

Enhancing EFL Speaking Performance through AI-Powered Conversational Agents: A Mixed-Methods Study at Dong Nai Technology University

Vu Thi Duyen^{1*}

^{1*}English Lecturer, Faculty of Foreign Languages, Dong Nai Technology University, Dong Nai Province, Vietnam.

The authors declare that no funding was received for this work.

* **Correspondence:** Vu Thi Duyen



Received: 10-February-2026

Accepted: 10-April-2026

Published: 13-April-2026

Copyright © 2026, Authors retain copyright. Licensed under the Creative Commons Attribution 4.0 International License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

<https://creativecommons.org/licenses/by/4.0/> (CC BY 4.0 deed)

This article is published in the **MSI Journal of Education and Social Science**

ISSN 3107-5940 (Online)

The journal is managed and published by MSI Publishers.

Volume: 2, Issue: 2 (Apr-Jun) 2026

Abstract: The current paper examines the efficiency of AI-assisted conversational agents in enhancing the speaking proficiency of Vietnamese EFL university students. To conduct the research, a mixed methods design was used, including a quasi-experiment along with questionnaire and interview-based qualitative data. In total, 80 participants were randomly divided into experimental and control groups, during the course of eight to ten weeks. The results show that there is a noticeable improvement in the speaking proficiency of the experimental group in terms of fluency, accuracy, and complexity when compared to those in the control group who have received conventional training. Besides, the former group of learners became more motivated, confident, and less anxious about speaking English. Despite the benefits, some issues such as technical difficulties and inaccurate feedback have been mentioned.

Keywords: *Artificial Intelligence; EFL Speaking Performance; Conversational Agents; CAF Framework; Student Perceptions; Vietnam*

1. Introduction

1.1 Background of the Study

In recent times, the swift development of artificial intelligence (AI) technology has brought tremendous changes in education,

specifically English Language Teaching (ELT). AI technologies such as conversational agents like chatbots and voice-activated systems offer new possibilities for learners to communicate interactively and effectively using advanced features offered by this innovative technology. The use of conversational agents involves utilizing the technology's ability to understand natural language processing, hence facilitating real-life conversations between individuals. Studies conducted have demonstrated that AI conversational agents not only facilitate better learner interaction and autonomy but also increase their communicative competence because of the adaptive feedback provided in a low-stress environment (Xiao et al., 2024). Additionally, recent findings indicate that AI tools facilitate effective and instant feedback for the learners' pronunciations, grammar, and fluency.

In Second Language Acquisition (SLA), speaking is viewed as an essential aspect of communicative competence; nevertheless, it is arguably one of the most difficult skills to learn among EFL students. Speaking difficulty becomes more pronounced especially in places like Vietnam, where conventional language instruction places greater importance on grammar and reading skills than actual conversation. The size of classes, lack of opportunities to communicate, and the conventional approach employed by teachers make it very hard for students to participate actively in speaking activities. As a result, many learners struggle with poor fluency, lack of confidence, and severe speaking anxiety. Scholarly research reveals that speaking anxiety and lack of conversational practice impede the development of speaking skills among learners (Ebadi et al., 2025).

In order to tackle these problems, the use of conversational AI chatbots as a pedagogical approach has been suggested. Conversational chatbots provide learners with opportunities to practice speaking skills independently, interactively, and repetitively without any concerns about being negatively evaluated. It has been shown through empirical studies that conversational chatbots provide a positive learning environment and lower anxiety levels among learners (Ding & Yusof, 2025; Halimah et al. 2026). Furthermore, the use of AI for speaking practice leads to improvements in various important components of speaking skills such as fluency, pronunciation, and grammatical accuracy (Aliakbari et al., 2025; Yan & Singh, 2026). This idea was confirmed through recent studies conducted in Vietnam where

learners who used AI chatbots significantly improved their speaking skills and increased their level of confidence (Nguyen, 2025; Tam, 2025).

Furthermore, students usually have good perceptions of AI-mediated language learning because of its flexibility, accessibility, and personalization through feedback. A study using a mixed-method approach showed that the use of AI conversational agents was considered highly effective for improving students' speaking fluency and pronunciation and also increased motivation (Mudawy, 2025). Likewise, the application of task-based chatbots has been proven to encourage student interaction and shape their attitude towards language learning (Grab, 2025; Shafiee & Roohani, 2025). However, there are several key areas that require further investigation. Firstly, while there are many studies looking at quantitative gains or qualitative perceptions of language learners' experiences with AI, few studies combine these two types of analyses through a mixed-method approach. Secondly, there is not enough evidence regarding the effect of AI on speaking development according to Complexity, Accuracy, Fluency (CAF) framework in a Vietnamese university context.

Hence, this study will attempt to explore the effect of artificial intelligence-based conversation agents on improving the speaking performance of learners of English as a foreign language at a university level in Dong Nai. With the application of a mixed method approach, the study will not only try to look at the tangible results of using AI technology in speaking tasks but also will focus on the opinions of learners about such an application in terms of difficulties and benefits.

2. Literature Review

2.1 Theoretical Frameworks

The research is based on four major theoretical frameworks that explain how the process of speaking performance develops and how artificial intelligence-based technology is used to facilitate the process of foreign language acquisition. First, there is Communicative Competence Theory advanced by Dell Hymes. The author argues that speaking performance involves appropriate use of language rather than simply knowledge of grammar rules. The theory was further developed by Michael Canale and Merrill Swain into the four components of competence including

grammatical, sociolinguistic, discourse, and strategic competence (Canale & Swain, 1980).

The next theoretical concept that guides the study is Self-Regulated Learning (SRL). This theory proposed by Barry Zimmerman describes a particular approach used to understand the process in which the student manages the learning activity. Such processes include goal setting, self-monitoring, and reflection (Zimmerman, 2002). The use of AI helps in enhancing SRL through providing feedback and opportunity for practice (Dabbagh & Kitsantas, 2012).

Additionally, there is the Technology Acceptance Model (TAM) designed by Fred Davis (1989). According to this model, acceptance depends on the degree to which the technology is perceived as useful and easy to use.

Finally, the CAF Framework, proposed by Peter Skehan and Alex Housen, is an elaborate model for analyzing speaking performance. The CAF framework has been extensively employed for evaluating the development of second-language proficiency in terms of linguistic complexity, grammatical accuracy, and speech fluency (Housen, Kuiken, & Vedder, 2012).

Together, these theoretical models create a solid theoretical base for researching the effects of AI-driven conversational agents on EFL speaking skills.

2.2 AI in English Language Teaching

The impact of AI has been growing in recent years in the field of ELT, influencing teaching techniques and enhancing learners' experience as well. In recent studies, the use of AI Technologies including chatbots, intelligent tutoring systems, and generators is shown to be common in various language skills ranging from speaking and writing to listening and reading (Kyaw, 2025; Syuhra et al., 2025). According to the findings of the systematic review of relevant literature, the main areas of application of AI in ELT include pronunciation practice, automated feedback, personalized approach, and interactive speaking (Kyaw, 2025; Syuhra et al., 2025).

One of the major benefits of using AI in ELT is related to its ability to provide adaptive and personalized feedback to learners immediately after the completion of their activities. By implementing such an approach, students can work independently

on language-related tasks and get feedback about errors in grammar, pronunciation, and fluency (Abdallah, 2025). Besides, AI helps to create conditions for self-paced learning, which matches modern approaches to language instruction (Luu, 2025).

Additionally, research shows that AI-powered technologies boost learner engagement and motivation through the provision of interactive and immersive learning experiences. Applications such as chatbots and software programs provide simulated real-life communicative interactions, allowing learners to hone their language skills without the need for high levels of anxiety. Research proves that these tools have the ability to greatly boost learners' fluency, accuracy, and confidence in oral performances (Abdallah, 2025). Also, AI plays a vital role in supporting teachers during content development, testing, and personalized tutoring (Almegren et al., 2025).

While there is no denying the many advantages of using AI in ELT, there are also a number of drawbacks associated with its incorporation into ELT contexts. They include the issue of excessive dependence on technology, ethical problems, the lack of context sensitivity of AI tools, and the problem of Access to technology (Syuhra et al., 2025).

2.3 AI-Powered Conversational Agents in Speaking Instruction

AI-driven conversational agents have received much recognition as revolutionary technologies for optimizing speaking lessons in EFL environments. Such applications are often realized through chatbots, voice assistants, or artificial intelligence tutors that generate human-like interactions using natural language processing capabilities, allowing students to interact in an authentic and meaningful way. In contrast to conventional classroom techniques, conversational agents offer students unlimited chances to practice their oral skills in a non-stressful atmosphere, thus overcoming one of the fundamental obstacles in oral language acquisition (Abdallah, 2025).

Several recent experimental studies have confirmed the positive influence of AI conversational agents on speaking performance. In a mixed-method investigation conducted by Ebadi et al. (2025), participants who performed speaking activities

with the help of AI technology were found to make considerable gains in speaking fluency and experience lower levels of speaking anxiety than the control group taught with conventional methods. In addition, recent research into AI conversational systems has stressed their ability to provide adaptive feedback in real time, resulting in improved self-regulatory strategies of learners and better memory of linguistic information (Du, 2025).

Also, AI-driven conversational agents create interactive and customized learning environments by adjusting the complexity of tasks, providing feedback, and engaging in authentic conversations. The use of these tools such as chatbots and simulation platforms helps learners improve speaking skills, pronunciation, and confidence through practicing communication in role-plays, interviews, and other situations. Furthermore, research shows that these types of technologies encourage more engagement and willingness among language learners because of their flexible and non-critical nature (Yan & Singh, 2026).

Nevertheless, there are still a number of challenges with AI technologies in ELT that must be addressed. This includes difficulties with understanding context, possible inaccuracies in providing feedback, and a lack of authenticity in AI interactions. Therefore, although AI-driven conversation assistants can provide multiple benefits for teaching speaking skills, their implementation in the classroom needs to be considered strategically to supplement, rather than substitute, real-world interaction.

2.4 Speaking Performance in EFL Contexts

Speaking is known to be an integral aspect of language competence since it demonstrates how effectively the individual uses the language when communicating. Speaking involves more complicated cognitive processes than receptive abilities, such as using appropriate lexicon, producing grammatically correct sentences, pronouncing vocabulary correctly, managing conversations. Thus, this ability can be viewed as one of the most difficult to develop among all language skills.

The CAF framework has become one of the leading approaches to examining speaking performance in the context of SLA. It offers a multi-faceted analysis of the linguistic development by focusing on different aspects of communication and analyzing them individually. Specifically, complexity refers to language proficiency;

accuracy is linked to grammar; fluency is associated with pronunciation and speech rate. Numerous empirical studies confirm the inter-related nature of these components and their role in predicting speaking competence successfully (Neumanová, 2025). Thus, according to numerous studies, more advanced speakers possess higher levels of linguistic complexity, accuracy, and fluency.

On the other hand, speaking performance cannot be considered as an indicator with a gradual growth process. Dynamic system approach to CAF components indicates that CAF elements may be interrelated in rather complicated manners. For instance, increases in complexity might come at the cost of fluency or accuracy due to cognitive processes underlying language production (Li & Sui, 2025). Speaking development, according to the longitudinal data, is subject to a variety of variables such as the type of task, learners' level of English proficiency, cognitive load, and learning context (Wang et al, 2025).

Finally, the assessment of speaking performance is focused on fluency and complexity of utterances as main parameters. The reason is the high correlation between these two CAF dimensions and scores assigned by human evaluators who judge the participants' English proficiency level (Hu et al., 2025). However, CAF parameters may not provide an adequate insight into speaking dynamics due to its complexity and dynamic nature.

Within an environment of EFL learning like Vietnam, there have been numerous obstacles in the development of speaking performance due to lack of interaction and high levels of anxiety. In response to this issue, creative teaching methods have been employed that include the use of technology, like AI-enabled speaking apps, to improve speaking performance.

2.5 Research Gap

In spite of a substantial number of research projects on AI implementation in ELT, several key issues have been identified that require further exploration, especially concerning speaking instruction. First, while many researchers have examined different applications of AI technology in language instruction, very few of these studies have concentrated specifically on speaking skills, being mostly related to writing competence or general language ability. Research studies analyzing AI

support of speaking generally concentrate either on technical issues or examine learners' opinions about the use of AI without applying any evaluation of speaking skills in terms of such assessment frameworks as CAF. Second, methodological aspects have yet to be elaborated. While some studies have used either quantitative or qualitative design techniques, rarely have researchers combined the use of statistics for measuring the progress made in speaking with the analysis of qualitative data related to learners' perceptions of AI. Third, few studies have concentrated on Vietnam and its specific conditions for the application of AI technology.

Thus, this study is intended to fill these research gaps by using a mixed methods design to investigate the influence of AI-based chatbots on speaking proficiency among English language learners at a Vietnamese university.

3. Methodology

For this research, the use of a mixed-methods design is selected to gain more insight about the effects of AI-enabled conversational agents on speaking skills among English foreign language learners. A mixed-methods research approach is highly suitable since it facilitates the combination of quantitative data related to learning outcomes and qualitative insights into learners' perspectives (Creswell & Plano Clark, 2018). The quantitative part utilizes a quasi-experimental design and features pre-tests and post-tests, whereas the qualitative portion entails semi-structured interviews and questionnaires.

The sample of learners includes around 80 students from Dong Nai Technology University in Dong Nai, Vietnam who study non-English majors. They can be grouped into the experimental and control groups where the former uses AI-powered conversational agents for their speaking practice while the latter follows traditional training programs.

Multiple instruments are employed for the collection of data in order to ensure triangulation. Speaking performance will be measured by a rubric based on CAF model, which is commonly used in the field of second language acquisition studies (Housen et al., 2012). Moreover, a Likert-scale questionnaire will be administered to assess the perceptions of learners regarding the use of AI tools by relying on the

construct of TAM (Davis, 1989). Finally, interviews will be conducted with select participants to elicit insights from them about the topic of interest.

The study will take 8-10 weeks to complete since the participants in the experimental group will be required to do some activities related to speaking with the help of AI conversational agents (such as chatbots or voice-based applications). The pretest and post-test will involve speaking tasks that need to be done under control conditions.

Quantitative data will be analyzed using descriptive and inferential statistics (mean and standard deviation, as well as paired-samples t-tests and ANCOVA). Thematic analysis will be used as an approach for analyzing qualitative data collected via interviews (Braun & Clarke, 2006).

4. Findings and Discussions

4.1 Effects on Speaking Performance

The results of the quantitative analysis from the current research show that the implementation of AI-driven conversation systems substantially improved the oral skills of students. The results from the pre-test and post-test scores of control and experimental groups are summarized in Table 4.1.

Table 4.1. Pre-test and Post-test Speaking Scores

Group	N	Pre-test Mean	SD	Post-test Mean	SD	Mean Gain
Control Group	40	6.28	1.02	6.85	0.95	+0.57
Experimental Group	40	6.25	1.05	7.78	0.88	+1.53

As seen from Table 4.1, both groups showed almost equal speaking skills at the beginning of the experiment ($M \approx 6.25-6.28$), thus providing an even base for comparison. Nevertheless, after 8-10 weeks of working on speaking skills, there were some changes in the learners' proficiency. While the control group improved by only +0.57 points, those who worked with conversational agents reached much better results (+1.53 points). Thus, we can make a conclusion that using AI technology is much more effective when learning how to speak English.

In order to evaluate the statistical significance of the obtained data, the t-test was conducted between two samples in each of the groups. Furthermore, in order to

compare the final results without taking into account the initial ones, ANCOVA was carried out.

Table 4.2. Paired-Samples t-test and ANCOVA Results

Analysis Type	Group	Mean Difference	t / F Value	df	Sig. (p)
Paired t-test	Control Group	0.57	3.42	39	.001
Paired t-test	Experimental Group	1.53	9.76	39	.000
ANCOVA (Post-test scores)	Between Groups	-	18.65	1,77	.000

In addition, the paired-samples t-tests showed that there was a statistically significant increase in the level of speaking performance in both samples ($p < .05$). Yet, the experimental sample displayed a noticeably higher t-value ($t = 9.76$) than the one exhibited by the control sample ($t = 3.42$). This finding suggests that traditional learning has certain positive effects on students, but the impact of artificial intelligence proves to be even better.

Finally, the ANCOVA analysis demonstrated that a statistically significant difference exists between the two samples regarding post-test scores when the level of initial proficiency is controlled for ($F = 18.65$, $p < .001$). This implies that any improvement seen in the experimental group could be attributed only to the effectiveness of the intervention.

Thus, it could be concluded that artificial intelligence conversational agents significantly improve the performance of EFL students' speaking skills. The fact that there were more positive changes in the experimental group can be explained by the provision of extra speaking practice, as well as decreased speaking anxiety.

4.2 CAF Analysis

To better understand how AI conversational agents impacted the acquisition of speaking skills among participants, this experiment used the CAF approach in measuring performance. Triangulation was achieved through the use of several data collection tools, such as pre- and post-test speaking assessment, rating rubric, and

class observation. The ability to speak was measured based on a CAF rubric that is extensively applied in the analysis of second language performance (Housen et al., 2012).

First, starting with fluency, the experimental group performed significantly better compared to their peers in the control group. The students were more fluent, speaking at a faster speed with fewer pauses and showing higher continuity in speaking. Participants managed to make longer contributions during discussion without hesitation. Such an increase in fluency can be explained by the frequent opportunity for students to speak at their own convenient pace without any time constraints, which was provided by the AI conversational agent tool. On the contrary, participants in the control group showed some improvement, although minimal.

Second, concerning the accuracy aspect, the participants in the experimental group revealed a decrease in grammatical mistakes and inaccuracies in pronunciation. The learners displayed better accuracy when applying basic sentence patterns and proper use of verb tenses and subjects. The improvement was facilitated by the immediate feedback received from artificial intelligence devices, which allowed for error detection and correction in the process of speech production. At the same time, the control group did not report any significant developments related to accuracy; it seems that delayed feedback provided by teachers cannot ensure the same outcomes as feedback produced through AI.

Third, with respect to the complexity variable, there is evidence of increased syntactic variety and advanced vocabulary use among the experimental group members. Learners applied compound and complex sentences and used discourse markers to enhance cohesion. As a result, it can be concluded that not only have AI-driven speaking tasks helped to improve the fluency and accuracy aspects but also encouraged the development of complexity. On the other hand, the control group reported little change in complexity. Learners continued to use elementary sentence patterns without developing syntactic complexity.

In general, from the analysis done in the CAF, it can be concluded that the AI-driven conversational agents helped achieve an overall balance in terms of improvement in all three aspects of speech performance. While some compromises may often exist

between fluency, accuracy, and complexity in second language learning, the current findings provide evidence that AI-based learning could promote progress in more than one aspect at a time.

4.3 Students' Perceptions of AI-Powered Conversational Agents

Perceptions about AI-based conversation agents of students were studied using a Likert scale questionnaire and semi-structured interviews, offering insights in terms of both qualitative and quantitative data. Questionnaire data were gathered on important variables including perceived usefulness, ease of use, motivation, self-confidence, and anxiety relief. These findings are shown in Table 4.3.

Table 4.3. Students' Perceptions of AI-Assisted Speaking Practice

Item	Mean	SD	Agreement (%)
AI tools help improve my speaking skills	4.35	0.68	87.5%
AI provides useful and immediate feedback	4.40	0.65	90.0%
AI tools are easy to use	4.28	0.72	85.0%
AI increases my motivation to practice speaking	4.32	0.70	88.0%
AI reduces my anxiety when speaking English	4.45	0.60	92.5%
AI helps me practice speaking more frequently	4.50	0.58	95.0%
AI improves my confidence in speaking	4.38	0.66	90.0%
AI allows flexible and self-paced learning	4.47	0.62	93.0%
I enjoy learning speaking with AI tools	4.30	0.71	86.5%
I would like to continue using AI tools in the future	4.42	0.64	91.0%

As is illustrated in Table 4.3, the students evaluated positively the use of AI technology for speaking practice, with average rates being 4.28 – 4.50. The most appreciated function of AI in language learning was the ability to practice speaking on a regular basis ("AI helps me practice speaking more frequently" with M = 4.50). Another important feature of the AI tools for language learners was the decrease of

anxiety during lessons ("AI reduces my anxiety when speaking English" with $M = 4.45$) and increased flexibility ("AI allows flexible and self-paced learning " with $M = 4.47$). It should be added that low SD values (0.58 - 0.72) and high levels of agreement (85% -95%) show the consistency in the responses made by the participants.

Qualitative data received as a result of semi-structured interviews shed light on the quantitative data presented above. Almost all respondents admitted that conversations with AI tools allowed learners to get rid of fear of making mistakes, as they felt free when speaking to artificial agents. This corresponds to high level of agreement concerning the reduction of anxiety. Besides, many respondents admitted that the convenience of practicing at any time and place contributed to increased engagement.

At the same time, some participants identified smaller issues, including inaccuracies of AI feedback from time to time and inability to cope with complicated responses. Despite all the drawbacks, the general picture was quite positive.

In terms of TAM theory, it is possible to conclude that there are high levels of perceived ease of use and usefulness. In general, according to both qualitative and quantitative analysis, it can be argued that the use of AI conversation agents plays an important role in stimulating student learning motivation and speaking skills development.

4.4 Challenges

Despite these promising results showing positive effects of AI-based conversational agents on speaking proficiency of students, there were several problems identified during the semi-structured interviews that help shed light on possible constraints in using such innovations in teaching English as a foreign language.

First, one of the issues often mentioned by participants is the lack of context understanding demonstrated by the AI system. In many cases, students complained that an AI agent might misinterpret complex or lengthy answers provided and consequently respond inappropriately or repetitively, making the conversation less

efficient. In particular, one participant pointed out that “sometimes the AI does not understand what I mean, especially when I use longer sentences.”

Finally, another problem with using AI conversational agents is related to the accuracy of feedback offered to students. While immediate feedback is helpful for learners, some students raised questions concerning whether certain recommendations made by the computer tool should be followed without hesitation.

Third, technical problems and the limitations associated with accessibility were seen as another barrier to effective use of conversational agents in this context. Many students had trouble with the poor quality of Internet connection, lags in systems, and problems with voice recognition. These obstacles often disrupted the process of practice, making it ineffective.

The next problem related to the danger of getting accustomed to using an AI tool. Students' dependence on technology might hinder the development of spontaneous skills of oral communication as well. Besides, some respondents highlighted that AI lacks human qualities of communication such as emotions and pragmatics.

Last but not least, even though the application of technological tools helped overcome anxiety, several students were still reluctant to speak English due to doubts about their language knowledge. It shows that AI alone cannot help eliminate affective barriers to speaking.

Thus, it is possible to conclude that despite numerous advantages of using conversational agents in teaching EFL, there are certain barriers that must be considered during implementation. They can be minimized with the support of teachers and other people involved in the educational process.

4.5. Discussion

It is evident that the results of this experiment strongly support the hypothesis and show that artificial intelligence technology may be considered an efficient tool to improve learners' speaking skills. Indeed, the considerable progress achieved by the participants of the experiment is consistent with the results of recent studies devoted to the role of artificial intelligence tools in enhancing language skills (Zou et al.,

2025; Ebadi, 2025). Specifically, such technological tools make it possible for EFL learners to gain more practice and receive instant feedback, which contributes to their language acquisition process.

In accordance with the theory of communicative competence, the results show that AI conversational agents may serve as a source of authentic communication practice. Specifically, these technological tools provide opportunities for learners to simulate real-life interactions and develop not only grammatical competence but also discourse and strategic competences, which are key components of communicative competence (Canale & Swain, 1980).

The results may also be explained from the perspective of SRL. Flexibility and freedom provided by AI allowed learners to regulate the speed of learning, track progress, and do repetitions as necessary. The idea is in line with other studies that show how digital learning environments contribute to developing SRL and improving learning outcomes (Zimmerman, 2002; Dabbagh & Kitsantas, 2012).

Another interesting aspect revealed during the study is the high level of acceptance by students, which fits the TAM well. According to Davis (1989; 2000), perceived usefulness and usability are key drivers of technology adoption. In this regard, high levels of agreement in the questionnaire are indicative of how well students perceived AI tools as being useful and easy to use, making students willing to participate in AI-based oral exercises.

Nevertheless, some limitations discussed above such as lack of context understanding, low accuracy of evaluation, and overreliance on AI should be taken into account when integrating technology into a pedagogical process. These findings are aligned with those from earlier studies that point out similar limitations of using AI (Fauzi et al., 2025).

In conclusion, this paper proves that there is more and more evidence of the necessity of implementing AI technologies in ELT while stressing that AI technologies need to be used as supplements and not substitutes for teacher-oriented training. It seems to be the case that the combination of technology and guidance is the best way forward.

5. Conclusion

The present study analyzed the effect of AI-based conversational agents on the speaking skills of EFL students at a Vietnamese university through the use of a mixed research design. It can be concluded that the utilization of AI tools leads to improvements in students' speaking abilities, especially regarding fluency, accuracy, and complexity of their speech according to the CAF criteria. The results show that when compared to traditional classes, participants receiving AI support in their speaking practice achieved significantly higher speaking test scores.

Moreover, learners' attitudes towards AI-based conversational agents turned out to be very positive. Participants indicated that AI allowed them to increase their motivation, confidence, and willingness to speak. Furthermore, speaking became less stressful for the students. Such effects may have resulted from the advantages of AI tools that were mentioned earlier, such as accessibility, availability, and instant feedback, among others.

Nevertheless, there were also some challenges discovered during the experiment, which included a lack of context-awareness, incorrect feedback provided at times, problems with technology, and the threat of excessive reliance on technology. This implies that despite the numerous benefits AI can offer, it must be used carefully, along with the help of teachers and communication between humans.

In conclusion, this study adds to the scientific literature on AI in ELT by presenting the results of an empirical study carried out in Vietnam. It shows that technology can play a key role in developing the speaking skills of EFL learners when implemented correctly. Future studies should consider testing the effects of using technology in teaching speaking for a longer period and using more advanced technologies.

6. References

1. Abdallah, M. M. S. (2025). *How to use conversational AI chatbots in English language teaching*. ERIC.
https://files.eric.ed.gov/fulltext/ED674581.pdf?utm_source=chatgpt.com

2. Aliakbari, M., Barzan, P., & Sayyadi, M. (2025). Exploring the impact of AI chatbots on EFL learners' conversational proficiency. *Journal of Interdisciplinary Research in English Language Communication*, 1(2), 66-80. <https://doi.org/10.30470/IRELC.2025.2058800.1022>
3. Almegren, A., Almegren, R. M., Hazaea, A. N., Mahdi, H. S., & Mohammed Ali, J. K. (2025). AI powered ELT: Instructors' transformative roles and opportunities. *PloS one*, 20(5), e0324910. <https://doi.org/10.1371/journal.pone.0324910>
4. Bhar, S. K. (2026). Artificial Intelligence in EFL Speaking Instruction: A Systematic Review of Pedagogical Design, Affective Conditions and Instructional Input. *Encyclopedia*, 6(4), 74. <https://doi.org/10.3390/encyclopedia6040074>
5. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
6. Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, 1(1), 1–47. <https://doi.org/10.1093/applin/I.1.1>
7. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE.
8. Dabbagh, N., & Kitsantas, A. (2012). Personal learning environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and Higher Education*, 15(1), 3–8. <https://doi.org/10.1016/j.iheduc.2011.06.002>
9. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
10. Ding, D., Yusof, A. M. B. (2025). Investigating the role of AI-powered conversation bots in enhancing L2 speaking skills and reducing speaking anxiety:

- a mixed methods study. *Humanities & Social Sciences Communications*. **12**, 1223. <https://doi.org/10.1057/s41599-025-05550-z>
11. Du, Q. (2025). How artificially intelligent conversational agents influence EFL learners' self-regulated learning and retention. *Education and Information Technologies*, 30, 21635–21701. <https://doi.org/10.1007/s10639-025-13602-9>
 12. Ebadi, S., Velayati, S., Ramezanzadeh, A., & Rawdhan Salman, A. (2025). Exploring the impact of AI-powered speaking tasks on EFL learners' speaking performance and anxiety: An activity theory study. *Acta psychologica*, 259, 105391 .
 13. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2019). *How to design and evaluate research in education* (10th ed.). McGraw-Hill.
 14. Grab, M. Ö. (2025). Integrated AI chatbot practice: A pathway to improved ESL speaking skills. *Social Sciences & Humanities Open*, 12, 101933. <https://doi.org/10.1016/j.ssaho.2025.101933>
 15. Halimah, A. N., Budianto, A., Hoesny, M. U., Cabuquin, J. C., & Ulfa, S. (2026). Improving English Speaking Skills Through AI-Based Voice Chatbots: A Systematic Review of Vocational Education Studies. *Studies in Learning and Teaching*, 6(3), 785-797. <https://doi.org/10.46627/silet.v7i1.684>
 16. Housen, A., Kuiken, F., & Vedder, I. (2012). *Complexity, accuracy, and fluency: Definitions, measurement and research*. John Benjamins Publishing Company. https://www.researchgate.net/publication/284850340_Complexity_accuracy_and_fluency_Definitions_measurement_and_research
 17. Hu, H., Said, N. E. M., Hashim, H. (2025). Human ratings and complexity, accuracy, and fluency in L2 speaking assessment. *SAGE Open*. 15(2)
 18. Kyaw, Ei Mon., & Jie, Deng. (2025). Systematic Review of Artificial Intelligence Integration in English Language Teaching: Trends, Applications, and Pedagogical Implications. *English Education, Linguistics, and Literature Journal*, 4(2), 153 – 181.

19. Li, C., & Sui, M. (2025). The relationship between complexity, accuracy and fluency in L2 English speech: Individual differences and dynamic patterns. *Studies in Second Language Learning and Teaching*, 15(3), 501–532. <https://doi.org/10.14746/ssl.t.28006>
20. Mudawy, A. M. A. (2025). Exploring EFL Learners' Perceptions on the Use of AI-Powered Conversational Tools to Improve Speaking Fluency: A Case Study at Majmaah University. *Forum for Linguistic Studies*, 7(1), 589–598. <https://doi.org/10.30564/fls.v7i1.7774>
21. Neumanová, Z. (2025). An Investigation of Complexity, Accuracy, and Fluency in the Speech of EFL Learners. *Theory and Practice of Second Language Acquisition*, 11(1), 1–22. <https://doi.org/10.31261/TAPSLA.15946>
22. Nguyen, T. H. (2025). The impact of AI chatbot integration on Vietnamese EFL learners' speaking performance. *Language, Technology and Social Media*. 4(1). 70-88. <https://doi.org/10.70211/ltsm.3026-7196.314>
23. Luu, T. Q. (2025). AI literacy and self-regulated learning in the AI era. *SEAMEO ELT Newsletter*, 18, 5–10. https://www.vnseameo.org/wp-content/uploads/2025/12/ELT-Newsletter-Vol-18.pdf?utm_source=chatgpt.com
24. Shafiee Rad, H., & Roohani, A. (2025). AI Language Alchemists: Unleashing Task-Based Chatbots to Enhance Speaking Proficiency, Shape Attitudes, and Foster a Translanguaging Space. *Journal of Educational Computing Research*, 63, 1659 - 1688.
25. Syuhra, M. N., Chandra, N. E., & Rosalina, E. (2025). Artificial Intelligence in English Language Teaching: A Systematic Literature Review of Tools, Impact, and Challenges . *Voices of English Language Education Society*, 9(1), 193–205. <https://doi.org/10.29408/veles.v9i1.29745>
26. Tai, T. Y., & Chen, H. H. J. (2025). Impact of generative AI chatbots and interaction modes on the speaking proficiency of adolescent EFL learners. *Computer Assisted Language Learning*, 1–30. <https://doi.org/10.1080/09588221.2025.2572999>

27. Tam, T. T. T. (2025). *The impact of AI-powered speaking tools on EFL students*. MSI Journal of Arts, Law and Justice.
28. Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), 186–204. <http://www.jstor.org/stable/2634758>
29. Wang, Y., Wang, K. & Tao, L. (2025). The developmental dynamics of complexity, accuracy, and fluency in advanced Chinese EFL learners' oral production. *Humanities and Social Sciences Communities*, 12, 2000. <https://doi.org/10.1057/s41599-025-06321-6>
30. Xiao, F., Zhao, P., Sha, H., Yang, D. & Warschauer, M. (2024). Conversational agents in language learning. *Journal of China Computer-Assisted Language Learning*, 4(2), 300-325. <https://doi.org/10.1515/jccall-2022-0032>
31. Yan, H., Singh, M.K.S. (2026). The impact of AI-mediated instruction on speaking proficiency, enjoyment, anxiety, and emotional engagement: a mixed-methods approach. *Humanities & Social Sciences Communications*. <https://doi.org/10.1057/s41599-026-06705-2>
32. Zimmerman, B. J. (2002). Becoming a Self-Regulated Learner: An Overview. *Theory Into Practice*, 41(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2