https://doi.org/10.69639/arandu.v13i1.1950

The Use of Artificial Intelligence to Improve Speaking Fluency in English as a Foreign Language (EFL) Learning

El uso de la Inteligencia Artificial para mejorar la fluidez oral en el aprendizaje del inglés como lengua extranjera

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Artículo recibido: 10 diciembre 2025 -Aceptado para publicación: 18 enero 2026
Conflictos de intereses: Ninguno que declarar.

ABSTRACT

This action research examined the extent to which short AI-mediated speaking tasks can enhance oral performance in an A2 EFL class. Fifteen students, selected by convenience from a regular English course, completed an eight-session intervention over two weeks in which ChatGPT was used to simulate guided conversations and provide immediate, text-based feedback. Speaking performance was measured through a pretest–posttest design using the Cambridge A2 Speaking Assessment descriptors: grammar and vocabulary, pronunciation, and interactive communication. Descriptive results showed clear gains in all three dimensions: grammar and vocabulary increased from M = 2.8 to M = 4.0, interactive communication from M = 3.4 to M = 4.2, and pronunciation from M = 2.7 to M = 3.5, with reduced dispersion in two of the three areas. Paired-samples t tests confirmed that the improvements were statistically significant in grammar and vocabulary ($p = .0009$, $d \approx .50$), pronunciation ($p = .0053$, $d \approx .40$) and interactive communication ($p = .0125$, $d \approx .50$). These findings indicate that AI-powered tools can operate as low-anxiety rehearsal spaces that promote more frequent oral practice, support self-correction, and increase learners perceived fluency and willingness to communicate. Although the study was small-scale and context-bound,

it provides empirical support for integrating AI within structured, teacher-mediated speaking instruction as a complementary pathway to develop cognitive, utterance, and perceived fluency.

Keywords: Artificial Intelligence, speaking fluency, EFL, chatbots, adaptive learning

RESUMEN

Esta investigación–acción examinó hasta qué punto las tareas orales breves mediadas por IA pueden mejorar el desempeño oral en una clase de inglés como lengua extranjera (A2). Quince estudiantes, seleccionados por conveniencia de un curso regular de inglés, participaron en una intervención de ocho sesiones durante dos semanas en la que se utilizó ChatGPT para simular conversaciones guiadas y proporcionar retroalimentación inmediata por escrito. El desempeño oral se midió con un diseño pretest–posttest empleando los descriptores de evaluación oral de Cambridge para el nivel A2: gramática y vocabulario, pronunciación y comunicación interactiva. Los resultados descriptivos mostraron incrementos claros en las tres dimensiones: gramática y vocabulario pasó de M = 2.8 a M = 4.0, comunicación interactiva de M = 3.4 a M = 4.2 y pronunciación de M = 2.7 a M = 3.5, con una disminución de la dispersión en dos de las tres áreas. Las pruebas *t* para muestras relacionadas confirmaron que las mejoras fueron estadísticamente significativas en gramática y vocabulario ($p = .0009$, $d \approx .50$), pronunciación ($p = .0053$, $d \approx .40$) y comunicación interactiva ($p = .0125$, $d \approx .50$). Estos hallazgos indican que las herramientas basadas en IA pueden funcionar como espacios de práctica de bajo nivel de ansiedad que favorecen una mayor frecuencia de producción oral, apoyan la autorregulación y aumentan la fluidez percibida y la disposición a comunicarse. Aunque el estudio fue de pequeña escala y situado en un contexto específico, aporta evidencia empírica para integrar la IA en una enseñanza oral estructurada y mediada por el docente como vía complementaria para desarrollar la fluidez cognitiva, la fluidez del enunciado y la fluidez percibida.

Palabras claves: inteligencia artificial, fluidez oral, inglés como lengua extranjera, chatbots, aprendizaje adaptativo

INTRODUCTION

The integration of Artificial Intelligence (AI) into educational settings has offered innovative tools to support and enhance communicative competence. Within English as a Foreign Language (EFL) instruction, AI technologies such as intelligent tutoring systems, speech recognition applications, and virtual conversation agents have emerged as valuable resources to improve speaking fluency with their capacity to provide immediate feedback, simulate authentic dialogues, and personalize learning experiences, presenting new opportunities to address the persistent challenges associated with oral language development.

This action research study aims to explore the use of an Al-powered tool to enhance speaking fluency in EFL learners; It explores the impact of these tools on various dimensions of speaking fluency, including accuracy, speech rate, pronunciation, and learner confidence by implementing short speaking activities and evaluating their effects on students' oral performance and confidence.

Speaking skills

Speaking skills involve the capacity to express thoughts, opinions, and emotions clearly and effectively through verbal communication, both in face-to-face interactions and mediated contexts. As Rao (2019) underscores, speaking is the most important among the four basic language skills—listening, speaking, reading, and writing because it directly influences an individual's ability to engage in effective communication in a globalized world. He notes that in the context of international communication, speaking skills serve not only as a tool for interaction but also as a determinant of professional and academic success.

The acquisition of speaking skills demands more than simple memorization or rote learning. According to Mishra (2017), the development of speaking competence encompasses several linguistic elements namely phonetics, stress, pitch, and intonation that shape the clarity, meaning, and naturalness of spoken language. Phonetics analyze how speech sounds are produced, transmitted, and received. It is divided into articulatory phonetics (how speech sounds are produced by the organs of speech), acoustic phonetics (the physical properties of sound waves), and auditory phonetics (how sounds are perceived by the listener). A foundational knowledge of phonetics allows learners to articulate sounds accurately, distinguish between similar phonemes, and improve their overall pronunciation and intelligibility.

Stress refers to the emphasis placed on particular syllables or words within speech. According to Mishra (2017) stress patterns influence the rhythm of English and often alter meaning. For instance, the placement of stress in a word can differentiate between a noun and a verb (e.g., 'record as a noun vs. record as a verb), while stress at the sentence level can change the focus or implication of a statement. Meanwhile, pitch refers to the perceived highness or lowness of the voice, to convey emotional nuance and speaker attitude. He notes that factors such

as fatigue or surprise can influence a speaker's pitch, thereby affecting the listener's interpretation of the message. For example, a rise in pitch might signal excitement or inquiry, while a lower pitch suggests seriousness or authority.

Intonation, closely related to both stress and pitch, is described by Mishra (2017) as the melody of speech. It involves the variation in pitch across an utterance and is used to express meaning beyond the literal words spoken. Intonation helps indicate the speaker's intention, emotional state, or the communicative function of the sentence. There are two primary patterns: the falling tune, typically used in statements or commands, and the rising tune, often employed in yes-no questions or expressions of uncertainty. Mastery of intonation is essential for learners to sound natural and to avoid unintended communicative breakdowns.

Speaking fluency

Speaking fluency in a foreign language extends beyond mere linguistic knowledge to encompass the smooth, coherent, and rapid production of speech in real-time communicative situations. According to Richards (2006), fluency involves the use of naturally occurring language in meaningful interactions were communication flows despite occasional gaps in grammatical accuracy. This view is reinforced by Baily (2003), who describes fluency as the ability to use language quickly and confidently with minimal hesitation or unnatural pauses, as a fluent speaker can produce speech without frequent interruptions to think about what to say next.

According to Ghasemi-Mozaheb (2021), fluency entails both general oral proficiency and the specific temporal aspects of speech, such as speech rate, pause length, and hesitation. Disfluent speakers struggle to maintain their interlocutor's attention, often leading to breakdowns in communication. The cognitive basis for fluency involves proceduralization where linguistic knowledge is automatized allowing speakers to allocate cognitive resources efficiently during real-time speech. Thus, the more automatized a learner's linguistic knowledge becomes, the less cognitive effort is needed to produce speech, enabling faster and more fluid communication.

The development of fluency, as conceptualized by Segalowitz (2022), is best understood through a triadic model comprising cognitive fluency, utterance fluency, and perceived fluency each representing a distinct aspect of speech production. Cognitive fluency refers to the internal, mental efficiency with which a speaker accesses and processes language. It involves the speed and coordination of the cognitive mechanisms such as lexical access, grammatical encoding, and phonological assembly responsible for planning, retrieving, and articulating speech. In second language (L2) speakers, cognitive fluency lags behind that of native speakers due to a greater reliance on controlled processing rather than automatic retrieval. This cognitive load leads to slower speech, more frequent pauses, and increased self-monitoring.

Utterance fluency, in contrast, focuses on observable and measurable speech characteristics. It includes quantitative measures such as speech rate (words or syllables per minute), articulation rate (excluding pauses), mean length of run (number of syllables between

pauses), pause frequency, and repair frequency (e.g., self-corrections, false starts). Utterance fluency improves with increased proficiency, as speakers reduce the length and number of pauses and become more efficient in delivering connected speech. (Tavakoli et al., 2020)

Perceived fluency pertains to how a speaker's fluency is judged by listeners. It is a subjective evaluation, made based on how smooth, natural, and effortless the speech sounds. Interestingly, perceived fluency does not always align perfectly with utterance fluency. For example, a speaker may have a slower speech rate but still be judged as fluent if their delivery is coherent, confident, and appropriately paced. Listeners are particularly sensitive to the rhythm, intonation, hesitation patterns, and the placement of pauses (Segalowitz, 2022). As such, even minor disfluencies can negatively affect fluency perception, especially if they occur in the middle of a clause or disrupt the listener's understanding of meaning

Speaking fluency is hindered by several common challenges: limited vocabulary, lack of listening and speaking practice, and cognitive barriers such as thinking in the native language during speech (Alaraj, 2017). Also, learner attitudes and affective factors such as anxiety, motivation, and mindset influence fluency outcomes. These affective variables do not directly change a learner's linguistic competence but significantly influence how that competence is expressed in real-time communication. Negative beliefs about language ability, often rooted in fixed mindsets or previous failure experiences, can inhibit participation and risk-taking in oral tasks (Bárkányi, 2021).

Foreign language anxiety, particularly in speaking contexts, can disrupt the automatic retrieval of vocabulary and increase self-monitoring, hindering smooth speech production. According to Pabro-Maquidato (2021), high anxiety levels lead to more frequent pauses, hesitations, and errors, thus reducing utterance fluency. Students often report being afraid of making mistakes, especially in front of peers or teachers, and this fear causes them to avoid speaking altogether; In that regard, fostering a growth mindset and building a supportive classroom environment helps reduce the fear of pupils of making mistakes.

From a pedagogical perspective, developing fluency requires intentional design of learning environments and activities, including vocabulary expansion routines and authentic listening tasks. Brown (2017) emphasizes that effective fluency development involves creating psychologically safe environments for speaking practice where learners engage with familiar content and focus on meaning, while experiencing pressure to perform at speed, and are able to produce large volumes of language.

Use of Artificial Intelligence in EFL

The use of Artificial Intelligence (AI) in English as a Foreign Language (EFL) education has grown significantly in recent years, enabling more personalized, efficient, and engaging learning experiences. These advancements are driven by the integration of Natural Language

Processing (NLP), Machine Learning (ML), Artificial Neural Networks (ANNs), and Affective Computing (AC), (Jiang, 2022).

AI fosters individualized learning through lIntelligent Tutoring Systems (ITSs), AI-powered chatbots, and Automated Evaluation Systems (AESs). These systems provide learners with immediate feedback tailored to their language proficiency and learning pace. For example, chatbots facilitate real-time interaction and help develop oral and written communication skills, while AESs support writing development through automated grammar correction and content suggestions (Sumakul et al, 2022). Tools such as ChatGPT, Google Translate, and Grammarly have been found to improve language production in writing and speaking, as they offer immediate, customized feedback that traditional methods often lack (Al-Raimi et al., 2024).

The adoption of AI in EFL has also led to improved student attitudes and engagement. According to Darwin et al. (2024) students respond positively to AI applications and appreciate the autonomy and individualized pace these tools offer, particularly due to their flexibility, interactivity, and capacity to simulate real-life communication. Also, AI tools with speech recognition technologies reduce language anxiety while supporting motivation and sustained attention in learning activities, as they help learners enhance pronunciation and fluency through repeated, low-stress interaction, encouraging more natural language use without the fear of human judgment (Alshumaimeri & Alshememry, 2024).

Furthermore, AI-based mobile applications and virtual environments extend learning beyond the classroom by simulating real-world communication scenarios and offering flexible access to resources. However, AI integration in EFL raises concerns related to data privacy, algorithmic bias, and increased reliance on technology. According to Alghamdy (2023), the use of facial recognition for proctoring or AI-generated assessments brings up questions about student surveillance and the handling of sensitive information.

Moreover, dependence on AI tools may undermine the development of critical thinking and reduce opportunities for authentic human interaction. Teachers have expressed concerns regarding the limitations of AI tools in capturing cultural and contextual nuances of language use, as well as their potential to dehumanize the learning process. Some AI systems, although effective in providing grammatical feedback, lack the ability to offer deeper, creative insights or socio-cultural appropriateness in language usage (Sumakul et al., 2022).

Given the cognitive and emotional demands associated with oral fluency, particularly in EFL contexts, innovative pedagogical approaches are needed to support learners in overcoming these challenges. In this regard, the incorporation of Artificial Intelligence offers promising possibilities by leveraging adaptive feedback, real-time interaction, and simulated communicative environments. AI technologies present a new opportunity to foster fluency development in a responsive, individualized, and scalable means.

Types of AI tools used to support speaking in EFL contexts,

AI-Powered Chatbots appear as the most extensively used tools. These are conversational agents embedded with natural language processing (NLP), speech recognition, and multimodal feedback systems, that are capable of simulating real-life dialogue, often used in mobile apps or integrated into learning platforms to support learners in structured and unstructured speaking tasks.

ChatGPT

ChatGPT stands out as a generative AI model capable of maintaining coherent, extended dialogues that mirror real-life conversation patterns. Its multimodal features text-based interaction and optional audio integration make it a flexible tool for learners seeking structured or spontaneous speaking practice. ChatGPT provides learners with scaffolded conversation opportunities, including feedback on delivery, coherence, and pronunciation.

Replika

This is a conversational AI designed as an empathetic companion, offering both text and voice interaction modes. The tool employs ASR (automatic speech recognition) to process learner input and engage in real-time voice-based exchanges, supporting spontaneity and turn-taking. The avatar mode also enhances engagement by adding visual cues and embodied interaction, helping learners gain confidence in speaking and reducing hesitation.

Lora

This is a mobile-based AI speaking tutor specifically designed to improve pronunciation and oral fluency through structured tasks. It provides adaptive feedback, fluency scores, and real-time correction, making it a robust tool for academic EFL contexts. Its automated scoring system allows learners to monitor progress, while targeted suggestions support iterative improvement.

EnglishBot

It is a task-specific chatbot designed to simulate academic speaking activities, particularly those found in standardized tests like TOEFL. It supports fluency by guiding learners through structured prompts such as summaries, descriptions, and arguments. The tool offers feedback on lexical richness, response length, and semantic relevance, contributing to the development of coherent and fluent oral output.

Andy

It is a beginner-friendly chatbot that uses pre-scripted dialogues and vocabulary support to encourage basic speaking practice. It provides a safe space for early-stage learners to rehearse language forms without fear of judgment, making it suitable for foundational fluency development but insufficient for higher order speaking skills such as argumentation or narrative construction.

Google Assistant

Google Assistant has been utilized in EFL classrooms for impromptu speaking practice. Learners engage in voice-based interactions by asking questions, seeking clarifications, or simulating mini-dialogues. Its real-time voice responses supported pronunciation practice and improved learners' comfort with oral interaction.

Table 1

AI tools to promote speaking fluency

Tool	Strengths	Limitations
ChatGPT	Context-aware, flexible, feedback-rich dialogue in text/audio	No built-in voice interface; limited real-time speech processing
Replika	Realistic, emotionally supportive interaction; real-time voice exchange	Superficial linguistic feedback; better for affective than corrective goals
Lora	Pronunciation correction, fluency scoring, structured practice	Limited open-ended conversation; requires intermediate-level proficiency
EnglishBot	Academic task alignment, semantic feedback, ASR integration	Less spontaneous; focused on formal language production
Andy	Beginner-friendly, vocabulary scaffolding, fixed dialogues	Minimal feedback; not suited for extended discourse
Google Assistant	Natural voice interaction, highly accessible	No educational scaffolding or feedback

Note: Author's elaboration, 2025

Contrastingly, Intelligent Personal Assistants (IPAs) and voice interfaces rely on automatic speech recognition (ASR) and natural language processing (NLP) to facilitate oral practice in both classroom and mobile-based learning environments.

Lyra Virtual Assistant

This is a mobile application that enables learners to rehearse structured speaking tasks through voice interaction. The assistant's real-time feedback allows learners to compare their pronunciation to a model and adjust accordingly, promoting self-paced learning and greater motivation. However, its limitations include a lack of advanced feedback on discourse-level features, making it more suitable for beginners.

iLEAP

It is an enabled pronunciation and speaking coach designed for dual language learners (DLLs). It integrates ASR technology, phoneme-level intelligibility assessment, and animated visual feedback to guide learners in adjusting their articulation. Its interface features lip animations and emoji-based responses that make pronunciation training engaging for young learners.

Pronunciation and fluency feedback tools are designed to offer real-time, automated, and individualized feedback on learners' oral performance, particularly targeting pronunciation accuracy, fluency rate, intonation, and other delivery-related metrics.

Speeko

This is a mobile application that functions as a public speaking coach. It is designed to provide detailed feedback on articulation, pacing, and vocal tone through an AI-powered speech analysis engine. The tool provides feedback on elements such as filler word use, pitch variation, and clarity, making it especially valuable for learners working on delivery refinement and expressive fluency.

Fluent

This is an AI writing tool designed primarily for individuals who stutter, but it has implications for fluency development more broadly. Unlike other tools that assess speech after delivery, Fluent assists users in preparing phonologically optimized scripts for oral delivery. The system identifies potential "trigger words" that might disrupt fluency and offers personalized synonym suggestions based on phonetic structure and speaker preferences. This forward-planning approach allows users to rehearse with greater confidence, especially in high-stakes contexts such as public speaking.

EAP Talk

It is designed for academic English learners and provides feedback aligned with IELTS speaking band descriptors. This tool offers feedback on fluency, grammar, pronunciation, and coherence through AI-generated scoring and example responses, helping learners become familiar with standardized speaking criteria and benchmark their performance accordingly.

Liulishuo

Liulishuo, is another speech evaluation app that integrates ASR technology and AI algorithms to provide automatic scoring on pronunciation, fluency, and grammatical accuracy. The app allows for speaking practice in both scripted and spontaneous formats, offering detailed feedback and recommendations for improvement. Learners benefit from immediate insights into their fluency rate, articulation, and delivery style.

Adaptive learning platforms use artificial intelligence to personalize the learning experience based on individual learner performance, promoting incremental improvement in fluency through integrated tasks that include speaking, listening, vocabulary, and grammar practice.

Duolingo

Duolingo is one of the most widely used adaptive language learning applications worldwide. Its pedagogical model is grounded in the integration of machine learning algorithms, gamification, and real-time feedback loops. The AI system behind Duolingo dynamically adjusts the difficulty level and type of tasks presented to the learner based on their ongoing performance.

Shanbay

This is a Chinese language learning platform that includes modules for vocabulary and pronunciation training. It uses speech recognition to evaluate learners' pronunciation and fluency

based on target sentences. The system offers color-coded feedback, pronunciation scores, and sample audio for imitation, helping learners identify specific phonetic segments that need improvement. Its scaffolded format allows learners to track their progress over time and focus on repeated practice of problematic sounds.

Reported impact of AI tools on various components of speaking fluency

The qualitative findings indicate that AI tools support speaking fluency across three key dimensions cognitive fluency, utterance fluency, and perceived fluency, aligned with Segalowitz's (2010) framework.

Cognitive fluency

AI tools particularly those integrated into chatbots, intelligent tutors, and adaptive learning platforms significantly contribute to the development of cognitive fluency, as repeated exposure, patterned practice, and error-sensitive feedback offered by these technologies support learners in internalizing common language structures, rehearsing syntactic frames, and improving their ability to express complex ideas efficiently.

For example, learners using Lora, Replika, and Lyra were found to develop stronger conceptualization strategies. They began to articulate thoughts more fluidly and showed reduced reliance on code-switching or their first language (L1) when engaging in oral communication. This was particularly evident in structured and semi-structured tasks where learners were required to synthesize information and formulate extended responses. Tools like iLEAP, which include built-in tracking of pronunciation and performance, further enhanced learners' mental processing efficiency by identifying recurring errors and adapting instructional input accordingly.

One of the clearest demonstrations of AI's support for cognitive fluency comes from Qiao and Zhao's (2023) study on Duolingo. Learners who used this platform demonstrated higher levels of self-regulated learning, which translated into increased task awareness, goal setting, and sustained verbal output. Through repeated, bite-sized oral exercises and vocabulary drills, learners were able to automate lexical retrieval and grammatical structuring, which in turn improved their performance in free-speaking tasks.

Another significant contribution to cognitive fluency was noted in Celik et al. (2025), where learners practicing with ChatGPT reported greater ease in planning and organizing oral responses. ChatGPT's dialogic scaffolding supported learners in rehearsing responses multiple times, improving their ability to formulate ideas on the spot. Importantly, this structured rehearsal reduced cognitive load, allowing for greater focus on message delivery rather than form construction.

Additionally, learners using EnglishBot and similar chatbot systems reported an increased ability to regulate their participation, initiate speech, and extend conversation turns. Learners who had greater control over pacing and task structure also displayed more spontaneous, coherent production, indicating better on-the-fly planning and monitoring of speech.

Utterance fluency

The use of AI tools fosters smoother speech delivery and reduced disfluencies by offering structured repetition, real-time corrective feedback, and interactive dialogue formats that promoted sustained verbal output. In Azizimajd's (2023) study, learners who practiced with Replika, demonstrated statistically significant improvements in both speech rate and pause reduction. The repetitive and dialogic structure of this tool encouraged learners to extend their spoken responses while minimizing hesitation markers, enabling longer and more fluent speech runs. Similarly, Mudawy's (2025) participants noted their improved capacity to "talk and think more quickly," supported by observable reductions in filler words and self-corrections.

Additional support for these findings is provided by Zou et al. (2023) and Junaidi et al. (2020), whose studies reported that users of Lyra and Liulishuo experienced improvements in rhythm, intonation, and grammatical control. The tools' built-in feedback mechanisms helped learners adjust the pacing of their speech and refine stress placement, contributing to more natural and cohesive oral production. Lyra's systematic voice-based corrections, in particular, enabled learners to internalize prosodic patterns that are essential for producing fluid and comprehensible speech.

EnglishBot, examined in Ruan et al. (2021), also demonstrated a notable impact on utterance fluency. Learners engaged in semi-structured script-based dialogues achieved higher scores in lexical resource and coherence during oral tasks, suggesting increased fluency and planning efficiency. The platform's non-threatening environment and structured format allowed learners to focus on organizing their ideas without frequent interruptions or reformulations. Also, learners using iLEAP showed improved articulation and reduced reliance on fillers or pauses after repeated oral interactions. This suggests that the corrective functions of AI tools support more seamless speech production over time.

Perceived fluency

Across multiple studies, the use of AI tools such as chatbots, pronunciation coaches, and interactive avatars created environments that enhanced learners' self-perception of fluency, primarily by reducing anxiety and increasing willingness to communicate. AI tools foster low-pressure, non-judgmental settings that allow learners to take oral risks without fear of embarrassment or negative evaluation.

This was particularly evident in the findings of Kang (2022), where low-level ESL learners reported feeling more confident and less anxious when interacting with AI avatars than with human interlocutors. The visual and voice-based interface of these avatars enabled learners to speak more freely and with greater comfort, leading to more spontaneous and sustained speech. Similarly, Zhang et al. (2023) observed that users of Lora demonstrated increased willingness to communicate (WTC) and foreign language enjoyment (FLE), alongside reductions in foreign

language anxiety (FLA), contributing to an enhanced perception of fluency from both the speaker's and the listener's standpoint.

The affective dimension of fluency was further reinforced in the studies by Mudawy (2025) and Rouabhia (2025). Learners consistently reported that repeated interactions with chatbots helped them feel more at ease with spoken English, particularly in formal presentations. These interactions appeared to help desensitize learners to performance pressure, creating a psychologically safe space for experimentation and gradual oral improvement. In Rouabhia's findings, learners exhibited more confidence during live tasks after sustained chatbot practice, suggesting that perceived fluency can be significantly shaped by prior, low-stakes interaction.

In addition to the affective benefits, Speeko and Fluent provided structured feedback and motivational reinforcement, which contributed to learners' positive self-assessments. These platforms encouraged spontaneous speech through gamified elements and reward systems, reinforcing the perception of communicative success and progress. As a result, even learners with limited objective improvements in fluency metrics began to perceive themselves as more competent speakers, which in turn increased their participation and verbal risk-taking in real-world scenarios.

Other studies confirmed that perceived fluency is often rooted in metacognitive growth. For example, the iLEAP tool, with its emoji-based visual cues and color-coded pronunciation feedback, helped learners—especially children—associate correction with playful, constructive learning. This reframing of error as an opportunity rather than a failure encouraged consistent practice and a more positive self-image. The tool also allowed learners to monitor their improvement over time, reinforcing the belief that they were becoming more fluent speakers, even if their utterance metrics advanced incrementally.

METHODOLOGY

This study employed an action research design organized around an intervention with Al-based speaking tasks, using Chat GPT to simulate short, guided conversations and to provide immediate, text-based feedback on learner output. The implementation was conducted in a regular A2-level English course with 15 students recruited by convenience sampling; participation was voluntary and based on informed consent. Classes met four times per week, and the intervention spanned two consecutive weeks within regular instructional time.

Across eight sessions, students completed concise speaking tasks designed to target vocabulary expansion, pronunciation and rhythm, spontaneous speech, and speaking confidence. In each session, the teacher introduced a communicative scenario, Students recorded short speaking tasks and received Al-generated feedback which was copied to a learning log and briefly discussed in class. After week one, the prompts, pacing, and feedback focus were adjusted in light of observations and student comments.

Speaking performance was evaluated with a pretest-posttest intervention design using the Cambridge A2 Speaking Assessment descriptors, focusing on: grammar and vocabulary, pronunciation, and interactive communication. On Day 1, students completed a pre-test consisting of a two-minute monologue and a brief interactive segment aligned with A2 demands; performances were audio-recorded and rated using the Cambridge descriptors.

Sessions 1–4 delivered the initial sequence of AI-mediated speaking tasks. At the end of Week 1, the teacher conducted a structured reflection to identify necessary adjustments. Sessions 5–8 implemented the revised sequence and on Day 8, students completed a parallel post-test following the same format as the pre-test. Quantitative analyses summarized the data with descriptive statistics and tested pre–post changes for each rubric criterion using paired-samples Student's t tests (two-tailed, $\alpha = .05$), reporting 95% confidence intervals and Cohen's d.

RESULTS

This section reports the findings of the action research intervention integrating ChatGPT-supported speaking tasks in an A2 EFL class. The pretest results show that, before the intervention, students had only moderate performance in the three speaking dimensions. Interactive communication obtained the highest mean (M = 3.4), which suggests that students were relatively more capable of maintaining a basic interaction in English than of producing accurate language. Grammar and vocabulary (M = 2.8) and Pronunciation (M = 2.7) were clearly lower, indicating weaknesses in linguistic resources and in the clarity of oral production.

Table 2

Pretest scores

Dimension	Mean	Standard deviation	Minimum	Maximum
Grammar and vocabulary	2.8	1.505	1	4
Pronunciation	2.7	1.162	1	3
Interactive communication	3.4	1.404	1	4

Note: Author's elaboration, 2025

In all three dimensions the standard deviations were relatively high, which means the group was quite heterogeneous: some students were at very low levels, while others reached higher scores. This pattern reflects an initial group with uneven oral English skills, with more variation in interaction and in grammar and vocabulary than in pronunciation.

Table 3

Posttest scores

Dimension	Mean	Standard deviation	Minimum	Maximum
Grammar and vocabulary	4	0.755	3	5
Pronunciation	3.5	1.516	3	4
Interactive communication	4.2	0.861	2	5

Note: Author's elaboration, 2025

The posttest results indicate that students performed best in Interactive communication (M = 4.2) and in Grammar and vocabulary (M = 4.0), which means that after the intervention they were generally able to use the language properly and interact orally at a solid level. In both of these dimensions the variability was low, so most students scored close to the group average, and the group was relatively homogeneous. Pronunciation had the lowest mean score and the highest variability, which shows that students' performance in pronunciation was more uneven: some reached good levels, while others remained at more basic levels.

In Grammar and vocabulary, the mean increased from 2.8 in the pretest to 4.0 in the posttest scores (+1.2); the SD dropped from 1.51 to 0.76, and scores shifted from a 1–4 range to 3–5, suggesting strong, fairly uniform gains where most students finished at a "good/very good" level. In pronunciation, mean went from 2.7 to 3.5 (+0.8). The SD increased (1.16 → 1.52), with a reported range of 3–4 in the posttest; this shows an average improvement, but gains were uneven as some students advanced more than others.

Meanwhile, in interactive communication the mean rose from 3.4 to 4.2 (+0.8), the SD decreased (1.40 → 0.86), and the range improved from 1–4 to 2–5; this shows a clear improvement with greater consistency with many students reaching high scores. Overall pattern shows that the group improved in all three speaking dimensions: means moved upward, the minimum scores rose (no one stayed at the very bottom), and dispersion shrank in two of the three areas, so performance not only improved but also became more consistent for most skills.

Table 4

T test results

Dimension	p value	IC 95% inferior	IC 95% superior	Cohen´s d
Grammar and vocabulary	0.0009	0.45	1.72	0.5
Pronunciation	0.0053	0.27	1.32	0.4
Interactive communication	0.0125	0.20	1.39	0.5

Note: Author's elaboration, 2025

The t test results confirm that the differences between pretest and posttest scores are statistically significant in the three speaking dimensions. For grammar and vocabulary, the p value is well below the $\alpha = .05$ threshold, so the posttest scores were significantly higher than the pretest

scores; the reported Cohen's d corresponds to a moderate effect size and means the intervention produced a meaningful change.

In pronunciation, the p value shows the improvement is also statistically significant; the Cohen's d suggests a small-to-moderate effect; this is coherent with what was seen in the descriptives analysis, where pronunciation improved but with more variability among students. For interactive communication, the p value also shows a significant difference; the Cohen's d points to a moderate effect size, indicating that the intervention helped students participate and interact more effectively. Taken together, these results show that the intervention improved students' performance in all three dimensions, with effects that are statistically significant and of practical relevance.

DISCUSSION

The study's findings are consistent with previous reports that show AI-powered conversational tools can foster improvements in oral performance by creating low-anxiety practice conditions and delivering immediate, individualized feedback. Studies such as those by Zou et al. (2023), Qiao and Zhao (2023), Shivakumar et al. (2021) and, more recently, Celik et al. (2025) have documented that AI chatbots and virtual agents increase students' willingness to speak, promote more frequent oral practice and support self-correction through rapid feedback loops.

The integration of AI into EFL instruction has introduced a shift in how speaking skills are developed, with a strong emphasis on learner autonomy, adaptive feedback, and low-anxiety environments. One of the most prominent pedagogical advantages is AI's capacity to simulate interactive and responsive communicative settings through chatbots, virtual assistants and advanced speech recognition platforms. These tools provide learners with extended opportunities to practice oral language without fear of negative evaluation, which is crucial for lowering the affective filter and promoting willingness to communicate.

AI technologies support formative and individualized learning by delivering real-time, data-driven feedback on pronunciation, fluency, and syntactic accuracy (Zou et al., 2023). This feedback loop facilitates self-regulation and metacognitive awareness, enabling learners to monitor their progress and make targeted improvements. In studies using Duolingo and iLEAP, learners demonstrated increased engagement and improved lexical retrieval, aided by bite-sized, personalized tasks and performance tracking (Qiao & Zhao, 2023; Shivakumar et al., 2021).

From a curriculum design standpoint, AI tools align with constructivist and socio-cultural pedagogies, offering simulated real-life conversations that foster discourse competence and social interaction. Tools like ChatGPT and Replika encourage learners to rehearse extended responses, develop conceptual clarity, and engage in exploratory talk, thus supporting deeper levels of

fluency (Celik et al., 2025). They also facilitate differentiated instruction, accommodating learners of varying proficiency levels through adjustable difficulty settings and feedback types.

Despite the pedagogical promise, the use of AI in speaking instruction presents several critical limitations that affect its overall efficacy and sustainability. While AI tools can accurately detect mispronunciations or syntactic errors, they often fail to provide discourse-level corrections, cultural insights, or pragmatic appropriateness (Mudawy, 2025; Dávila Macías et al., 2024). For example, learners in Kang's (2022) study noted that AI-generated dialogues felt artificial and repetitive, limiting the richness and authenticity of the interaction. Also, the novelty effect of AI tools tends to wane over time, particularly when they are not embedded in a coherent pedagogical framework. Without continuous innovation in task design and teacher mediation, learners may lose interest, resulting in superficial engagement and limited language growth.

Technological reliability is another major concern. Errors in voice recognition especially when dealing with regional accents, background noise, or low-quality microphones can frustrate learners and compromise the accuracy of feedback (Azizimajd, 2023; Junaidi et al., 2020). In lower-resourced environments, inconsistent internet access, outdated devices, or limited technical infrastructure further constrain the use of these tools (Mudawy, 2025; Avazova & Ilkhomova, 2025).

Moreover, the ethical and equity concerns are increasingly pressing. The use of AI in language learning often involves the collection of personal speech data, raising questions about privacy, data ownership, and algorithmic bias. This is especially problematic when AI models are trained on culturally narrow datasets, which may marginalize non-standard accents or dialects. Additionally, the digital divide excludes learners who lack access to reliable internet, modern devices, or the digital literacy needed to engage effectively with these platforms.

CONCLUSION

This action research confirmed that short Al-based speaking tasks can effectively improve students' fluency and confidence in EFL contexts. Although the intervention was small-scale, it demonstrates the pedagogical potential of Al as a complementary tool for oral practice. In practical terms, Chat GPT worked as a low-risk rehearsal space where learners could try out language, receive immediate feedback and self-adjust before speaking in front of peers or the teacher.

Pedagogically, AI tools foster learner autonomy, reduce foreign language anxiety, and create interactive, low-risk environments that promote spontaneous oral production. By providing immediate, individualized feedback, they help learners internalize language structures, develop planning strategies, and improve self-regulation. Their adaptability to various proficiency levels also makes them well-suited for differentiated instruction and curriculum integration, especially in blended or technology-rich classrooms.

From a fluency perspective, AI tools support cognitive fluency by enhancing learners' ability to process language efficiently through repeated exposure and scaffolded rehearsal; utterance fluency by promoting smoother speech production, reducing filler words and hesitations, and improving intonation and pacing; and perceived fluency by increasing learners' confidence and willingness to communicate through low-anxiety interactional formats and gamified reinforcement.

However, the study highlights critical limitations that must be addressed. AI tools currently offer limited discourse-level and pragmatic feedback, often relying on scripted or superficial interactions that may hinder deeper communicative competence. Technical challenges such as voice recognition errors, low connectivity, and inconsistent device performance further restrict the accessibility and reliability of AI-based learning. Moreover, ethical concerns regarding data privacy, user surveillance, and algorithmic bias present ongoing risks, particularly in under-resourced or vulnerable educational contexts.

Based on the findings of the study, several recommendations emerge to enhance the effective integration of AI tools in promoting speaking fluency in EFL contexts. It is essential to integrate AI technologies within a structured pedagogical framework. Rather than using these tools in isolation, they should be incorporated into a broader curriculum that includes teacher guidance, peer interaction, and reflective learning activities.

The selection of AI tools should be guided by learners' proficiency levels, needs, and preferences. Tools like Andy or iLEAP may be more suitable for beginners due to their structured and supportive nature, while more advanced learners may benefit from interactive platforms like ChatGPT or Replika that promote spontaneous dialogue and conceptual fluency. Also, the use of multimodal feedback such as visual, audio, and textual cues should be prioritized, as it caters to diverse learning styles and strengthens learners' metacognitive awareness of their oral production. Applications like iLEAP and Speeko exemplify this approach by offering detailed and engaging feedback on articulation and prosody.

Finally, it is crucial to foster learners' critical understanding of AI's capabilities and limitations. They should be aware that while AI tools are valuable for practice and immediate feedback, they are not substitutes for rich, human-mediated instruction and conversation. This awareness will help learners use AI supportively, rather than dependently, in their language development journey.

In conclusion, while AI holds transformative potential for EFL speaking instruction, its impact will depend on thoughtful implementation, teacher mediation, and ongoing innovation. Educators and developers must prioritize pedagogical alignment, equity of access, and ethical safeguards to ensure that AI-based tools truly enhance not replace human-centered, communicative language learning

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