IMEIJ
Indo-MathEdu Intellectuals Journal

p-ISSN: 2808 – 5604
e-ISSN: 2808 – 5078
Volume. 6, No. 8, 2025

UNLOCKING LANGUAGE SKILLS: VIRTUAL REALITY REVOLUTION IN UNIVERSITY SPEAKING AND GRAMMAR CLASSES

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Article History

Received: 01-12-2025

Revision: 20-12-2025

Accepted: 24-12-2025

Published: 27-12-2025

Abstract. This study aims to examine the effectiveness of using Virtual Reality (VR) in teaching speaking and grammar to students in the context of English as a Foreign Language (EFL). The study uses a quasi-experimental design involving an experimental group and a control group. The experimental group received VR-based learning, while the control group was taught using conventional learning methods. The research subjects were students who took English courses. Data were collected through speaking and grammar tests administered in the form of pre-tests and post-tests. The data obtained were analyzed using descriptive statistics to see the trend of improvement in ability, as well as inferential statistical tests in the form of paired sample t-tests and independent sample t-tests to determine the difference in learning outcome improvement between the two groups. The results showed that students in the experimental group experienced a more significant improvement in speaking and grammar proficiency compared to the control group. These findings indicate that Virtual Reality is capable of creating an immersive and contextual learning experience that supports the development of fluency and grammatical accuracy. This study concludes that Virtual Reality can be effectively integrated into English language learning in higher education to improve students' communicative competence.

Keywords: VR, Teaching, Speaking, Grammar

Abstrak. Penelitian ini bertujuan untuk mengkaji efektivitas penggunaan *Virtual Reality* (VR) dalam pembelajaran speaking dan grammar pada mahasiswa dalam konteks Bahasa Inggris sebagai Bahasa Asing (EFL). Penelitian menggunakan desain quasi-eksperimen dengan melibatkan kelompok eksperimen dan kelompok kontrol. Kelompok eksperimen memperoleh pembelajaran berbasis Virtual Reality, sedangkan kelompok kontrol diajar menggunakan metode pembelajaran konvensional. Subjek penelitian adalah mahasiswa yang mengikuti mata kuliah Bahasa Inggris. Data dikumpulkan melalui tes speaking dan grammar yang diberikan dalam bentuk *pre-test* dan *post-test*. Data yang diperoleh dianalisis menggunakan statistik deskriptif untuk melihat kecenderungan peningkatan kemampuan, serta uji statistik inferensial berupa uji *paired sample t-test* dan *independent sample t-test* untuk mengetahui perbedaan peningkatan hasil belajar antara kedua kelompok. Hasil penelitian menunjukkan bahwa mahasiswa pada kelompok eksperimen mengalami peningkatan kemampuan speaking dan penguasaan grammar yang lebih signifikan dibandingkan dengan kelompok kontrol. Temuan ini menunjukkan bahwa Virtual Reality mampu menciptakan pengalaman belajar yang imersif dan kontekstual sehingga mendukung pengembangan kelancaran berbicara dan ketepatan tata bahasa. Penelitian ini menyimpulkan bahwa Virtual Reality dapat diintegrasikan secara efektif dalam pembelajaran Bahasa Inggris di perguruan tinggi untuk meningkatkan kompetensi komunikatif mahasiswa.

Kata Kunci: VR, Teaching, Speaking, Grammar

How to Cite: Tanashur, P., Natalia, C., Pujianto, D., Susilawati., Sari, E. N., & Widhi, B. A. (2025). Unlocking Language Skills: Virtual Reality Revolution in University Speaking and Grammar Classes. *Indo-MathEdu Intellectuals Journal,* 6 (8), 12588-12596. http://doi.org/10.54373/imeij.v6i8.5126

INTRODUCTION

In recent years, the integration of technology in higher education has become an essential aspect of English language teaching (Bui, 2022). The rapid development of digital tools has transformed traditional classrooms into more interactive and learner-centered environments(Xia & Guo, 2025). In the context of English as a Foreign Language (EFL), technology is not only used to support content delivery but also to enhance students' communicative competence, particularly in speaking and grammar, which are often considered challenging skills for university students (Ferguson et al., 2025).

Speaking skill plays a crucial role in academic and professional communication. University students are expected to express ideas fluently, accurately, and confidently in various academic contexts such as presentations, discussions, and collaborative projects. However, many EFL university students experience difficulties in speaking due to limited exposure to authentic communication, anxiety, and lack of meaningful practice opportunities (Wang & Lee, 2025).

Grammar mastery is equally important in supporting effective spoken communication. Accurate grammatical use contributes to clarity, comprehensibility, and credibility in spoken discourse. Despite its importance, grammar is often taught separately from speaking, resulting in students who understand grammatical rules theoretically but struggle to apply them in real-time communication (Gołda & Tomaszczyk, 2024). The separation of speaking and grammar instruction has led to calls for more integrated and contextualized teaching approaches. Communicative language teaching emphasizes that grammar should be learned through meaningful interaction rather than isolated drills (Zhang, 2023). Therefore, instructional strategies that combine speaking practice with contextual grammar use are needed, especially at the university level, where students are expected to achieve higher communicative competence.

Virtual Reality (VR) has emerged as an innovative technology with strong potential in language education. VR provides immersive, interactive, and simulated environments that allow learners to engage in realistic communication scenarios (Shaukat, 2023). Through VR, students can practice speaking in contexts such as meetings, interviews, or public spaces without the pressure of real-world consequences, which can reduce anxiety and increase motivation (Annisa et al., 2025). Several studies have highlighted the benefits of VR in language learning, including increased learner engagement, improved confidence, and enhanced speaking performance. VR environments offer opportunities for repeated practice, immediate feedback, and contextualized language use, which are essential for developing both

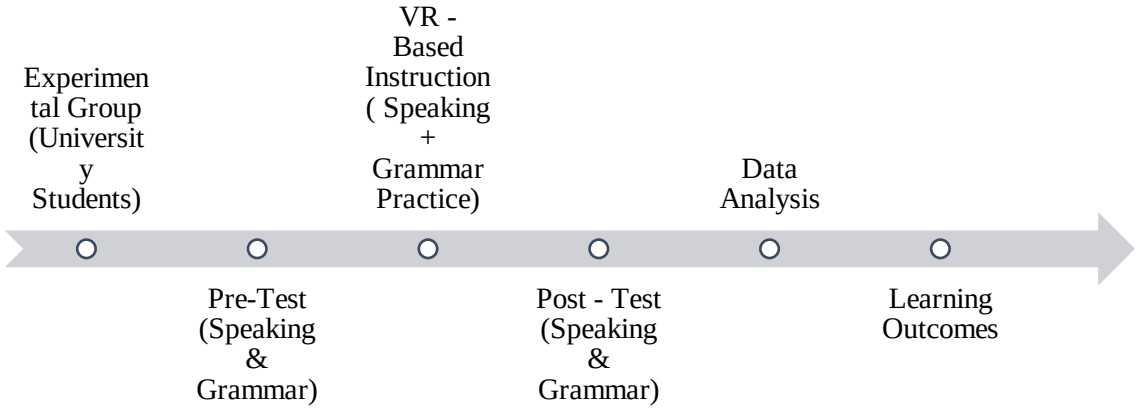
fluency and grammatical accuracy (Wulandari et al., 2025). For university students, VR-based learning aligns well with the characteristics of adult learners who value experiential, autonomous, and technology-enhanced learning (Chi & Idris, 2021). VR allows learners to actively construct knowledge through experience rather than passive reception. This experiential learning process supports the internalization of grammatical structures while simultaneously encouraging spontaneous spoken interaction (Knill et al., 2024).

Despite the growing interest in VR for language education, empirical research focusing specifically on the integration of VR in teaching both speaking and grammar at the university level remains limited, particularly in EFL contexts. Many existing studies focus on speaking skills alone or emphasize learners' perceptions without examining learning outcomes related to grammar mastery (MacLennan et al., 2025). In the Indonesian higher education context, the use of VR in English language teaching is still relatively new. Most university classrooms rely on conventional methods and limited multimedia tools, which may not fully support interactive speaking practice. Therefore, exploring the use of VR as an instructional medium for teaching speaking and grammar can provide valuable insights for English lecturers and curriculum designers. Based on these considerations, this study aims to investigate the use of Virtual Reality in teaching speaking and grammar to university students. The study seeks to examine how VR-based instruction contributes to students' speaking performance and grammatical accuracy, as well as to provide pedagogical implications for integrating immersive technology into EFL instruction in higher education.

METHOD

This study used a quasi-experimental research design to examine the use of Virtual Reality (VR) in teaching speaking and grammar to university students. The design was selected because the researcher used intact classes without random assignment. The study involved two groups: an experimental group and a control group. The participants were EFL university students enrolled in an English course at a higher education institution. Two classes with similar English proficiency levels were selected through purposive sampling. One class was assigned as the experimental group, while the other served as the control group. The experimental group received VR-based instruction, where students practiced speaking and grammar through simulated real-life communication scenarios. Meanwhile, the control group was taught using conventional teaching methods, including textbook-based instruction and regular classroom speaking activities. The treatment was conducted during regular class sessions over several weeks. To collect data, the study employed speaking and grammar tests

administered as pre-tests and post-tests. The speaking test measured fluency, grammatical accuracy, and comprehensibility, while the grammar test focused on the use of grammatical structures in communicative contexts. A speaking rubric was used to assess students' oral performance. The collected data were analyzed using descriptive and inferential statistics. Mean scores and standard deviations were calculated, and an independent samples t-test was used to identify significant differences between the experimental and control groups. Ethical considerations were observed by ensuring voluntary participation and maintaining the confidentiality of students' data.



Picture 1. Step of Analysis

RESULTS

The results of this study show that there was an improvement in both speaking and grammar skills among university students after the instructional treatment. Based on the pre-test results, the experimental group and the control group had relatively similar mean scores in speaking performance and grammar mastery. This indicates that both groups had comparable initial English proficiency before the treatment was implemented. After the treatment, the post-test results revealed that students in the experimental group, who received Virtual Reality (VR)–based instruction, achieved higher scores in speaking skills compared to those in the control group. The improvement was observed in several aspects of speaking performance, including fluency, pronunciation, and grammatical accuracy. Students in the experimental group were able to speak more confidently and produce longer and more coherent spoken responses.

In terms of grammar mastery, the experimental group also showed greater improvement than the control group. The post-test scores indicated that students who learned through VR were more accurate in using grammatical structures during spoken communication. This suggests that VR-based instruction supported students in applying grammar in meaningful and

contextualized situations. Statistical analysis using an independent samples t-test demonstrated a significant difference between the post-test scores of the experimental and control groups in both speaking and grammar achievement. The experimental group obtained higher mean scores, indicating that the use of Virtual Reality had a positive effect on students' speaking and grammar performance compared to conventional teaching methods. Overall, the results indicate that Virtual Reality–based instruction was effective in improving university students' speaking skills and grammar mastery in an EFL context.

DISCUSSION

The findings of this study provide strong evidence that Virtual Reality (VR) is an effective instructional medium for enhancing university students' speaking and grammar skills in an EFL context. The significant difference between the experimental and control groups indicates that VR-based instruction offers learning advantages beyond those of conventional classroom methods. This result supports the growing body of research emphasizing the pedagogical value of immersive technologies in language education. One of the most notable findings is the improvement in students' speaking performance after participating in VR-based learning activities. Students in the experimental group demonstrated greater fluency, improved confidence, and more coherent spoken output. This improvement can be explained by the immersive nature of VR, which places learners in simulated real-life communication contexts. Unlike traditional classroom speaking activities that are often limited to role plays or scripted dialogues, VR allows students to interact with virtual environments that resemble authentic communicative situations. This authenticity encourages spontaneous language use and reduces students' fear of making mistakes, a common barrier in EFL speaking classrooms (Zhong, 2024).

The reduction of speaking anxiety observed in the experimental group aligns with previous studies that highlight the affective benefits of VR in language learning. (Finkbeiner et al., 2025) argue that VR environments create a safe space where learners can practice speaking without the pressure of real-world social judgment. Similarly, (Lowell & Ilobinso, 2023) report that immersive learning environments increase learner engagement and willingness to communicate. In this study, students appeared more willing to speak and participate actively, suggesting that VR helped create a supportive learning atmosphere conducive to oral language development. In addition to speaking fluency, the study found that VR-based instruction significantly improved students' grammar mastery, particularly in spoken communication. This finding is important because grammar is often perceived by students as difficult and

abstract. In conventional classrooms, grammar instruction frequently focuses on explicit explanations and written exercises, which may not facilitate the transfer of grammatical knowledge to spoken language use. In contrast, VR-based learning enabled students to use grammatical structures naturally while completing communicative tasks, supporting the idea that grammar learning is more effective when embedded in meaningful contexts (Aswie & Abdu, 2023).

The integration of speaking and grammar instruction in VR environments appears to be a key factor contributing to students' improvement. Rather than treating grammar as an isolated component, VR-based tasks required students to use grammar as a communicative resource to convey meaning. This integrated approach aligns with Communicative Language Teaching principles, which emphasize that fluency and accuracy should be developed simultaneously through meaningful interaction (Zhang, 2023). The findings suggest that VR provides an effective platform for implementing this pedagogical principle in higher education contexts.

From a theoretical perspective, the results of this study can be explained through constructivist and experiential learning theories. VR-based learning allows students to actively construct knowledge through interaction and experience rather than passive reception. (Annisa et al., 2025) experiential learning theory emphasizes that learning occurs through a cycle of experience, reflection, conceptualization, and experimentation. In this study, students experienced language use in virtual scenarios, reflected on their performance, and applied grammatical structures in subsequent interactions, leading to deeper learning and skill development. Another important aspect highlighted by the findings is learner autonomy. VR-based instruction encouraged students to take an active role in their learning process. Students were able to control their pace of interaction, repeat tasks, and explore different communication scenarios. This autonomy is particularly relevant for university students, who are expected to develop independent learning skills. The use of VR thus aligns with the goals of higher education in fostering self-directed and lifelong learners.

Despite the positive findings, several limitations should be acknowledged. The duration of the instructional treatment was relatively short, which may limit the generalizability of the results. Additionally, the novelty effect of VR technology may have influenced students' motivation and engagement. Students who were unfamiliar with VR may have been more enthusiastic simply because the technology was new. Future studies should investigate the long-term effects of VR-based instruction and examine whether its effectiveness is sustained over time. Furthermore, this study focused primarily on learning outcomes related to speaking and grammar performance. Other factors such as students' perceptions, attitudes, and

challenges in using VR were not explored in depth. Future research could adopt mixed-method approaches to gain a more comprehensive understanding of how VR influences language learning processes and learner experiences in university settings.

Overall, the discussion demonstrates that Virtual Reality offers substantial pedagogical potential for teaching speaking and grammar to university students. By providing immersive, interactive, and contextualized learning experiences, VR supports the development of both fluency and grammatical accuracy. The findings of this study contribute to the literature on technology-enhanced language learning and offer practical implications for English lecturers seeking innovative approaches to improve communicative competence in higher education.

CONCLUSION

This study concludes that the use of Virtual Reality (VR) in teaching speaking and grammar has a positive and significant effect on university students' English language learning in an EFL context. The findings show that students who received VR-based instruction achieved better speaking performance and higher grammar mastery than those taught through conventional methods. These results indicate that VR provides an effective learning environment for developing both fluency and accuracy in spoken English.

The immersive and interactive features of VR allow students to engage in meaningful communication within simulated real-life contexts. Through VR-based activities, students were able to practice speaking with greater confidence while applying grammatical structures more naturally in communication. This integrated learning experience aligns with communicative language teaching principles and helps address common challenges in traditional EFL classrooms, such as speaking anxiety and the separation of grammar instruction from communicative practice. From a pedagogical perspective, this study highlights the potential of VR as an innovative instructional tool in higher education. VR-based instruction promotes active participation, learner autonomy, and experiential learning, which are essential for effective language development at the university level. Therefore, English lecturers are encouraged to consider integrating VR into speaking and grammar instruction to enhance students' communicative competence.

Despite these positive findings, this study has limitations, including a relatively small sample size and a short treatment duration. Future research is recommended to involve larger participant groups, longer implementation periods, and mixed-method approaches to further examine the effectiveness and sustainability of VR-based language learning. Overall, this study contributes empirical evidence to the growing body of research on technology-enhanced

language learning and supports the integration of immersive technologies in English language teaching in higher education.

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