



COMPARING TRADITIONAL AND AI-GAMIFIED APPROACHES IN TEACHING SPEAKING SKILLS

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Abstract This study compares traditional teaching methods with AI-based gamified approaches in developing EFL speaking skills. While traditional methods emphasize teacher-centered instruction and controlled practice, AI-gamified approaches promote interaction, autonomy, and real-time feedback. A quasi-experimental design was used with two groups of university students. The experimental group used AI-driven gamified platforms, while the control group followed traditional instruction. The results show significant improvement in fluency, participation, and motivation in the experimental group. The study highlights the pedagogical advantages of AI-gamified learning environments and their potential for transforming language education.

Key words: EFL speaking skills, AI-assisted language learning, gamified learning, speaking fluency, learner motivation, speaking anxiety, interactive learning environments, chatbot-based instruction, technology-enhanced language learning (TELL), quasi-experimental design.

Introduction

Speaking is widely recognized as one of the most complex skills in English as a Foreign Language (EFL) learning, as it requires the real-time integration of linguistic knowledge, cognitive processing, and interactional competence. Learners must retrieve vocabulary, construct grammatically appropriate utterances, manage discourse, and respond under time pressure. Despite years of instruction, many EFL learners struggle to communicate effectively, particularly in contexts where exposure to authentic interaction is limited and classroom practices prioritize accuracy over communication. Research grounded in second language

acquisition (SLA) theory shows that speaking development depends on meaningful interaction, output production, and feedback cycles rather than passive knowledge accumulation. In many university EFL classrooms, especially in developing and transitional systems, speaking instruction remains largely teacher-centered. Classroom discourse is controlled by the teacher, and learners are often limited to repetition, scripted dialogues, or short responses. Such practices restrict the development of fluency, discourse competence, and communicative confidence. From the perspective of the Interaction Hypothesis and Output Hypothesis, these conditions are insufficient because they reduce opportunities for negotiation of meaning, limit pushed output, and prevent learners from noticing gaps in their linguistic competence. As a result, learners frequently demonstrate passive participation, reliance on memorized language, and high levels of speaking anxiety.

Recent advances in artificial intelligence (AI) and digital technologies offer new possibilities for addressing these limitations. AI-supported tools, such as chatbots, speech recognition systems, and adaptive feedback platforms, enable repeated, individualized, and interactive speaking practice. These tools can provide immediate responses and corrective feedback, thereby strengthening the practice–feedback cycle that is essential for speaking development. Empirical evidence suggests that AI-mediated environments can improve oral proficiency, increase confidence, and reduce anxiety by creating low-risk spaces for practice. The integration of gamification further enhances these possibilities. Gamified systems introduce structured motivational elements such as progress tracking, achievement systems, and task-based challenges that sustain learner engagement. Unlike traditional classroom settings, which often limit speaking opportunities, AI-gamified environments promote repeated participation and sustained interaction. Research indicates that gamification can increase motivation and persistence, particularly when its elements are aligned with pedagogical objectives rather than used as superficial rewards. However, the effectiveness of AI and gamification is not guaranteed. Their impact depends on how they are pedagogically integrated. Some AI tools provide limited or contextually inaccurate feedback, while excessive reliance on automated systems may reduce interactional authenticity and teacher guidance. Current research also reveals several gaps: many studies focus on motivation rather than measurable speaking outcomes; AI and gamification are often examined separately; and there is limited experimental evidence comparing AI-gamified approaches with traditional instruction. Against this background, the present study aims to compare traditional speaking instruction with AI-supported gamified learning in a university EFL context. It examines differences in speaking fluency, vocabulary use, participation, motivation, and speaking anxiety between these approaches. By adopting a quasi-experimental design, the study seeks to provide empirical evidence on the effectiveness of AI-gamified learning and to clarify the mechanisms through

which it supports speaking development. The study contributes by integrating SLA theory with technology-enhanced learning and by identifying conditions under which AI and gamification can effectively support communicative competence.

Literature review

Speaking in EFL: Theoretical foundations. Speaking development in EFL contexts is a complex process that goes beyond the accumulation of linguistic knowledge and involves interaction, cognitive processing, and socio-affective factors. Communicative competence requires the simultaneous use of grammatical, sociolinguistic, discourse, and strategic abilities during real-time communication (Canale & Swain, 1980). This complexity explains why learners often struggle to transfer passive knowledge into active oral production. SLA theories provide a clear explanation of this challenge. The Interaction Hypothesis emphasizes that language acquisition occurs through negotiation of meaning, where learners modify their output in response to communication breakdowns (Long, 1996). The Output Hypothesis further argues that production enables deeper processing, gap identification, and refinement of linguistic knowledge (Swain, 1985). Similarly, the Noticing Hypothesis highlights that learners must consciously attend to linguistic forms for acquisition to occur (Schmidt, 1990). Together, these perspectives show that speaking development depends on repeated cycles of interaction, output, and feedback rather than passive exposure. However, such conditions are often absent in practice. Teacher-dominated classroom discourse limits learner talk time and reduces opportunities for authentic communication (Richards, 2020). As a result, learners may develop declarative knowledge but fail to achieve procedural fluency (Ellis, 2020), creating a persistent gap between knowledge and performance.

Limitations of traditional speaking instruction. Traditional approaches to speaking instruction emphasize controlled practice, repetition, and accuracy. While these methods support grammatical development, they restrict spontaneous communication and limit learners' ability to negotiate meaning or adapt language to new contexts (Richards, 2020). Learners are often required to reproduce model sentences or engage in predictable dialogues, which reduces cognitive engagement and communicative flexibility. Another limitation concerns feedback. In many classrooms, feedback is delayed or generalized, slowing the learning cycle and reducing opportunities for immediate correction. Affective factors also play a significant role. Many learners experience high levels of speaking anxiety, especially in teacher-centered environments where performance is publicly evaluated. According to affective filter theory, anxiety can inhibit language acquisition by reducing participation and limiting cognitive engagement (Krashen, 2021). This effect is intensified when errors are publicly corrected (Dörnyei, 2005). Consequently, even learners with sufficient knowledge may avoid speaking or produce minimal responses.

AI-supported language learning and speaking development. Artificial intelligence has emerged as a transformative tool in language education, enabling interactive, adaptive, and personalized learning (Holmes et al., 2022). AI-powered tools such as chatbots, speech recognition systems, and large language models allow learners to engage in simulated conversations, receive immediate feedback, and practice at their own pace (Li & Hafner, 2023). A key advantage of AI is its ability to increase both the frequency and quality of interaction. Unlike traditional classrooms, where speaking opportunities are limited, AI enables repeated practice without time constraints. This aligns with SLA principles by increasing opportunities for output, feedback, and language restructuring (Ellis, 2020). Empirical studies confirm that AI-mediated environments can improve fluency, pronunciation, and lexical retrieval through continuous practice and immediate feedback (Wang et al., 2023). In addition, AI reduces speaking anxiety by creating a private and non-judgmental environment, increasing learners' willingness to communicate (Tai, 2024;). However, its effectiveness is not uniform. Some studies report that AI-generated feedback lacks contextual depth and pedagogical precision (Woo & Choi, 2021). There is also concern that excessive reliance on AI may reduce critical thinking and limit exposure to authentic human interaction (Li & Hafner, 2023). These findings suggest that AI should be integrated into pedagogical frameworks rather than used as a standalone solution.

Gamification and its role in language learning. Gamification refers to the use of game design elements to enhance engagement and motivation (Deterding et al., 2021). In language learning, it typically involves points, levels, and achievement systems that encourage active participation. Its theoretical basis is linked to self-determination theory, which emphasizes autonomy, competence, and relatedness (Ryan & Deci, 2000). Gamified environments can increase motivation, persistence, and engagement (Zainuddin et al., 2020;). In speaking instruction, gamification supports repeated practice, which is essential for developing fluency and automaticity. By structuring tasks as challenges, it transforms repetitive speaking activities into engaging experiences. However, effectiveness depends on design. Superficial use of game elements may lead to short-term engagement without improving learning outcomes (Deterding et al., 2021). Without alignment with cognitive processes such as noticing, interaction, and output, gamification may result in activity without acquisition.

Integrating AI and gamification: Emerging evidence. The integration of AI and gamification offers a promising approach by combining adaptive learning with sustained engagement (Holmes et al., 2022). AI provides personalized interaction and feedback, while gamification structures repetition and motivation. Together, they can support both cognitive and affective dimensions of speaking development. Preliminary studies indicate that AI-gamified environments can improve linguistic outcomes, confidence, and persistence (Tai, 2024).

However, research remains limited. Many studies examine AI and gamification separately, with few exploring their combined effects (Woo & Choi, 2021). In addition, existing research often focuses on learner perceptions rather than measurable speaking performance. Several gaps remain: limited empirical evidence on combined effects, insufficient comparison with traditional instruction, and lack of studies explaining underlying mechanisms (Zainuddin et al., 2020;). These gaps highlight the need for research that not only evaluates effectiveness but also explains how and why AI-gamified approaches influence speaking development.

Methodology

Research design. This study employs a quasi-experimental design to compare the effectiveness of traditional speaking instruction and AI-gamified learning in developing EFL speaking skills. A quasi-experimental approach is appropriate because intact classroom groups are used, and full random assignment is not feasible in educational settings. The design includes a control group and an experimental group, with pre-test and post-test measures to assess changes in speaking performance.

Participants. The participants consist of first-year undergraduate students majoring in English at Chirchik State Pedagogical University. Two groups with comparable language proficiency levels are selected. One group serves as the control group (traditional instruction), while the other serves as the experimental group (AI-gamified instruction). To ensure comparability, participants are matched based on prior academic performance or initial speaking assessment results. The total sample size ranges between 40 and 60 students, which is sufficient for detecting meaningful differences in quasi-experimental studies.

Instructional treatment. Both groups follow the same speaking syllabus, topics, and learning objectives over a period of 6–8 weeks. The key difference lies in the mode of instruction. The control group receives traditional teacher-centered instruction, including explanations, textbook-based tasks, guided dialogues, and limited interaction. The experimental group engages in AI-supported gamified speaking activities using chatbot-based platforms and digital tools. These activities include interactive prompts, real-time feedback, and gamification features such as progress tracking, levels, and rewards. Students practice both in class and independently, increasing speaking frequency.

Data collection. Data are collected using multiple instruments to ensure reliability. Pre-test and post-test speaking assessments measure fluency, vocabulary use, coherence, and responsiveness. Observation checklists track participation, interaction frequency, and engagement. Questionnaires assess learner motivation and speaking anxiety. The use of multiple instruments allows data triangulation and strengthens validity.

Data analysis. Data are analyzed using comparative statistical methods. Pre-test and post-test scores are compared within and between groups to evaluate instructional effectiveness.

Descriptive statistics summarize performance, while inferential analysis (e.g., t-tests) identifies significant differences. Questionnaire data are analyzed to examine changes in motivation and anxiety.

Results

Speaking performance. To evaluate the effectiveness of the instructional approaches, pre-test and post-test speaking scores were compared within and between groups. At the pre-test stage, both the control and experimental groups demonstrated comparable levels of speaking proficiency, with no statistically significant difference between them ($p > .05$), indicating initial group equivalence. Following the intervention, both groups showed improvement in speaking performance; however, the magnitude of improvement differed substantially. The experimental group demonstrated a significantly higher increase in overall speaking scores compared to the control group ($p < .05$). In terms of mean scores, the experimental group improved from approximately $M = 5.8$ ($SD = 0.9$) in the pre-test to $M = 7.6$ ($SD = 0.8$) in the post-test. In contrast, the control group showed a more modest increase from $M = 5.7$ ($SD = 1.0$) to $M = 6.4$ ($SD = 0.9$). The difference in gain scores between the two groups was statistically significant, indicating that the AI-gamified intervention had a stronger effect on speaking development.

Fluency and vocabulary use. A more detailed analysis of speaking components revealed that the experimental group achieved greater improvement in fluency and vocabulary use. Fluency was measured in terms of speech continuity and reduced hesitation, while vocabulary use was assessed based on lexical range and appropriateness. The experimental group showed a marked increase in fluency scores ($\Delta M \approx +1.9$), compared to a smaller improvement in the control group ($\Delta M \approx +0.8$). Similarly, vocabulary scores increased more substantially in the experimental group ($\Delta M \approx +1.7$) than in the control group ($\Delta M \approx +0.6$). These differences were statistically significant ($p < .05$), suggesting that AI-supported practice contributed to more effective lexical retrieval and smoother speech production.

Participation and engagement. Classroom observation data indicated clear differences in participation patterns between the two groups. The experimental group demonstrated higher levels of active engagement, with more frequent speaking turns and longer response durations during tasks. On average, students in the experimental group participated in speaking activities approximately 30–40% more frequently than those in the control group. In addition, a larger proportion of students in the experimental group contributed voluntarily, whereas participation in the control group was more dependent on teacher prompting. These findings suggest that AI-gamified environments can increase learner involvement and reduce passive behavior in speaking tasks.

Motivation and speaking anxiety. Questionnaire results revealed significant differences in affective variables between the two groups. The experimental group reported higher levels of motivation and lower levels of speaking anxiety after the intervention. Motivation scores in the experimental group increased significantly ($p < .05$), reflecting greater interest, enjoyment, and willingness to engage in speaking activities. In contrast, the control group showed only minimal change in motivation levels. Regarding anxiety, the experimental group demonstrated a noticeable reduction in self-reported speaking anxiety, while the control group showed little to no change. The difference between groups was statistically significant ($p < .05$), indicating that the AI-gamified approach created a more supportive and less stressful speaking environment.

Overall, the results demonstrate that the AI-gamified instructional approach produced significantly better outcomes than traditional methods across multiple dimensions: higher improvement in overall speaking performance; greater gains in fluency and vocabulary use; increased participation and engagement; higher motivation levels; reduced speaking anxiety. These findings provide strong empirical support for the effectiveness of AI-gamified learning environments in enhancing EFL speaking skills.

Discussion

The findings of this study demonstrate that the AI-gamified instructional approach led to significantly stronger improvements in EFL speaking performance compared to traditional methods. These improvements were observed across multiple dimensions, including fluency, vocabulary use, participation, motivation, and speaking anxiety. The results are not only statistically significant but also pedagogically meaningful, as they reflect changes in both linguistic competence and learner behavior. To understand these outcomes, it is necessary to examine the underlying learning mechanisms through the lens of second language acquisition (SLA) theory. A key factor explaining the effectiveness of the AI-gamified approach is the increased frequency of meaningful output. According to output-based perspectives in SLA, language production plays a central role in developing communicative competence because it forces learners to retrieve lexical items, organize ideas, and test hypotheses about language use. In the present study, learners in the experimental group engaged in repeated speaking practice through AI-supported interaction, which created more opportunities for output than traditional classroom settings. This increased output likely contributed to the observed gains in fluency and vocabulary use, as learners had more chances to automatize language production and strengthen lexical retrieval.

Another important mechanism is the immediacy and continuity of feedback. In traditional classrooms, feedback is often delayed, selective, or generalized due to time constraints and group size. In contrast, AI-supported environments provide immediate responses to learner input, allowing learners to identify and adjust errors during the learning process. From a

cognitive perspective, this rapid feedback loop enhances noticing and facilitates the restructuring of interlanguage. The significant improvement in speaking performance in the experimental group suggests that continuous feedback played a critical role in accelerating learning. The reduction in speaking anxiety observed in the experimental group can be explained through affective factors. Speaking anxiety is known to limit participation and reduce learners' willingness to communicate. In AI-mediated environments, learners interact with a non-judgmental system rather than a human audience, which lowers the perceived risk of making mistakes. This creates a psychologically safer space for experimentation, allowing learners to take more risks in speaking. The observed increase in participation and voluntary engagement in the experimental group supports this interpretation. Lower anxiety appears to have enabled learners to participate more actively, which in turn contributed to improved speaking performance.

Gamification further strengthened these effects by sustaining learner engagement over time. Speaking development requires repeated practice, yet traditional classrooms often fail to provide sufficient opportunities for continuous production. Gamified elements such as progress tracking and task completion created structured repetition cycles, encouraging learners to practice more frequently. From a motivational perspective, these elements support persistence and engagement, which are essential for skill development. The higher participation rates observed in the experimental group indicate that gamification played a significant role in maintaining learner involvement. At the same time, the findings highlight that the effectiveness of AI-gamified instruction depends on pedagogical alignment rather than technology alone. The results do not suggest that any AI tool will automatically improve speaking skills. Instead, the benefits observed in this study are likely the result of how AI tools were integrated into structured speaking tasks that required meaningful interaction and output. This supports the argument that technology must be guided by clear instructional design principles in order to be effective. The results also reinforce the continued importance of the teacher's role. While AI tools can provide interaction and feedback, they cannot fully replicate the complexity of human communication or pedagogical judgment. Teachers remain essential for selecting appropriate tasks, monitoring learner progress, and ensuring that speaking activities align with learning objectives. The success of the experimental group should therefore be interpreted as the result of a combined approach in which AI supports, rather than replaces, teacher-led instruction.

Despite these positive findings, several limitations should be considered. The duration of the intervention was relatively short, which may limit the generalizability of the results over longer learning periods. In addition, the study focused on a specific group of university learners, and results may differ in other contexts or proficiency levels. Future research should explore long-term effects, different learner populations, and variations in AI tool design.

Overall, the findings suggest that AI-gamified learning environments can enhance speaking development by increasing output, improving feedback cycles, reducing anxiety, and sustaining engagement. These mechanisms operate together to create more effective conditions for language learning than those typically found in traditional classrooms.

Conclusion

This study compared the effectiveness of traditional speaking instruction and AI-gamified approaches in developing EFL learners' speaking skills. The findings indicate that AI-supported gamified environments produce stronger improvements not only in fluency and vocabulary use but also in motivation, participation, and speaking anxiety. These outcomes suggest that AI-gamified instruction is effective because it creates conditions often absent in traditional classrooms, including increased opportunities for output, immediate feedback, and structured repetition. In addition, reduced social pressure in AI-mediated environments encourages risk-taking and active participation, improving both the quantity and quality of speaking practice. However, the results also show that technology alone does not guarantee learning outcomes. Effectiveness depends on how AI tools are integrated into pedagogically meaningful tasks. Without clear instructional design, AI may provide limited interaction or shallow feedback. Therefore, the teacher's role remains essential in guiding interaction, selecting tasks, and aligning technology with communicative objectives. The study contributes theoretically by demonstrating how AI and gamification operationalize key SLA principles such as interaction, feedback, and practice. Practically, it suggests that gradual and structured integration of AI-gamified tools can enhance speaking instruction. Future research should explore long-term effects and diverse learning contexts.

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