

The Use of AI-assisted Assessment in Improving EFL Speaking Skills

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Abstract

This research investigate the effectiveness of the AI-assisted assessment on the speaking skills of EFL university students. Employing a mixed-methods approach, 60 individuals were allocated into experimental and control groups. The experimental group employed an AI-driven program that offered feedback on pronunciation, fluency, and grammar, whereas the control group underwent conventional teacher-led evaluation. The study demonstrated significant improvements in the experimental group, highlighting enhanced learner confidence, less speaking fear, and improved drive. The findings indicate that AI-assisted assessment serves as a valuable enhancement to conventional speaking teaching, facilitating increased practice frequency and more objective evaluation. The research provides pragmatic and educational ideas for using AI tools into language curricula to enhance speaking skill development in EFL environments.

Key words: AI-assisted assessment, speaking skills, pronunciation and fluency, learner confidence, speaking anxiety reduction, language learning motivation

1. Introduction

The rapid progression of artificial intelligence (AI) technology has marked a transformative period for education, especially in the field of language acquisition. As English as a Foreign Language (EFL) learners endeavor to attain communicative competence in a globalized context, fluency and accuracy in spoken English serve as essential indicators of language proficiency and access to academic, professional, and social possibilities. Nonetheless, the ongoing obstacles encountered by EFL learners - such as inadequate classroom exposure, restricted opportunities for genuine practice, and conventional teacher-centered approaches - have frequently impeded the advancement of proficient speaking skills.

In numerous EFL countries, like as Vietnam, traditional classroom settings sometimes inadequately offer learners sufficient opportunity for meaningful oral interaction. Educators may resort to utilizing the native language, and the time allocated for verbal communication in the classroom is sometimes limited by curricular requirements and substantial class sizes. Consequently, learners encounter insufficient exposure to genuine English input, restricted opportunities for speaking practice, and diminished motivation and inclination to participate in

oral communication. These variables engender a loop of inadequate proficiency, anxiety, and aversion to engaging in spoken English activities.

In this context, AI-assisted evaluation has arisen as a viable way to overcome the shortcomings of traditional EFL training. AI-driven tools, including voice chatbots, speech recognition systems, and intelligent tutoring applications, utilize advancements in natural language processing (NLP), natural language understanding (NLU), and natural language generation (NLG) to establish interactive, learner-focused environments that replicate genuine conversational interactions. These technologies offer instantaneous, tailored feedback on pronunciation, grammar, vocabulary, and fluency, allowing learners to pinpoint specific areas for enhancement and participate in focused practice at their own tempo.

The advantages of incorporating AI into language acquisition surpass merely enhanced practice possibilities. AI-driven platforms can enhance learner autonomy, motivation, and engagement by providing contextually rich, adaptive experiences that reflect real-life communication situations. Applications such as Gliglish, Sayra, and Andy English Bot are specifically engineered to assist EFL learners by facilitating interactive dialogues, role-playing exercises, and real-time assessments, thereby enhancing practical speaking abilities. These systems enable autonomous learning, permitting students to exercise independently and obtain feedback without continuous teacher oversight. Empirical study highlights the transformative potential of AI-assisted evaluation in the improvement of EFL speaking skills. Recent research in Iran and Vietnam indicates that learners utilizing AI-based speaking tools exhibit considerable enhancements in fluency, accuracy, and overall communication competence relative to those who depend only on traditional approaches. Students additionally indicate enhanced motivation, elevated confidence, and favorable opinions toward the integration of AI in their language acquisition processes. These findings underscore AI's potential to tackle enduring issues in EFL instruction and to facilitate the enhancement of crucial speaking abilities across various contexts.

Notwithstanding the potential of AI-assisted assessment, deficiencies persist in comprehending its efficacy across diverse cultural and educational contexts, as well as in enhancing its incorporation into curriculum and pedagogy. There is an urgent necessity for additional study that examines the influence of AI tools on speaking proficiency, studies learners' views and experiences, and offers practical recommendations for educators and authorities. As digital learning settings proliferate, a sophisticated comprehension of how AI can be utilized to improve EFL speaking outcomes is essential for the evolution of language education.

2. Literature Review

2.1. AI in Language Learning

Artificial Intelligence (AI) has progressively infected the educational domain, presenting significant prospects for individualized learning, evaluation, and feedback. In language learning, AI is utilized in numerous forms, including intelligent tutoring systems, automated

voice recognition (ASR), chatbots, virtual agents, and mobile applications. These AI-driven solutions facilitate adaptive learning experiences by evaluating learner inputs, anticipating educational requirements, and providing tailored content (Popenici, 2023; Zou et al., 2023). Natural language processing (NLP), natural language understanding (NLU), and natural language generation (NLG) constitute the fundamental methods by which AI analyzes, processes, and responds to learner language, hence emulating genuine communication interactions (Adamopoulou & Moussiades, 2020).

Freiermuth and Zarrinabadi (2020) highlight the transformative influence of AI in establishing learner-centered, psychologically supportive environments that cater to varied learning styles and preferences. Language learning applications such as Duolingo and speech enhancement programs like ELSA Speak illustrate AI's capacity to dynamically tailor information to align with student skill, so ensuring sustained interest and advancement. These technologies are intended to instruct and evaluate learners' linguistic proficiency using real-time feedback systems.

Furthermore, AI has demonstrated the ability to augment student motivation and alleviate language learning anxiety. AI technologies enable a secure environment for learners to engage in non-judgmental, repetitive practice, allowing them to explore language usage without the apprehension of embarrassment or adverse assessment (Mohammadkarimi, 2024; Tai & Chen, 2024). This is especially pertinent in speaking, a skill sometimes obstructed by psychological barriers like the fear of making errors in the presence of peers (Fulcher, 2015).

The scalability and adaptability of AI technologies present significant potential for formal educational institutions, especially with rising student-to-teacher ratios and constrained instructional time. AI systems can assist educators by automating standard evaluations and delivering diagnostic feedback, enabling instructors to concentrate on more complex pedagogical responsibilities (Popenici, 2023; Gamage et al., 2023).

Despite these benefits, issues with algorithmic bias, data privacy, and the requirement for culturally sensitive AI designs still exist. The incorporation of AI into language acquisition is acknowledged as a substantial educational breakthrough. Further study is necessary to assess the long-term effects of AI on language learning outcomes and to investigate how educators and learners may be proficiently trained to utilize AI tools in pedagogically significant manners (Zou et al., 2023).

2.2. The Role of AI-Assisted Assessment in Speaking Improvement

AI-assisted assessment signifies a transformative change in the evaluation of speaking proficiency in EFL environments. Conventional speaking assessments, which often depend on instructor observation and human evaluation, are frequently limited by subjectivity, inconsistency, and temporal constraints (De Jong, 2023; Hana et al., 2022). These constraints are especially troublesome when evaluating intricate constructs such as fluency, pronunciation, grammar, and communicative appropriateness - each necessitating sophisticated discernment.

Conversely, AI technologies provide automated and standardized assessment methods that improve the reliability and efficiency of speech evaluations (Gu et al., 2021).

The ELSA speech analyzer, Duolingo English Test, and SpeechAce are some of the most extensively studied AI-based evaluation tools. These instruments employ automated speech recognition (ASR) to transcribe and evaluate learner speech, with machine learning algorithms to produce scores and specific feedback. Al-husban (2025) discovered that pupils evaluated with the ELSA app had statistically significant improvements in pronunciation, intonation, and fluency relative to those graded using conventional rubrics. The prompt and tailored feedback offered by AI systems was identified as a significant factor in these enhancements.

Moreover, AI-assisted assessment technologies enhance student autonomy and self-directed learning by providing feedback that is accessible at any time, facilitating repeated practice and self-evaluation. Gamage et al. (2023) emphasize that these tools facilitate personalized education by tailoring evaluations to the performance levels of particular learners. Students obtain visual and aural feedback that aids in pinpointing specific areas for enhancement, so strengthening metacognitive awareness and motivation for progress.

AI solutions alleviate the workload of instructors by automating the assessment of speaking performance, particularly in large classes where individualized feedback is unfeasible. This facilitates the regular integration of speaking practice and evaluation into language curriculum. The efficacy of AI-assisted assessment relies on the congruence between tool functionalities and curricular goals, in addition to the precision and clarity of feedback. Concerns persist over the inadequacies of speech recognition technology in addressing non-native accents or spontaneous speech (Zou et al., 2023).

Nevertheless, AI-assisted assessment presents a viable remedy for enduring challenges in speech education and evaluation. As technologies advance, their capacity to deliver nuanced, trustworthy, and actionable feedback is expected to enhance, rendering them an essential element of contemporary language instruction.

2.3. Recent Studies on AI-Assisted Speaking Development

An increasing volume of empirical research has examined the impact of AI-assisted tools on the enhancement of speaking skills in EFL learners. Duong and Suppasetseree (2024) conducted a quasi-experimental study with Vietnamese undergraduates, revealing that students who engaged with an AI-powered chatbot for eight weeks exhibited notable enhancements in speaking fluency, grammatical precision, and vocabulary utilization. The study emphasized the chatbot's ability to replicate native-like interaction and deliver structured language input, enhancing a more immersive and engaging speaking environment.

Likewise, Al-husban (2025) assessed the effects of the ELSA speech analyzer on Jordanian university students. The results indicated that the experimental group, which received teaching and assessment via ELSA, surpassed the control group in all dimensions of speaking, including

pronunciation, vocabulary, and fluency. Students notably expressed favorable opinions of the AI tool, highlighting its intuitive design, immediate response, and contribution to enhancing speaking confidence. These findings highlight the capacity of AI technologies to enhance skill acquisition and foster student motivation.

In a separate study, Mohammadkarimi (2024) evaluated the impact of AI tools on the pronunciation of Iranian EFL learners. The experimental group exhibited substantial improvements over time and indicated heightened confidence in speaking English. The enhancements were ascribed to AI systems' capacity to deliver clear, consistent, and personalized remedial feedback - an advantage sometimes absent in conventional classroom environments.

Zainuddin and Mohamad (2024) investigated the application of the SpeechAce tool among Malaysian ESL students. Their research demonstrated the efficacy of AI feedback in enhancing pronunciation while also demonstrating increased student autonomy and motivation. Educators observed less assessment burdens and a more purposeful allocation of class time, enabling them to concentrate on communicative activities rather than corrective feedback.

Additionally, Tai and Chen (2024) examined the impact of generative AI chatbots (e.g., coolE bot) on the development of speaking abilities in EFL learners. Their findings demonstrated that both solitary and partnered interactions with AI chatbots resulted in enhancements in learners' oral skills. The participants conveyed gratitude for the secure, low-anxiety atmosphere facilitated by the bots, which encouraged linguistic experimentation without the fear of criticism.

These studies collectively confirm the effectiveness of AI-assisted speaking tools in various EFL scenarios. Nonetheless, they emphasize the necessity for longitudinal study to evaluate enduring learning outcomes, alongside comparative studies investigating the varied effects of different AI techniques. Future research should investigate the incorporation of AI tools into formal evaluation frameworks and educator training programs to guarantee effective application.

3. Methodology

This study adopted a mixed-methods design to investigate the effectiveness of AI-assisted assessment tools in improving the speaking skills of EFL university students. A combination of pre-test and post-test quantitative data, along with qualitative data from learner interviews, was employed to explore both the performance outcomes and perceptions of students using AI-based speaking tools.

Participants

The participants were 60 undergraduate EFL students enrolled in an English course at a public university in Vietnam. Participants were assigned to two groups: an experimental group (n =

30), which used an AI-powered assessment tool (e.g., ELSA Speak or SpeechAce) during the course, and a control group (n = 30), which received traditional teacher-led speaking instruction and assessment based on established rubrics. The two groups were matched based on prior English proficiency using standardized placement test scores.

Instruments

Speaking Pre-test and Post-test: Both groups completed a structured speaking task evaluated using a standardized rubric assessing five criteria: pronunciation, vocabulary, grammar, fluency, and coherence. The test was conducted at the beginning and end of the intervention period to measure gains in speaking performance.

Semi-structured Interviews: To complement the survey data, interviews were conducted with 8 randomly selected students from the experimental group. Questions focused on learner experiences, challenges, and perceived benefits of using AI-assisted speaking assessments.

Procedure

The intervention lasted eight weeks. During this period, the experimental group used the AI tool for speaking practice and received automated assessments twice a week, both in and outside the classroom. The control group followed the conventional curriculum, receiving oral practice and instructor feedback without any technological integration.

Week 1: Orientation and pre-test.

Weeks 2–7: Speaking activities and ongoing assessments (AI-assisted or teacher-based).

Week 8: Post-test and interviews.

4. Results

4.1. Speaking Performance

To examine the effect of AI-assisted assessment on students' speaking performance, pre- and post-test scores were analyzed using paired-samples t-tests (within groups) and an independent-samples t-test (between groups). Table 1 summarizes the descriptive statistics and t-test results.

Table 1. Mean Scores and Statistical Comparison of Speaking Performance

Group	Test Type	Mean Score	SD	t	df	p-value
Experimental (n=30)	Pre-test	67.5	7.2			
	Post-test	80.4	6.8	10.72	29	< .001
Control (n=30)	Pre-test	68.1	7.1			
	Post-test	72.3	6.5	4.65	29	< .001

Post-test (Comparison)	Exp vs. Ctrl			4.28	58	< .001
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The mean speaking skill score increased significantly from the pre-test ($M = 67.5$, $SD = 7.2$) to the post-test ($M = 80.4$, $SD = 6.8$), with a highly significant t -value of 10.72 ($p < .001$). This indicates a strong positive effect of the AI-assisted assessment intervention on the experimental group's speaking performance.

The control group also showed a statistically significant improvement from pre-test ($M = 68.1$, $SD = 7.1$) to post-test ($M = 72.3$, $SD = 6.5$), with $t = 4.65$ ($p < .01$). However, the magnitude of improvement is smaller compared to the experimental group.

The post-test scores of the experimental group were significantly higher than those of the control group ($t = 4.28$, $p < .001$), confirming that the AI-assisted assessment had a greater impact on improving speaking skills than traditional instruction alone.

The data clearly demonstrate that the use of AI-assisted assessment significantly improves EFL learners' speaking skills compared to traditional methods. Both groups improved over time, but the experimental group's gains were substantially larger, highlighting the effectiveness of AI tools in enhancing speaking proficiency.

4.2. Student Perceptions and Experiences

Confidence and Anxiety Reduction

A significant number of students reported feeling more at ease when practicing with the AI tool compared to speaking in traditional classroom settings. This suggests that the AI tool provided a safe, private space for practice, alleviating the fear of judgment from peers or teachers, which is often a major barrier to speaking English in class.

Students expressed that the AI tool helped reduce the anxiety typically associated with public speaking and oral communication in a group setting. This finding is consistent with research on anxiety reduction in language learning, where students are less self-conscious when they can practice in solitude, without the risk of immediate, public failure.

The reduction in anxiety likely contributed to an increased willingness to engage in speaking practice. When students feel more confident, they are more likely to take risks, experiment with language use, and engage in conversations or speaking activities they might otherwise avoid due to fear of making mistakes.

As a result of reduced anxiety, students may have been more motivated to practice speaking regularly, which is essential for language acquisition. This could lead to long-term improvements in fluency and pronunciation, as students overcome their fear of making errors in public.

Feedback Quality

Students consistently value the detailed feedback provided by the AI tool on their pronunciation and fluency errors.

Students reported that the feedback they received was not just general, but highly specific to their errors, particularly in pronunciation and fluency. This detailed level of feedback allowed students to identify and address their mistakes more effectively than traditional classroom feedback, which may not always be as immediate or focused.

The ability to self-correct based on the AI's feedback fostered an independent learning approach. Learners appreciated the opportunity to revisit their mistakes and practice until they achieved mastery. This autonomous approach to correcting errors is a valuable aspect of language learning, as it encourages students to take ownership of their progress and make adjustments at their own pace.

Instant feedback is an essential feature of the AI tool. It allowed students to correct errors in real-time, reinforcing correct language use immediately after making a mistake. This immediate reinforcement is more effective than delayed feedback, as it helps solidify learning and prevents the reinforcement of incorrect patterns.

Learning Autonomy

The AI technology enabled students to practice at any time, markedly enhancing their engagement and accountability for their study. A multitude of students valued this liberty, as it afforded them influence over their educational experience.

The opportunity to engage in practice beyond designated class hours enabled pupils to assume control of their language acquisition. This freedom probably facilitated students' incorporation of language practice into their daily routines, free from the constraints of class schedules or time restrictions. The tool's on-demand accessibility facilitated studying at students' convenience, thereby fostering a more individualized educational experience.

The tool's autonomy likely cultivated internal drive, leading students to engage with the subject on their own terms. When students are afforded the autonomy to learn independently, they frequently exhibit heightened investment in the process, resulting in increased dedication to their educational objectives.

The technology enabled self-directed practice, allowing students to assume greater responsibility for their advancement. This sense of accountability is crucial for cultivating enduring learning habits. As students acquired the ability to oversee their practice sessions, they presumably enhanced their time-management and goal-setting competencies, both of which are essential for language acquisition.

The interview results demonstrate the complex influence of the AI technology on students' language acquisition experiences. The technology not only created a more conducive and encouraging atmosphere for students to practice speaking but also offered comprehensive feedback that encouraged self-correction and autonomous learning. Moreover, the augmented autonomy during practice sessions fostered heightened engagement and accountability for learning, ultimately leading to higher language proficiency and increased confidence. The amalgamation of these elements highlights the capability of AI technologies in promoting efficient, individualized, and learner-centered language learning environments.

5. Discussion

This study's results emphasize the significant benefits of incorporating AI-assisted assessment into EFL speaking learning. Quantitative results indicated that students utilizing the AI tool had much greater improvement compared to those depending exclusively on conventional assessment methods. This corresponds with previous studies indicating that AI-driven platforms improve speaking skill with regular practice, tailored feedback, and self-directed learning (Al-husban, 2025; Duong & Suppasetserree, 2024; Mohammadkarimi, 2024).

The experimental group's advancement seems to be mostly attributed to the promptness and precision of feedback. In contrast to conventional teacher-led feedback, which may be postponed and generalized due to time limitations or substantial class sizes, the AI tool provided instantaneous, specific feedback on each speaking attempt. This enabled learners to recognize and rectify pronunciation and fluency problems instantaneously, in accordance with the findings of Zou et al. (2023) and Kim et al. (2021).

The qualitative data further supported these conclusions. Students highlighted that the non-judgmental aspect of engaging with an AI instructor alleviated their apprehension regarding errors, a significant obstacle to speaking proficiency in EFL settings (Fulcher, 2015; Tai & Chen, 2024). Furthermore, the enhanced learner autonomy provided by AI tools facilitated more frequent and self-directed practice, mitigating a prevalent constraint in conventional training, where speaking chances are restricted.

Students indicated increased incentive to participate in speaking exercises outside of class, highlighting the usefulness of AI technologies in enhancing intrinsic drive. This corroborates prior assertions by Gamage et al. (2023) that AI-augmented learning environments can promote student agency and perseverance.

Nevertheless, the results strongly advocate for the incorporation of AI; however, it is crucial to recognize that AI feedback is most effective when it is accompanied by teacher support. Several students expressed perplexity when feedback contradicted their understanding or failed to account for context-specific nuances in language usage. As a result, the most effective approach is a hybrid paradigm in which the educator's role is augmented by AI rather than replaced.

6. Conclusion

This study investigated the effect of AI-assisted assessment on the enhancement of English speaking skills in EFL university students. The findings demonstrate that incorporating AI tools into the speaking curriculum can substantially enhance learners' pronunciation, fluency, grammar, and vocabulary usage. Students utilizing an AI-driven evaluation tool received superior post-test scores relative to their counterparts in the control group, while also expressing enhanced confidence, heightened enthusiasm, and improved participation in speaking practice.

Qualitative data from interviews also demonstrated the enhanced utility of AI tools in providing real-time, personalized feedback and a conducive learning environment. These findings corroborate the expanding corpus of research indicating that AI technologies are efficacious in fostering learner autonomy, delivering formative assessment, and augmenting spoken language competency in EFL environments.

Nonetheless, the study recognizes that AI-assisted evaluation should not be perceived as a substitute for conventional instruction, but rather as a supplementary approach that augments the teacher's function. By automating certain components of feedback and assessment, AI systems can free up instructional time, allowing educators to concentrate on communicative and interactive tasks that require human judgment and social nuance.

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