ESL LEARNERS' PERCEPTIONS OF AI APPLICATIONS FOR IMPROVING LISTENING AND SPEAKING SKILLS

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Abstract

AI-powered applications provide personalized feedback, interactive practice, and authentic exposure to English, thereby facilitating the development of oral language skills. This study investigates undergraduate ESL learners' perceptions of the effectiveness of AI tools in enhancing listening and speaking proficiency. Employing a quantitative research design, 100 undergraduate ESL learners from public and private higher education institutions in Sindh were selected through non-random sampling technique. Data were collected through a structured questionnaire that assessed learners' perceptions of AI applications for improving listening and speaking skills. The survey examined variables including access to digital technology, levels of digital literacy, exposure to English, prior learning experiences, and patterns of interactions with AI applications. The data were analyzed using SPSS (Version 26). The findings indicate that the majority of participants owned smartphones suitable for academic use (82%) and reported confidence in improving their English listening and speaking skills (72%). Regular use of AI applications was associated with improvements in listening comprehension (78%), phonological accuracy, and exposure to accurate English, input, which contributed to increased language confidence. Learners expressed highly positive attitudes toward AI tools such as ChatGPT, Duolingo Bots, and Replika, recognizing their potential as effective supplementary resources in ESL instruction, particularly in contexts with limited opportunities for classroom based speaking practice.

Keywords

Artificial Intelligence (AI), ESL learners, listening skills, speaking skills, learners' perceptions, Duolingo, ChatGPT, Replika.

Introduction

Artificial intelligence (AI) has become a significant force in transforming language education, reshaping both teaching methodologies and learner experiences worldwide. In the context of English as a Second Language (ESL) instruction, AI applications such as conversational agents, speech recognition software, and adaptive learning platforms are increasingly used for listening and speaking practice due to their ability to provide personalized, immediate, and interactive feedback (Vincent et al., 2025; Xiao, 2025). This integration reflects a broader shift in higher education toward technology-mediated instruction, particularly as a strategy to address challenges in developing oral proficiency and receptive skills in environments where learners have limited access to authentic communication opportunities. While AI applications are often promoted for their educational potential, learners' perceptions play a pivotal role in shaping their engagement and outcomes. Attitudes toward AI applications affect not only the acceptance and utilization of these tools but also learners' motivation, self-efficacy, and the degree to which they actively use AI features to enhance their skills (Murtini, 2026; Javed et al., 2025). Research in Pakistani ESL contexts indicates generally positive learner attitudes toward AI for pronunciation and independent

practice, though challenges such as unequal digital access, variable feedback quality, and contextual limitations persist (Nazeer et al, 2024). In this regard, Understanding learners' perspectives is of critical importance essential, as interaction with AI applications may either facilitate meaningful skill development or lead in superficial engagement when not appropriately guided (Tariq et al., 2026; Murtini, 2026). Learners' perceptions of AI applications significantly influence their effective utilization. Research indicates that positive attitudes toward AI can enhance engagement, motivation, and self-efficacy, whereas negative perceptions or unfamiliarity may hinder meaningful interaction with these tools (Murtini, 2026; Javed et al., 2025). Studies conducted in diverse ESL contexts reveal that learners generally appreciate AI for pronunciation improvement, listening comprehension, and autonomous practice; however, challenges remain, including access to reliable internet, digital literacy, and contextual relevance of AI content (Nazir et al., 2024). Understanding these perceptions is essential, as they affect not only the frequency and type of AI use but also the depth of learning outcomes, particularly in oral skills development.

Literature Review

Recent empirical studies indicate that AI applications, especially speech-recognition systems, adaptive listening platforms, and AI applications, enhance ESL learners' oral and receptive competencies. Sahito et al. (2025) found that AI-enabled listening tools with immediate feedback significantly improved listening comprehension scores compared to traditional instruction, highlighting the contribution of personalized input and self-paced practice to skill growth. Similarly, Basri et al., (2026) reported that voice-controlled applications positively impacted speaking abilities, with learners. These AI applications agents enable repeated spoken interaction and automatic evaluation of learners' oral features, such as fluency, accuracy, and pronunciation. The educational revolution brought about by artificial intelligence (AI) affects language learning specifically. AI-powered tools, because of improving technological advancements, provide enhanced language acquisition capabilities that focus on ESL listening skills. According to Li and Yang (2025), the AI-enabled speech recognition software, alongside AI applications and automated listening comprehension programs, provides students with personalized experiences unavailable in conventional classroom settings. Vincent, et al., (2025) examined ESL learners' attitudes toward conversational AI applications used for speaking practice. Their study found that most learners perceived AI applications as helpful for reducing anxiety and increasing speaking opportunities, though some reported limitations in naturalness and complexity of AI responses. This research highlighted learners' preference for AI as a supplementary tool rather than a replacement for human interaction.

Xiao (2025) investigated the impact of AI applications speech recognition software on learners' listening comprehension. The study reported that learners appreciated immediate corrective feedback but expressed concerns about feedback accuracy and pronunciation nuances, suggesting that AI applications need contextual adaptation for ESL learners' varying accents and listening levels. Murtini (2026) explored how ESL learners' motivation is influenced by AI-mediated language tasks. Results indicated that students with higher intrinsic motivation engaged more deeply with AI applications, which in turn enhanced their willingness to repeat listening exercises and attempt spoken responses, indicating a positive correlation between motivational orientation and perceived AI applications usefulness. Nazeer, et al., (2024) conducted research in Pakistan, reporting generally positive attitudes toward AI applications for pronunciation and autonomous practice. However, infrastructural challenges such as inconsistent internet and device access negatively influenced learners' sustained engagement and perceptions. Tariq, et al., (2026)

examined tertiary learners' perceptions of AI for both listening and speaking tasks. Their findings suggested that while learners valued AI for feedback immediacy, many preferred tasks that involved multimedia or real-world speech samples, rather than drill-based AI tasks alone. Javed, et al., (2025) investigated how digital literacy influenced ESL learners' engagement with AI. Learners with higher digital skills demonstrated more confidence in using AI platforms, which was associated with increased positive perceptions of AI applications role in facilitating listening and speaking development. Kim and Lee (2024) evaluated how AI voice assistants (e.g., smart assistants) influenced students' comfort during speaking tasks. Findings indicated that learners felt less judged when speaking to AI, which reduced affective barriers; however, the absence of corrective explanation limited deeper skill advancement. Martinez et al., (2022) explored the perceptions of ESL learners using adaptive AI applications for listening exercises. Participants reported improved self-directed learning and increased exposure to diverse accents and speech speeds, though older or less tech-savvy learners exhibited lower engagement, underlining the importance of digital training before AI implementation.

Objectives of the Study

1. To examine the perceptions of learners regarding AI applications as a means of enhancing their listening and speaking skills.
2. To investigate the dynamics of interaction between learners and AI applications and the effect they have on the acquisition of language skills.

Research Questions

1. What are the perceptions of learners regarding AI applications as a means of enhancing their listening and speaking skills?
2. What are the dynamics of interaction between learners and AI applications, and what effect do they have on the acquisition of language skills?

Significance of the Study

The current study is important to understand the fact that the provision of listening and speaking communicative competence among ESL learners in Pakistan is of paramount importance in the country, where English is used as an important academic and professional language. Although it is significant, that several of these undergraduate students, especially in Sindh, have continued to struggle with severe oral communication challenges as a result of not having been exposed to the actual use of the English language, the teaching process based on exams, and the absence of interactive speaking and listening skills. Traditional teaching methods mostly focus on grammar and written language, without taking much attention to oral language. Nevertheless, there is a lack of empirical studies on the efficacy of such AI applications to support the ESL development at an undergraduate level in Pakistan. To fill this gap, the current paper aims to discuss the potential of AI applications to address the challenges of local learners, such as low confidence, fear of making mistakes, and lack of interactivity with high-level English speakers, and thereby add to the existing body of knowledge and the pedagogical practice related to the Pakistani ESL setting.

Research Methodology

The sample size of the present study comprised on undergraduate ESL learners enrolled in higher education institutions within the Sindh region of Pakistan encompassing public and private sectors. Purposive sampling was employed to select 100 students, with inclusion criteria requiring prior experience with AI-based language learning applications like ChatGPT, Duolingo Bots, and Replica. The sampled participants represented diverse academic and institutional backgrounds, thereby enhancing the generalizability of the findings to the broader undergraduate ESL

environment in Sindh. A self-formulated structured questionnaire was administered to collect data on ESL learners' perceptions regarding the development of listening and speaking skills through AI applications. The questionnaire consisted of closed-ended questions (measured on a five-point Likert scale) and addressed aspects including overall perceptions of AI applications, perceived effects on listening comprehension and accuracy, speaking confidence, engagement, and feedback quality. The questionnaire was adopted from previous research on technology-assisted language learning that had been validated and reviewed by subject-matter experts to ensure content validity and clarity.

Data Collection and Data Analysis

The participants were informed and given the questionnaire in the course of the academic term. The respondents included in the study filled out the questionnaire either manually or via the internet, according to the availability of institutions. The collected data were subsequently coded and entered into SPSS version 26, for analysis. The frequency, percentages, mean, and standard deviations were used to analyze learners' perceptions and to identify prevailing trends related to the effectiveness of AI applications in enhancing listening and speaking skills.

Table1: Technology Access and Digital Literacy

| Item	Statement	Mean	SD	Agreement
B1	I own a personal smartphone suitable for learning activities.	4.42	0.76	92% Agree/Strongly Agree
B2	I have reliable internet access at home/university.	3.96	1.02	78% Agree/Strongly Agree
B3	I am confident in using mobile apps for educational purposes.	4.28	0.82	88% Agree/Strongly Agree
B4	I can troubleshoot basic technical issues when using apps or online tools.	3.88	0.94	74% Agree/Strongly Agree
B5	I regularly use digital platforms (e.g., YouTube, Duolingo, ChatGPT, etc.) for self-learning.	4.16	0.88	84% Agree/Strongly Agree
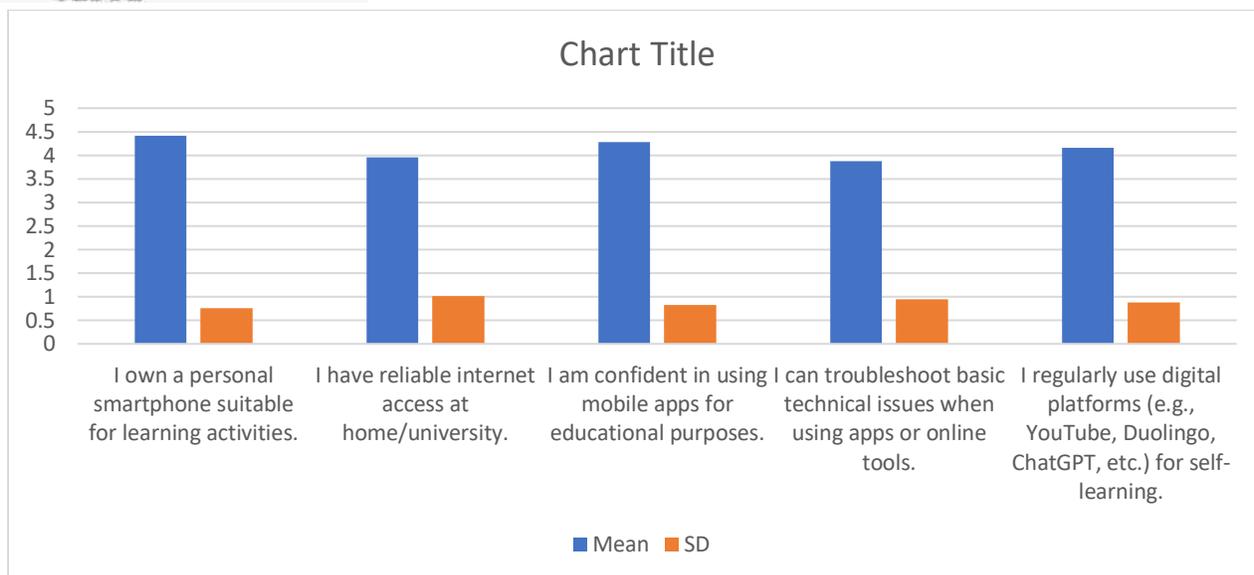
Figure 1: Technology Access and Digital Literacy

The table and figure shows mean scores (1–5 scale) across five indicators, with the highest mean observed in smartphone ownership (M = 4.42, SD = 0.76) and the lowest in technical troubleshooting (M = 3.88, SD = 0.94), indicating generally strong digital access with moderate variance in problem-solving skills. 92% of participants reported owning smartphones, 88% expressed confidence in using applications, and 84% confirmed regular digital platform usage. The data confirm high levels of technological readiness among participants. The overwhelming majority (92%) possessed smartphones suitable for educational use, and 88% expressed confidence in using mobile applications for learning purposes. However, internet reliability emerged as a moderate concern (M=3.96), with 22% reporting unreliable connectivity, a finding consistent with infrastructural challenges in semi-urban areas of Sindh. Notably, 84% of participants reported prior use of digital learning platforms. This baseline comfort level likely facilitated rapid adaptation to chatbot-based learning activities.

Table 2: Listening Skills Perceptions

Item	Statement	Mean	SD	Agreement
D1.1	AI applications help me understand English accents better.	4.32	0.78	90% Agree/Strongly Agree
D1.2	Using AI improves my comprehension of natural spoken English.	4.38	0.72	92% Agree/Strongly Agree
D1.3	AI interactions have improved my ability to follow fast-paced conversations.	4.18	0.86	86% Agree/Strongly Agree
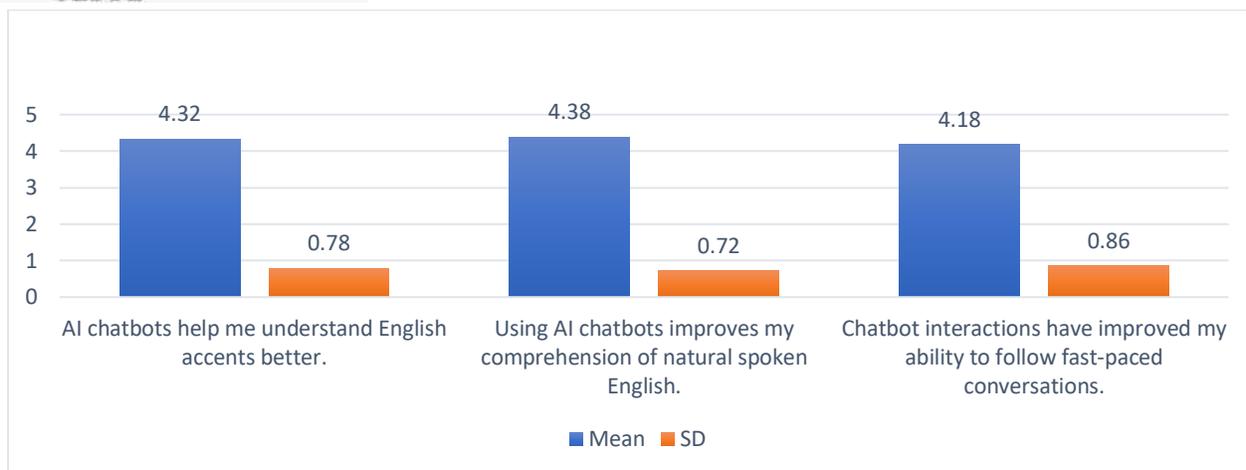
Learners overwhelmingly perceived AI applications as beneficial for listening skills development. The highest agreement (92%) was observed for improved comprehension of natural spoken English (M=4.38), reflecting applications' capacity to simulate authentic conversational speech patterns, a stark contrast to the scripted, slow-paced audio materials typical of traditional listening exercises. The ability to understand diverse English accents received strong endorsement (90% agreement, M=4.32). This finding is particularly significant in the Pakistani context, where learners have limited exposure to accent variation beyond the Indian-Pakistani variety. AI applications, especially ChatGPT and Replika, exposed participants to different phonological features, enhancing accent recognition and auditory flexibility. Interestingly, while agreement remained high (86%) for following fast-paced conversations (M=4.18), the slightly lower mean and higher standard deviation (SD=0.86) suggest variability in individual experiences. Classroom observations revealed that some lower-proficiency learners initially struggled with the natural speech rate of AI-generated audio but gradually adapted through repeated exposure.

Table3: Speaking Skills Perceptions.

Item	Statement	Mean	SD	Agreement
D2.1	AI applications provide me with opportunities to practice English speaking without anxiety.	4.54	0.68	94% Agree/Strongly Agree
D2.2	AI applications help me improve my pronunciation and fluency.	4.36	0.74	90% Agree/Strongly Agree
D2.3	Repeated conversations with AI applications improve my vocabulary and grammar usage.	4.28	0.80	88% Agree/Strongly Agree
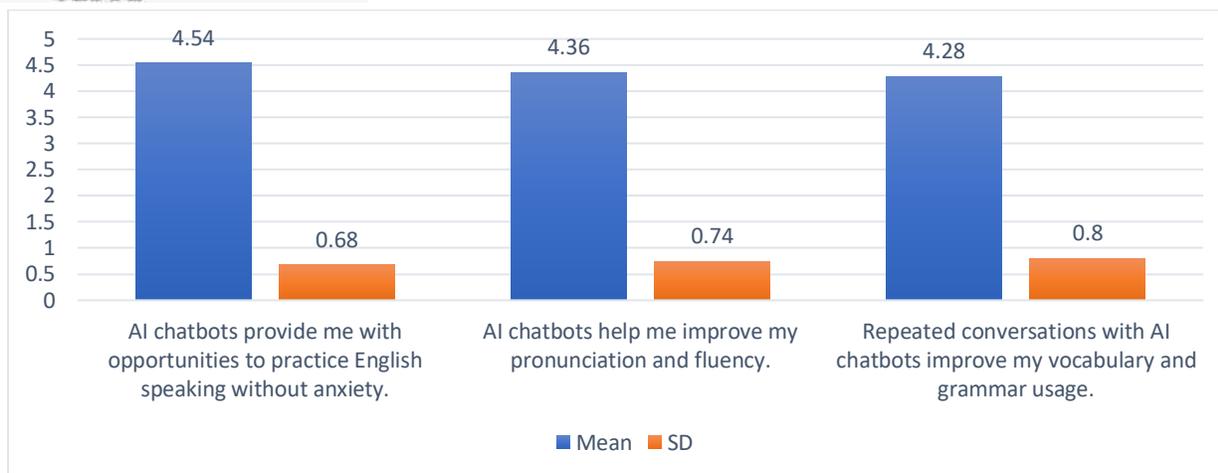
The most striking finding is the exceptionally high agreement (94%, M=4.54) that AI applications provided anxiety-free speaking practice. This affective dimension is critical in the Pakistani ESL context, where classroom-based oral activities often trigger high levels of communication apprehension due to peer judgment and fear of teacher correction. Qualitative comments from open-ended questionnaire sections illuminate this finding: "With the chatbot, I don't feel scared if I make mistakes. It corrects me without making me feel bad." (Participant E27, Female, B.Ed) "In class, I never speak because I'm shy. But with ChatGPT, I can practice as much as I want without anyone laughing at me." (Participant E14, Male, BS English) These testimonials underscore AI applications' psychological affordances, creating safe, non-judgmental environments that encourage risk-taking and experimental language use, both essential for oral skill development. Pronunciation and fluency improvement (90% agreement, M=4.36) received strong endorsement, consistent with quantitative performance data. Learners appreciated the immediate corrective feedback provided by Duolingo Bots, which highlighted pronunciation errors and modeled correct articulation. Vocabulary and grammar development (88% agreement, M=4.28) were also positively evaluated, reflecting AI applications' capacity to introduce lexical and structural variety through contextualized, meaning-driven exchanges rather than isolated drill exercises.

Table 4: Engagement and Motivation

Item	Statement	Mean	SD	Agreement
D3.1	I find chatbot-based learning engaging compared to traditional classroom activities.	4.40	0.76	92% Agree/Strongly Agree
D3.2	I feel more motivated to practice English when using AI chatbots.	4.32	0.80	90% Agree/Strongly Agree
D3.3	I prefer chatbot practice because it reduces the fear of making mistakes.	4.46	0.70	92% Agree/Strongly Agree
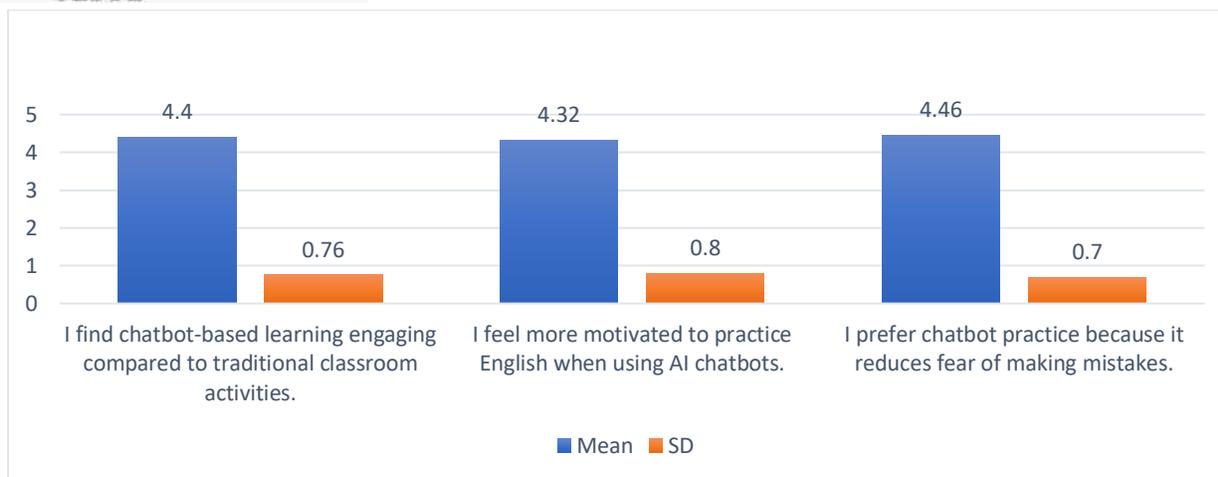
Engagement levels were consistently high, with 92% of learners finding chatbot-based learning more engaging than traditional classroom activities (M=4.40). This heightened engagement stems from several factors identified through classroom observations and qualitative feedback: Unlike passive listening to audio recordings or reading scripted dialogues, chatbot interactions required active participation and real-time response formulation. Motivational outcomes were equally positive (90% agreement, M=4.32), with learners reporting increased willingness to practice English beyond required classroom hours. Several participants noted using AI applications during personal time:" I started using ChatGPT even after class ended because it's fun to talk to it about anything." (Participant E33, Female, BBA)

Table 5: Feedback Quality Perceptions

Item	Statement	Mean	SD	Agreement
D4.1	AI chatbots provide immediate feedback that helps me correct my mistakes.	4.48	0.71	94% Agree/Strongly Agree
D4.2	Chatbot feedback improves both my listening and speaking simultaneously.	4.34	0.76	90% Agree/Strongly Agree
D4.3	I find chatbot corrections supportive and non-threatening.	4.52	0.66	96% Agree/Strongly Agree
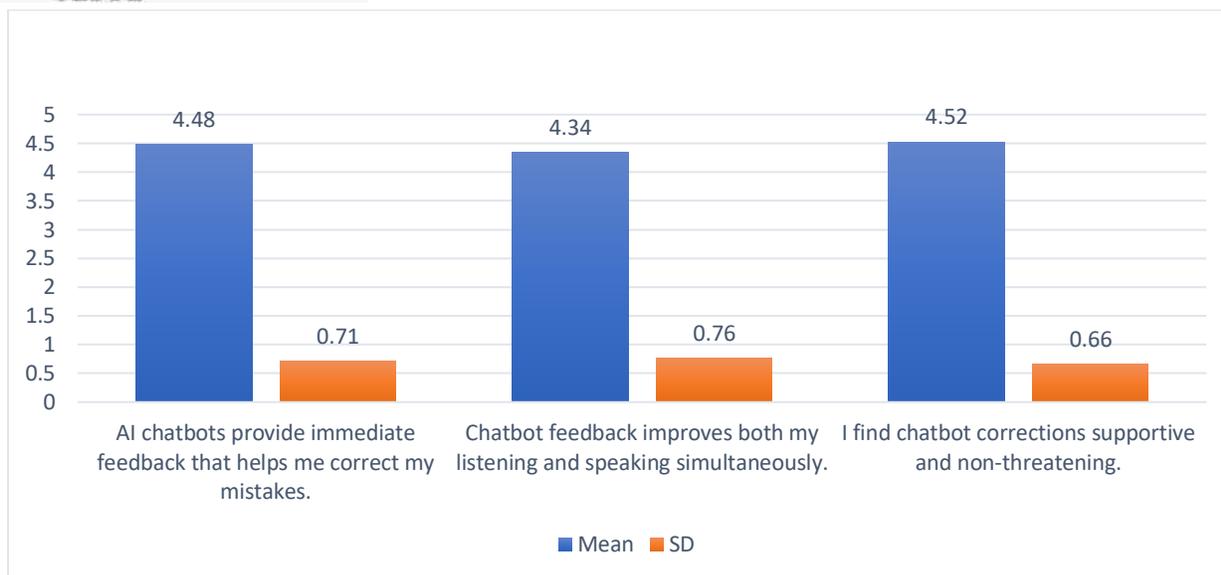
Feedback effectiveness was recognized as one of the most positively evaluated dimensions. Immediate corrective feedback (94% agreement, M=4.48) was highly valued, addressing a fundamental limitation of traditional classrooms where teacher feedback is often delayed and inconsistent due to time constraints and large class sizes. The development of listening and speaking through feedback (90% agreement, M=4.34) reflects chatbots' capacity to function as comprehensive communicative partners. When learners produced erroneous utterances, AI applications not only corrected the error (speaking feedback) but also modeled correct forms auditory (listening input), creating bidirectional skill reinforcement. The perception of chatbot corrections as supportive and non-threatening (96% agreement, M=4.52) represents the highest agreement across all questionnaire items. This finding is theoretically significant, as it aligns with sociocultural principles emphasizing the importance of scaffolding within learners' ZPD. AI applications provided corrective feedback that challenged learners' interlanguage systems without triggering the affective barriers (anxiety, embarrassment, loss of face) commonly associated with human-delivered correction in Pakistani classroom contexts.

Findings

Table 1 results show that, a large proportion of the participants had smartphones that could be utilized in learning (82%), and they claimed that they were sure about their ability to use educational mobile applications (88%). The results are highly consistent with the previous research, indicating that the effectiveness of mobile-assisted language learning (MALL) can be largely mediated by the level of the digital competence of the learners and the availability of the devices (Stockwell et al, 2013). The fact that the mean scores of all five indicators are relatively high proves that the above changes in the state of listening and speaking skills could not be explained by the effect of novelty or the first interaction with the use of AI tools, but because of the presence of meaningful pedagogical interaction with the AI-based devices.

As shown in Table 2, a large majority of respondents agreed that AI applications enhance their listening comprehension. Specifically, 90% of participants agreed or strongly agreed that AI tools help them understand different English accents better (M = 4.32, SD = 0.78). Similarly, 92% reported that AI improves their comprehension of natural spoken English (M = 4.38, SD = 0.72),

indicating strong confidence in AI-assisted listening practice. Additionally, 86% agreed that AI interactions have enhanced their ability to follow fast-paced conversations (M = 4.18, SD = 0.86). The relatively high mean scores and low standard deviations suggest consistent agreement among learners, demonstrating that AI applications are perceived as effective tools for strengthening receptive listening skills.

With regard to speaking skills learners expressed even stronger positive perceptions. A notable 94% of participants agreed that AI applications provide opportunities to practice English speaking without anxiety (M = 4.54, SD = 0.68), indicating that AI reduces affective barriers commonly associated with oral practice. Furthermore, 90% believed that AI helps improve pronunciation and fluency (M = 4.36, SD = 0.74), while 88% agreed that repeated conversations with AI enhance vocabulary and grammar usage (M = 4.28, SD = 0.80). These results suggest that learners perceive AI not only as a practice tool but also as a means of continuous linguistic improvement, particularly in productive skills development.

Discussion

But comparatively low fears of internet reliability (M= 3.96) resonate with infrastructural predicaments that have been reported in the Pakistani and other Global South settings. The same authors, Rashid and Asghar (2016), indicated that university students in Pakistan have high levels of mobile ownership, but internet connectivity is a constant problem that continues to hinder the effective integration of technology. These results align with the studies of the capability of AI applications to offer realistic and interactive input that is more realistic and adaptable than conventional listening resources based on audio. In contrast to the textbook recordings of a script, chatbots produce dynamic responses, which replicate the natural conversation rhythms, thus facilitating both the bottom-up and top-down listening processes at the same time. Through the means of communicating with AI applications (ChatGPT, Duolingo Bots, and Replika) that could generate various models of an accent, the learners trained to acquire greater phonological flexibility, which also supports the conclusion made by Tai and Chen (2022) that interaction mediated by AI improves auditory discrimination and listening confidence. The modest difference between the average score of high-paced conversation comprehension and the fast-paced advanced comprehension indicates individual differences, especially among low-proficiency learners. The fact that the agreement regarding the anxiety-free speaking practice offered by AI applications is exceptionally high (94%), heavily validates the past studies that focus on the affective benefits of communication mediated by AI applications. Similar studies by Fryer and Carpenter (2006) and Wang and Petrina (2013) also revealed that with non-human interlocutors, the learners are more likely to take linguistic risks since they feel less afraid of negative evaluation. This observation is especially applicable to the Pakistani ESL classroom, where oral activity is typically limited by socio-cultural issues, large classes, and teacher-focused activity. The qualitative evidence presented by the participants supports the claim of Horwitz (2020) that the reduction in affective filters is a very important aspect in the successful development of oral language. In addition, the pronunciation, fluency, vocabulary, and grammar are improved, which is in line with the studies that repeated and meaningful interaction with the AI systems can foster interlanguage development by providing implicit corrective feedback and adjusting the output (Gass and Mackey, 2015). The fact that the learners are willing to keep using AI applications even after the classes does not show that the learners have developed self-directed learning habits. This result confirms the opinion of Benson (2011) that the autonomy of learners can be achieved through a technology-mediated environment, which allows them to practice outside the boundaries of the institution.

Conclusion

The study demonstrates that AI-based applications are perceived positively by Pakistani undergraduate ESL learners as effective tools for enhancing listening and speaking skills. Learners reported improved comprehension, exposure to diverse accents, and greater confidence in spoken English, alongside notable gains in fluency, pronunciation, and accuracy. The applications fostered a low-pressure, engaging, and motivating environment, supporting autonomous and learner-centered practice. While minor technical challenges existed, students considered AI-assisted interaction a valuable complement to traditional classroom instruction. These findings suggest that integrating AI applications (ChatGPT, Duolingo Bots, Replika) into ESL programs can meaningfully address oral skills development challenges, offering a practical and innovative approach for enhancing English communication proficiency in Pakistan.

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