



Enhancing ESL Learners Speaking Skills Through AI-Powered Language Learning Applications

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Abstract:

The development of speaking skills is a crucial component of English as a Second Language (ESL) learning, yet many learners face challenges such as limited opportunities for practice, lack of confidence, and insufficient feedback in traditional classrooms. With the rapid advancement of artificial intelligence, AI-powered language learning applications have emerged as innovative tools that can support language acquisition through interactive practice, instant feedback, and personalized learning experiences. This study investigates the effectiveness of AI-powered language learning applications in enhancing the speaking skills of ESL learners.

The research adopts a quantitative experimental design involving ESL learners at the undergraduate level. Participants are divided into experimental and control groups. The experimental group engages in speaking practice using AI-based language learning applications that provide speech recognition, pronunciation analysis, and conversational simulations, while the control group receives conventional classroom instruction. Pre-tests and post-tests are conducted to measure improvements in speaking proficiency, including pronunciation, fluency, vocabulary usage, and confidence in communication.

The findings are expected to demonstrate that the integration of AI-powered applications significantly improves learners' speaking abilities by offering continuous practice opportunities and immediate corrective feedback. The study highlights the potential of AI-driven tools as effective supplementary resources in ESL classrooms. It also provides pedagogical implications for language teachers

to incorporate innovative technological approaches in teaching speaking skills. Ultimately, the research contributes to the growing body of literature on technology-enhanced language learning and supports the integration of artificial intelligence in modern language education.

Keywords: ESL learners, speaking skills, artificial intelligence, language learning applications, technology-enhanced learning.



Introduction:

English has become a global language of communication in education, business, science, and technology. As a result, the ability to communicate effectively in English, especially speaking skills, has gained significant importance for learners of English as a Second Language (ESL). Speaking is considered one of the most essential language skills because it enables learners to express ideas, share opinions, and participate actively in social and academic interactions. However, many ESL learners face difficulties in developing speaking proficiency due to limited opportunities for practice, lack of confidence, fear of making mistakes, and insufficient feedback in traditional classroom settings.

In recent years, advancements in technology have created new opportunities for language learning. Among these developments, Artificial Intelligence (AI) has emerged as a powerful tool in education. AI-powered language learning applications provide interactive environments where learners can practice speaking through voice recognition, pronunciation assessment, and real-time feedback. These applications allow learners to engage in simulated conversations, receive personalized learning support, and improve their pronunciation and fluency at their own pace.

AI-based language learning tools have the potential to transform traditional language teaching methods by making learning more flexible, engaging, and learner-centered. Unlike conventional classroom instruction, AI-powered applications provide immediate feedback and continuous practice opportunities, which are crucial for developing speaking competence. These technologies also help reduce learners' anxiety by allowing them to practice speaking in a supportive and non-judgmental environment.

Despite the growing popularity of AI-powered language learning applications, there is still a need for systematic research to understand their effectiveness in improving speaking skills among ESL learners. This study aims to explore how AI-powered language learning applications can enhance the speaking proficiency of ESL learners. By examining learners' performance before and after using such applications, the study seeks to evaluate the role of artificial intelligence in promoting effective speaking practice and improving learners' confidence in communication.

The findings of this research may contribute to the field of English language teaching by highlighting the importance of integrating innovative technological tools in language classrooms. It may also provide useful insights for educators, curriculum designers, and policymakers in adopting AI-based learning strategies to support the development of speaking skills among ESL learners.

Literature Review:

The development of speaking skills has long been a central concern in the field of English Language Teaching (ELT) and Second Language Acquisition (SLA). Researchers have emphasized that speaking is a complex skill that involves pronunciation, fluency, vocabulary usage, grammatical accuracy, and interactive communication. Over the years, various pedagogical approaches and technological tools have been introduced to improve ESL learners' speaking abilities. Recently, artificial intelligence-based applications have emerged as innovative resources that support speaking practice and personalized language learning.

Early studies on language learning emphasized the importance of interaction and meaningful communication in developing speaking proficiency. Scholars such as Stephen Krashen highlighted the role of comprehensible input in language acquisition through his **Input Hypothesis**, while Merrill Swain proposed the **Output Hypothesis**, which stresses that learners improve language proficiency when they actively produce language through speaking and writing. These theories underline the significance of regular speaking practice for ESL learners.

In the context of communicative language teaching, researchers have found that student-centered activities such as role-plays, discussions, and task-based learning significantly enhance speaking skills. According to Jack C. Richards, communicative approaches encourage learners to participate in real-life communication, which improves both fluency and confidence. Similarly, studies in Communicative Language Teaching show that interactive classroom environments help learners develop better speaking competence.



With the rapid advancement of digital technology, technology-enhanced language learning has become increasingly popular. Mobile applications and online platforms allow learners to practice speaking outside the classroom. Research in Computer-Assisted Language Learning (CALL) indicates that digital tools can provide interactive learning environments and improve learners' motivation and engagement. Mobile-assisted language learning applications enable learners to access learning materials anytime and anywhere, offering greater flexibility and autonomy.

More recently, artificial intelligence has been integrated into language learning platforms. AI-powered language learning applications use speech recognition technology, natural language processing, and automated feedback systems to support learners' speaking development. These tools allow learners to practice pronunciation, engage in simulated conversations, and receive immediate feedback on their performance. Studies suggest that AI-driven applications can enhance speaking fluency and pronunciation by providing individualized learning experiences.

For example, research on AI-based language platforms such as Duolingo and ELSA Speak shows that learners benefit from instant feedback and repeated practice opportunities. These applications help learners identify pronunciation errors and improve their speaking accuracy through interactive exercises. Additionally, AI tools reduce learners' anxiety by allowing them to practice speaking privately without fear of criticism.

Despite these advantages, some researchers argue that AI-powered applications cannot fully replace human interaction in language learning. Effective speaking development still requires meaningful communication with teachers and peers. Therefore, many scholars recommend integrating AI-based applications as supplementary tools alongside traditional classroom instruction.

Overall, the existing literature indicates that innovative technological tools, particularly AI-powered language learning applications, have significant potential to enhance ESL learners' speaking skills. However, further empirical studies are needed to examine their effectiveness in different educational contexts. This study aims to contribute to the growing body of research by investigating the role of AI-powered applications in improving speaking proficiency among ESL learners.

Objectives of the Study:

The objectives of the study may include the following:

- 1. To examine the effectiveness of AI-powered language learning applications in improving the speaking skills of ESL learners.**
- 2. To analyze the impact of AI-based tools on learners' pronunciation, fluency, and vocabulary in spoken English.**
- 3. To explore the role of AI-powered applications in increasing learners' confidence in speaking English.**
- 4. To compare the speaking performance of learners who use AI-powered language learning applications with those who follow traditional classroom methods.**
- 5. To identify learners' perceptions and attitudes toward the use of AI-powered language learning applications in developing speaking skills.**
- 6. To suggest effective strategies for integrating AI-powered applications into ESL teaching practices.**

Research Methodology:

The research methodology outlines the procedures and techniques used to investigate the effectiveness of AI-powered language learning applications in enhancing the speaking skills of ESL learners. This section describes the research design, participants, instruments, data collection procedures, and methods of data analysis.



1. Research Design

The study adopts a **quantitative experimental research design** to examine the impact of AI-powered language learning applications on ESL learners' speaking skills. The experiment involves two groups: an **experimental group** and a **control group**. The experimental group uses AI-powered language learning applications for speaking practice, while the control group follows traditional classroom instruction.

2. Participants

The participants of the study consist of **ESL learners at the undergraduate level** from a selected educational institution. A sample of approximately **40–60 students** is selected using a convenient sampling method. The participants are divided equally into two groups:

- **Experimental Group:** Students who use AI-powered language learning applications.
- **Control Group:** Students who receive conventional teaching methods without AI support.

3. Instruments for Data Collection

To measure the improvement in speaking skills, the following instruments are used:

- **Pre-test and Post-test:** Speaking tests conducted before and after the experiment to measure learners' speaking proficiency.
- **Speaking Assessment Rubric:** Used to evaluate pronunciation, fluency, vocabulary, grammar, and confidence.
- **Questionnaire:** To collect learners' perceptions and attitudes toward the use of AI-powered language learning applications.

4. Procedure

The research is conducted over a period of **6–8 weeks**. The procedure includes the following steps:

1. Conduct a **pre-test** to assess the initial speaking ability of both groups.
2. Introduce the **AI-powered language learning applications** to the experimental group for speaking practice.
3. Provide regular speaking activities and exercises through the applications during the study period.
4. The control group continues with **traditional speaking activities** in the classroom.
5. After the experimental period, a **post-test** is conducted to evaluate improvements in speaking skills.
6. A **questionnaire** is administered to gather students' feedback about the AI learning experience.

5. Data Analysis

The collected data are analyzed using **statistical methods**. The pre-test and post-test scores of both groups are compared to determine the effectiveness of AI-powered language learning applications. Descriptive statistics such as **mean and percentage** are used to analyze the results, and the findings are presented through tables and charts.

6. Ethical Considerations

The participants are informed about the purpose of the study, and their participation is voluntary. Confidentiality of the participants' data is maintained throughout the research process.

Expected Outcomes / Findings:

The Expected outcomes of the study include the following:



1. Improvement in Speaking Proficiency

The study is expected to show that ESL learners who use AI-powered language learning applications demonstrate significant improvement in their speaking proficiency, including pronunciation, fluency, and vocabulary usage in English as a Second Language learning.

2. Better Pronunciation and Fluency

AI-powered tools that use speech recognition and feedback systems may help learners identify pronunciation errors and correct them effectively. As a result, learners are likely to show better fluency and clarity in spoken English.

3. Increased Confidence in Speaking

The findings may indicate that learners gain greater confidence in speaking English because AI-based applications provide a comfortable environment for practice without fear of criticism or embarrassment.

4. Higher Learner Engagement and Motivation

The interactive and personalized features of AI applications are expected to increase students' interest and motivation in learning English. This may lead to more frequent practice and improved speaking performance.

5. Positive Attitudes toward AI-Based Learning

The study may reveal that learners have a positive perception of using AI-powered applications in language learning. Many students may find these tools helpful, convenient, and engaging for improving their speaking skills.

6. Support for Technology-Integrated Language Teaching

The findings are expected to suggest that integrating Artificial Intelligence tools into language teaching can enhance traditional classroom methods and provide additional opportunities for speaking practice.

Overall, the study is expected to demonstrate that AI-powered language learning applications are effective supplementary tools for improving ESL learners' speaking skills and supporting innovative teaching practices in modern language education.

Limitations of the Study:

Although the study aims to investigate the effectiveness of AI-powered language learning applications in improving speaking skills, certain limitations may affect the results.

1. Limited Sample Size

The study may involve a small number of participants from a single educational institution. Therefore, the findings may not fully represent all learners in English as a Second Language learning contexts.

2. Short Duration of the Study

The experimental period may be limited to a few weeks. A longer duration might provide more accurate insights into the long-term effects of AI-based learning tools.

3. Dependence on Technology Access

The effectiveness of AI-powered applications depends on the availability of smartphones, internet connectivity, and digital literacy. Some learners may face difficulties accessing or using these technologies.

4. Focus on Specific Applications

The study may examine only a few AI-powered language learning applications. Different applications may provide different features and learning experiences.

5. Limited Focus on Other Language Skills

The research primarily focuses on speaking skills and does not extensively examine other language skills such as reading, writing, and listening.



Conclusion:

The development of speaking skills is essential for effective communication in English as a Second Language learning. Traditional classroom methods often provide limited opportunities for learners to practice speaking and receive immediate feedback. With the rapid advancement of technology, especially Artificial Intelligence, AI-powered language learning applications have emerged as innovative tools that support language acquisition.

This study highlights the potential of AI-powered applications in enhancing ESL learners' speaking skills. These applications provide interactive learning environments, speech recognition technology, and real-time feedback, which help learners improve pronunciation, fluency, and confidence in speaking English. In addition, AI-based tools encourage learners to practice regularly and independently, making language learning more flexible and personalized.

The findings of the study suggest that integrating AI-powered applications with traditional teaching methods can significantly enhance speaking proficiency and learner engagement. Therefore, educators are encouraged to adopt technology-supported teaching strategies to improve language learning outcomes.

In conclusion, AI-powered language learning applications represent a promising and innovative approach in modern language education. When used effectively, they can complement classroom instruction and provide valuable opportunities for ESL learners to develop their speaking skills and communication competence.

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