



AI-Mediated Speaking Practice in EFL and ESL Learning: An Applied Communication Framework Perspective

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ABSTRACT

This systematic literature review investigates how artificial intelligence transforms speaking practice in English as a Foreign Language (EFL) and English as a Second Language (ESL) contexts through an applied communication framework. Unlike prior reviews that evaluate AI-mediated speaking primarily in terms of linguistic outcomes, this study employs communicative competence theory, the willingness-to-communicate (WTC) model, and computer-mediated communication (CMC) theory as an integrated analytical lens to interpret how AI reconfigures the communicative conditions of oral language development. Following PRISMA 2020 guidelines, the review synthesises 37 peer-reviewed articles published between 2021 and 2026, sourced from Scopus, Web of Science, ERIC, and ScienceDirect. Thematic synthesis generated four analytical categories: AI as a conversational partner, AI as a feedback mechanism, AI as affective support, and AI as a constrained communication environment. Findings indicate that AI-supported practice consistently enhances pronunciation, fluency, and willingness to communicate, whilst also revealing persistent limitations in pragmatic sensitivity, authentic interactional transfer, and equitable access. The principal novel contribution of this review is the conceptual framework of 'Mediated Communicative Scaffolding', which repositions AI not as an automated correction tool but as a structured communicative environment that prepares learners for authentic human interaction. This theoretically grounded framework offers practical guidance for integrating AI into communication-oriented speaking pedagogy.

Keywords: AI-assisted language learning, chatbots, communicative competence, speaking anxiety, systematic literature review

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INTRODUCTION

Speaking is widely recognised as one of the most cognitively and socially demanding skills in second- and foreign-language learning. It requires learners to coordinate vocabulary, grammar, pronunciation, fluency, timing, and social appropriateness in real time, while simultaneously managing the interpersonal and affective dimensions of communicative interaction. Recent scholarship confirms that speaking is not merely the production of correct linguistic forms; it is a communicative act involving turn-taking, repair, negotiation of meaning, stance-taking, and interactional confidence (W. Huang et al., 2022; Jeon et al., 2024; Üstünbaş, 2024). In numerous EFL and ESL contexts, however, learners experience speaking as an infrequent and stressful classroom activity rather than as a sustained communicative practice. Limited access to speaking partners, delayed corrective feedback, fear of negative evaluation, and restricted rehearsal time collectively reduce learners' willingness to participate orally (Abdullah Sharadgah & Abdulatif Sa'di, 2022; Lee & Maeng, 2023; Sariyildiz et al., 2024; Sun, 2023).

In recent years, artificial intelligence has begun to reshape this situation. Reviews of AI in English language teaching indicate that chatbots, intelligent assistants, speech-recognition systems, pronunciation tools, and generative platforms are increasingly used to personalise learning, deliver instant feedback, and extend language practice beyond the classroom (Abdullah Sharadgah & Abdulatif Sa'di, 2022; Daud et al., 2025; Henry et al., 2024; W. Huang et al., 2022; Kohnke et al., 2023; Peña-Acuña & Corga Fernandes Durão, 2024). These developments are particularly relevant for speaking because oral language development

depends heavily on access to interaction, opportunities for repetition, and timely response to learner output (Maine, 2024; Qiao & Zhao, 2023; Ruswandi et al., 2025). AI-mediated systems enable learners to rehearse speaking privately, receive feedback immediately, and revisit the same communicative event multiple times, which are affordances that traditional classroom settings rarely offer in sufficient quantity (W. Huang et al., 2022; Jeon et al., 2024; Üstünbaş, 2024).

Despite the growing body of literature on AI in language education, three interconnected gaps remain insufficiently addressed. Theoretically, most existing reviews and empirical studies frame AI-supported speaking in terms of linguistic skill outcomes (specifically, pronunciation accuracy, fluency scores, and grammatical correctness) without grounding the analysis in communication theory. Applied communication concepts such as communicative competence (Canale & Swain, 1980; Hymes, 1972), willingness to communicate (Macintyre et al., 1998; McCROSKEY, 1977), interactional scaffolding (Long, 1996), and computer-mediated communication (Walther, 1992) remain largely unintegrated into the analytical frameworks used to interpret AI-enhanced speaking research. This constitutes a clear theoretical gap: AI is evaluated as a technical intervention rather than as a reconfiguration of the communicative environment.

Methodologically, previous systematic reviews in this area have not employed an applied communication perspective as an explicit analytical framework for organising and interpreting findings. Existing reviews such as Huang et al. (2022) and Sariyildiz et al. (2024), provide valuable syntheses of pedagogical and technical outcomes, but they do not apply communication-theoretical categories to distinguish between types of AI affordances. This creates a methodological gap, as the communicative dimensions of AI-mediated interaction (including participation, confidence, interactional quality, and transfer to authentic dialogue) are discussed only marginally or only post hoc.

Empirically, there is a consistent absence of studies examining the transfer of AI-mediated rehearsal into authentic human communicative performance. The literature confirms that AI improves scores on speaking assessments and self-reported confidence (Qiao & Zhao, 2023; Sariyildiz et al., 2024; Susoy, 2026), but it is largely silent on whether and how these gains translate into real interactional competence outside AI-mediated environments. This empirical gap, specifically the gap between rehearsed fluency and authentic communicative transfer, is central to any applied communication analysis of AI-supported language learning.

This study addresses these gaps by introducing a theoretically explicit applied communication framework as the analytical lens for synthesising recent research on AI-mediated speaking practice. Three theoretical pillars structure the review: communicative competence theory, which distinguishes linguistic, sociolinguistic, discourse, and strategic competence as components of effective oral communication (Canale & Swain, 1980); the willingness-to-communicate model, which positions participation readiness as a dynamic, contextually sensitive predictor of L2 oral development (Macintyre et al., 1998); and computer-mediated communication theory, which provides tools for analysing how mediated environments shape interactional quality, presence, and relational communication (Walther, 1992). By applying this framework, the study moves beyond outcome-counting to interpret *why and how* AI-mediated environments affect speaking development as a communicative process.

The study is distinguished from comparable reviews by three contributions: first, it offers the first systematic synthesis specifically focused on speaking practice that adopts an explicit communication-theoretical analytical framework; second, it provides a more comprehensive and critically structured reading of the pedagogical benefits and communicative limitations of AI-mediated oral interaction; and third, it advances the concept of ‘Mediated Communicative Scaffolding’ as a framework for positioning AI in relation to authentic human speaking, thereby connecting AI-enhanced language learning research with the broader field of applied communication.

Accordingly, this study aims to examine how artificial intelligence transforms speaking practice in language learning from an applied communication perspective. Using a systematic literature review of 37 peer-reviewed journal articles published between 2021 and 2026, the study analyses the communicative affordances, pedagogical benefits, and practical limitations of AI-mediated speaking practice in EFL and

ESL settings. The significance of the study lies in its attempt to connect recent AI research with communication-oriented language pedagogy and to clarify how AI can serve as a communicative scaffold rather than a technical substitute for human interaction.

LITERATURE REVIEW

Applied Communication Framework for Language Learning

An applied communication perspective on language learning foregrounds speaking as a social practice enacted through interaction, negotiation of meaning, and identity performance, rather than as the execution of a memorised linguistic system (Canale & Swain, 1980; Hymes, 1972; Zhang, 2025). Hymes (1972) first introduced the concept of communicative competence to describe the knowledge and abilities a speaker needs to use language in contextually appropriate and socially meaningful ways, moving decisively beyond Chomsky's purely syntactic notion of linguistic competence. Canale and Swain (1980) subsequently elaborated this concept into four components, namely grammatical, sociolinguistic, discourse, and strategic competence, each of which is relevant to evaluating AI-mediated oral interaction. A learner engaging with a chatbot may develop grammatical competence through corrective feedback and develop strategic competence through repair and reformulation, yet may receive limited sociolinguistic or discourse competence development due to the system's restricted sensitivity to context, register, and social relationship (Crompton et al., 2024; Jeon et al., 2024).

Willingness to communicate (WTC) is a central construct in applied communication and second language acquisition (Macintyre et al., 1998; McCROSKEY, 1977). Macintyre et al. (1998) define WTC as an inclination to initiate communication at a specific moment with a specific person, shaped by variables including communicative confidence, desire to communicate, interpersonal motivation, intergroup attitudes, and the social and situational context. In EFL and ESL settings, WTC is particularly relevant because learner reluctance to speak is often the primary barrier to oral language development, not linguistic knowledge itself (Henry et al., 2024; Kuluşaklı & Genç, 2024; Lee & Maeng, 2023). The communication apprehension literature further establishes that anxiety about speaking in a second language is a stable affective trait that can significantly suppress participation even when learners have adequate linguistic resources (McCROSKEY, 1977; Susoy, 2026).

Computer-mediated communication (CMC) theory offers an additional analytical lens for interpreting AI-mediated interaction in language learning. Walther (1992) argued that computer-mediated interactions differ from face-to-face communication in ways that affect interpersonal dynamics, identity presentation, and relational development. In language learning contexts, the CMC perspective has been applied to analyse how technology-mediated oral and textual interaction shapes participation, motivation, and linguistic development (Warschauer, 1996). When AI systems function as interlocutors in speaking practice, they introduce mediation effects that influence turn-taking rhythm, error response latency, social pressure, and the perceived communicative stakes of the interaction, all of which are analytically significant from a communication perspective (Crompton et al., 2024; Walther, 1992).

AI-Mediated Interaction and Oral Language Development

The literature consistently demonstrates that AI is increasingly positioned as an interlocutor, feedback provider, and rehearsal partner in EFL and ESL speaking contexts. Chatbots, speech-recognition systems, voice assistants, pronunciation tools, and generative AI platforms have all been studied in relation to oral language development (W. Huang et al., 2022; Jeon et al., 2024; Peña-Acuña & Corga Fernandes Durão, 2024; Sariyildiz et al., 2024). The interactional hypothesis (Long, 1996) provides a theoretical rationale for this role: meaningful language acquisition occurs through interaction that includes negotiation of meaning, recasting, and modified input, all of which AI-mediated systems can, to varying degrees, simulate. Personalized systems allow learners to repeat interactions, adjust difficulty, and practice beyond classroom hours, which can make

speaking more continuous and less dependent on formal lesson time (Daud et al., 2025; Kessler et al., 2025; Qiao & Zhao, 2023).

Willingness to communicate is particularly relevant in this context. Several studies confirm that AI-supported speaking environments can reduce the emotional burden of oral production by enabling private, repeatable, and low-stakes interaction (F. Huang & Zou, 2024; Sariyildiz et al., 2024; Tang et al., 2026; Üstünbaş, 2024). Based on a CMC perspective, the reduced social presence of AI as an interlocutor, relative to teachers or peers, lowers the perceived risk of public failure and thereby increases learners' readiness to initiate and sustain spoken interaction (Susoy, 2026; Walther, 1992). This affective affordance aligns with Macintyre et al.'s (1998) WTC model, in which situational confidence is a proximal antecedent of communicative action.

At the same time, the literature does not present AI as a communicatively complete substitute for human conversation. Several studies identify recurring limitations: artificial conversational flow, speech-recognition errors, limited pragmatic sensitivity, and the risk that learners develop overdependence on machine-mediated interaction (Crompton et al., 2024; Daud et al., 2025; Jeon et al., 2024; Tlili et al., 2023). Based on a communicative competence perspective, these limitations map directly onto the sociolinguistic and discourse components that AI systems currently handle poorly, including context-sensitive register, repair initiation, relational positioning, and culturally embedded meaning (Canale & Swain, 1980; Crompton et al., 2024; Sun, 2023). The implication is that AI is best understood as a scaffold for the grammatical and strategic components of oral competence, while sociolinguistic and discourse competence continue to require human interaction.

METHOD

This study employs a systematic literature review (SLR) to synthesise recent scholarship on artificial intelligence and speaking practice in language learning. The review follows the PRISMA 2020 statement, which provides a transparent and reproducible reporting structure through the stages of identification, screening, eligibility, and inclusion (Page et al., 2021). The SLR design was selected because recent work on AI in English language teaching increasingly uses systematic review methods to map tools, educational applications, and emerging challenges across a rapidly expanding body of research (Abdullah Sharadgah & Abdulatif Sa'di, 2022; Daud et al., 2025; Torres & Kahveci, 2025). This study extends existing SLR approaches by adopting an explicit applied communication framework to organise thematic synthesis and interpret findings in relation to communicative competence, WTC, and CMC theory.

The literature search was conducted in four academic databases: Scopus, Web of Science, ERIC, and ScienceDirect. These databases were selected since recent review studies on AI in English language teaching have drawn on comparable sources to capture peer-reviewed research in applied linguistics, education, and technology-enhanced learning (Daud et al., 2025; Peña-Acuña & Corga Fernandes Durão, 2024). Google Scholar was used as a supplement to verify the completeness of citations for key studies identified through the primary search.

The search covered publications from January 2021 to March 2026, corresponding to the period of most rapid growth in conversational AI, generative AI, and speech-based educational applications (Daud et al., 2025; Godwin-Jones, 2024; Torres & Kahveci, 2025). The search string was constructed using three keyword clusters (AI-related terms, speaking-related terms, and language-learning context terms), combined using Boolean operators as follows:

("Artificial Intelligence" OR "AI" OR "Chatbot" OR "Generative AI" OR "ChatGPT" OR "Speech Recognition" OR "Voice Assistant" OR "Large Language Model") AND ("Speaking" OR "Speaking Skill" OR "Oral Proficiency" OR "Pronunciation" OR "Fluency" OR "Willingness to Communicate" OR "Speaking Anxiety" OR "Oral Communication") AND ("Language Learning" OR "English Language learning" OR "EFL" OR "ESL" OR "ELT" OR "Second Language Acquisition" OR "Foreign Language Learning")

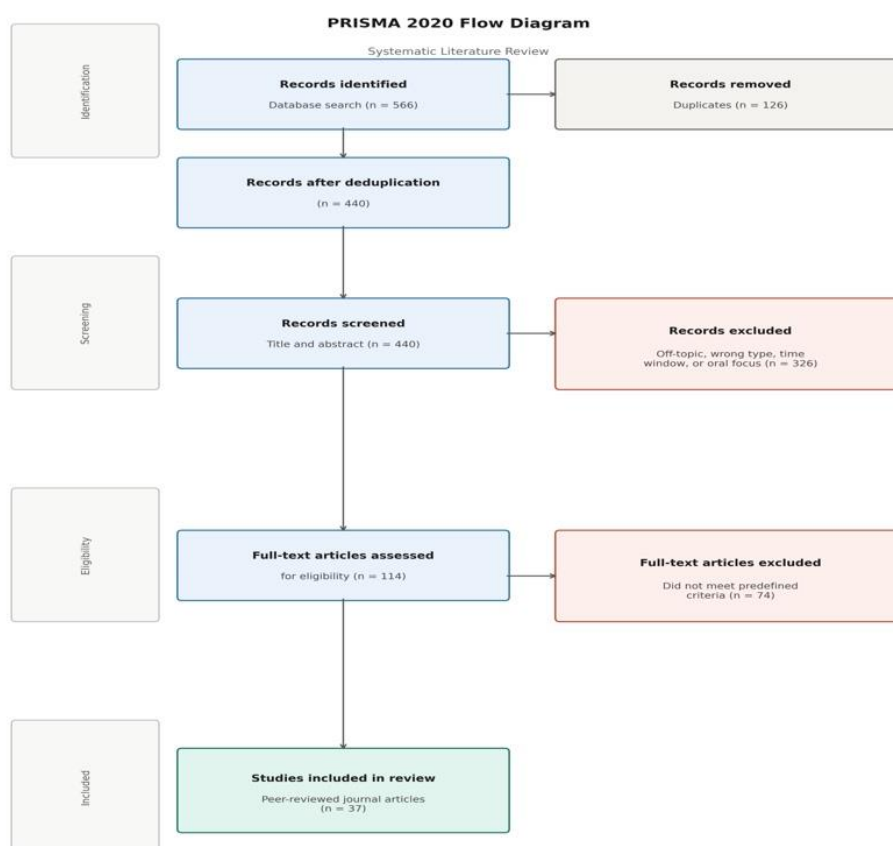
This search string was applied consistently across all four databases, with field-specific syntax adjustments (e.g., TITLE-ABS-KEY in Scopus; Topic search in Web of Science). The search terms reflect the dominant categories identified in recent review literature on AI-supported language learning and speaking practice (Abdullah Sharadgah & Abdulatif Sa'di, 2022; W. Huang et al., 2022; Jeon et al., 2024; Liu & Ma, 2024).

Studies were included if they met all of the following criteria: (1) peer-reviewed journal article; (2) published between January 2021 and March 2026; (3) written in English; (4) focused on AI-supported speaking practice or closely related oral communication variables such as pronunciation, fluency, oral proficiency, speaking anxiety, or willingness to communicate; (5) situated in language-learning, EFL, ESL, or ELT contexts; and (6) accessible in full text with sufficient methodological detail for extraction. These criteria were designed to ensure topical relevance and comparability with recent systematic reviews in the field (Abdullah Sharadgah & Abdulatif Sa'di, 2022; Daud et al., 2025; Page et al., 2021).

Studies were excluded if they were conference papers, theses, dissertations, book chapters, editorials, or opinion pieces; if they focused exclusively on writing, reading, or listening without an oral communication dimension; if they mentioned AI only peripherally without an AI-mediated speaking activity; if they duplicated another record; or if the full text or methodological details were inaccessible. This filtering procedure is consistent with current systematic review practice (Daud et al., 2025; Page et al., 2021).

All 114 articles assessed in full text were subjected to a quality appraisal process adapted from the Critical Appraisal Skills Programme (CASP) framework for qualitative and mixed-methods research (CASP, 2018), supplemented by criteria proposed by Daud et al. (2025) and Torres and Kahveci (2025) for reviews in educational AI research. Each study was evaluated on five quality criteria: (1) clarity of research aim or question; (2) appropriateness of research design for the stated aim; (3) transparency of data collection or search procedure; (4) rigour of data analysis or synthesis; and (5) relevance to the review's focus on oral communication in AI-mediated EFL/ESL settings. Each criterion was rated as Met, Partially Met, or Not Met. Studies rated Not Met on criteria 1, 2, or 5 were excluded from the final synthesis. Studies rated Partially Met on multiple criteria were retained but flagged for lower evidentiary weight in the thematic analysis. This quality screening underscores that findings reported in the synthesis reflect methodologically adequate primary research rather than preliminary reports or studies with unclear scope.

As shown in Figure 1, the database search identifies 566 records. After removing 126 duplicate entries, 440 records remain for title and abstract screening. Following the inclusion and exclusion criteria, 326 records are excluded, as they do not align with the review's topic, publication type, time window, or focus on oral communication. The remaining 114 articles are assessed in full text. After full-text screening and quality appraisal, 74 articles are excluded for predefined reasons, and 37 peer-reviewed journal articles are retained for final synthesis. This staged procedure follows the reporting logic recommended by PRISMA 2020 (Page et al., 2021).



Source: Authors, 2026

Figure 1. Prisma Flow Diagram

A structured extraction sheet was developed and piloted on five articles before full-scale coding. The sheet recorded the following: author(s), year, country or context, educational level, participant profile, AI tool used, research design, speaking-related variables measured, key findings, and communication implications. Each article was independently reviewed by authors using the extraction sheet. Following independent coding, the authors convened to compare extractions, discuss discrepancies, and reach consensus on thematic categorisation. This consensual validation process ensured consistency and reliability across all 37 included articles (Thomas & Harden, 2008).

Thematic synthesis followed the three-stage process described by Thomas and Harden (2008): (1) line-by-line coding of findings in each study; (2) development of descriptive themes by grouping related codes; and (3) generation of analytical themes that interpreted the descriptive patterns in relation to the review's applied communication framework. Four analytical categories emerged from this process: AI as a conversational partner, AI as a feedback mechanism, AI as affective support, and AI as a constrained communication environment. These categories were not predetermined; they emerged from the data, yet align with recurring constructs in the applied linguistics and CMC literature (W. Huang et al., 2022; Jeon et al., 2024; Sariyildiz et al., 2024; Walther, 1992).

Table 1 presents the distribution of the 37 included articles by country or region, educational level, AI tool type, and research design. This distribution provides contextual grounding for interpreting the review's findings and identifying gaps in the existing literature.

Table 1. Distribution of Included Studies (N = 37)

Categories	Distributions	n (%)
Countries/Regions	China, Turkey, Indonesia, USA, Saudi Arabia, Others (Malaysia, Sweden, Finland, Spain), South Korea, Thailand, Iran, UK	9 (24%), 6 (16%), 6 (16%), 3 (8%), 3 (8%), 2 (5%), 2 (5%), 1 (3%), 1 (3%), 1 (3%)
Educational Levels	University/tertiary, Mixed/not specified, Secondary school, Primary school	21 (57%), 11 (30%), 3 (8%), 2 (5%)
AI Tool Type	Chatbots/conversational AI (incl. ChatGPT), Multiple/blended AI tools, Generative AI (text-based), Speech-recognition systems, Pronunciation apps	14 (38%), 14 (38%), 5 (14%), 2 (5%), 2 (5%)
Research Designs	Systematic review/meta-analysis, Qualitative/case study, Survey/quantitative, Mixed methods, Quasi-experimental	13 (35%), 7 (19%), 7 (19%), 6 (16%), 4 (11%)

RESULTS AND DISCUSSION

Results

Theme 1: AI as a Conversational Partner

Fourteen studies (38%) positioned AI primarily as a conversational partner, defined in this context as an entity with which learners engage in turn-taking, question-and-answer exchange, role-play, or guided dialogue. This is the most frequently represented theme in the corpus, consistent with the dominance of chatbot-focused studies in the broader AI-in-ELT literature (W. Huang et al., 2022; Jeon et al., 2024; Koç & Savaş, 2025). The conversational partner function is theoretically significant from an applied communication perspective, as it attempts to replicate the interactional conditions of Long's statement (1996). The interactional hypothesis identifies negotiation of meaning, modified input, and recasting as critical for language acquisition.

Empirically, studies in this theme report mostly positive effects. Chen et al. (2025) found that role-play activities with a generative AI agent significantly improved EFL learners' speaking performance compared with conventional role-play, with the AI's ability to sustain interaction and provide contextualised feedback identified as key affordances. Üstünbaş (2024) reported that EFL learners who engaged in conversational practice with ChatGPT over six weeks reveal improved fluency and reduced hesitation and expressed greater willingness to speak in subsequent classroom tasks. Jeon et al. (2024) similarly found that speech-recognition chatbots enable learners to engage in voice-based interaction that text-only systems cannot provide, thereby more closely approximating the conditions of real communicative exchange.

However, studies in this theme also consistently identify a communicative limitation: the AI's conversational turns, while formally appropriate, often lack the relational texture, contextual sensitivity, and pragmatic responsiveness that characterise genuine human dialogue. Crompton et al. (2024) observe that AI responses in speaking practice applications frequently lack the ability to manage topic transitions, produce appropriate affect, or adapt register to social context, all of which are central to discourse and sociolinguistic competence (Canale & Swain, 1980). This pattern suggests that while AI can simulate conversational structure, it does not yet replicate the full range of communicative functions that interlocutors perform in authentic interaction.

Theme 2: AI as a Feedback Mechanism

Eight studies (22%) emphasised AI primarily in its role as a feedback provider, delivering immediate, personalised, and repeatable responses to learner oral output. This is the most theoretically grounded theme in relation to second language acquisition, as feedback is central to both the interactional hypothesis (Long, 1996) and to communicative competence development (Canale & Swain, 1980). AI-based feedback in the reviewed

studies typically targeted pronunciation accuracy, grammatical form, fluency markers (hesitation, pace), and, in some cases, vocabulary use during spoken tasks.

Sun (2023) conducted a mixed-methods study using automatic speech recognition (ASR) technology combined with peer correction among 61 Chinese EFL learners. The experimental group using ASR significantly outperformed the control group on measures of accentedness, comprehensibility, and overall speaking skill, with qualitative data indicating that learners valued the immediacy and specificity of AI feedback compared to delayed teacher correction. Qiao and Zhao (2023) using Duolingo as an AI-based instructional platform, researchers similarly found that EFL learners who received AI-generated speech feedback revealed significantly higher speaking self-regulation and overall oral proficiency compared to peers in conventional instruction.

A critical pattern emerging across this theme concerns the depth and communicative utility of AI-generated feedback. Studies indicate that AI feedback is most reliable for segmental features (vowel and consonant accuracy), moderately reliable for suprasegmental features (stress, intonation), and least reliable for discourse-level or pragmatic features (coherence, appropriateness, conversational repair). Abdullah Sharadgah and Abdulatif Sa'di (2022) observe that AI feedback systems rarely address the sociolinguistic dimensions of speaking competence, which is precisely the component most relevant for authentic communicative transfer. Based on an applied communication perspective, this suggests a systematic gap between what AI measures and what effective oral communication requires.

Theme 3: AI as Affective Support

Seven studies (19%) primarily examined AI's role in shaping affective variables related to speaking, most frequently speaking anxiety, willingness to communicate, and communicative confidence. This theme is analytically central to the applied communication framework, as Macintyre et al.'s (1998) WTC model identifies affective readiness, not linguistic knowledge alone, as the proximal cause of communicative action. A learner who has adequate language resources, yet high speaking anxiety, will still withhold participation; consequently, interventions that reduce anxiety or build communicative confidence can have direct effects on oral language development even when linguistic forms are unchanged.

Huang and Zou (2024) examined the roles of enjoyment, WTC with AI, and innovativeness in English-speaking practice with AI tools among Chinese undergraduates (N = 412). Structural equation modelling results revealed that WTC with AI was a significant predictor of sustained oral engagement, mediated by speaking enjoyment. This finding is significant, as it suggests that the communicative and affective benefits of AI are not merely additive to linguistic gains but constitute an independent pathway through which AI supports oral development.

Susoy (2026) conducted a mixed-methods comparison of AI chatbot-facilitated versus human-facilitated speaking assessments among Turkish EFL learners. Critically, findings revealed a significant negative correlation between speaking anxiety and achievement in human-facilitated examinations, but no significant correlation in AI-facilitated examinations, indicating that AI assessment conditions effectively neutralised the anxiety-performance relationship. Tang et al. (2026) similarly found that, EFL learners with higher self-efficacy and lower speaking anxiety exhibit greater WTC with generative AI, and that the duration of AI use moderates the relationship between enjoyment and communicative engagement.

Importantly, however, the affective benefits of AI are not unidimensional. Several studies report that some learners find AI interaction unsatisfying, alienating, or insufficiently motivating when the AI's communicative responses are perceived as too mechanical (Crompton et al., 2024; Tlili et al., 2023). From a CMC perspective, this reflects the reduced social presence of AI, a feature that lowers anxiety for many learners but reduces communicative meaningfulness for others. The applied communication implication is that affective benefits are mediated by individual differences in communicative orientation, sensitivity to social presence, and technology acceptance.

Theme 4: AI as a Constrained Communication Environment

The fourth theme, represented across the corpus as a persistent secondary finding rather than a primary focus, addresses the communicative limitations of AI-mediated speaking environments. Across the corpus, studies consistently included discussion of constraints alongside their main positive findings, representing a pattern of qualified endorsement rather than uncritical affirmation of AI's communicative value.

Recurring constraints identified across the literature include: (1) artificial conversational flow, characterised by AI responses that are formally correct but rhythmically, prosodically, or pragmatically unnatural (Crompton et al., 2024; Jeon et al., 2024); (2) speech-recognition errors, specifically the misrecognition of learner speech particularly for non-native accents, regional varieties, and lower-proficiency learners (Jeon et al., 2024; Sun, 2023); (3) limited pragmatic sensitivity, manifested as failure to respond appropriately to implied meaning, indirect speech acts, cultural reference, or emotional tone (Crompton et al., 2024; Tlili et al., 2023); (4) overdependence risk, evidenced by learners who develop scripted speaking patterns optimised for AI recognition rather than authentic communicative competence (Daud et al., 2025; Kohnke et al., 2023); and (5) ethical and equity concerns, encompassing issues of data privacy, unequal technological access, and differential AI accuracy across language varieties (Daud et al., 2025; Tlili et al., 2023).

Based on a communicative competence perspective (Canale & Swain, 1980), constraints 1–3 map directly onto the sociolinguistic and discourse competence components that AI currently handles poorly. From a CMC perspective (Walther, 1992), constraints 4–5 reflect the emergent behaviours learners develop to manage interaction with a non-human interlocutor, behaviours that may diverge from those required in authentic human communication. Constraint 5, concerning equity, remains the least addressed in the empirical literature despite having the most significant implications for educational policy.

Table 2. Comprehensive Synthesis of Reviewed Studies by Analytical Theme

Themes	Representative Studies	AI Tools	Key Outcomes	Communicative Dimensions	Limitation Noted
AI as a Conversational Partner	Chen et al. (2025); Üstünbaş (2024); Jeon et al. (2024)	ChatGPT, ASR chatbot, GenAI agent	Improved fluency, oral performance, WTC	Interactional hypothesis; discourse competence	Lacks pragmatic and relational responsiveness
AI as a Feedback Mechanism	Sun (2023); Qiao & Zhao (2023); Sariyildiz et al. (2024)	ASR, Duolingo, pronunciation apps	Improved pronunciation, fluency, and self-regulation	Grammatical competence; strategic competence	Limited to segmental/surface features; no sociolinguistic feedback
AI as Affective Support	Huang & Zou (2024); Susoy (2026); Tang et al. (2026); Üstünbaş (2024)	ChatGPT, GenAI tools, mixed AI	Reduced anxiety, increased WTC, improved confidence	WTC model; CMC social presence	Benefits mediated by individual differences; AI perceived as unsatisfying by some learners
AI as a Constrained Communication Environment	Crompton et al. (2024); Daud et al. (2025); Tlili et al. (2023)	Various AI tools	Recognition errors, artificial flow, and overdependence	Sociolinguistic & discourse competence gaps	Equity issues, ethical concerns, and limited transfer to authentic communication

Source: Authors, 2026

DISCUSSION

AI as Mediated Communicative Scaffolding: An Applied Communication Interpretation

The synthesised findings support a theoretically grounded reframing of AI's role in the development of speaking. Rather than functioning primarily as an automated correction device, AI in the reviewed literature consistently operates as a 'Mediated Communicative Scaffolding System': a structured interaction environment that increases the frequency of speaking attempts, provides performance-contingent feedback, reduces the affective costs of oral participation, and enables rehearsal of communicative forms that learners later deploy in authentic interaction. This framing, informed by communicative competence theory (Canale & Swain, 1980), the WTC model (Macintyre et al., 1998), and CMC theory (Walther, 1992), offers a more analytically precise account of what AI does and does not accomplish in speaking pedagogy.

From a communicative competence perspective, the pattern of findings is instructive. AI-mediated practice most consistently develops grammatical competence (pronunciation, fluency, morphosyntactic accuracy) and strategic competence (self-correction, reformulation, repair initiation), as these are the competence components most accessible to pattern-matching, speech analysis, and feedback algorithms (Qiao & Zhao, 2023; Sariyildiz et al., 2024; Sun, 2023). Sociolinguistic competence (contextually appropriate language use, register, cultural meaning) and discourse competence (cohesion, coherence, turn-taking management) remain substantially underdeveloped by AI-mediated interaction, as these components require socially embedded, contextually responsive human interlocutors (Canale & Swain, 1980; Crompton et al., 2024; Jeon et al., 2024). This asymmetry is a crucial analytical finding: AI can build the structural and strategic foundations of oral competence, but the communicative dimensions of speaking that require human relationality remain outside its current reach.

Contradictions and Limitations in the Literature

A critical reading of the literature also reveals a pattern of contradictions and unresolved tensions that a purely confirmatory account would obscure. First, while most studies report positive effects on speaking-related outcomes, the evidence base is methodologically uneven. Most studies are short-term (6–16 weeks), conducted in single institutional contexts, and rely on pre-test/post-test designs without control for pre-existing proficiency differences, technology familiarity, or motivational orientation (Abdullah Sharadgah & Abdulatif Sa'di, 2022; Daud et al., 2025; Torres & Kahveci, 2025). This limits the generalisability of positive findings. Second, the WTC literature presents a nuanced counter-pattern to the general endorsement of AI as an anxiety-reduction tool. While Susoy (2026) and Huang and Zou (2024) demonstrate that AI environments reduce the correlation between anxiety and performance, Tang et al. (2026) find that willingness to communicate with AI is a distinct construct from WTC in human contexts; moreover, high WTC with AI does not necessarily transfer to increased WTC with human interlocutors. This distinction is analytically critical because the pedagogical value of AI-based oral practice depends substantially on whether communicative gains transfer to authentic human interaction. The current literature provides little evidence that they do (Crompton et al., 2024; Jeon et al., 2024; Tlili et al., 2023).

Third, the literature consistently reports concerns about authenticity and transferability, which are treated as peripheral limitations rather than as central analytical problems. From a communication perspective, however, the question of whether AI-rehearsed speech patterns transfer to authentic communicative performance is not secondary but constitutive of any evaluation of AI's educational value. If learners develop fluency in AI-mediated interaction but cannot deploy that fluency in human conversation, thereby the communicative effectiveness of AI-based practice is fundamentally compromised, regardless of the improvements recorded on speaking assessments (Ma & Chen, 2025; Shen, 2025). This represents a critical gap that future research must address directly.

Fourth, equity and access concerns are insufficiently theorised in the existing literature. Daud et al. (2025) and Tlili et al. (2023) observe that AI tools vary in their accuracy across language varieties, creating a risk that learners with non-standard or regional accents receive systematically less accurate feedback than

standard-variety speakers. This is not merely a technical problem; it is a communicative justice issue that has direct implications for who benefits from AI-mediated speaking practice and who is disadvantaged by it. The applied communication tradition's commitment to inclusive and ethical communication analysis (Al-khresheh, 2024; Maghsudi et al., 2021) demands that this issue receive more sustained attention in future research.

Pedagogical Implications: Toward a Layered Communication Pedagogy

The findings suggest that AI is most educationally effective when it is integrated into a layered speaking pedagogy that positions AI-mediated practice as one stage in a broader communicative development sequence (Shen, 2025; Shi & Shakibaei, 2025; Zhang, 2025). In such a model, AI serves as a preparatory communicative environment: learners use AI before class to rehearse targeted language forms, build confidence, and reduce anxiety associated with novel speaking tasks. During class, teacher-mediated tasks engage the sociolinguistic and discourse competence dimensions that AI cannot develop, namely register, pragmatic appropriateness, cultural sensitivity, and authentic negotiation of meaning. After class, AI-based repetition allows learners to consolidate and refine what was introduced in human interaction. Hadian et al. (2023) demonstrate that pedagogically guided AI integration, wherein ChatGPT is used as a communicative rehearsal tool embedded within a structured learning plan, produces superior outcomes relative to unguided or replacement-based AI use.

This model positions AI not as a substitute for teachers or peers but as a communicative infrastructure that extends the range and frequency of opportunities for oral interaction while preserving the distinctively human dimensions of speaking pedagogy. Ma and Chen (2025) contend that human scaffolding remains essential because AI cannot model the affective, relational, and culturally grounded communication behaviours that learners ultimately need to develop. Mutammimah et al. (2024) and Zulkarnain and Md Yunus (2023) further demonstrate that teacher readiness and institutional support are critical mediating variables in AI integration: teachers who understand AI's communicative limitations and pedagogical role are better positioned to deploy it effectively than those who adopt it as a technical add-on.

Wahyuningsih and Salsabila (2023) observe, in the context of English listening comprehension among Indonesian university students, that the curriculum infrastructure surrounding skill-focused digital tools is as essential as the tools themselves, an observation that applies equally to AI-mediated speaking practice. Elihami and Melbourne (2023), in a bibliometric analysis of learning methods research, further demonstrate that the institutional and cultural context of learning shapes the adoption and effectiveness of innovative pedagogical approaches. These findings underscore that the communicative benefits of AI-mediated speaking practice cannot be understood independently of the institutional, curricular, and interpersonal contexts in which AI is deployed.

Research conducted within Indonesian EFL contexts offers an additional perspective on learner engagement with digitally mediated language tools. Herwanis et al. (2025) found that EFL learners at an Indonesian higher education institution demonstrated measurable gains in speaking skills through the systematic integration of digital media, with the quality of teacher facilitation identified as the most decisive implementation variable. Majidah et al. (2025) similarly report that Indonesian university students held strongly positive perceptions of generative AI (Google Gemini) as a learning assistant, with perceived usefulness and ease of use emerging as the principal determinants of acceptance, findings that align with technology acceptance research and suggest that learner orientation toward AI tools constitutes a pedagogically significant variable in any deployment context. Aziz et al. (2024), examining Cambridge curriculum implementation in an Indonesian Junior Secondary English context further illustrates how curriculum design and teachers' professional capacity interact to determine whether innovative instructional approaches achieve their intended communicative outcomes. Sari et al. (2023) provide complementary evidence that Indonesian secondary school students respond positively to technology-enhanced language activities when they are perceived as engaging and purpose-driven, highlighting the role of learner experience design alongside tool selection. These findings from the Indonesian EFL context collectively reinforce the

argument that the effectiveness of any technology-mediated language practice, including AI-mediated speaking, is inseparable from the pedagogical, institutional, and learner-readiness conditions in which it is situated.

CONCLUSIONS AND RECOMMENDATION

This study reports 37 peer-reviewed journal articles to examine how artificial intelligence transforms speaking practice in language learning through an applied communication framework. The synthesis reveals that AI-supported speaking practice most consistently develops grammatical and strategic competence (specifically, pronunciation, fluency, accuracy, and self-correction) and reduces the affective barriers to oral participation by creating low-pressure, repeatable, and feedback-rich communicative environments. These benefits align with communicative competence theory (Canale & Swain, 1980), the willingness-to-communicate model (Macintyre et al., 1998), and computer-mediated communication theory (Walther, 1992). The study's primary theoretical contribution is the concept of 'Mediated Communicative Scaffolding': a framework that repositions AI in speaking pedagogy from an automated correction device to a structured communicative environment that builds the foundational competencies learners need for authentic human interaction. This concept specifies what AI can and cannot accomplish in oral development: AI effectively scaffolds grammatical and strategic competence through repeated, low-stakes interaction; it cannot currently develop the sociolinguistic and discourse competence components that require human interlocutors and authentic communicative contexts. This theoretical positioning offers language educators and curriculum designers a more precise vocabulary for integrating AI into communication-oriented speaking pedagogy.

The study's practical implications are operational. First, AI-mediated speaking tools should be deployed as preparatory rehearsal environments within a layered pedagogy, not as substitutes for human interaction. Second, teachers require professional development on the communicative limitations of AI, specifically its inability to provide sociolinguistic and discourse feedback; thus, they can design tasks that address these gaps. Third, curriculum designers should prioritise the transfer question: learning sequences should include explicit transitions from AI-mediated practice to human communicative tasks, with assessment criteria that evaluate authentic communicative performance rather than AI-optimised pronunciation or fluency scores. Fourth, institutions and policy-makers should address equity and access concerns before scaling AI-mediated speaking tools, ensuring that learners with non-standard accents and limited access to technology are not systematically disadvantaged.

Limitation

The study is limited by the current state of the empirical literature, which still relies predominantly on systematic reviews and short-term quasi-experimental designs, context-specific samples, and outcome measures that prioritise linguistic accuracy over communicative authenticity. Future research should therefore prioritise: longitudinal studies examining whether AI-rehearsed competences transfer to authentic communicative interaction over time; comparative designs contrasting human-AI-human versus AI-only speaking sequences; methodologically diverse studies that include discourse analysis and interactional ethnography to capture the communicative dimensions of AI-mediated oral practice; and equity-focused research examining differential AI accuracy and benefit across language variety, proficiency level, and socioeconomic context.

Credit authorship contribution statement

Alan Munandar, Ari Santoso Widodo Poespodihardjo, Nabhan Fuad Choiron: Conceptualization, Methodology, Formal Analysis, Literature Review, Writing, Original Draft, Writing, Review & Editing, Data Curation, Resources, Formal Analysis, Writing, Review & Editing, Proofreading.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Ethical Declaration

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

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