

AI-Supported University Efl Education for Speaking Confidence and Learner Autonomy

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Abstract

This study explores how artificial intelligence (AI)-supported applications contribute to speaking confidence and learner autonomy among Indonesian university EFL students. Employing a qualitative descriptive design, the study involved eight students from the English Education Study Program at Universitas Kristen Indonesia Toraja who had experience using AI-based applications such as ChatGPT and Duolingo for English-speaking practice. Data were collected through semi-structured interviews, observations, field notes, and audio recordings, and were analysed thematically using the interactive framework of data condensation, data display, and conclusion drawing. The findings revealed five interrelated themes: developing speaking confidence through low-pressure practice, receiving immediate corrective feedback, extending speaking practice beyond classroom limitations, developing learner autonomy, and sustaining motivation through interactive application features. Students perceived AI as a flexible and non-judgmental practice environment that enabled repeated rehearsal, pronunciation and grammar correction, self-paced learning, and greater preparedness before speaking with lecturers or peers. The novelty of the study lies in conceptualising AI as a pre-communicative support environment that bridges private rehearsal and authentic human interaction rather than replacing lecturers or classroom communication. However, the findings are limited to participants' qualitative experiences and do not establish causal improvement in speaking proficiency. The study contributes to AI-supported language education by highlighting the interconnection between psychological readiness, autonomous learning, corrective feedback, and responsible pedagogical integration of AI in university EFL contexts.

Keywords: artificial intelligence, EFL speaking, speaking confidence, learner autonomy, university language education



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INTRODUCTION

Speaking competence is a central outcome of university English as a Foreign Language education, as it enables students to communicate ideas, participate in academic interactions, and use English in professional contexts. Nevertheless, speaking remains one of the most challenging skills for EFL students because oral communication requires simultaneous management of vocabulary, grammar, pronunciation, fluency, comprehension, and immediate responses. These demands become more difficult when students have limited opportunities to use English beyond the classroom. Consequently, many university students possess sufficient knowledge of English but remain hesitant to communicate orally because they lack confidence and fear making mistakes.

Foreign language anxiety is a situation-specific emotional response involving communication apprehension, fear of negative evaluation, and test anxiety. These dimensions can discourage learners from participating in speaking activities, particularly when they believe that their performance is being evaluated by lecturers or peers (Horwitz et al., 1986). A meta-analysis by Teimouri et al. (2019) confirmed a significant negative relationship between second-language anxiety and language achievement, indicating that anxiety is not merely a temporary feeling but a factor associated with measurable differences in language performance. Another meta-analysis demonstrated that foreign language anxiety is negatively associated with language performance across instructional contexts, proficiency levels, and language skills (Zhang, 2019).

Recent scholarship further conceptualizes language anxiety as dynamic rather than entirely stable. Anxiety can change within a single speaking activity according to the topic, interlocutor, perceived difficulty, social environment, and possibility of being evaluated. MacIntyre and McGillivray (2023) argued that language anxiety fluctuates through interactions among emotional, cognitive, linguistic, and situational factors. Therefore, students who appear confident in informal peer conversations may experience considerably greater anxiety when presenting academic material, responding spontaneously to lecturers, or communicating with more proficient speakers.

Communication anxiety is particularly consequential because it influences students' willingness to communicate. Lee and Chiu (2023) found that face-to-face and digital communication anxiety operate differently but are both associated with EFL learners' willingness to use English. Higher anxiety may lead students to remain silent, avoid oral tasks, provide only minimal responses, or depend excessively on prepared scripts. Speaking anxiety may therefore create a self-reinforcing cycle: students avoid speaking because they feel anxious, but their avoidance reduces practice opportunities and prevents the development of confidence and communicative competence.

Speaking anxiety is also a longstanding concern in the local EFL context. Panggua (2019), investigating English Education students at UKI Toraja, identified accent-related difficulties, low self-confidence, pronunciation concerns, listener comprehension, and peer reactions as important sources of English-speaking anxiety. These findings indicate that the psychological and linguistic barriers addressed in the present study existed in this educational context before the widespread adoption of generative AI.

The problem is also evident in technology-mediated language learning. In a mixed-methods investigation involving 307 online language learners, Bárkányi and Brash (2025) found that online learning did not automatically eliminate foreign language speaking anxiety. Although digital tools supported some learners, synchronous sessions, cameras, breakout rooms, and spontaneous speaking requirements could become new sources of anxiety. Their results suggest that the educational value of technology depends on the nature of interaction, task design, learner control, and the extent to which the environment reduces or intensifies perceived social evaluation.

Traditional classroom strategies, including group discussions, presentations, role-plays, peer conversations, and oral corrective feedback, remain important for developing authentic communication. However, these strategies may be insufficient for students who require repeated preparation before communicating publicly. Classroom time is limited, lecturer feedback cannot always be provided individually, and anxious students may avoid participation even when speaking opportunities are available. Consequently, university EFL education requires complementary learning environments that enable students to rehearse spoken English privately, repeatedly, and at an appropriate level before entering socially demanding communication.

Earlier studies at UKI Toraja also documented students' engagement with mobile applications in online English learning (Rachel et al., 2021). Together with evidence from blended speaking instruction (Panggua et al., 2021), these studies indicate an established trajectory of technology-mediated English learning in the local context. The emergence of generative and conversational AI now introduces a qualitatively different form of support through interactive, personalized, and immediate responses.

Artificial intelligence offers a potential response to these limitations. AI-supported applications can provide conversational prompts, speech recognition, pronunciation modelling, automated corrections, adaptive exercises, and immediate responses. Unlike conventional digital materials, AI systems can respond to individual input and permit learners to repeat an activity without waiting for lecturers or classmates. Divekar et al. (2022) demonstrated that AI and extended-reality environments can create interactive language-learning experiences through automated conversational support. Similarly, Hsu et al. (2021) developed a task-oriented chatbot that enabled EFL learners to practise speaking through structured interaction and immediate system responses.

Evidence specifically connecting AI with speaking anxiety has also emerged. El Shazly (2021) reported that AI-supported speaking practice could reduce English-speaking anxiety and improve speaking performance by providing learners with opportunities to practise in a less socially threatening environment. However, the study also indicated that technological interaction should be connected to meaningful instructional design. AI cannot be assumed to reduce anxiety merely because human interlocutors are absent; its value depends on feedback quality, accessibility, task relevance, and the extent to which practice prepares students for communication with actual people.

More recent empirical evidence shows that AI-mediated speaking activities may support both linguistic and affective outcomes. Zhang et al. (2024) found that interaction with an AI speaking assistant enhanced foreign language enjoyment, reduced anxiety, and increased willingness to communicate among EFL learners. Fathi et al. (2024) similarly reported that AI-mediated interactive activities improved speaking components—including fluency and coherence, vocabulary, grammatical accuracy, and pronunciation—and strengthened learners' willingness to communicate. These results indicate that AI can support speaking development through repeated interaction, individualized practice, and a learning environment in which errors are treated as part of the learning process.

Nevertheless, the design of AI interaction influences its outcomes. Wang et al. (2024) compared two conversational generative AI conditions with conventional classroom interaction among 99 Chinese university students. Learners interacting with a text- and voice-based chatbot with human-like avatars demonstrated higher willingness to communicate and self-perceived communicative competence and lower speaking anxiety than the control group. However, no significant differences were identified in speaking-test performance across the groups. This distinction is important because greater confidence and lower anxiety do not necessarily produce immediate improvement in objective speaking performance.

AI may therefore be especially valuable as a preparatory or pre-communicative environment rather than a substitute for human communication. Zhang et al. (2024) found that an AI chatbot and an intelligent tutoring system could facilitate EFL learners' willingness to communicate by offering accessible interaction and lower-risk practice. Similarly, Hapsari and Wu (2022) showed that chatbot-supported speaking activities could alleviate speaking anxiety, enhance enjoyment, and foster critical thinking. Such environments allow learners to test expressions, revise answers, practise pronunciation, and anticipate conversational situations before participating in classroom or real-world communication.

Another important affordance of AI-supported learning is its potential contribution to learner autonomy. Autonomy involves learners' capacity to set goals, select learning strategies, manage time and resources, monitor progress, and evaluate learning outcomes. AI applications can support these processes by allowing students to practise beyond scheduled lessons, choose topics, regulate task difficulty, request explanations, and repeat exercises according to their individual needs. Sayed et al. (2024) found that AI-powered language-learning activities could support speaking skills, psychological well-being, learner autonomy, and academic buoyancy, although the authors cautioned that AI integration requires purposeful pedagogical planning.

The connection between AI and autonomous out-of-class learning is becoming increasingly important in university education. Liu et al. (2025) found that Chinese EFL learners used AI tools for

informal digital English learning through activities shaped by their perceptions of usefulness, AI competence, learning goals, and social context. A scoping review of 65 empirical studies by Liu and Zhao (2026) similarly showed rapid growth in AI-mediated informal language learning following the release of ChatGPT. The review identified benefits across linguistic, affective, and cognitive dimensions, particularly speaking development, communication-anxiety reduction, and autonomous learning. However, the literature was geographically concentrated in East Asia and dominated by cross-sectional studies.

Meta-analytic evidence also supports the educational potential of interactive computer systems while highlighting variability across interventions. Hou and Min (2026) concluded that dialogue-based computer-assisted language-learning systems could support second-language speaking development by expanding interaction and practice opportunities. Nevertheless, outcomes depended on system characteristics, instructional duration, task types, feedback, and learner profiles. These findings reinforce the need to investigate not only whether AI is beneficial but also how learners experience specific AI affordances and how those affordances influence confidence, anxiety, and independent learning.

Despite encouraging findings, AI-supported language education presents pedagogical and ethical concerns. Generative AI may produce inaccurate corrections, unnatural expressions, culturally inappropriate responses, inconsistent explanations, or feedback that students cannot critically evaluate. Kasneci et al. (2023) emphasized that large language models offer opportunities for personalized learning and immediate support but also raise concerns related to misinformation, bias, assessment integrity, privacy, and overdependence. Tlili et al. (2023) similarly argued that ChatGPT's educational use requires human oversight, AI literacy, transparent guidance, and ethical policies rather than unrestricted technological adoption.

Concerns are particularly relevant in speaking education because oral competence is fundamentally social. Interaction with AI cannot fully reproduce human emotions, unpredictable responses, intercultural negotiation, turn-taking pressures, and the relational dimensions of authentic communication. AI practice may help students prepare linguistically and psychologically, but exclusive dependence on AI could reduce exposure to the interpersonal demands that learners ultimately need to manage. Accordingly, the most defensible pedagogical position is to use AI as a complementary environment that precedes, supports, and extends lecturer-guided and peer-based communication.

Recent evidence from the Indonesian university EFL context further supports the potential of AI-assisted speaking practice. Panggua et al. (2025) found that AI-supported academic speaking activities promoted learner autonomy and self-regulation, enhanced pronunciation and fluency through immediate feedback, and strengthened students' confidence through non-judgmental practice environments. These findings suggest that AI may address both linguistic and affective dimensions of university EFL speaking development.

Research also remains uneven across geographical and institutional contexts. Much of the recent evidence has been generated in China, Iran, Bangladesh, Egypt, and technologically well-supported educational environments. Evidence remains limited concerning how Indonesian university EFL students, particularly those studying outside major metropolitan centres, experience AI-supported speaking practice. Indonesian students may face distinct combinations of restricted English exposure, uneven digital access, local linguistic influences, fear of lecturer evaluation, and different levels of AI literacy. Findings from other national contexts therefore cannot be transferred directly without contextual investigation.

The present research addresses this gap by examining Indonesian university EFL students who use AI-based applications such as ChatGPT and Duolingo for speaking practice. The original research findings indicate that participants continued to experience anxiety particularly during presentations and interactions with lecturers, whereas AI-supported practice enabled them to rehearse without immediate social judgment. Students also reported that automated feedback helped them identify pronunciation, fluency, and grammatical problems, while flexible access encouraged more frequent and independent practice. The findings further indicated that interactive features, flexible learning conditions, and self-paced practice supported motivation, preparedness, confidence, and learner autonomy.

Although previous studies have often measured the effects of AI through experiments, test scores, anxiety scales, or technology-acceptance models, fewer studies have investigated how Indonesian EFL students interpret the processes through which AI supports their confidence and

autonomy. The central research problem is therefore not simply whether students use AI but how its perceived affordances—particularly a non-judgmental environment, immediate corrective feedback, repeated practice, and temporal flexibility—shape their speaking experiences. Understanding these processes is necessary to prevent universities from adopting AI solely as a technological trend without considering students' emotional and self-regulatory needs.

Accordingly, this study aims to explore how AI-supported speaking applications contribute to Indonesian university EFL students' speaking confidence and learner autonomy. It specifically examines students' experiences of practising spoken English with AI, the feedback and learning support they receive, the ways they regulate independent practice, and the extent to which AI preparation helps them feel ready for human communication. Rather than positioning AI as a replacement for lecturers, the study considers it a complementary educational tool that can provide low-pressure preparation before classroom interaction.

The study is expected to contribute theoretically by connecting AI-supported language learning with foreign language anxiety, speaking confidence, and learner autonomy. Pedagogically, it may help lecturers design blended speaking activities in which students first rehearse with AI and subsequently apply their learning in peer, classroom, and authentic communication. Institutionally, the findings may inform university guidelines concerning AI literacy, equitable access, ethical use, lecturer supervision, and the integration of AI-supported independent learning into language curricula. In this way, the study responds to the need for university language education that is technologically innovative while remaining learner-centred, emotionally supportive, and pedagogically accountable.

RESEARCH METHOD

Contains the type of research, time and place of research, targets/objectives, research subjects, procedures, instruments and data analysis techniques as well as other matters related to the method of research. targets/objectives, research subjects, procedures, data and instruments, and data collection techniques, as well as data analysis techniques and other matters related to the method of research can be written in sub-chapters, with sub-headings. Sub-subheadings do not need to be notated, but are written in lowercase with a capital letter, TNR-11 bold, left aligned. As an example can be seen below.

Research Design

This study employed a qualitative descriptive design to explore how artificial intelligence-based applications supported Indonesian university EFL students' speaking confidence and learner autonomy. A qualitative approach was considered appropriate because the study focused on students' experiences, perceptions, behaviours, and emotional responses when using AI applications for English-speaking practice rather than measuring causal relationships statistically. Qualitative research enables researchers to examine how participants interpret an educational experience within its natural and institutional context (Busetto et al., 2020; Creswell & Poth, 2018).

The study specifically investigated students' experiences of speaking anxiety, their perceptions of AI-generated feedback, the flexibility of AI-supported practice, and the ways in which such applications encouraged independent learning. The design also enabled the researcher to examine observable speaking behaviours, including hesitation, avoidance, confidence, fluency, and responses to corrective feedback. The qualitative design was therefore aligned with the research objective of understanding how AI-based applications functioned as supportive tools in university EFL speaking education.

The study was conducted at the English Education Study Program of Christian University of Indonesia Toraja, Indonesia, during one academic semester in 2026. The university was selected because its students had begun using AI-based applications in English learning activities and because speaking anxiety remained a common challenge among EFL students.

The research setting was relevant because students had limited opportunities to use English in everyday communication and continued to experience psychological barriers, including fear of making mistakes, nervousness during presentations, and lack of confidence when speaking before lecturers or more proficient English speakers. Describing the institutional and temporal context is essential in qualitative research because participants' experiences and interpretations are influenced by their

educational, cultural, and social environments (Levitt et al., 2018). Especially for qualitative research, the time and place of research needs to be written down clearly (for quantitative research, it is also necessary).

Research Target/Subject

The research targets were students enrolled in the English Education Study Program at Universitas Kristen Indonesia Toraja. They represented different levels of study and had experience using AI-based applications such as ChatGPT and Duolingo to support their English-speaking practice. They were selected through purposive sampling.

Purposive sampling was used because the study required participants who possessed direct experience relevant to the research problem. Campbell et al. (2020) explain that purposive sampling enables researchers to deliberately select information-rich participants who can provide detailed accounts of a particular phenomenon. Accordingly, the inclusion criteria required participants to: (1) be active students in the English Education Study Program; (2) have used at least one AI-based application for learning or practising spoken English; (3) have experienced nervousness or anxiety when speaking English; and (4) be willing to participate in interviews and observations. There were 8 (eighth) participants who met the inclusion criteria from all levels of semesters.

Research Procedure

The research was conducted through several interrelated stages. First, the researcher identified students who met the inclusion criteria and invited them to participate voluntarily. The purpose of the study, the forms of participation, the use of audio recording, and the confidentiality of their responses were explained before data collection.

Second, the researcher prepared a semi-structured interview guide based on the research objectives and relevant concepts concerning English-speaking anxiety, speaking competence, confidence, AI-supported feedback, and learner autonomy. The interview questions covered students' experiences of speaking English, situations that triggered anxiety, the AI applications they used, the forms of feedback they received, and perceived changes in their confidence, motivation, and independent learning.

Third, individual interviews were conducted in Indonesian or English according to each participant's preference. Each interview lasted approximately 10–15 minutes and was conducted in a setting intended to make the participant feel comfortable. With the participants' permission, the interviews were audio-recorded and subsequently transcribed. Semi-structured interviews are appropriate when researchers need to cover predetermined topics while retaining sufficient flexibility to probe unexpected responses and ask participants for clarification (Busetto et al., 2020; McGrath et al., 2019).

Fourth, observations were conducted to examine students' behaviour when participating in English-speaking activities and when using AI-supported applications. The researcher observed indicators such as hesitation, avoidance of speaking, pronunciation practice, fluency, confidence, speaking courage, and responses to AI-generated feedback. Observation data were documented through observation sheets and field notes.

Finally, the interview transcripts, observation records, and field notes were organised and analysed iteratively. Qualitative data collection and analysis were treated as interconnected processes, allowing emerging patterns to guide closer examination of relevant participant responses and observed behaviours (Gaddefors & Cunningham, 2024).

Instruments, and Data Collection Techniques

The primary instruments used in this study were a semi-structured interview guide, an observation sheet, field notes, and an audio-recording device. The researcher also functioned as the main instrument responsible for conducting interviews, observing participant behaviour, interpreting responses, and developing analytical categories.

The semi-structured interview guide was developed from the research objectives and the conceptual dimensions of the study. Questions concerning speaking included pronunciation, vocabulary, grammar, fluency, and comprehension. Questions concerning affective and learning dimensions

included speaking anxiety, fear of making mistakes, fear of negative evaluation, confidence, motivation, flexibility of practice, and learner autonomy.

A well-developed semi-structured interview guide should be grounded in the research purpose and relevant theoretical knowledge, followed by the preparation and review of clear and appropriate questions (Kallio et al., 2016). The interview format enabled the researcher to ask the same core questions across participants while using follow-up questions to obtain examples, explanations, and clarification.

Interview data were collected individually. Participants were asked to describe situations in which they felt anxious when speaking English, how they used AI-based applications, what forms of corrective feedback they received, and whether AI-supported practice influenced their confidence and independent learning. Audio recordings were transcribed to preserve the content of participants' accounts accurately. McGrath et al. (2019) recommend using open-ended and non-leading questions, active listening, appropriate probing, and audio recording to strengthen the quality of qualitative interview data.

Observation was employed to complement the interview findings. It focused on students' observable behaviours during speaking activities and AI-supported practice, including hesitation, repetition, pronunciation correction, speaking speed, confidence, and willingness to participate. Direct observation is useful because it allows researchers to examine behaviour and contextual conditions that participants may not fully describe in interviews (Fix et al., 2022).

The observation sheet was used to record predetermined indicators, while field notes documented contextual details, participant responses, and relevant events occurring during the learning process. Descriptive observations were distinguished from the researcher's interpretations to reduce the risk of presenting assumptions as directly observed evidence (Mulhall, 2003).

Data analysis technique

The data were analysed using thematic qualitative analysis informed by the interactive framework of Miles et al. (2014), which consists of data condensation, data display, and conclusion drawing or verification. The analysis focused on identifying patterns related to speaking anxiety, confidence, corrective feedback, flexible practice, motivation, and learner autonomy.

During data condensation, the researcher read the interview transcripts and observation notes repeatedly, selected data relevant to the research objective, and assigned initial codes to meaningful statements and behaviours. Data unrelated to students' experiences of AI-supported speaking practice were excluded from the main analysis. Examples of initial codes included fear of lecturer evaluation, pronunciation anxiety, non-judgmental practice, immediate correction, repeated speaking practice, flexible access, increased motivation, and independent learning.

The coded data were subsequently organised into categories and broader themes. Interview evidence was compared with observation records to determine whether participants' reported experiences were supported, complemented, or contradicted by their observable behaviour.

During data display, the researcher organised the coded information into narrative descriptions and thematic groupings. Relevant participant quotations were selected to illustrate each theme. The use of quotations enabled the findings to remain grounded in participants' accounts, while observational descriptions provided contextual support.

Conclusion drawing and verification were conducted throughout the analysis. Emerging interpretations were checked repeatedly against the interview transcripts, observation sheets, and field notes. Miles et al. (2014) state that qualitative conclusions should be continuously verified against the available evidence rather than drawn only at the end of the study. This process supported the development of interpretations that were consistent with the participants' reported and observed experiences.

Although the findings were organised thematically, the analysis was not presented as a separate Braun and Clarke reflexive thematic analysis. Instead, thematic coding and theme development were conducted within Miles et al.'s interactive qualitative analysis framework.

RESULTS AND DISCUSSION

The analysis of the interview and observation data identified five interrelated themes concerning Indonesian university EFL students' experiences of AI-supported speaking practice. These themes were: (1) developing speaking confidence through low-pressure practice; (2) receiving immediate corrective feedback; (3) extending speaking practice beyond classroom limitations; (4) developing learner autonomy; and (5) sustaining motivation through interactive application features. Table 1 summarises the major themes and the evidence supporting them.

Table 1. Main Themes of AI-Supported English-Speaking Practice

No.	Theme	Interview Evidence	Observation Evidence	Interpretation
1	Developing Speaking Confidence	Students reported feeling more prepared after repeated practice and gradual correction	Students who had practised with AI appeared less hesitant when asked to speak	AI functioned as a low-pressure preparatory environment
2	Receiving Immediate Corrective Feedback	Students reported corrections related to pronunciation, pauses, repetition, speaking speed, and grammar	Students repeated incorrectly pronounced words after receiving feedback	Immediate feedback increased awareness of specific speaking problems
3	Extending Speaking Practice	Students could practise at home, at night, during free time, and before presentations	Students used available time outside scheduled classroom activities	AI extended practice beyond classroom schedules and locations
4	Developing Learner Autonomy	Students managed their own pace, selected practice time, and identified weaknesses independently	Students completed speaking practice without continuous lecturer assistance	AI supported greater responsibility and control over learning
5	Sustaining Learning Motivation	Visual displays, audio support, and streak features encouraged regular practice	Students demonstrated more consistent engagement with independent exercises	Interactive features helped establish regular learning routines

Developing Speaking Confidence through Low-Pressure Practice

Speaking anxiety remained evident among the participants, particularly in formal academic situations. Students reported greater nervousness when delivering presentations, responding to lecturers, or interacting with proficient English speakers than when communicating informally with classmates. Their anxiety was associated primarily with fear of making pronunciation and grammatical errors and concern about being negatively evaluated.

The interview and observation data indicated that AI-supported practice helped students prepare for these demanding speaking situations. One participant explained:

“Yes, speaking practice using AI increases my confidence because I get used to speaking and receiving gradual correction before speaking to others.” (R2)

This view was also reported by several other participants. They described AI-supported practice as an opportunity to rehearse their ideas, identify errors, and repeat spoken responses before presenting them to lecturers or classmates. The observation data supported these accounts: students who had previously practised with AI appeared more prepared and less hesitant when asked to speak. Thus, the important contribution of AI was not merely the provision of language exercises but the opportunity to develop psychological readiness before entering socially evaluative communication.

This finding is consistent with Zhang et al. (2024), who found that AI-supported speaking interaction affected EFL learners' foreign language enjoyment, anxiety, and willingness to communicate. Their study indicates that repeated interaction with an AI-speaking assistant can create an environment in which learners experience less immediate interpersonal pressure while developing

greater readiness to communicate. The present study extends that finding by showing how Indonesian university EFL students used AI as a rehearsal space before speaking to lecturers or peers.

The present finding also reinforces earlier evidence from the same broader Indonesian EFL context. Panggua et al. (2025) found that AI-assisted academic speaking activities strengthened students' self-confidence by providing a non-judgmental environment in which they could practise and revise their spoken output before communicating with others. The current study extends this finding by suggesting that such low-pressure practice functions specifically as psychological preparation for subsequent lecturer- and peer-facing communication.

Similarly, Wang et al. (2024) found that conversational generative AI supported learners' willingness to communicate, reduced speaking anxiety, and enhanced self-perceived communicative competence. Their qualitative findings highlighted the emotional support and immersive learning experience offered by human-like AI interaction. However, the researchers found no statistically significant differences in objective speaking-test performance across the experimental groups. This distinction is important for interpreting the present study. Students' reports of increased confidence demonstrate an affective and preparatory benefit, but they cannot be treated as evidence of objectively measured speaking improvement because the current research did not administer pretests and posttests.

Fathi et al. (2024) also reported that AI-mediated interactive speaking activities improved learners' willingness to communicate and speaking performance. Learners in their study valued the opportunities for repeated interaction and the supportive nature of AI-mediated instruction. The present findings support the affective dimension of their results: repeated practice helped students feel more accustomed to speaking and reduced uncertainty before actual communication.

The finding can be explained by the reduction of immediate social evaluation. When speaking before lecturers or classmates, students have limited time to plan, revise, and correct their utterances. In AI-mediated interaction, they can repeat an answer, experiment with alternative expressions, and make mistakes without experiencing visible negative reactions from another person. This sense of control appears to reduce the perceived interpersonal risk of speaking.

However, AI-supported confidence should not be interpreted as complete mastery of real-world communication. Human interaction includes unpredictable responses, turn-taking demands, interpersonal sensitivity, and contextual negotiation that cannot be fully reproduced by an application. Therefore, AI is best positioned as a preparatory environment that enables anxious students to practise before moving to peer, classroom, and authentic communication.

The novelty of this finding lies in the identification of AI as a pre-communicative support environment. Within the Indonesian university EFL context examined in this study, students did not perceive AI merely as a source of language information. They used it to prepare themselves emotionally and linguistically before interacting with other people. AI-supported practice therefore functioned as a bridge between private rehearsal and public communication.

Receiving Immediate Corrective Feedback

The second theme concerned the immediate corrective feedback provided by AI-based applications. Participants reported receiving feedback on pronunciation, fluency, speaking speed, repetition, pauses, and grammatical structure. Such feedback enabled them to identify a speaking problem immediately after producing an utterance.

One participant described how speech-recognition technology responded to pronunciation errors:

“AI usually uses speech recognition technology. If I pronounce it incorrectly, the AI will highlight the word or ask me to repeat it until it sounds correct.” (R3)

Other participants reported similar experiences. They explained that applications could identify words that were inaccurately pronounced and provide models for repetition. The observation data supported this finding, as students were observed repeating particular words after receiving pronunciation feedback.

Participants also reported receiving feedback related to fluency. One student explained:

“AI can detect fluency problems such as pauses, repetitions, or speaking too slowly or too fast.” (R1)

This feedback helped students become more conscious of their speaking rhythm. Rather than focusing only on whether individual words were correct, students could recognise excessive pauses, repeated words, and inappropriate speaking speed. However, the data also showed that students gave greater attention to pronunciation than to extended fluency. Several students repeatedly practised individual words but engaged less frequently in sustained speech. This suggests that the affordances recognised and used by students were not necessarily identical across speaking components.

Grammatical feedback was another reported affordance. One participant stated:

“AI detects grammatical errors by comparing my spoken sentences with correct grammatical structures. The errors are explained directly, along with examples of correct sentences and alternative corrections.” (R6)

The reported value of this feedback was its immediacy and privacy. Students could recognise and correct an error without waiting for lecturer feedback and without having the error publicly identified before classmates. Immediate correction may therefore have served both a linguistic and an affective function: it increased awareness of errors while reducing embarrassment during correction.

Sayed et al. (2024) similarly found that AI-supported oral activities provided personalised and automated feedback that helped learners identify areas requiring improvement. Their study, which involved 28 upper-intermediate EFL learners, reported an increase in mean speaking scores from 5.214 on the pretest to 16.071 on the immediate posttest, with a mean of 15.357 on the delayed posttest. These quantitative results cannot be directly generalised to the current qualitative study, but they demonstrate that personalised AI feedback can contribute to sustained speaking development when integrated into structured instructional activities.

Hsu et al. (2023) showed that a task-oriented chatbot could provide EFL learners with structured speaking opportunities and immediate responses. Their findings highlight the importance of connecting chatbot interaction with clearly designed communicative tasks. This is relevant to the present study because feedback alone may not produce meaningful speaking development if students practise only isolated words or decontextualised sentences.

The findings also align with Divekar et al. (2022), who demonstrated that AI-supported environments can provide interactive scenarios, automated responses, and opportunities for repeated language rehearsal. Such functions enable learners to test and revise their spoken production before communicating in less predictable situations.

This finding is also consistent with Panggua et al. (2025), who reported improvements in pronunciation and fluency associated with instantaneous AI-supported feedback among Indonesian university EFL students. In the present study, however, students appeared to engage more intensively with pronunciation correction than extended fluency practice, suggesting that learners selectively use different AI affordances according to their perceived speaking needs.

Despite its perceived benefits, AI feedback should not automatically be treated as accurate or pedagogically complete. Automated systems may identify surface-level pronunciation or grammatical differences but may not adequately evaluate pragmatic appropriateness, cultural context, interpersonal meaning, or the effectiveness of communication as a whole. Students may also accept an AI correction without understanding why it is appropriate.

The anxiety reported by participants also reflects an earlier pattern identified at the same institutional context. Panggua (2019) found that UKI Toraja EFL students' speaking anxiety was associated with low self-confidence, pronunciation concerns, listener understanding, peer reactions, and perceived accent difficulties. The persistence of related concerns in the present findings suggests that digital transformation has not removed the underlying affective challenges of speaking English; rather, AI may offer students a new means of managing them.

Therefore, the finding implies that lecturers should teach students to evaluate automated feedback critically. AI corrections can be used as an initial source of guidance, but difficult or uncertain corrections should be checked against reliable dictionaries, language corpora, reference materials, or lecturer feedback. AI should support formative practice rather than become the sole authority for assessing spoken English.

The novelty of this theme lies in the relationship between feedback and emotional safety. The participants valued AI feedback not only because it was immediate but also because it was delivered

privately. The combination of immediacy and reduced social exposure allowed students to respond to errors as manageable learning problems rather than public failures.

Extending Speaking Practice beyond Classroom Limitations

The third theme was the flexibility of time and place offered by AI-supported applications. Participants reported that they could practise speaking at home, at night, during holidays, while travelling, during free time, or immediately before a presentation. One participant stated:

“The flexibility of time and place allows me to practise speaking more frequently. I can practise anytime and anywhere, for example at home, on the go, or in my free time, without having to wait for class schedules.” (R5)

This experience was also reported by other participants. They described classroom schedules and the availability of lecturers or speaking partners as limitations on conventional practice. AI-based applications reduced these limitations by providing an accessible interaction partner whenever students had the time and resources to practise.

The observation evidence indicated that students used opportunities outside formal class hours to complete independent exercises. Flexible access therefore expanded the quantity of potential speaking practice. It also allowed students to choose moments when they felt psychologically prepared, rather than being required to perform immediately according to a classroom schedule.

Liu et al. (2025) found that AI-mediated informal digital learning enabled EFL learners to engage in language activities beyond formal lessons. Their findings showed that sustained AI use was influenced by perceived usefulness, AI competence, motivation, learning goals, and social context. This suggests that technological availability does not independently guarantee productive practice. Students also require the ability and motivation to use AI purposefully.

A scoping review by Liu and Zhao (2026) examined 65 empirical studies of AI-mediated informal language learning. The review identified linguistic, affective, and cognitive benefits, including speaking development, anxiety reduction, confidence, and autonomous learning. However, it also noted that research was geographically concentrated and frequently relied on cross-sectional designs. The present study contributes contextual evidence from an Indonesian university setting, where opportunities to use spoken English beyond formal instruction may be limited.

Bárkányi and Brash (2025), in a mixed-methods study involving 307 online language learners, cautioned that online technology does not automatically eliminate speaking anxiety. Although asynchronous tools and supporting resources may help students prepare, cameras, technical difficulties, breakout rooms, and spontaneous synchronous interaction can create new pressures. This reinforces the idea that flexibility must be understood as control over practice conditions rather than simply access to a digital platform.

The flexibility reported in the present study extends earlier findings by Panggua et al. (2021), who identified learning beyond fixed time and space as an important opportunity afforded by blended speaking instruction. AI-based applications appear to extend this flexibility further because learners can obtain interactive responses and corrective feedback without requiring the simultaneous presence of a lecturer or speaking partner.

In the current study, temporal and spatial flexibility supported more frequent practice because students could regulate when and where they interacted with AI. Nevertheless, the study did not collect application log data or measure the duration of students' practice. It therefore cannot determine whether perceived flexibility resulted in objectively greater practice time for all participants.

The pedagogical implication is that lecturers should provide structured out-of-class speaking tasks rather than merely recommending that students use AI. For example, students may be asked to practise a presentation introduction, record alternative responses, identify pronunciation problems, revise their output, and then apply the revised response in peer interaction. Such tasks connect flexible independent practice with classroom learning outcomes.

Developing Learner Autonomy

The fourth theme was the development of learner autonomy. Participants reported becoming more independent in managing their speaking practice. They could select the time and pace of learning, repeat difficult activities, identify weaknesses, and monitor their own progress without continuously relying on lecturers.

Students perceived individual AI-supported practice as particularly useful when crowded classroom conditions limited personalised guidance. Some participants indicated that they understood materials better when they could practise individually, repeat instructions, and focus on their own speaking difficulties. After independent practice at home, they felt more prepared to speak before other people.

This finding supports Sayed et al. (2024), who reported that AI-supported oral practice contributed to learner autonomy in addition to speaking performance and psychological well-being. Personalised feedback and repeated practice enabled learners to identify weaknesses and take greater responsibility for improvement.

Koç and Savaş (2025) conducted a systematic meta-synthesis of 57 studies published between 2010 and 2024 on voice-based AI chatbots in English-language learning. Their synthesis found that AI chatbots could support engagement, language learning, and constructive learning experiences. Chatbots offered interaction without requiring the constant presence of a human speaking partner, thereby allowing learners greater control over the frequency and timing of practice.

The finding further supports Panggua et al. (2025), who identified increased learner autonomy and self-regulation as a central outcome of AI-assisted academic speaking activities. The present study provides a more affective interpretation of this process: greater control over timing, repetition, and exposure to evaluation appeared to help learners regulate not only their learning but also their anxiety before public speaking.

However, access to an AI application does not automatically produce learner autonomy. Autonomy requires students to establish goals, select suitable strategies, monitor their performance, evaluate feedback, and make informed decisions. A student who follows AI suggestions passively without evaluating them may become technologically dependent rather than autonomous.

The current findings suggest that autonomy developed through four related forms of control: control over time, control over repetition, control over the focus of practice, and control over exposure to evaluation. Students could decide when to practise, how often to repeat a task, which speaking problem to address, and when they were ready to communicate with other people. This multidimensional control appears to have contributed to both independence and confidence.

The finding also reveals a close relationship between autonomy and anxiety management. Students felt less pressure when they could regulate the pace and sequence of practice. They did not have to produce an immediate response before a lecturer or class. Instead, they could prepare, revise, and repeat their spoken output. Thus, autonomy was not merely an organisational learning outcome; it also functioned as a mechanism for emotional regulation.

This relationship represents another contribution of the study. Within this context, learner autonomy and speaking confidence were not separate outcomes. Greater control over practice conditions enabled students to reduce uncertainty, prepare their responses, and approach public speaking with greater confidence.

Pedagogically, lecturers should support guided autonomy rather than unstructured AI use. Students can be taught to formulate practice goals, maintain learning records, compare initial and revised speaking samples, verify AI feedback, and reflect on how independent practice influences classroom participation. In this model, the lecturer remains responsible for designing learning objectives and helping students evaluate the quality of AI-generated support.

Sustaining Motivation through Interactive Features

The fifth theme concerned students' motivation to practise speaking. Participants reported that visual displays, audio support, progress indicators, and streak systems made exercises more engaging and encouraged regular practice. These features reduced boredom and gave students a visible indication that they were maintaining a learning routine.

The streak feature was especially relevant to consistency. Students were encouraged to practise daily so that they would not lose their accumulated progress. Audio and visual elements also made speaking activities feel more interactive than conventional independent study using printed materials.

This finding is consistent with Zhang et al. (2024), who found that AI-supported speaking interaction influenced foreign language enjoyment as well as anxiety and willingness to communicate. Enjoyable learning experiences may increase students' willingness to return to an application and engage in repeated speaking practice.

Koç and Savaş's (2025) meta-synthesis also identified positive learner experiences involving engagement, interest, and constructive interaction with voice-based chatbots. Immediate responses and the availability of repeated interaction can make students feel that they have an accessible conversational partner.

Nevertheless, gamified features should not be equated with deep or sustained motivation. A streak may encourage students to open an application each day, but it does not show whether they complete meaningful speaking tasks or improve their communicative ability. Motivation based primarily on maintaining a score or streak may also decline when the reward is removed.

In the present study, motivation appeared to be strongest when interactive features were combined with perceived usefulness. Students were motivated not only by visual and gamified elements but also by the belief that the application helped them recognise errors, prepare for presentations, and practise without embarrassment. Therefore, the motivational value of AI emerged from the interaction between attractive features and meaningful learning support.

Universities and lecturers should avoid selecting applications only because they are popular or visually attractive. AI applications should be evaluated according to the relevance of their speaking tasks, the quality of their feedback, accessibility, privacy protections, and their ability to support progression from controlled practice to authentic communication.

Taken together, the five themes show that AI-supported speaking practice operated through an interconnected process. Flexible access gave students more control over when and where they practised. Immediate feedback helped them identify speaking difficulties. Repetition within a non-judgmental environment reduced the perceived risk of making mistakes. Greater control and repeated correction supported learner autonomy and psychological preparedness. Interactive features encouraged students to continue practising.

The findings answer the research objective by showing that AI supported speaking confidence and learner autonomy primarily through the conditions it created for practice rather than through technology alone. The relevant conditions were privacy, repetition, immediate responses, temporal flexibility, and control over learning pace.

The results are broadly consistent with previous research showing that AI-mediated speaking environments can enhance willingness to communicate, reduce anxiety, and support speaking development (Fathi et al., 2024; Wang et al., 2024; Zhang et al., 2024). They also align with broader reviews indicating that voice-based chatbots can provide accessible and constructive language-learning experiences (Koç & Savaş, 2025; Liu & Zhao, 2026).

However, the present research provides a more context-specific explanation of how these outcomes were experienced by Indonesian university EFL students. The students used AI as an intermediate space between knowing English and having the confidence to use it publicly. They did not describe AI as a replacement for lecturers or human partners. Instead, it allowed them to prepare before entering formal speaking situations.

The principal novelty of the study is therefore the conceptualisation of AI as a pre-communicative support environment. The contribution is not a causal claim that AI directly improves speaking proficiency. Rather, the findings demonstrate that AI creates conditions in which students can rehearse privately, receive feedback, regulate their learning, and prepare psychologically for subsequent human communication.

Pedagogical and Institutional Implications

The findings support a staged model for integrating AI into university EFL speaking education as can be seen in the figure 1:

In the first stage, students use AI to generate ideas, practise pronunciation, and rehearse possible responses. In the second stage, they examine automated feedback, revise errors, and record improved versions. They then practise with peers, where they encounter real turn-taking and

interpersonal reactions. Lecturer feedback is used to address linguistic, pragmatic, and contextual issues that AI may not identify. Finally, students apply their learning in presentations, discussions, interviews, or other authentic speaking tasks.

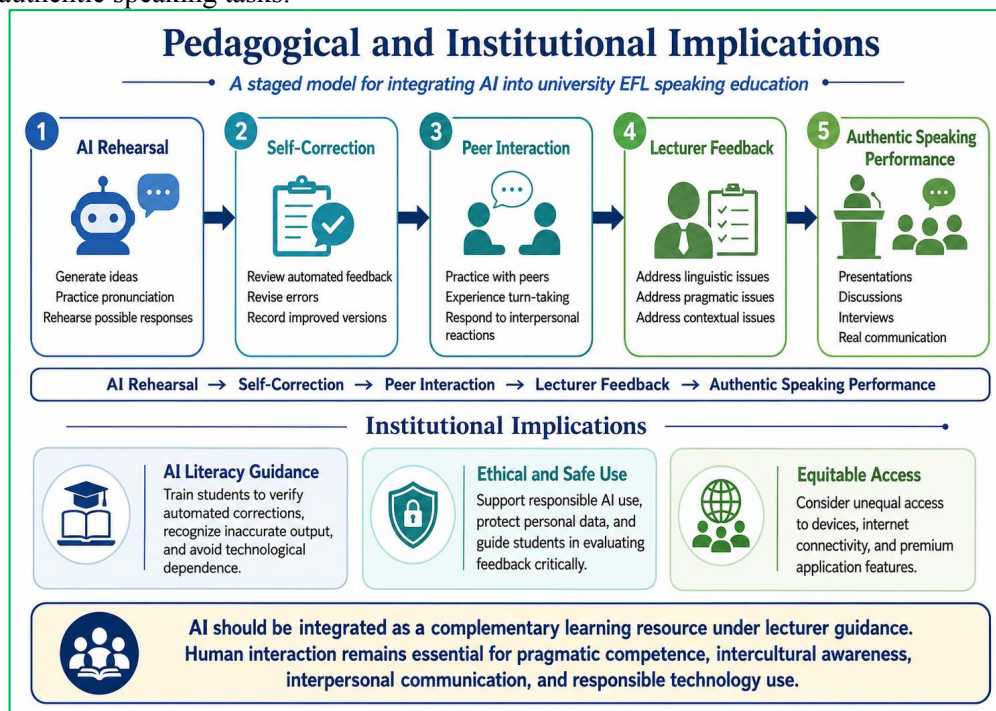


Figure 1. The Stage Model for Integrating AI into University EFL Speaking Education

At the institutional level, universities should provide AI-literacy guidance rather than simply permitting or prohibiting AI use. Students need training in verifying automated corrections, protecting personal data, recognising inaccurate output, and avoiding technological dependence. Institutions should also consider unequal access to devices, internet connectivity, and premium application features.

AI should therefore be integrated as a complementary learning resource under lecturer guidance. Its pedagogical value lies in expanding practice and preparation, whereas lecturers and human interaction remain essential for developing pragmatic competence, intercultural awareness, interpersonal communication, and responsible technology use.

CONCLUSION

This study concludes that AI-supported applications can play a meaningful complementary role in university EFL speaking education by supporting students' speaking confidence and learner autonomy. The findings show that students used AI-based applications as low-pressure practice environments where they could rehearse spoken English repeatedly, receive immediate corrective feedback, regulate the time and pace of practice, and prepare themselves before communicating with lecturers or peers. Five interrelated findings emerged from the study: increased speaking confidence, immediate corrective feedback, flexible speaking practice, greater learner autonomy, and sustained motivation through interactive application features.

The study further indicates that the educational value of AI lies not merely in the technology itself, but in the learning conditions it creates. Privacy, repetition, immediate responses, flexible access, and learner control reduced perceived evaluative pressure and helped students develop greater psychological readiness for real communication. Therefore, AI should not be positioned as a replacement for lecturers or authentic human interaction. Instead, it is more appropriately understood as a pre-communicative support environment that bridges private rehearsal and public speaking.

Pedagogically, lecturers are encouraged to integrate AI-supported practice into a staged learning process involving AI rehearsal, self-correction, peer interaction, lecturer feedback, and authentic speaking performance. Universities should also provide guidance on AI literacy, ethical use, feedback verification, data privacy, and equitable access to digital learning tools.

Future research should involve larger and more diverse participant groups across multiple universities, compare different AI-speaking applications, and employ mixed-method or experimental designs to examine changes in speaking anxiety, confidence, learner autonomy, and speaking performance quantitatively. Longitudinal studies are also recommended to investigate whether the benefits of AI-supported speaking practice are sustained over time and transferred to authentic interpersonal communication.

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Conceptualization, Selvi Panggua and Matius Tandikombong; Methodology, Selvi Panggua and Matius Tandikombong; Validation, Selvi Panggua, Matius Tandikombong, and Rachel; Formal Analysis, Rachel and Selvi Panggua; Investigation, Rachel; Resources, Rachel and Selvi Panggua; Data Curation, Rachel; Writing – Original Draft Preparation, Rachel; Writing – Review & Editing, Selvi Panggua and Matius Tandikombong; Visualization, Rachel; Supervision, Selvi Panggua and Matius Tandikombong; Project Administration, Selvi Panggua; Funding Acquisition, Selvi Panggua. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

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