

The Impact of Character AI Application on Students' Speaking Skills

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Abstract

Article Information:

Received : 2026-06-10

Revised : 2026-06-15

Accepted : 2026-06-17

Keywords:

*Character AI Application,
Quasi-Experimental
Design, Speaking Skill,*

English language learning encompasses four essential skills that students are expected to acquire, with speaking standing out as one of the most crucial for effective communication. Speaking itself is a multifaceted process that requires individuals to convey meaning and exchange information through verbal expression. Despite its importance, many students continue to struggle with speaking skills for various reasons, including low self-confidence, limited fluency, and insufficient opportunities to practice spoken English. A preliminary observation at SMK 2 Mei Bandar Lampung revealed that 60 twelfth-grade students demonstrated below-average speaking performance. This study aims to examine whether the Character AI Application has a significant impact on students' speaking skills. This study employed a quantitative approach with a quasi-experimental design. The population consisted of 221 twelfth-grade students at SMK 2 Mei Bandar Lampung in the academic year 2024/2025. A total of 60 students were selected as the sample, divided into two groups: 30 students from XII TBSM 2 (YAMAHA) as the experimental class and 30 students from XII TKR 3 (INDUSTRI) as the control class. Data were collected through oral pre-tests and post-tests administered to both classes, with the experimental class receiving treatment using the Character AI Application while the control class did not. The data were analyzed using SPSS Statistics 20. The independent sample t-test indicated a significance value of $0.000 < 0.05$, leading to the rejection of the null hypothesis (H_0) and the acceptance of the alternative hypothesis (H_a). These results confirm that the Character AI Application significantly impact students' speaking skills.

1. Introduction

In the era of globalization, English proficiency has become one of the most critical competencies for individuals seeking to participate in the international workforce and academic community. Among the four core language skills listening, reading, writing, and speaking. Speaking occupies a particularly central role, as it functions as the primary vehicle through which individuals express ideas, negotiate meaning, and build interpersonal relationships in real-time communication. As Nunan (2003) asserted, the ability to speak a language fluently and accurately is the most fundamental measure of knowing that

language, since spoken interaction is the most natural and direct form of human communication. This view is widely supported in the field of English as a Foreign Language (EFL) education, where speaking competence is consistently regarded as both a learning goal and a benchmark of overall language proficiency.

For vocational high school students in Indonesia, speaking English is not merely an academic requirement but a professional necessity. As future workers in technical and industrial fields, these students are expected to communicate with clients, supervisors, and colleagues. Interactions that increasingly take place in English due to the demands of the global market. Maji et al. (2022) emphasized that vocational students must be equipped with the ability to initiate, maintain, and conclude conversations in English as a foreign language in order to meet the communicative demands of their chosen professions. Despite this pressing need, however, the reality found in many Indonesian vocational schools suggests that students' speaking ability remains far below the expected standard.

The challenges surrounding EFL speaking development have been extensively documented in the literature. Afshar and Asakereh (2016) categorized the difficulties faced by language learners into three interconnected dimensions: linguistic, social, and emotional. Linguistic challenges refer to difficulties in pronunciation, grammatical accuracy, and fluency. Social challenges involve students' inability to use English meaningfully in contexts beyond the formal classroom. Emotional challenges widely considered the most deeply rooted include anxiety, low self-confidence, and the absence of adequate practice opportunities, all of which create a psychological barrier that discourages students from attempting to speak at all. These three categories do not operate in isolation; rather, they reinforce one another in a cyclical pattern that progressively weakens students' motivation and ability to engage in spoken English.

These challenges were directly observed during preliminary research conducted at SMK 2 Mei Bandar Lampung, a vocational high school located in Bandar Lampung, Lampung Province, Indonesia. Through interviews with an English teacher and questionnaires administered to 90 students across three classes representing different ability levels, it was found that students' speaking performance remains considerably below expectations. The teacher reported that students generally demonstrate very low interest in speaking English, frequently avoid oral participation, struggle with fluency, lack a speaking partner in their daily environment, and exhibit persistent low self-confidence when required to speak in front of others. These observations align with the findings of Jaya et al.

(2022), who noted that once formal classroom instruction ends, students in similar settings revert entirely to communicating in their native language or local dialect, further reducing their already limited exposure to spoken English.

The quantitative data collected through questionnaires revealed a striking contrast between students' attitudes and their actual performance. While 76 students (84.4%) expressed interest in speaking activities and 71 students (78.9%) reported understanding their teacher's instructional materials, only 18 students (20%) reported being able to communicate effectively in spoken English, and only 19 students (21.1%) said they practiced speaking regularly during lessons. Furthermore, 64 students (71.1%) found it difficult to practice speaking, 57 students (63.3%) felt less confident when using English orally, and 49 students (54.4%) admitted lacking the confidence to speak in front of their peers. These figures collectively expose a significant gap between students' interest in speaking and their demonstrated speaking competence a gap that cannot be explained by motivation alone, but must be understood in light of the structural and environmental barriers that limit students' access to meaningful speaking practice.

Additionally, three core and interrelated problems emerge as the primary obstacles to speaking development among the students. First, low fluency the majority of students are unable to sustain smooth and continuous speech, frequently stopping mid-sentence due to difficulty retrieving vocabulary or constructing grammatically coherent utterances. Second, lacks of practice opportunity students have no accessible speaking partner in their home or social environment, which severely restricts their exposure to spoken English beyond classroom hours. Third, low self-confidence the persistent fear of making errors and being negatively evaluated by peers discourages students from engaging in oral communication, rendering them increasingly passive and withdrawn in language learning contexts. These three problems are deeply interconnected: limited practice results in low fluency, which in turn further erodes confidence, which subsequently discourages any further attempt to practice creating a self-reinforcing cycle of speaking avoidance.

In response to these structural challenges, the teacher emphasized the critical need for a learning medium that would allow students to practice speaking independently, repeatedly, and without the anxiety of social evaluation. Previous instructional tools used in the classroom including flashcards, PowerPoint presentations, and simple classroom games had generated some degree of student enthusiasm but failed to produce measurable improvement in speaking ability, primarily because they could not offer sufficient

opportunities for sustained, individualized speaking practice. No student had been observed using digital language learning applications outside of school hours, suggesting that existing tools have not successfully bridged the gap between classroom instruction and independent practice.

In recent years, a growing body of research has explored the potential of artificial intelligence (AI)-based applications in supporting EFL speaking development. Tools such as SpeechAce, ELSA Speak, Cake, and Duolingo have demonstrated measurable gains in pronunciation accuracy, fluency, vocabulary acquisition, and speaking confidence among language learners (Amin et al., 2024; Karim et al., 2023; Azzuhra & Amri, 2023; Hafifah, 2020). However, a notable limitation of many of these applications is their reliance on structured, scripted prompts, which restricts learners' ability to engage in spontaneous, naturalistic conversation a skill that is essential for real-world communicative competence. This limitation represents a critical gap in the current landscape of AI-assisted language learning tools.

Character AI an artificial intelligence application that enables users to engage in open-ended, unscripted conversations with customizable AI-generated characters offers a compelling response to this gap. Unlike prompt-based applications, Character AI facilitates persona-driven interactions characterized by emotional depth, contextual adaptability, and conversational unpredictability, thereby simulating the dynamics of authentic human dialogue more closely than conventional AI tools (Luangprasertchai & Inthajak, 2023). Yamamoto and Benson (2024) found that interactions with AI characters significantly increased both student engagement and total speaking time, while Martinez et al. (2023) demonstrated comparable improvements in speaking fluency among students who used Character AI as a regular conversational partner. These findings suggest that Character AI has the potential not only to provide students with accessible and judgment-free speaking practice but also to address the motivational and affective dimensions of language learning that conventional tools often overlook.

Despite this growing body of evidence, research specifically examining the influence of Character AI on the speaking skills of Indonesian vocational high school students remains limited. Most existing studies have been conducted in general secondary or higher education contexts, leaving a significant gap in our understanding of how this technology functions within the unique linguistic, cultural, and motivational profile of Indonesian EFL vocational learners. The present study seeks to address this gap by

investigating the impact of the Character AI Application as a learning medium on the speaking skills of twelfth-grade students at SMK 2 Mei Bandar Lampung. By doing so, this research aims to contribute empirical evidence to the growing scholarship on AI-assisted language learning, while simultaneously offering a practical and accessible solution to the persistent speaking challenges faced by vocational EFL students in Indonesia. The novelty of this study lies in its focus on Character AI a tool that has been underexplored in the Indonesian EFL context and its application within the specific educational setting of a vocational high school, where speaking competence carries direct professional relevance.

To achieve this objective, this study employed a quantitative approach using a quasi-experimental design. Two classes were selected as the research sample: XII TBSM 2 (YAMAHA) served as the experimental class, receiving treatment through the Character AI Application, while XII TKR 3 (INDUSTRI) served as the control class, receiving conventional instruction without the application. Data were collected through oral pre-tests and post-tests administered to both classes and analyzed using the independent sample t-test in SPSS Statistics 20. It is hypothesized that students who engage in speaking practice through the Character AI Application will demonstrate significantly greater improvement in speaking skills compared to those who do not.

2. Literature Review

2.1. Speaking Skill

Among the four core language skills, speaking holds a particularly central role in human communication. It is through speech that people most naturally and directly express their thoughts, share experiences, and build meaningful connections with others (Brown, 2000). Unlike other language skills, speaking requires learners to produce language spontaneously and in real time, making it both a challenging and essential skill to develop.

To measure speaking ability, Brown (2018) proposes five fundamental components. The first is grammar, which concerns how words are arranged to form meaningful and correct sentences (Ur, 1996). The second is vocabulary, which refers to the range of words a learner can actively use and understand in communication (Finnochiaro, 1974). The third is pronunciation, which determines how clearly and accurately a speaker can be understood. The fourth is fluency, which reflects how naturally and smoothly a person can produce speech without unnecessary hesitation. The fifth is comprehension, which indicates how well a learner understands spoken language in various contexts.

2.3. Character AI

In the era of rapid technological advancement, Artificial Intelligence (AI) has emerged as a transformative force in education. AI refers to computer-based systems designed to simulate human cognitive processes, including the ability to learn, reason, and respond to new information independently (Maulana et al., 2023). Its application in educational settings has opened new possibilities for delivering personalized and adaptive learning experiences tailored to individual learner needs (Cahaya et al., 2023).

One notable AI-based tool gaining growing attention in language education is Character AI, a conversational platform powered by a neural language model capable of producing responses that closely resemble natural human dialogue (Tiku, 2022). This platform enables learners to engage in realistic and interactive conversations, fostering a low-pressure environment where students can practice speaking freely without anxiety about making errors (Napitupulu & Dalimunte, 2025). Given these characteristics, Character AI presents itself as a promising and accessible medium for supporting the development of students' speaking skills in modern language learning contexts (Sharma et al., 2025).

3. Method

3.1. Research Method

This study adopted a quantitative approach using a quasi-experimental design. Two groups were involved an experimental class and a control class with both a pre-test and post-test administered to measure changes in students' speaking skills before and after the treatment (Creswell & Creswell, 2023). The experimental class was taught using the Think-Pair-Share model integrated with Character AI, while the control class used Discovery Learning supported by YouTube videos

3.2. Participants

This research was conducted at SMK 2 Mei Bandar Lampung during the academic year 2024/2025, involving twelfth-grade students as the population, consisting of 221 students across seven classes. The sample was selected using cluster random sampling, where class names were drawn randomly from a container. The first draw became the experimental class and the second became the control class (Sugiyono, 2022).

3.3. Instrument

The primary instrument used was an oral test assessing five speaking components: grammar, vocabulary, pronunciation, fluency, and comprehension, based on Brown's

(2018) speaking rubric. The pre-test required students to perform a speaking task on asking and giving opinions. While the post-test involved a conversation with Character AI on the topic of offering help. Both sessions were recorded and scored collaboratively by the researcher and the English teacher. The instrument's validity was confirmed through content and construct validity, while reliability was measured using Cronbach's Alpha, yielding coefficients of 0.804 for the pre-test and 0.904 for the post-test, both classified as very high reliability.

3.4. Data Collecting Technique and Analysis

Data were collected through pre-test and post-test scores from both classes. Prior to hypothesis testing, normality and homogeneity tests were conducted using SPSS. The Shapiro-Wilk test confirmed normal data distribution, and the homogeneity test verified equal variance between groups. An independent samples t-test was then applied to determine whether Character AI had a significant impact on students' speaking skills.

4. Findings

Assessment data obtained from the English teacher further confirmed these concerns. Speaking performance in both target classes XII TBSM 2 (YAMAHA) and XII TKR 3 (INDUSTRI) was evaluated without the use of a standardized rubric, relying instead on the teacher's subjective judgment during classroom dialogues and oral presentations. As shown in Table 1.1, the scores of all 60 students fell within the range of 60 to 75, with 13 students (21.7%) scoring 60, 15 students (25.0%) scoring 65, 16 students (26.7%) scoring 70, and 16 students (26.7%) scoring 75. These scores, while relatively consistent across both classes, represent a low to moderate level of speaking competence and have not reached the minimum satisfactory threshold. The absence of a formal assessment framework further suggests that the recorded scores may underrepresent the true extent of students' speaking difficulties.

Table No. 1
The Data of Students' Speaking Scores at the Twelfth Grade of SMK 2 Mei Bandar Lampung in Academic Year 2024/2025

NO.	Score	XII TBSM Yamaha	XII TKR Industri	Total	Percentage
1.	75	8	8	16	26,7%
2.	70	8	8	16	26,7%

NO.	Score	XII TBSM Yamaha	XII TKR Industri	Total	Percentage
3.	65	8	7	15	25,0%
4.	60	6	7	13	21,7%
Total		30	30	60	100%

4.1 Pre-Test Results

Prior to the treatment, both classes demonstrated comparable baseline speaking abilities. The experimental class (XII TBSM YAMAHA) recorded a mean pre-test score of 64.87, while the control class (XII TKRO INDUSTRI) obtained a mean of 64.80. All 30 students in each class scored within the range of 60 to 70, indicating that both groups entered the study at a similarly average level of speaking proficiency. This near-identical starting point confirmed that the two groups were suitably matched for comparison purposes.

4.2 Post-Test Results

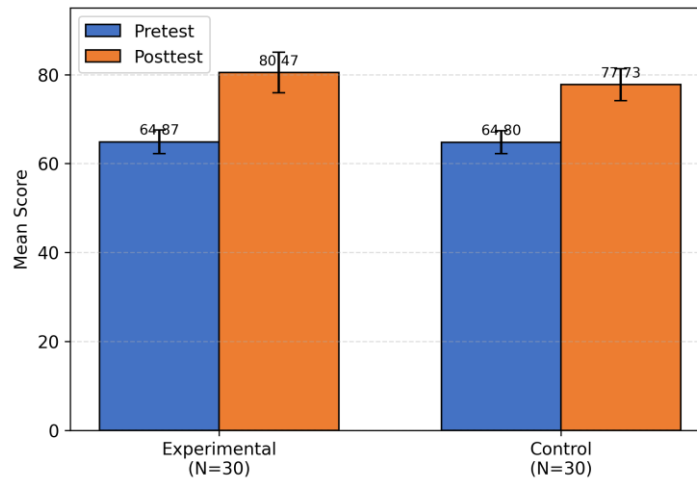
Following the treatment, a notable difference in performance emerged between the two groups. The experimental class, which used Character AI integrated with the Think-Pair-Share model, achieved a mean post-test score of 80.47, with scores ranging from 70 to 90. The control class, taught through Discovery Learning with YouTube, recorded a mean post-test score of 77.73, with scores ranging from 70 to 84. These results indicate that both groups improved after the treatment; however, the experimental class demonstrated a more substantial gain.

Table No. 2 The Result of Prettest and Posttest (Experimental and Control)

Measurement		Experiment (N=30)	Control (N=30)
Pretest	M	64.87	64.80
	SD	2.662	2.605
Posttest	M	80.47	77.73
	SD	4.599	3.552
t ¹		- 16.079	- 16.079
p ¹		.000 (<0,05)	.000 (<0,05)

Figure No.1

The Result of Pretttest and Posttest (Experimental Class and Control Class)



4.3 Normality and Homogeneity Test

Before conducting the hypothesis test, normality and homogeneity assumptions were verified. The Shapiro-Wilk test confirmed that all data were normally distributed, with significance values exceeding 0.05 across both groups in pre-test and post-test. The Levene's homogeneity test further confirmed equal variance between groups (sig. = 0.110 > 0.05). These results validated the use of an independent samples t-test for hypothesis testing.

4.4 Hypothesis Test

The independent samples t-test yielded a significance value of 0.000, which falls below the threshold of $\alpha = 0.05$. Consequently, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_a) was accepted. This confirms that the use of Character AI had a statistically significant impact on students' speaking skills at SMK 2 Mei Bandar Lampung.

This finding aligns with previous research demonstrating the positive impact of AI-based tools in language learning. Character AI provided students with a low-pressure, interactive environment to practice speaking, which is consistent with Napitupulu and Dalimunte (2025), who found that Character AI builds learner confidence by allowing practice without fear of making errors. Furthermore, the improvement observed in the experimental class supports the broader argument by Cahaya et al. (2023) that AI enables personalized learning experiences that better address individual learner needs. The mean gain score of the experimental class (15.60) notably surpassed that of the control class

(12.93), further reinforcing the effectiveness of Character AI as a speaking practice medium in EFL classroom settings.

5. Discussion

The findings of this study provide a clear answer to the central research question: Character AI significantly impacted students' speaking skills at SMK 2 Mei Bandar Lampung. The experimental group's mean score rose from 64.87 to 80.47, surpassing the control group's improvement from 64.80 to 77.73. The greater gain score of the experimental group (15.60 vs. 12.93) and a significance value of 0.000 collectively confirm that this difference was not incidental but statistically meaningful.

What makes this finding particularly noteworthy is the progressive nature of the improvement observed across the three treatment sessions. In the early sessions, students began building vocabulary confidence, while later sessions showed measurable gains in pronunciation, fluency, grammar, and comprehension. The fluency aspect recorded the most substantial growth, with the experimental group improving by 23.00 points compared to 17.33 points in the control group. This pattern suggests that repeated, low-stakes interaction with an AI conversational partner gradually reduces speaking anxiety a barrier widely recognized in EFL learning contexts (Ur, 1996). The interactive nature of Character AI created a comfortable space where students felt free to experiment with language without the social pressure of peer judgment.

These findings are consistent with previous studies on AI-assisted language learning. Napitupulu and Dalimunte (2025) found that Character AI builds learner confidence by enabling practice without fear of error, while Cahaya et al. (2023) demonstrated that AI tools support personalized learning experiences. The medium effect size (Cohen's $d = 0.6$) further confirms that the impact observed was not merely statistical but carried genuine practical significance in the classroom.

However, this study acknowledges certain limitations. The research was conducted within a relatively short timeframe across only three treatment sessions, which may restrict the generalizability of the findings. Additionally, external factors such as device availability and internet access were not fully controlled, both of which can affect the consistency of technology-based learning. Future research is encouraged to extend this approach to larger and more diverse student populations, explore other language skills such as listening or writing, and consider longer intervention periods to measure sustained impact.

6. Conclusion

This study has shown that the use of Character AI in EFL speaking classes significantly impacted students' speaking skills. The experimental class achieved a mean post-test score of 80.47, which was higher than the control class at 77.73, and the significance value of 0.000 confirmed that this difference was statistically meaningful. Gains were found across all five speaking components, namely vocabulary, pronunciation, fluency, grammar, and comprehension, with fluency showing the greatest improvement. This indicates that Character AI was effective not only in providing speaking practice opportunities but also in creating a comfortable learning environment that reduced students' anxiety to build their confidence and encouraged them to communicate more freely and fluently.

The findings of this study contribute to the existing literature on MALL (Mobile-Assisted Language Learning), particularly regarding the use of Character AI in Indonesian EFL vocational school contexts, which has received limited academic attention. For teachers and schools, these results offer a practical and accessible alternative to support speaking instruction beyond conventional classroom methods.

Nevertheless, this study has several limitations that should be noted. The research was conducted at only one school with 60 students within a limited timeframe, which may limit how broadly the findings can be applied to other settings or learner groups. Therefore, future studies are recommended to use larger and more varied samples, conduct the research over a longer period of time, and explore how Character AI may influence other language skills such as listening and writing.

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