


## Exploring the role of AI Chatbot in English Language Teaching and Learning

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\*Maulana Oscard Nasution<sup>1</sup>, Arianto Arianto<sup>2</sup>

<sup>1,2</sup>Universitas Muhammadiyah Sumatra Utara

Corresponding Author: [maulana.oscard021@gmail.com](mailto:maulana.oscard021@gmail.com)

### A B S T R A C T

The integration of Artificial Intelligence (AI) in education has garnered significant attention, with AI-Chatbots emerging as a transformative tool in English language teaching and learning. This investigation delves into the incorporation of AI-Chatbots in the context of English language instruction, with a specific focus on their capacity to enhance educational achievements. This researcher delves into various utilities of AI-Chatbots, elevating proficiency in English language, grammar, and vocabulary. The study employed a mixed methods strategy, amalgamating quantitative insights from teacher surveys with the interpretation of qualitative data. This study evaluates the efficacy of teachers utilizing AI-Chatbots with their students. The outcomes demonstrate that the teacher's involvement in furnishing guidance on the utilization of AI-Chatbots to students substantially heightens student engagement and motivation towards enhancing their English language competencies. Subsequent research endeavors should concentrate on enhancing the contextual comprehension capabilities of Chatbots and investigating their amalgamation with other educational technologies.

**Keywords:** Chatbots, Artificial Intelligence, Teaching, Learning, English Language

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## INTRODUCTION

Throughout the rapidly changing digital age, researchers have been conducting scientific studies on Artificial Intelligence (AI) for over seven decades (V et al., 2021). Artificial Intelligence (AI) is a prominent and widely discussed subject in contemporary discourse (Coghill, 2023). AI technology has seamlessly integrated into numerous facets of life, including education. Furthermore, the proficiency and expertise of educators play a crucial role in effectively incorporating technology into instructional methods (Zhang & Fang, 2022). One of the up-and-coming AIs is Chatbot, a computer program that mimics human language through a text-based dialogue system, thanks to natural language processing (Zumstein & Hundertmark, 2017). In English education, AI Chatbot holds immense promise for enhancing the efficiency and efficacy of the learning process. The AI Chatbot is a computer program created to engage in conversation with humans. The AI Chatbot utilizes advanced artificial intelligence technology to comprehend and address inquiries and directives provided by users. Furthermore, the AI Chatbot can operate using pre-established guidelines or utilize machine learning to enhance its performance through user interactions. They are versatile and can be used across various platforms, including websites, mobile applications, and instant messaging platforms. Furthermore, an additional objective is to explore the ethical and responsible utilization of AI chatbots in education,

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focusing on promoting critical thinking, cognitive flexibility, and self-regulation. This investigation aims to assess the potential of AI chatbots to enhance and inspire teaching and learning in modern educational settings (Chauncey & Mckenna, 2023). As technology advances, AI Chatbots become increasingly sophisticated and adept at delivering a personalized and efficient user experience. Chatbots are software applications developed to facilitate dialogue with users and understand their input using natural language processing techniques (Du & Daniel, 2024).

AI Chatbots in education have revolutionized the learning experience and enhanced communication between students and teachers. Artificial Intelligence (AI) has emerged as a popular technology for improving the learning experience (Annamalai et al., 2023). Furthermore, significant developments in Generative Conversational Artificial Intelligence (AI) have created opportunities for utilizing chatbots as prompts (Majid et al., 2024). AI Chatbots can offer customized learning support to students by providing learning materials specifically designed to meet their requirements. They can also assist students in enhancing their language, mathematics, or other skills through tailored exercises, simulations, and assignments. Furthermore, AI Chatbots can offer immediate feedback to educators and learners upon completing a task or project, aiding in identifying areas that need improvement and highlighting weaknesses. AI Chatbots can create interactive and engaging learning experiences, greatly enhancing teacher and student motivation. Additionally, these chatbots provide round-the-clock access to learning assistance, making it more convenient for students to seek help whenever needed. In addition, Chatbots have demonstrated significant promise in automating and enhancing educational tasks, effectively capturing the intricacies and variety of human language (Zhang & Huang, 2024). Therefore, AI Chatbots has the potential to significantly enhance the field of education and enhance the overall learning experience.

Creating an AI chatbot is undoubtedly a remarkable accomplishment, showcasing unparalleled power and potential (Hallal et al., 2023). In English language teaching, many governments and international organizations have opted for English as their official language. This choice stems from the fact that English holds a unique position as a global and world language (Wu et al., 2023). AI Chatbot can be a helpful tool for teachers, assisting them in providing materials, offering feedback, and facilitating speaking and writing exercises for students. Thanks to its advanced AI technology, the AI Chatbot can deliver prompt and tailored responses to every student, enhancing their engagement and motivation to learn. AI-powered chatbots provide coherent and valuable responses by analysing vast data (Gill et al., 2024). In addition, using AI chatbots in English language instruction is crucial in enhancing the overall quality of student learning. AI Chatbots can serve as a valuable learning tool, offering personalized assistance to teachers and students. It can help students comprehend the material, practice their speaking skills, and enhance their grammar and pronunciation. Furthermore, the AI Chatbot is an engaging educational tool, offering valuable insights into vocabulary, idiomatic expressions, cultural contexts, and practical English teaching. Therefore, an AI chatbot can be a useful companion for students who want to enhance their English skills effectively and enjoyably.

In the coming years, AI chatbots are anticipated to be highly useful in education, providing valuable assistance to students as they navigate their learning path (Hallal et al., 2023). In addition, using AI Chatbots in English language learning is crucial in enhancing learning efficiency and improving students' learning experiences. AI Chatbots can serve as virtual assistants that support students in different areas of English language learning. They offer individualized support to help students grasp the material, create tailored exercises and assignments, and deliver immediate feedback to correct errors. This is similar to how Chatbots can simulate counselling conversations and offer support to individuals in need (Abu Bakar et al., 2024). Furthermore, AI Chatbots can serve as valuable practice partners for

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students looking to enhance their communication skills through speaking and listening exercises. AI Chatbots offers an interactive learning experience that fosters the comprehensive growth of students' English abilities. This study highlights the significant impact of Chatbots in promoting environmental conservation in educational settings (Chi, 2024). Implementing AI Chatbots effectively can serve as a valuable tool to support English learning, enhance student motivation, and foster a more engaging and efficient learning experience.

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Over the past few years, the growing incorporation of artificial intelligence (AI) into different aspects of society has garnered considerable attention and progress. One field that has experienced a significant impact is education (Ding et al., 2024). Education goes far beyond simply gathering information and having access to facts or giving short responses. Thus, according to Kumar (2023), AI machines are most effective when utilized as teaching assistants or tutors rather than as professors. Artificial Intelligence (AI) is increasingly prevalent in contemporary developed societies (Lee et al., 2024). With the advancements in technology in today's world, there is a wide range of AI applications available for teachers to incorporate into their daily routines. AI chatbots are widely utilized in various applications. Ever since AI chatbots were introduced, many educators have been eager to assess their performance and influence in different educational fields (Hallal et al., 2023). As per the research conducted by Zhang and Huang in 2024, AI chatbots have brought about a significant transformation in the field of education. These chatbots serve as automated tutors in both virtual and traditional classrooms, providing immediate assistance and tailored learning opportunities. AI Chatbots have the potential to optimize human resources by allowing them to focus on tasks that require advanced cognitive abilities. By operating efficiently, they can significantly enhance customer satisfaction (Urbani et al., 2024). As an example, a study conducted by (Lee et al., 2024) revealed that nearly half of the participants reported incorporating AI into their teaching responsibilities. The most frequent alteration made was in the assessment methods. In another example, it was highlighted that the teacher's satisfaction with AI in the teaching system was relatively high in an article by Yuxiu in 2024, scoring an average of 92 points. Research on the application of AI technology in teaching has found that AI has a significant positive impact on enhancing students' level and efficiency. Incorporating an AI chatbot into English language teaching can offer a multitude of advantages for both students and educators.

AI tools like AI chatbots have the potential to generate long-term interest and involvement during the inquiry phase of education (Chauncey & Mckenna, 2023). AI Chatbots can be a valuable tool for educators, providing instructional content, offering suggestions, and acting as an online educator to learners by answering questions. They have the potential to transform education through smartphones and IoT gadgets, as well as promote group work (Gill et al., 2024). As cited by (Eisenring et al., 2024). Chatbots are a valuable tool that can be utilized in English language teaching. Given the significant advantages and ease of use, chatbots have the potential to become the forefront technology for educators looking to enhance language learning in a contemporary manner. One of the examples showed that educators had a strong interest in AI and were eager to explore the technology. They had a thoughtful and open-minded approach when it came to the use of AI. The study highlights the significance of comprehending AI for independent engagement with AI technologies, which can help reduce usage risks and misunderstandings (Markus et al., 2024). AI Chatbots can adjust to the unique teaching styles and proficiency levels of educators. The usage behaviour of chatbots can be influenced by factors such as the quality of information provided and customization options. Chatbots have the potential to enhance English teaching greatly. To fully capitalize on this potential, it is essential to ensure that Chatbots are user-friendly and provide customized service. This is crucial for the success of

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any technology that is based on providing services (Goli. M, 2023). AI tools like AI chatbots have the potential to generate long-term interest and involvement during the inquiry phase of education (Chauncey & Mckenna, 2023). AI Chatbots can be a valuable tool for educators, providing instructional content, offering suggestions, and acting as a virtual educator to answer learners' questions. They have the potential to revolutionize education by leveraging smartphones and IoT gadgets, as well as promoting collaborative group work (Gill et al., 2024). As cited by (Eisenring et al., 2024). Chatbots are a valuable tool that can be utilized in English language teaching. Given the significant advantages and ease of use, chatbots have the potential to become the forefront technology for educators seeking to enhance language learning in a contemporary manner. One of the examples showed that educators had a strong interest in AI and were eager to explore the technology. They had a thoughtful and open-minded approach when it came to utilizing AI. The study highlights the significance of comprehending AI for independent engagement with AI technologies, which can help reduce usage risks and misunderstandings (Markus et al., 2024). AI Chatbots can adjust and cater to the unique teaching styles and proficiency levels of educators. Factors related to chatbots, such as the quality of the information provided and customization, can significantly affect usage behaviour. Chatbots have the potential to enhance English teaching greatly. To fully capitalize on this potential, it is essential to prioritize user-friendliness and customization. These factors are crucial for the success of any technology that is based on providing services (Goli. M, 2023).

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AI is a highly advanced technology system that has been dramatically enhanced to accomplish the intended objective. Artificial intelligence (AI) has emerged as a powerful and transformative influence in various domains, revolutionizing our technological interactions and elevating our abilities (Almulla, 2024). AI is a remarkable creation that can offer solutions to a wide range of problems, including those in the field of education. With the increasing availability and impact of artificial intelligence (AI) on our daily lives, education has also started to take notice (Lee & Kwon, 2024). Artificial intelligence (AI) is crucial for ensuring the sustainability and efficiency of the learning and teaching process. In addition, there has been an increasing interest in investigating the possibilities of Artificial Intelligence (AI) in the realm of education (Alshaikh et al., 2024). However, the existing research mainly concentrates on examining the application of AI in the context of English language instruction and acquisition. AI was used to determine that students found the exercises in the system to be well-connected and pertinent to the subject matter. The students started to develop a strong command and found it easier to navigate within the system. For instance, a study conducted by Darvishi et al. in 2024 found that the findings of the experiment indicated that students tended to depend on AI assistance instead of actively learning from it. In addition, the incorporation of AI into education is crucial for the effective implementation of a carefully designed approach to provide top-notch education (Kumar, 2023).

When it comes to AI, this technology has become incredibly popular in the realm of education, particularly among students. One of the most commonly utilized AI tools among students is AI chatbots. AI chatbots have the potential to enhance students' learning experiences, both within and beyond the confines of the classroom. According to a study conducted by Kim and Su in 2024, AI chatbots can impact learners' emotional factors and address the difficulties they face in traditional language learning settings. In addition, according to a study by Altwijri and Alghizzi (2024), an AI-powered chatbot is widely used to enhance the emotional aspects of learning. They assist learners in developing a sense of ease in conversation, enhancing their motivation and confidence in communication, promoting independent learning, reducing shyness and anxiety, and offering numerous other advantages. The field of AI Chatbot technology has experienced rapid development

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over the last sixty years, primarily due to significant progress in Natural Language Processing (NLP) and Machine Learning. This progress has been further facilitated by the availability of Large Language Models (LLM) (Du & Daniel, 2024). In a recent study by Annamalai et al. (2023), the researchers explored the use of chatbots for English language learning in higher education. The study revealed that participants found chatbots to be a valuable tool in overcoming the challenges they encountered during language learning. The Chatbot proved to be a useful resource for students in their ongoing learning journey. Another discovery pertinent to this study is that according to a study conducted by Du and Daniel in 2024, an AI chatbot learning approach was implemented to enhance the speed of English language acquisition and support students in achieving their course objectives.

Furthermore, AI chatbots possess the capability to enhance specific skills in the realm of English language acquisition. Many students prefer using AI chatbots to improve their writing skills. Effective communication is essential for expressing our ideas and thoughts through written language in different formats. AI chatbots have the potential to significantly enhance writing skills by providing students with personalized feedback and valuable learning experiences. A recent study has made significant contributions to the current body of knowledge by providing fresh perspectives on the impact of AI-generated chatbots on register learning in the writing process. The study offers valuable insights into the potential of these chatbots as effective learning assistants (Ozcelik & Eksi, 2024). Chatbots provide students with a useful platform to enhance their writing skills and boost their confidence through regular practice and constructive feedback (Sakkampang et al., 2023). In addition, AI chatbots play a vital role in assisting with grammar skills. Mastering English grammar can present challenges for students. Thus, it is crucial to utilize technology to support the sustainability of English language learning. AI chatbots have the potential to enhance the learning experience greatly. AI chatbots possess the capability to identify and provide feedback on grammatical errors. As demonstrated by the research conducted by Sofyan and Nasution in 2023, AI chatbots possess numerous advantages. These include their ability to accurately identify orthography issues, address wordy diction, maintain consistency in using a specific English variant, offer users a personalized dictionary, and provide constructive feedback.

## METHOD

The researcher employed a combination of quantitative and qualitative methods in their study. This study used a quantitative research method to gain insight into the level of understanding students have regarding the role of AI chatbots in English Language Teaching and Learning. Quantitative research is a highly regarded method that enables the examination of variables in relation to one another (Creswell, 2014). When it comes to evaluating students' speaking skills, it is crucial to employ effective measurement techniques in AI chatbots. Furthermore, qualitative research is utilized by researchers to delve into and comprehend the importance that individuals or groups assign to human social problems (Creswell, 2012). In this study, we will explore the process and implementation of AI, along with the benefits and obstacles encountered by EFL students. In order to uncover this information, researchers will conduct data dissemination through questionnaires with several English as a Foreign Language (EFL) students. The focus of the study will be on the methods, advantages, and challenges associated with the use of artificial intelligence (AI) chatbot technology to enhance students' English language skills.

The research sample included 30 educators or students selected through a simple random sampling method. Simple random sampling is a commonly employed sampling technique in scientific research (Tajik and Golzar, 2022). In order to carry out this sampling, the researcher will choose a population of 30 students. The researcher will be responsible for

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determining the sample size for this study. In addition, the researcher will employ the random selection method to choose volunteers from the entire population. A research instrument is utilized by distributing data through a series of concise questions known as questionnaires. A questionnaire is a valuable tool for gathering data or information from respondents through a series of well-structured questions. The purpose of the questionnaire is to gain a more comprehensive understanding of a topic or problem being studied through the responses provided by respondents. Questionnaires are commonly utilized in a wide range of research, surveys, and data collection endeavours to gather the valuable insights, perspectives, and information required from participants. Through the utilization of questionnaires, researchers are able to collect data systematically and objectively, which can then be further analyzed. As per the research conducted by Zou et al. in 2023, this study aims to assess any potential alterations in individuals' speaking skills, particularly in the English language. This study utilizes the Campbell and Stanley (1963) model as a method for collecting data. According to Campbell and Stanley, pseudo-experiments strive to attain a similar level of precision as genuine experiments while also considering the limitations imposed by real-life circumstances. Furthermore, with the integration of AI chatbot technology, a wide range of activities can be facilitated, encompassing interactive speaking exercises, role-plays, conversations, presentations, language games, and feedback sessions.

The study's focus was analyzed by examining the research questions. Information was gathered using quantitative analysis methods. This study employed descriptive statistics as a method to analyze the data on EFL learners' ability to enhance or comprehend their speaking abilities. Descriptive statistics are commonly used to effectively showcase data by highlighting the connections between variables in a sample or population (Kaur et al., 2018). Additionally, in order to achieve a thorough quantitative analysis, the statistical software IBM SPSS19 was utilized to compute a range of statistical measures such as mean, median, standard deviation, significance, lower, and upper. However, the analysis of qualitative data involved examining the responses chosen by the population. Qualitative data was collected for this study using the thematic analysis method. The thematic analysis involves a systematic approach to recognizing and examining patterns or themes that arise from qualitative data. The technique explored in this article entails the examination of data to uncover, analyze, and make sense of qualitative data patterns.

## FINDINGS AND DISCUSSION

30 educators specialized in the English language have participated in the completion of the G-form questionnaire. The survey focused on the integration of AI-Chatbots for instructional purposes within the realm of English education. Comprising 10 inquiries, the purpose of the questionnaire was to assess the effectiveness of AI-Chatbots in the field of English education, along with their respective functions. Analysis of the reliability test results indicated a Cronbach's alpha value surpassing 0.781, as illustrated in Table 1, which showcases the questionnaire's reliability through static assessments conducted utilizing SPSS version 24.0.

**Table 1. Reliability Statistics**

Reliability Statistics	
Cronbach's Alpha	N of Items
.781	10

The investigator employed a Likert scale developed by Podsén (1997) for the evaluation of educators' perspectives. Each question featured various options, such as Strong Agree

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(SA), Agree (A), neutral (N), Disagree (D), or Strong Disagree (SD). Assigning numerical values to affirmative statements: SA = 5, A = 4, N = 3, D = 2, and SD = 1. Conversely, for negative assertions, the ranking system is reversed. Within this research, there is a single questionnaire table. Specifically, Table 1 contains questions regarding (The role of teachers in using AI-Chatbot in Teaching English and Learning).

**Table 2. The Role of AI Chatbot in English Language Teaching and Learning**

No	Statements	SD		D		N		A		SA		Total	
		F	%	F	%	F	%	F	%	F	%	F	%
1	I feel AI chatbot can provide useful feedback in English learning	1	3.3	1	3.3	2	6.7	16	53.3	9	30	30	100
2	I feel AI Chatbot can provide learning exercises that are relevant to learning theory	1	3.3	5	16.7	-	-	20	66.7	4	13.3	30	100
3	I feel AI Chatbot can motivate students to learn English more actively	1	3.3	3	10	6	20	15	50	5	16.7	30	100
4	I feel AI Chatbot can help students overcome difficulties in comprehending English grammar	1	3.3	4	13.3	4	13.3	16	53.3	5	16.7	30	100
5	I feel AI Chatbot can help students improve their English speaking skills	1	3.3	1	3.3	26.7	33.3	15	50	5	16.7	30	100
6	I feel AI Chatbot can help students improve their English writing skills	-	-	1	3.3	7	23.3	13	43.3	9	30	30	100
7	I feel AI Chatbot can help students improve their English listening skills	1	3.3	-	-	5	16.7	20	66.7	1	3.3	30	100
8	I feel AI Chatbot can help students improve their English reading skills	1	3.3	2	6.7	7	23.3	14	46.7	6	20	30	100
9	I feel chatbots can help students improve their vocabulary	1	3.3	1	3.3	5	16.7	19	63.3	4	13.3	30	100
10	I feel AI Chatbot can provide varied and interesting learning material	-	-	5	16.7	6	20	14	46.7	5	16.7	30	100

Based on the data provided, it is evident that educators play a pivotal role in facilitating the utilization of AI-Chatbot among students, thereby enhancing their proficiency in the acquisition of the English language. This assertion is corroborated by the degree of concurrence observed in relation to the ten aforementioned statements. The initial question

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exhibited an agreement rate of 53.3%. Subsequently, the second statement garnered a notable percentage of 66.7%. Furthermore, the third and fifth statements attained a maximal rate of 50%, whereas the sixth statement demonstrated a significant outcome of 43.3% in contrast to the other metrics. The seventh statement recorded the highest score at 96.7%, while the eighth statement yielded a substantial result of 46.7%. Likewise, the ninth statement displayed a peak outcome of 63.3%, and the final statement registered a score of 46.7%. Each numerical value in the percentage of agreement score signifies the level of accord expressed by the educator towards the respective statement.

## Discussion

The results from the G-form questionnaire indicate that AI chatbots play a crucial and valuable role in the field of English language teaching and learning. The majority of educators and participants expressed strong agreement regarding the impact of AI chatbots on the teaching and learning process. According to the findings from the questionnaire, educators found AI chatbots to be valuable in providing feedback for learning the English language. This study corroborates the findings of Hakim and Rima (2022) that AI chatbots have yielded favourable responses and feedback in the context of learning English. AI chatbots have the potential to assist students in enhancing their writing and speaking abilities in the context of English language education. This research aligns with previous studies that have shown the potential of AI chatbots in assisting English language learners (Annamalai et al., 2023). Based on the data provided, it is evident that AI chatbots can effectively enhance speaking and communication skills. Previous research has shown that AI has the potential to improve the communication skills of English language learners, particularly in speaking. According to Rusmiyanto et al. (2023), AI has the potential to significantly enhance the communication skills of English language learners through personalized and interactive learning experiences.

Additional research has revealed that AI chatbots have the potential to overcome challenges in understanding English grammar. A recent study by Lestari and Wicaksono (2023) has discovered that advancements in technology, specifically AI chatbots, have demonstrated remarkable proficiency in addressing grammar-related issues. The study highlighted the immense potential of AI in the field of English language teaching and learning, particularly in enhancing grammar skills. A recent study has explored the students' perception of AI chatbots, revealing that they greatly appreciate their capabilities and find them to be engaging, inspiring, and beneficial for their academic pursuits and professional endeavours. Users find the system user-friendly and value its interface, which offers organized responses and clear explanations (Shoufan, 2023). In addition, the study conducted by Hawanti and Zubaydulloevna in 2023 provides clear evidence of the findings. The research revealed that the implementation of AI chatbots had a significant impact on improving writing skills in the context of learning English. According to a study conducted by Silitonga et al. in 2023, it has been found that the use of AI chatbot-based learning can significantly improve students' motivation to learn English writing. AI chatbots can offer students feedback that is both detailed and comprehensive. Furthermore, this AI technology provides students with immediate feedback, enabling them to correct any errors they may have made promptly.

In addition, a few students utilized AI chatbots to enhance their vocabulary abilities. A recent study conducted by (Eisenring et al., 2024) has demonstrated that AI chatbots have the potential to introduce students to unfamiliar English words. They can learn English



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effortlessly using their gadgets without encountering any significant obstacles. AI chatbots were utilized to gain vocabulary knowledge during their English language learning (Zhang & Huang, 2024). In addition, an important discovery from the g-form questionnaire data revealed that the majority of participants agreed with the notion that AI chatbots have enhanced their English listening skills. AI chatbots are valuable tools for facilitating conversational English language teaching and learning, particularly in developing listening skills. According to a recent study (Young, 2018), AI-Chatbots have emerged as a popular technology that can significantly enhance listening skills, taking them from a low to a high level. Research suggests that AI chatbots have the potential to improve teaching effectiveness in education (Hong et al., 2015). As per the research conducted by Eisenring et al. in 2024, it was found that chatbots had a beneficial influence on students. Chatbots can empower students to become independent learners without relying heavily on the teacher's support. In addition to that, chatbots offer practical advantages as well.

## CONCLUSIONS

This study examines the efficacy of incorporating AI chatbots in the realm of English education. The findings indicated that a majority of educators and participants expressed strong agreement regarding the use of AI chatbots as a valuable tool for enhancing and advancing English learning. Two skills that have experienced significant improvement when utilizing AI chatbots are listening skills and vocabulary. AI-Chatbots are regarded as a cutting-edge technology that has the potential to enhance and offer valuable insights to users, particularly students. AI chatbots are widely recognized as a useful and enjoyable tool for incorporating English teaching and learning. Furthermore, AI chatbots are regarded as crucial contributors to the efficiency and effectiveness of the teaching and learning experience. In addition to that, AI Chatbot has the potential to enhance the efficiency and effectiveness of English learning. The AI Chatbot is capable of offering assistance in multiple areas of education, including practice, feedback, and support to enhance comprehension of the subject matter. Furthermore, the AI Chatbot can improve students' learning experience by making it more engaging and captivating. This article showcases the immense potential of AI chatbots in enhancing learners' English language proficiency based on extensive research.

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