' instructional methods and classroom practices.
- To explore potential future applications and emerging trends of AI and chatbots in ELT within the Pakistani educational context.

1.4. Research Questions

1. How do AI and chatbot technologies enhance English language learning experiences for students in Pakistan?

2. What are the main benefits and challenges of using AI and chatbots in ELT classrooms?
3. How effective are AI and chatbot-driven tools in supporting the development of key language skills (reading, writing, listening, and speaking)?
4. What are the implications of AI and chatbots for teachers' instructional methods and classroom practices?
5. What potential future applications and trends of AI and chatbots can be anticipated in Pakistani ELT settings?

2.Literature Review

Recent research highlights the growing influence of Artificial Intelligence (AI) technologies — especially chatbots in transforming English Language Teaching (ELT) by enhancing interactive learning experiences and providing personalised support for students. Studies suggest that AI-driven tools can offer adaptive feedback and tailored learning pathways, leading to improved engagement and linguistic outcomes (Ruzmetova, 2025). For example, Ruzmetova's (2025) study on AI chatbots shows that learners benefit from real-time, simulated conversational practice, which complements traditional classroom instruction.

Similarly, narrative reviews indicate that language educators view AI tools as promising for identifying learner strengths and weaknesses and for supporting differentiated instruction (Butarbutar, 2025). In these studies, language learning platforms powered by AI have been reported to contribute positively to grammar enhancement, vocabulary acquisition, and learner autonomy, particularly when combined with teacher facilitation (Butarbutar, 2025).

Research has also underscored the potential of AI tools to support spoken English development by using speech recognition and interactive dialogue systems. Xu and Ismail (2025) found that AI applications designed for speaking practice helped learners improve fluency and pronunciation through repeated practice and instant corrective feedback, although the degree of efficacy depended on the sophistication of the algorithms employed.

Despite identified benefits, scholars caution about challenges in the implementation of AI in language learning settings. Issues such as technological access, ethical questions related to data privacy, and reliability concerns of automated content have been raised as significant barriers (Gideon, 2025). Nasution (2025) also notes that in

ELT contexts, learners may over-rely on chatbots, potentially reducing opportunities for meaningful human interaction.

Overall, the literature suggests that while AI and chatbot integration in ELT holds considerable pedagogical promise, successful implementation requires careful attention to infrastructure, teacher preparedness, and pedagogical design so that AI augments rather than replaces teacher-led instruction (Butarbutar, 2025; Gideon, 2025).

2.1. Methods and Materials

To investigate the integration and impact of Artificial Intelligence (AI) and chatbots in English Language Teaching (ELT) within Pakistani educational contexts, this study employs a mixed-methods research design, combining both qualitative and quantitative approaches. The research draws on a review of relevant literature as well as empirical data collected from institutions and learning environments in Pakistan that have implemented AI-driven tools in language instruction.

2.2. Literature Review

The literature review examines existing theoretical and empirical studies on AI and chatbots in education, with a particular focus on language teaching. It includes an analysis of pedagogical frameworks such as Constructivist Learning Theory, which emphasizes learner-centered engagement, personalized instruction, and active participation, and considers how these frameworks inform the use of AI and chatbots in ELT.

2.3. Surveys and Interviews

Structured surveys will be distributed to both teachers and students in Pakistani schools, colleges, and universities to assess their experiences, perceptions, and attitudes regarding the use of AI and chatbots in language learning. In addition, semi-structured interviews with educators who have incorporated AI technologies in their teaching will provide qualitative insights into practical benefits, challenges, and instructional strategies.

2.4. Case Studies

Case studies will be conducted to examine the effectiveness of AI and chatbot integration in real-world Pakistani language learning contexts, including universities, language institutes, and online platforms. These studies will focus on widely used AI-supported language learning tools such as Duolingo, Babbel, Google Assistant, and Microsoft Cortana, highlighting their applicability and impact on learners' language acquisition.

3.Results of the Study

The findings of this study indicate that the integration of Artificial Intelligence (AI) and chatbots in English Language Teaching (ELT) in Pakistan offers multiple pedagogical benefits, impacting both learners and educators across several dimensions.

3.1. Personalized Learning

AI-driven tools demonstrate significant potential for delivering personalized learning experiences by analyzing learners' performance data and adapting content to individual proficiency levels. In Pakistani classrooms, where student ability often varies widely, this adaptive approach helps ensure that learners are appropriately challenged. Studies indicate that personalized tasks reduce student frustration and disengagement while promoting motivation and self-paced learning (Ruzmetova, 2025; Butarbutar, 2025). For example, AI-supported exercises can adjust vocabulary difficulty, sentence complexity, and interactive tasks based on the learner's performance, facilitating continuous language development.

3.2. Enhanced Student Engagement

Chatbots provide learners with a conversational interface, enabling real-time interaction and practice. In the context of Pakistan, where classroom time may be limited and large class sizes are common, chatbots serve as an additional platform for learners to practice English in a dynamic, low-pressure environment. Platforms such as Duolingo and Babbel offer immediate corrective feedback, gamified learning tasks, and interactive dialogue simulations, which collectively enhance learner engagement and promote active participation (Xu & Ismail, 2025; Nasution, 2025).

3.3. Scalability and Accessibility

AI and chatbots are highly scalable, capable of serving a large number of learners simultaneously without compromising instructional quality. These technologies also provide 24/7 access to language learning resources, breaking down barriers related to geography and time constraints. In Pakistan, where rural learners may have limited access to qualified English instructors or urban-language centers, AI tools can democratize access to quality English education (Gideon, 2025).

3.4. Automatic Feedback and Assessment

One of the most significant advantages of AI in ELT is its capacity for automated feedback and assessment. Learners receive instant corrections on errors in grammar,

vocabulary, pronunciation, and sentence structure, which enables them to track progress and adjust learning strategies independently. This continuous feedback loop supports autonomous learning, a feature especially valuable in Pakistan where individual attention from teachers may be limited due to high student-to-teacher ratios (Butarbutar, 2025; Ruzmetova, 2025).

3.5. Support for Educators

AI tools also offer considerable benefits to teachers by automating routine administrative and instructional tasks, such as grading exercises, monitoring student performance, and providing basic feedback. By reducing these repetitive responsibilities, teachers can devote more time to higher-order pedagogical activities, including critical thinking exercises, project-based learning, and cultural awareness initiatives. In Pakistani classrooms, this reallocation of teaching effort is particularly beneficial, allowing instructors to focus on strategies that enhance learner engagement and linguistic competence (Gideon, 2025; Nasution, 2025).

Overall, the study demonstrates that AI and chatbots can play a transformative role in ELT in Pakistan by promoting personalized, engaging, and accessible learning while simultaneously supporting educators in improving instructional quality. These findings are consistent with international literature on AI-enhanced language learning but highlight specific implications for Pakistani educational contexts, where resource constraints and large class sizes present ongoing challenges.

4. Discussion and Interpretation

While the integration of Artificial Intelligence (AI) and chatbots in English Language Teaching (ELT) presents numerous pedagogical advantages, several challenges have emerged that warrant careful consideration, particularly in the Pakistani educational context. One of the primary concerns is the potential lack of emotional connection between learners and AI systems. Although chatbots can simulate conversational interaction, they are inherently limited in providing the empathy, encouragement, and nuanced understanding that human teachers offer. This limitation may influence learner motivation, especially for students who rely on supportive and emotionally engaging learning environments (Butarbutar, 2025; Nasution, 2025).

In addition, the digital literacy of learners varies widely across Pakistan, and not all students are equally proficient in using AI-based learning tools. Learners from rural or under-resourced regions may face additional challenges in accessing or navigating AI platforms, which can create disparities in learning outcomes. In such cases, teachers

remain essential as facilitators, guiding students through AI interactions, monitoring progress, and providing contextual explanations that automated systems cannot offer (Gideon, 2025).

Another critical concern relates to data privacy and security. AI and chatbot systems typically collect large amounts of personal and academic data, which raises ethical and legal considerations. Pakistani educational institutions implementing AI-based tools must establish robust data protection measures to safeguard sensitive learner information, ensure compliance with privacy standards, and build trust in technology-enhanced learning environments (Ruzmetova, 2025).

Despite these challenges, the study's findings indicate that AI and chatbots can significantly enhance personalized learning, student engagement, accessibility, and teacher efficiency when thoughtfully integrated into ELT. The key to successful implementation lies in combining technological innovation with pedagogical best practices, teacher training, and institutional support. This integrated approach ensures that AI augments rather than replaces human instruction, leading to improved learning outcomes and more equitable access to English language education in Pakistan (Butarbutar, 2025; Xu & Ismail, 2025).

5. Conclusion

Artificial Intelligence and chatbots represent a transformative development in English Language Teaching, offering **personalized, interactive, and accessible learning experiences** that were previously difficult to achieve. In Pakistan, these technologies hold the potential to enhance instructional quality, support diverse learner needs, and expand opportunities for autonomous practice. At the same time, challenges related to emotional engagement, technological access, digital literacy, and data privacy must be addressed to ensure effective and ethical adoption.

As AI continues to advance, its role in ELT is likely to expand further, providing increasingly sophisticated tools for language learning and teaching. With careful planning, professional development for educators, and robust institutional policies, AI and chatbots can be strategically leveraged to complement traditional pedagogy, enhance learner outcomes, and foster innovative educational practices across Pakistan.

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