

English Learning: The Use of Artificial Intelligence in Improving Teaching Method Innovation

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Abstract. The purpose of this study is to investigate how well artificial intelligence (AI) works for teaching English. Mixed-methods research is used, integrating qualitative and quantitative techniques. Thirty students of Gajah Sakti Polytechnic, Metro, Lampung who employed AI as a language learning method made up the study participants. The outcomes demonstrated that utilizing AI significantly improved speaking, listening, reading, and writing abilities. These results validate the usefulness of AI in language learning. Furthermore, this work closes the gap left by earlier studies on the application of AI to English language instruction in academic settings. The research's practical implication is that, in order to improve effective and efficient learning outcomes, AI must be included into language learning curriculum. This study adds significantly to our knowledge of how artificial intelligence is used in language acquisition and shows how powerful AI can be in the creation of novel and flexible teaching strategies.

Keywords: Use of AI, English Learning, Effectiveness.

INTRODUCTION

In today's digital era, the field of education has witnessed a significant transformation through the integration of Artificial Intelligence (AI). With its potential to revolutionize various sectors, AI has emerged as a promising tool in improving the teaching and learning experience. English language teaching, in particular, faces many challenges in meeting the needs of diverse learners. Therefore, exploring the effectiveness of AI in English language teaching becomes crucial to reveal new opportunities in language education. Experts have recognized the potential of AI in education, highlighting its ability to provide support that engages students, and provides appropriate feedback. Weischedel et al. (1978) asserts, "AI has the potential to transform the way we teach language, making it more accessible and efficient for learners from diverse backgrounds." However, despite growing interest in AI applications, there is still a research gap regarding its effectiveness specifically in the context of English language teaching (Semmler & Rose, 2017; Nasar et al., 2023).

This research aims to fill the gap by studying the effectiveness of AI in English language teaching. By analyzing the existing literature and conducting empirical research, the study seeks to provide an understanding of the impact of AI on language skills, student engagement, providing feedback, and meeting the needs of diverse learners. The novelty of this study lies in a comprehensive investigation into the specific contribution of AI in English language teaching, by providing valuable insights for language educators, educational institutions, and policymakers. The research will draw on a variety of scholarly references

(Alfoudari et al., 2021), including the work (Alex., 2019), an AI and language learning specialist (Ali, 2020), who emphasizes that "the integration of AI in language education can provide adaptive learning experiences, personalized teaching, and targeted feedback, allowing learners to develop at their own pace." (Auliawan & Ong, 2020).

By combining perspectives and insights from experts in this field, this research aims to contribute to the development of knowledge regarding the effectiveness of AI in English language teaching. In this study, it is expected to present useful findings based on the analysis of the data collected. In the next chapter, we will present in detail the findings and analysis of the effectiveness of AI in English language teaching, as well as its comparison with traditional methods. The research will also discuss the implications of these findings for language educators and educational institutions, as well as the challenges and limitations associated with the use of AI in English language teaching. In addition, the research will also provide direction for further development and potential areas that can be improved in the use of AI in language education.

LITERATURE REVIEW

History of AI in Education

Artificial Intelligence (AI) has had a long history in education, with early developments beginning decades ago. In the 1960s, researchers began exploring the potential of AI in education, especially in the field of intelligent tutoring systems (ITS). As stated by (Bai & Zhang, 2020), "The presence of ITS marks a significant milestone in the integration of AI in education, as these systems aim to provide personalized instruction and adapt to the individual needs of learners."

Early AI systems, such as pioneering (Dunjko & Briegel, 2018) work on computer-based learning, laid the foundation for the use of smart technology in educational environments. These systems use rules-based algorithms to deliver learning content and engage learners in interactive activities. As (Goldstein & Papert, 1977) based on their research stated that language learning by utilizing information technology will also improve the English proficiency of learners. As time goes on, AI applications in education are expanding, covering areas beyond smart tutor systems. The emergence of natural language processing (NLP) and machine learning techniques is further expanding the possibilities of AI in education. As (Huang et al., 2023) argues, "Advances in NLP and machine learning algorithms open up new opportunities for smart feedback generation and language understanding, revolutionizing the language learning environment."

In the 21st century, the pervasiveness of digital technologies and the vast availability of educational resources facilitate the integration of AI in various educational contexts (Purwanto et al., 2023). This leads to the development of AI-based learning management systems, smart assessment tools, and adaptive learning platforms. Researchers and educators are realizing the potential of AI to improve learning and teaching experiences. The history of AI in education shows ongoing efforts to harness smart technologies for educational purposes. As cited by (Semmler & Rose, 2017), "AI has a rich history in education, marked by milestones in smart tutor systems, adaptive learning, and personalized instruction." The historical review highlights the continuous evolution of AI in education and paves the way to explore applications particularly in English language teaching.

Applications of AI in English Learning

In recent years, AI has gained great attention in English language teaching, offering innovative approaches to enhance the learning experience. AI applications have diversified in various aspects of language teaching, providing new opportunities for personalized and adaptive learning. According to (Saini & Goel, 2019), "AI technology is currently used in English language teaching to support language learning, facilitate communication, and provide feedback to learners."

a) Language Learning Support

AI technology is used to provide language learning support to the students. AI-powered platforms and tools offer interactive exercises, real-time feedback, and adaptive content delivery based on learners' needs and proficiency levels. As stated by (Pingxiao, 2017), "AI-based platforms use machine learning algorithms to structure specific content and exercises for each learner, increasing the efficiency and effectiveness of their language learning."

b) Communication Facilitation

AI applications facilitate communication between learners and native English speakers or language partners. Virtual tutors and chatbots equipped with AI capabilities engage in conversational exercises with learners, providing an immersive language learning experience. (Pikhart, 2020) found that "interacting with virtual tutors and AI-based chatbots improves learners' speaking skills and increases their confidence in using English in real-life situations."

c) Providing Feedback

AI technology enables timely and targeted feedback to learners. Through speech recognition and natural language processing, the AI system analyzes the learners'

speech or writing results and provides feedback on pronunciation, grammar, and vocabulary usage. (Pannu, 2015) emphasize that "AI-based speech recognition systems offer real-time feedback and error correction, assisting learners in improving their pronunciation and developing accurate speaking skills."

d) Personalized Instructions

AI-based adaptive learning systems offer personalized instruction by structuring learning content and activities according to the individual needs and development of the learners. These systems use machine learning algorithms to analyze learner performance data and adjust learning paths as needed. (Pankratova, 2019) state that "AI-based adaptive learning systems provide personalized learning paths and tailor instructional materials according to learners' proficiency levels, optimizing their learning experience." These current applications of AI in English language teaching demonstrate the potential of AI technology in enhancing the language learning experience by providing personalized instruction, facilitating communication, and providing targeted feedback (Hidayad et al., 2023; Purwanto, 2022). By leveraging AI tools, language educators can create engaging and adaptive learning environments according to the individual needs of learners.

RESEARCH METHODS

This study used a mixed-methods research design that combines quantitative and qualitative approaches. The aim was to comprehensively test the effectiveness of AI in English language teaching involving 30 students of Gajah Sakti Polytechnic, Metro District, Lampung as samples. Quantitative data were obtained through pre-test and post-test tests, as well as surveys to measure language proficiency and participants' perceptions of the use of AI in English language teaching. Qualitative data were obtained through interviews and open-ended question questionnaires to understand participants' experiences and attitudes. Statistical analysis is used for quantitative data, while thematic analysis is used for qualitative data. The hypothesis proposed in this study is as follows: The use of AI in English learning will significantly improve participants' language proficiency in listening, speaking, reading, and writing skills.

RESULTS AND DISCUSSION

The results of this study show that the use of AI in English learning is effective. Based on the quantitative data obtained, there was a significant difference between pre-test and post-test scores in participants who used AI as a learning tool. Hypothesis testing using t-tests showed that there was a significant improvement in language proficiency after using AI ($p < 0,05$).

Table 1. Change in Average Value

English Skills	Average Grades	
	Pre-Test	Post Test
Listening	60	75
Speaking	50	65
Reading	70	84
Writing	65	75

In the table above, it is explained that in listening skills, there is a significant improvement with an average score increase of 25% from pre-test scores (average score 60) to post-test scores (average score 75) ($t = 3.21$, $p < 0.05$). This means that participants experienced a significant improvement in listening skills after using AI as a learning tool.

Speaking skills also showed significant improvement with an average score increase of 30% from pre-test scores (average score 50) to post-test scores (average score 65) ($t = 3.87$, $p < 0.05$). This showed that participants experienced a significant improvement in English speaking skills after using AI. In addition, reading proficiency also experienced a significant improvement, with an average score increase of 20% from pre-test scores (average score 70) to post-test scores (average score 84) ($t = 2.45$, $p < 0.05$). Writing proficiency also improved significantly, with an average score increase of 15% from pre-test scores (average score 65) to post-test scores (average score 75) ($t = 2.12$, $p < 0.05$).

The results of this hypothesis test showed that the use of AI significantly improved participants' language proficiency in listening, speaking, reading, and writing skills. In addition to these quantitative results, interviews and open-ended question questionnaires also provide deep insights into participants' experiences in using AI as an English learning tool. The majority of participants reported that interaction with AI improved their motivation to learn English. They also feel more confident in speaking English and feel a significant improvement in their communication skills. The results of this study showed that the use of AI in English language learning significantly improved participants' ability in listening, speaking, reading, and writing skills.

The findings are in line with previous research that has identified the potential of AI in improving language learning. For example, a study by (Yoon, 2003) found that the use of AI technology in language learning can improve participants' ability to understand and apply more complex language structures. This research makes a significant contribution to our understanding of the use of AI in the context of language learning. This research lies in the use of AI in the specific context of English language learning in the Gajah Sakti Polytechnic environment.

Previous research has generally focused on the use of AI in language learning in general, without considering the specific context and characteristics of each educational institution (Kessler, 2018; Yanhua, 2020; Hockly, 2018). By looking at the influence of AI in English language learning at Gajah Sakti Polytechnic, this research provides valuable insights into the effectiveness and application of AI in specific educational contexts. In the context of this study, the results showed that the use of AI in English learning at Gajah Sakti Polytechnic had a significant positive impact. This reinforces the belief that AI can be an effective tool in improving language learning (Liu et al., 2019; Matskevich, 2019). These findings have important practical implications in the development of more innovative and adaptive learning methods in educational institutions.

CONCLUSION

Based on this research, it can be concluded that the use of AI in English learning has a significant impact in improving participants' skills. The results showed a significant improvement in listening, speaking, reading, and writing skills after using AI as a learning method. These findings provide empirical evidence supporting the effectiveness of using AI in language learning. This research also succeeded in filling the gap of previous research in the context of the use of AI in English language learning in educational institutions, especially at the Gajah Sakti Polytechnic. Thus, the use of AI in English learning at Gajah Sakti Polytechnic has great potential to improve language learning and make a significant contribution in the development of innovative and adaptive learning methods. The practical implication of this research is the need to consider the integration of AI in language learning curricula to achieve more effective and efficient outcomes.

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