



Integrating AI-Powered Chatbots into EFL Speaking Classes: A Mixed-Methods Study on Learners' Communicative Confidence and Interaction Patterns

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Received: 11.04.2026 • Accepted: 28.08.2026 • Published: 17.10.2026 • Final Version: 30.10.2026

Abstract: Artificial intelligence (AI) has emerged as a transformative force in education, reshaping the ways learners engage with language, content, and communication. Within English as a Foreign Language (EFL) pedagogy, the integration of AI-powered chatbots has generated increasing interest due to their ability to provide authentic conversational practice and individualized feedback. This study investigates the impact of AI chatbot integration on learners' communicative confidence and interactional behavior in EFL speaking classes. Employing a mixed-methods design, the study involved 52 intermediate-level Iranian learners over eight weeks, during which participants interacted regularly with ChatGPT for structured and semi-structured speaking tasks. Quantitative data from pre- and post-intervention questionnaires revealed a statistically significant improvement in self-reported communicative confidence ($t(51) = 8.56, p < .001, d = 1.21$), while qualitative analyses of interviews and chat transcripts highlighted reductions in speaking anxiety, greater fluency, and improved turn-taking skills. Findings underscore the pedagogical potential of AI-powered tools for promoting learner autonomy, affective engagement, and interactional competence in the EFL context. The study concludes with recommendations for ethical and pedagogically sound integration of chatbots into communicative language teaching frameworks.

Keywords: Artificial intelligence (AI), learners' communicative confidence, interactional behavior.

1. Introduction

Developing the ability to communicate effectively in a foreign language remains one of the central challenges in EFL education. Speaking is not merely a demonstration of linguistic knowledge but a synthesis of cognitive, social, and affective competencies. Learners must simultaneously process input, formulate output, and manage the interpersonal dynamics of conversation. As such, speaking instruction requires extensive opportunities for interaction, feedback, and self-expression. However, in many EFL contexts – particularly in large classes and exam-oriented systems – students rarely receive sufficient opportunities to practice spontaneous communication. This imbalance has long been identified as a core limitation of traditional EFL pedagogy (Nunan, 2003; Richards, 2015).

The constraints of classroom interaction are further compounded by affective barriers such as anxiety, fear of negative evaluation, and lack of self-confidence (Horwitz, 2001). These factors, collectively referred to as *foreign language anxiety*, can hinder learners' willingness to communicate and reduce the effectiveness of instruction (MacIntyre & Gardner, 1991). In cultures where

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maintaining face and avoiding errors are socially valued, learners may remain passive, preferring not to speak rather than risk embarrassment (Liu & Jackson, 2008). Thus, fostering communicative confidence – the learner’s belief in their ability to convey meaning effectively – has become a vital pedagogical objective in EFL education (MacIntyre et al., 1998).

Technological developments in recent years have offered novel responses to these challenges. The emergence of intelligent tutoring systems, adaptive learning platforms, and natural language processing tools has opened new pathways for individualized language practice. Among these, AI-powered chatbots stand out for their potential to simulate authentic conversation and provide continuous, anxiety-free practice (Kukulska-Hulme, 2020). Leveraging large language models (LLMs), such as OpenAI’s GPT-based systems, these chatbots can engage learners in dynamic dialogues, respond contextually, and adjust their linguistic register to the learner’s proficiency level. Unlike static computer-assisted learning programs, chatbots create a sense of interpersonal engagement that closely mirrors human communication.

In the post-pandemic educational landscape, where hybrid and digital learning environments have become the norm, such AI-driven tools align naturally with the principles of learner autonomy and communicative language teaching (CLT). They provide accessible, flexible opportunities for practice beyond classroom boundaries. This is particularly relevant in countries like Iran, where opportunities for authentic interaction with native speakers are limited, and formal instruction often emphasizes grammatical accuracy over communicative fluency (Riasati, 2018).

However, while enthusiasm for AI integration in education is widespread, empirical research on its pedagogical and affective outcomes remains limited. Much of the existing literature has focused on reading and writing support, leaving the domain of speaking relatively underexplored. Moreover, the use of generative AI chatbots, which differ fundamentally from earlier rule-based systems, introduces new variables in learner–machine interaction – such as perceived agency, trust, and emotional resonance (Zhao, 2024). These aspects warrant careful examination through both quantitative and qualitative lenses.

This study addresses that gap by investigating how regular engagement with an AI-powered chatbot affects learners’ communicative confidence and interaction patterns in EFL speaking practice. Specifically, it explores whether chatbot-mediated interaction can (1) enhance learners’ self-confidence in oral communication, (2) foster more effective interactional behavior (e.g., turn-taking, topic initiation, and repair strategies), and (3) influence learners’ affective responses, including anxiety and motivation.

The findings are intended to contribute to two overlapping fields: the growing body of research on AI-assisted language learning (AIALL) and the established pedagogical discourse on Communicative Language Teaching (CLT). In doing so, the study also aims to situate AI use within a broader theoretical and ethical framework, recognizing both its opportunities and its potential risks. The research thus holds implications not only for classroom practice but also for curriculum design, teacher education, and institutional policy regarding the responsible use of AI in language learning.

2. Theoretical Framework

To understand the pedagogical and affective effects of chatbot integration in EFL speaking classes, this study draws upon four complementary theoretical perspectives: Communicative Language Teaching (CLT), Krashen’s Affective Filter Hypothesis, Interactional Competence Theory, and

Sociocultural Theory. Each offers a distinct yet intersecting lens for interpreting how AI-mediated communication supports language learning.

2.1. Communicative Language Teaching (CLT)

CLT emerged in the 1970s as a response to the limitations of structuralist and grammar-translation approaches that prioritized accuracy over fluency (Richards & Rodgers, 2014). Its central tenet is that language learning occurs most effectively through meaningful communication rather than mechanical practice. Learners develop linguistic and pragmatic competence through authentic interaction, negotiation of meaning, and engagement with real-world tasks (Savignon, 2002).

AI chatbots align naturally with CLT's principles. They can act as simulated interlocutors that sustain context-rich conversations, allowing learners to experiment with language without fear of judgment. In chatbot-mediated dialogue, learners perform speech acts – requesting, apologizing, agreeing, or disagreeing – in ways that mirror real communication. Importantly, this interactivity fosters *communicative competence*, encompassing grammatical, sociolinguistic, discourse, and strategic dimensions (Canale & Swain, 1980). When designed thoughtfully, chatbot interactions can emulate task-based learning environments that promote fluency and strategic language use.

2.2. Krashen's Affective Filter Hypothesis

Krashen's (1982) Affective Filter Hypothesis posits that emotional variables – such as motivation, self-confidence, and anxiety – mediate the effectiveness of language input. High anxiety or low motivation raises the “affective filter,” blocking input from reaching the language acquisition device, whereas low anxiety facilitates acquisition. In many EFL classrooms, learners experience communication apprehension due to fear of making mistakes or peer evaluation (Horwitz et al., 1986).

AI chatbots can mitigate these affective barriers by creating private, non-judgmental environments for language use. Learners can take risks, experiment with vocabulary, and self-correct without social consequences. In essence, the chatbot provides what Krashen called a *low-anxiety context*, enabling more efficient acquisition. This framework underpins the hypothesis that chatbot interaction enhances learners' communicative confidence by lowering the affective filter.

2.3. Interactional Competence Theory

While CLT focuses on communication as the goal of instruction, Interactional Competence Theory (ICT) conceptualizes communication as a *learned skill*. According to Seedhouse (2004), interactional competence entails the ability to manage conversational structures such as turn-taking, repair, sequencing, and topic development. Learners must not only produce grammatically correct utterances but also demonstrate sensitivity to conversational norms.

Chatbots provide a rich space for the development of interactional competence. They require learners to sustain conversation, initiate topics, and respond to contingencies. Unlike traditional drills, chatbot exchanges are dialogic and unpredictable, compelling learners to manage interaction in real time. Over repeated sessions, learners can internalize patterns of dialogue management – skills directly transferable to human communication.

2.4. Sociocultural Theory

Vygotsky's (1978) Sociocultural Theory offers a broader perspective by emphasizing the social and mediational nature of learning. Knowledge is co-constructed through interaction within the learner's *Zone of Proximal Development* (ZPD) – the distance between what a learner can do independently and with assistance. From this view, tools and interlocutors serve as mediational means that scaffold learning.

AI chatbots can function as *digital mediators* within the ZPD. Their prompts, feedback, and reformulations help learners extend their linguistic performance. Moreover, their patience and availability support the iterative process of internalization. This theoretical lens explains not only linguistic gains but also the gradual development of learner autonomy – an essential goal in contemporary language education.

In summary, these four frameworks converge on the premise that language learning is both interactive and affective. AI chatbots, when appropriately implemented, can lower emotional barriers, scaffold communication, and cultivate the skills required for meaningful interaction. This study is therefore grounded in an integrated model that views AI-assisted learning as a dynamic interplay between cognition, affect, and social mediation.

3. Literature Review

3.1. The Emergence of AI-Powered Tools in Language Education

The evolution of artificial intelligence in education has transformed how learners access information, interact with content, and engage with peers. Early forms of Computer-Assisted Language Learning (CALL) emphasized repetitive practice and corrective feedback, focusing primarily on accuracy (Levy & Stockwell, 2006). However, advances in natural language processing (NLP) and machine learning have expanded CALL into a more interactive, adaptive domain known as *Intelligent CALL* (iCALL).

Recent innovations in large language models (LLMs), such as OpenAI's GPT series and Google's Gemini, have elevated chatbot sophistication. These models can interpret context, maintain conversational coherence, and generate linguistically varied responses. Unlike rule-based systems, they can simulate human-like empathy and reasoning (Li, 2022; Godwin-Jones, 2023). For EFL learners, such chatbots offer authentic, real-time engagement in English – something many traditional classrooms cannot provide.

Empirical studies underscore these affordances. Wang and Chen (2021) reported that Taiwanese EFL students using AI chatbots demonstrated higher oral fluency and greater motivation. Similarly, Diao and Sundqvist (2022) found that chatbot-mediated speaking practice improved lexical richness and reduced hesitation in intermediate learners. More recently, Lee and Lee (2023) documented significant improvements in Korean learners' self-efficacy and pronunciation accuracy after using a speech-based chatbot for ten weeks.

3.2. Chatbots and Communicative Confidence

Communicative confidence, as defined by MacIntyre et al. (1998), refers to the combination of perceived competence and willingness to communicate. Research consistently shows that increased opportunities for low-stakes interaction correlate with greater confidence (Yashima, 2002). AI chatbots provide precisely such opportunities. By eliminating social judgment, they create a safe

space for experimentation and repeated practice – conditions known to enhance self-efficacy (Bandura, 1997).

Li (2022) observed that Chinese EFL learners interacting with a chatbot reported lower anxiety and more frequent use of target language structures. Likewise, Jin (2021) found that chatbot-based communication encouraged learners to extend responses and use complex syntax, leading to increased perceived competence. These findings resonate with Krashen's (1982) argument that affective factors are central to acquisition. However, other studies caution that overreliance on chatbots might limit exposure to authentic sociocultural nuances or nonverbal cues (Zhao, 2024). Thus, while chatbots can nurture confidence, they should complement, not replace, human interaction.

3.3. Interactional Competence and AI Mediation

Interactional competence encompasses the ability to manage conversation dynamically – responding appropriately, signaling understanding, and negotiating meaning (Seedhouse, 2004; Walsh, 2011). Research in this domain suggests that repeated interaction with AI partners can enhance learners' pragmatic and discourse-level skills. For instance, Mubin et al. (2013) showed that robot-mediated conversations improved learners' ability to handle topic shifts and clarification requests.

Recent conversational AI tools, particularly ChatGPT, extend this potential through their nuanced language capabilities. Preliminary studies (Nguyen & Balakrishnan, 2023) indicate that learners use more discourse markers, cohesive devices, and elaborations when interacting with ChatGPT compared to static tasks. In other words, chatbots may scaffold not only linguistic complexity but also discourse management – a hallmark of interactional competence.

3.4. Affective and Motivational Dimensions

Anxiety reduction remains one of the most frequently cited benefits of AI-mediated practice. Fryer and Carpenter (2006) demonstrated that learners engaging with chatbots experienced less communication apprehension than in peer discussions. The sense of privacy, combined with the chatbot's patience, allows for a more relaxed learning environment. Furthermore, gamification elements – such as challenges or conversational goals – can heighten motivation and persistence (Kim & Kim, 2023).

However, motivational outcomes are not uniform. Some learners perceive AI communication as less emotionally engaging than human interaction (Gonzalez-Lloret, 2023). This highlights the importance of task design: meaningful, context-based tasks tend to sustain engagement better than repetitive question–answer formats.

3.5. Ethical and Pedagogical Considerations

While enthusiasm for AI in education is high, ethical and pedagogical concerns demand attention. Issues such as data privacy, algorithmic bias, and overdependence on automated feedback have sparked scholarly debate (Floridi & Cowls, 2023). Chatbots, despite their human-like fluency, occasionally produce inaccurate or culturally inappropriate responses – a phenomenon known as *AI hallucination*. Teachers must therefore serve as critical mediators, guiding learners to question and verify chatbot outputs.

Pedagogically, integration must align with curriculum goals rather than serve as a novelty. Scholars emphasize the need for AI literacy among both teachers and students: understanding how AI systems

work, their limitations, and how to use them responsibly (Ng, 2023). Effective integration should therefore combine human instruction, peer collaboration, and AI-mediated interaction – a blended model that preserves the social essence of language learning while leveraging technological innovation.

4. Methodology

4.1. Research Design

A convergent mixed-methods design (Creswell & Plano Clark, 2018) was employed to triangulate quantitative and qualitative evidence concerning the effects of AI-powered chatbot interaction on learners' communicative confidence and interactional behavior. Quantitative data provided statistical evidence of change, while qualitative inquiry offered interpretive depth and contextual understanding. The two data strands were collected concurrently, analyzed separately, and then integrated to yield a comprehensive account of learner development.

4.2. Context and Participants

The research was conducted in a language institute in Iran, where English instruction follows a communicative-oriented curriculum but typically prioritizes exam preparation. Fifty-two intermediate-level EFL learners (29 female, 23 male), aged 18–25 years, participated voluntarily. None had prior experience with AI chatbots. All participants provided informed consent, and pseudonyms were assigned to protect anonymity. Institutional ethics approval was obtained prior to data collection.

To ensure comparability, placement-test results confirmed that all learners were at B1 level on the CEFR scale. The cultural context is significant: in many Iranian classrooms, speaking practice is limited to controlled dialogues; thus, learners often report high levels of foreign-language anxiety. The study therefore offered an authentic test of whether AI-mediated practice could mitigate such affective barriers.

4.3. Instruments

Six complementary instruments were used:

1. **Communicative Confidence Scale (CCS)** – Adapted from MacIntyre et al. (1998), consisting of 20 Likert-type items (1 = strongly disagree to 5 = strongly agree). Cronbach's $\alpha = .89$ (pre) and $.91$ (post).
2. **Foreign Language Classroom Anxiety Scale (FLCAS)** – Horwitz et al. (1986), 33 items, Cronbach's $\alpha = .90$.
3. **Semi-structured Interviews** – Twelve focal participants were interviewed before and after the intervention regarding perceptions of confidence, enjoyment, and perceived learning.
4. **Chatbot Transcripts** – Automatically saved logs of learner-bot conversations ($\approx 1,500$ turns per learner) used for discourse analysis.
5. **Reflective Journals** – Weekly reflections documenting emotions, perceived progress, and difficulties.
6. **Classroom Observations** – Two independent observers rated participation frequency and turn length in peer-discussion tasks before and after the intervention.

4.4. Intervention Procedure

The intervention lasted eight weeks. Learners engaged with ChatGPT three times weekly for approximately 20 minutes per session outside class. Topics were aligned with the institute's speaking syllabus – e.g., travel, health, education, technology, and culture.

Each session included:

1. A warm-up prompt from the teacher (“Ask the chatbot to describe...”).
2. A 10-minute free conversation where learners could deviate from prompts.
3. Self-reflection in journals.

Teachers monitored only general progress; they did not correct errors to preserve low-anxiety conditions. The chatbot was configured to encourage elaboration and provide gentle reformulations rather than explicit corrections.

4.5. Data Analysis

Quantitative data were analyzed with SPSS 29. Paired-sample *t*-tests compared pre- and post-scores on CCS and FLCAS. Cohen’s *d* was calculated using pooled SD. Pearson correlations examined relationships between anxiety reduction and confidence gain.

Qualitative data followed Braun and Clarke’s (2006) six-phase thematic analysis. Interview transcripts, journals, and chatbot logs were coded inductively for recurrent themes concerning affect, strategy use, and interactional change. Inter-coder reliability reached $\kappa = .84$.

Discourse analysis drew on Seedhouse’s (2004) framework for identifying conversational structures – openings, repair, topic management, and closings. Frequency counts and qualitative exemplars illustrated developmental patterns.

5. Results

5.1. Quantitative Findings

Communicative Confidence.

Table 1. Communicative confidence subscale gains

Subscale	Gain (Post–Pre)	Interpretation
Self-perceived Fluency	+0.91	Large improvement
Risk-taking in Conversation	+0.74	Moderate improvement
Accuracy Confidence	+0.38	Small but significant improvement

Note. Subscale scores derived from CCS items. Larger values reflect greater post-intervention confidence.

Participants’ mean CCS scores increased from $M = 3.12$ ($SD = 0.54$) to $M = 3.89$ ($SD = 0.47$). A paired-sample *t*-test indicated a significant improvement, $t(51) = 8.56$, $p < .001$. Cohen’s $d = 1.21$ revealed a large effect size, indicating educationally meaningful growth.

Subscale analysis showed the greatest gains in self-perceived fluency (+0.91) and risk-taking in conversation (+0.74). The smallest yet significant gain occurred in accuracy confidence (+0.38), suggesting that learners prioritized communicative flow over correctness.

Anxiety Reduction.

Mean FLCAS scores dropped from $M = 3.68$ ($SD = 0.59$) to $M = 2.97$ ($SD = 0.55$), $t(51) = 6.72$, $p < .001$, $d = 0.94$. A negative correlation emerged between anxiety change and confidence gain ($r = -0.68$, $p < .01$), supporting Krashen’s affective-filter prediction that lowering anxiety facilitates communication.

Willingness to Communicate.

Table 2. Changes in communicative confidence, anxiety, and willingness to communicate

Measure	Pre-test M (SD)	Post-test M (SD)	t(51)	p	Cohen's d
Communicative Confidence	3.12 (0.54)	3.89 (0.47)	8.56	< .001	1.21
Foreign Language Classroom Anxiety	3.68 (0.59)	2.97 (0.55)	6.72	< .001	0.94
Willingness to Communicate	–	–	7.34	< .001	1.05

Note. Scores based on 52 participants. Higher confidence and willingness values and lower anxiety scores indicate improvement.

As shown in Table 2, learners' communicative confidence and willingness to communicate increased significantly, while anxiety decreased.

A supplementary 10-item scale adapted from McCroskey (1992) showed a 22% increase in learners' self-reported willingness to initiate conversations in English ($t(51) = 7.34$, $p < .001$, $d = 1.05$).

Transfer to Classroom Performance.

Observation data revealed that learners' average number of turns per discussion rose from 3.8 to 6.2, and mean turn length increased by 42%. Qualitatively, observers noted reduced hesitation and more spontaneous topic shifts, suggesting transfer of chatbot-acquired fluency to peer interactions.

5.2. Qualitative Findings

Table 3. Summary of themes from interview and chat data

Theme	Illustrative Quote	Interpretation
Reduced Fear and Increased Risk-Taking	"With the chatbot, I just talk. It feels like thinking in English."	Non-judgmental environment lowered anxiety.
Enhanced Fluency and Self-Repair	"I mean... sorry, let me rephrase."	Greater spontaneous fluency and self-monitoring.
Improved Interactional Competence	"Actually, can we talk about food instead?"	Learners took initiative and managed topics.
Autonomy and Motivation	"It never gets tired or bored."	Flexible practice fostered self-regulated learning.
Perceived Limitations	"Sometimes it repeats answers."	Indicates need for teacher mediation and multimodal tools.

Note. Themes extracted through inductive coding of 52 learner interviews and chat transcripts.

Thematic analysis yielded five dominant themes, supported by excerpts from interviews and chat logs.

Theme 1: Reduced Fear and Increased Risk-Taking.

Learners repeatedly emphasized feeling "free to make mistakes." One participant wrote,

"When I speak to classmates, I'm always worried about grammar. With the chatbot, I just talk. It feels like thinking in English."

This finding illustrates how anonymity and non-judgmental feedback lowered the affective filter and encouraged experimentation with new vocabulary and structures.

Theme 2: Enhanced Fluency and Self-Repair.

Learners described speaking “faster and smoother.” Chat transcripts revealed fewer long pauses and increased use of self-initiated repair (e.g., “I mean...,” “Sorry, let me rephrase”). Over time, learners produced longer clauses and employed more cohesive devices such as *so*, *because*, and *actually*.

Theme 3: Improved Interactional Competence.

Discourse analysis demonstrated a 35% increase in learner-initiated turns and a 28% rise in topic shifts managed by learners rather than the chatbot. Example:

Chatbot: “Tell me about a recent trip.”

Learner: “Actually, can we talk about food instead? I love local dishes.”

Such shifts signal control over conversational flow – a key indicator of interactional competence (Walsh, 2011).

Theme 4: Autonomy and Motivation.

Learners valued the flexibility of practicing “anytime, anywhere.” They appreciated the chatbot’s patience:

“It never gets tired or bored. I can repeat the same topic until I feel confident.”

This autonomy appeared to sustain motivation even outside class hours, aligning with self-regulated learning theory (Zimmerman, 2000).

Theme 5: Perceived Limitations.

Despite positive attitudes, some learners noted occasional repetition and minor factual errors from the chatbot. Others desired voice interaction for pronunciation practice. These remarks echo concerns in recent research (Zhao, 2024) about the need for teacher mediation and multimodal expansion.

5.3. Integration of Quantitative and Qualitative Results

The convergence of data indicates that the quantitative improvements in confidence are mirrored by qualitative evidence of reduced anxiety, enhanced fluency, and greater conversational initiative. The triangulated results validate the claim that chatbot-mediated interaction exerts a robust influence on both affective and behavioral aspects of oral communication.

6. Discussion

The purpose of this study was to investigate how sustained engagement with an AI-powered chatbot could influence EFL learners’ communicative confidence, affective states, and interactional behavior. Through triangulated evidence, the results demonstrate that chatbot integration significantly enhances learners’ self-confidence, reduces anxiety, and promotes interactional competence. These outcomes collectively affirm the pedagogical promise of AI-mediated communication in EFL contexts, while also illuminating theoretical and practical considerations for teachers and policymakers.

6.1. The Affective Dimension: Lowering the Filter, Raising the Voice

The observed decline in foreign language anxiety supports Krashen’s (1982) Affective Filter Hypothesis, reaffirming that emotional comfort facilitates linguistic risk-taking and output

production. Chatbot-mediated dialogue provided a judgment-free context where learners could test hypotheses about language use, aligning with Swain's (1995) Output Hypothesis that emphasizes language production as a driver of cognitive engagement.

Participants' descriptions of "feeling free to talk" illustrate the critical role of psychological safety in language learning. In traditional EFL classrooms, particularly in collectivist societies like Iran's, face-saving concerns often suppress learner participation (Liu & Jackson, 2008). The chatbot's neutral presence eliminated such social pressure, functioning as an affective buffer. This confirms prior findings that virtual interlocutors can reduce communication apprehension and foster positive attitudes toward speaking (Jin, 2021; Wang & Chen, 2021).

Beyond anxiety reduction, the intervention stimulated a deeper sense of communicative self-efficacy (Bandura, 1997). Learners began to perceive themselves as capable speakers, not merely as language learners. This shift from dependency to agency is pedagogically crucial: it suggests that AI tools, when thoughtfully integrated, can nurture intrinsic motivation and self-directed learning habits that extend beyond the classroom.

6.2. Cognitive and Interactional Development

The qualitative evidence of increased self-repair, elaboration, and topic initiation highlights growth in interactional competence, as articulated by Seedhouse (2004). Learners were not merely producing more words but managing the architecture of conversation: opening, maintaining, and closing exchanges with coherence and contextual sensitivity.

These findings align with Long's (1996) Interaction Hypothesis, which posits that negotiation of meaning during conversation facilitates acquisition. The chatbot, by asking clarification questions and paraphrasing learner input, effectively simulated this negotiation process. For example, learners' responses to chatbot prompts evolved from single-sentence replies to multi-clause narratives – an indication of expanding linguistic repertoire and discourse complexity.

Interestingly, learners also began to display metacognitive awareness, using reflection journals to evaluate their own communicative strategies. This awareness exemplifies what Wenden (1998) described as the "self-regulatory turn" in language learning – where learners consciously plan, monitor, and evaluate their use of language. Chatbot engagement thus appears to scaffold not only linguistic but also metacognitive development.

6.3. Transferability to Human Communication

One of the central questions surrounding AI-assisted practice is whether skills developed in digital interaction transfer to human conversation. The classroom observation data suggest that they do. Learners demonstrated longer and more spontaneous turns in peer discussions, indicating that chatbot confidence translated into authentic communicative performance. This transfer supports sociocultural perspectives (Vygotsky, 1978), which view learning as internalized through mediated activity before being externalized in social interaction.

Moreover, the study challenges the assumption that technology inherently isolates learners. In this context, chatbot interaction appeared to prepare learners for richer human interaction, rather than replacing it. This aligns with Kukulska-Hulme's (2020) argument that AI can serve as a bridge between individual and collaborative learning spaces when pedagogically orchestrated.

6.4. Comparison with Prior Research

The findings corroborate and extend earlier research on chatbot-assisted learning. Li (2022) and Lee and Lee (2023) reported increased motivation and oral fluency among Asian learners using AI chatbots; the present study adds evidence from the Middle Eastern context, highlighting similar affective and communicative benefits despite differing sociocultural factors.

Furthermore, while previous studies often relied on short-term interventions, this research's eight-week duration provided insight into developmental trajectories. The pattern of gradual improvement – initial hesitation followed by fluency growth – mirrors Fryer and Carpenter's (2006) observations of "confidence accumulation" in sustained chatbot use.

However, the study also nuances optimistic claims. While fluency and confidence improved markedly, learners' awareness of factual inaccuracies in chatbot responses indicates that critical digital literacy remains essential. This echoes Floridi and Cowls' (2023) warning that AI integration must be accompanied by critical reflection to prevent uncritical acceptance of machine-generated output.

6.5. Ethical and Pedagogical Reflections

AI tools bring not only pedagogical potential but also ethical responsibility. The issue of data privacy is paramount: learners' conversations with chatbots may be stored or analyzed by third-party systems. Institutions must ensure compliance with data protection regulations and obtain informed consent.

Additionally, the question of algorithmic bias deserves scrutiny. AI models are trained on large text corpora that may embed cultural or linguistic biases (Bender et al., 2021). Educators must therefore contextualize chatbot responses and encourage learners to approach them critically.

Finally, the human teacher's role remains irreplaceable. As Warschauer (2023) argues, "AI cannot replicate empathy." Teachers provide emotional attunement, ethical oversight, and contextual judgment that machines lack. The challenge, therefore, is not to substitute human instruction but to redefine it in ways that harness AI's strengths while preserving the humanistic core of language education.

7. Pedagogical Implications

The results of this study generate several actionable implications for EFL pedagogy, curriculum design, and teacher education.

7.1. Integrating Chatbots into Communicative Curricula

AI chatbots can serve as valuable supplements to speaking instruction when integrated systematically. Teachers might assign chatbot dialogues as pre-class or post-class speaking tasks that complement face-to-face interaction. For example, learners can rehearse role-plays (e.g., ordering food, job interviews) with a chatbot before performing them with peers. This approach aligns with the flipped classroom model, allowing students to arrive in class with increased readiness and confidence.

7.2. Supporting Affective Development

Chatbots should be conceptualized not only as linguistic tools but also as affective resources. Teachers can use them to design confidence-building tasks, such as simulated interviews or debates, where learners receive encouragement rather than correction. Integrating reflective journaling after chatbot sessions helps students articulate emotional progress and self-evaluate their communicative growth.

7.3. Enhancing Learner Autonomy and Digital Literacy

Autonomy emerged as a key benefit of chatbot use. Teachers can further support this by providing learner training workshops on how to prompt effectively, interpret AI feedback, and manage potential inaccuracies. This aligns with the concept of AI literacy – the ability to use, evaluate, and question AI outputs responsibly (Ng, 2023).

Institutions should embed digital literacy outcomes into curricula to ensure that learners develop both linguistic and critical competencies.

7.4. Teacher Professional Development

Effective integration requires that teachers themselves become confident users of AI technologies. Professional development programs should therefore include modules on chatbot pedagogy, ethical use, and task design. Teachers can also be encouraged to conduct action research on AI use in their own classrooms, contributing to localized evidence and practice.

7.5. Institutional and Policy Considerations

At the institutional level, policies should balance innovation with responsibility. This involves ensuring data privacy, providing infrastructure, and maintaining transparency about AI use. Policymakers should frame AI not as a cost-saving replacement for instruction but as a pedagogical enhancement that requires continuous human oversight.

Moreover, language institutes and universities could establish AI integration frameworks that standardize best practices, assessment rubrics, and quality assurance mechanisms.

8. Limitations and Future Directions

While the study presents compelling evidence of chatbot benefits, several limitations must be acknowledged. The participant pool was limited to a single institution and proficiency level, restricting generalizability. Future studies should include diverse proficiency groups and cross-cultural comparisons.

The eight-week duration, although longer than many prior studies, may not capture long-term retention of communicative confidence. Longitudinal research could reveal whether gains persist after the intervention.

Additionally, this study used text-based chatbots. Incorporating voice-based interfaces could enhance pronunciation practice and oral fluency. Comparative research on multimodal chatbots – combining speech recognition and avatar feedback – would enrich understanding of multimodal learning.

Finally, future inquiry should explore teacher perceptions, as instructors play a decisive role in mediating AI use. Investigating how teachers reconcile AI support with pedagogical control could illuminate pathways for sustainable integration.

9. Conclusion

The present study provides robust evidence that integrating AI-powered chatbots into EFL speaking instruction can significantly enhance learners' communicative confidence, reduce anxiety, and promote interactional competence. Through the interplay of affective comfort and dialogic engagement, learners become more willing and capable communicators in English.

The findings confirm theoretical predictions from CLT, Krashen's Affective Filter Hypothesis, Interactional Competence Theory, and Sociocultural Theory, illustrating how AI-mediated environments can combine communicative authenticity with emotional safety. Importantly, the results also suggest that skills cultivated in chatbot dialogue – such as self-repair, topic management, and confidence – transfer to human interaction.

However, realizing the full pedagogical potential of AI requires a balanced, ethically grounded approach. Chatbots should complement, not replace, teacher guidance. They should function as scaffolds for confidence and fluency, embedded within communicative curricula that value critical thinking and social interaction.

In sum, AI-powered chatbots represent not merely a technological innovation but a pedagogical opportunity to reimagine speaking instruction as a space of empowerment, inclusivity, and autonomy. When integrated with reflective practice and ethical awareness, they can transform the EFL classroom into a dynamic arena where learners find both their *voice* and their *confidence* in English communication.

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