



Optimizing The Use Of Artificial Intelligence In English Language Learning: A Literature Review

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Info Artikel

Masuk:

25 Januari 2024

Diterima:

30 Januari 2024

Diterbitkan:

08 Februari 2024

Kata Kunci:

Artificial intelligence,
Learning,
English,
Application,

Abstract

This research aims to explore and analyze applications of artificial intelligence (AI) in English language learning, focusing on tools such as ChatGPT, ELSA Speak, and Perplexity. The literature review involved a library research method to synthesize findings from various sources. The results identified a significant range of AI applications in English language learning, including conversational interaction, presentation creation, illustration tutoring, individualized tutoring, material creation, illustration creation, and voice generation technologies. The findings underscore the potential of AI to improve the interactivity, personalization, and efficiency of English language learning. Suggestions for future research include continued research on long-term efficacy, ethical considerations, equitable access, integration with traditional methods, and user experience. This research is vital in bringing an in-depth understanding of the transformation of language learning through the utilization of AI technology.

INTRODUCTION

Technological improvements in recent decades have brought about a significant revolution in the field of education. Integrating technology in education can increase motivation and understanding, leading to better learning outcomes and improved teaching effectiveness (Afendi et al., 2022). In particular, Artificial Intelligence (AI) technologies in the near to medium term have the potential to enrich student learning and complement the role of teachers (Reiss, 2021). AI technologies are anticipated to provide a more adaptive approach to learning. This will provide a learning experience that is tailored to the individual needs of each student. This is similar to the claim Yahya et al., (Yahya et al., 2023) that AI can be used for developing adaptive learning systems that can customize teaching materials and methods based on students' individual abilities and preferences.

Technology development in education is not just about utilizing tools and platforms, but also creating fundamental transformations in the way we teach and learn. Along with these developments, it is important to deepen our understanding of the impact of AI technologies on the education ecosystem. By leveraging AI, teachers can manage data more efficiently, deliver differentiated learning, and provide effective feedback to students (Mambu et al., 2023). This enables the adoption of more targeted and responsive strategies. With a more accurate understanding of each student's needs and potential, educators can develop more accurate learning strategies about each student's needs and potential so that teachers can develop specific customized learning plans. This creates a more relevant and meaningful learning experience. In addition, the fast response of AI technologically enables dynamic adjustments to changes in student needs and progress, creating a more efficient learning ecosystem.

AI technology serves as both an interactive learning companion and a tool for support during the learning process. AI is able to determine every student's strengths and shortcomings by offering solutions for adaptive learning (Ronsumbre et al., 2023). This leads to more effective personalization of education. In this phenomenon, a good collaboration between teachers and AI technology creates a holistic learning atmosphere and ecosystem to improve the overall quality of teaching. For example, in English language learning, AI technology can identify the level of speaking, listening, writing and reading skills of each student individually. With this information, the AI learning platform can create a learning program tailored to each student's specific skill level and needs. A student who may have reached a higher level of proficiency in speaking skills can be given challenging tasks or materials to improve.

Examining how AI technology can be used in the real-world context of learning English is crucial. How can AI be used to design engaging learning materials, support the development of English language skills, and improve students' understanding of grammar? In order to obtain a better understanding of how AI technology may be optimized to enhance the quality of English learning, this research will focus on these questions. Although AI technology presents opportunities for innovative educational approaches, it is crucial to recognize potential obstacles and difficulties. Muttaqin et al says that it's critical to be aware of the limits and challenges that come with utilizing these technologies (2023). Concerns

about data privacy, dependence on technology, and the development of pedagogical skills appropriate to the digital age will be aspects that need to be addressed. Therefore, this research will also address these aspects, providing a comprehensive overview of the implementation of AI technology in the context of English language learning.

Literature Review

In the discipline of computer science, artificial intelligence (AI) focuses on creating computer systems and programs that can imitate and carry out acts that demonstrate human intellect (Jaamaluddin & Sulistyowati, 2021). Even now, artificial intelligence is still developing quickly and is becoming more and more important in many facets of society as a result of the development of dependable and clever computers. This technology uses system data analysis and utilization to make decisions (Lubis, 2021). Artificial intelligence involves the processes of learning, thinking, and self-correction. This procedure is comparable to human decision-making, which involves analysis for reaching a judgment.

Jaamaluddin & Sulistyowati (2021) stated that study and application of artificial intelligence (AI) has multiple goals. The following are these goals:

1. AI is anticipated to be used in applications or robots that can support human operations in a manner similar to that of a human.
2. Practical applications of this technology are anticipated, such as intelligent calculators that facilitate rapid computation times for people.
3. It is envisaged that artificial intelligence will make the machine smarter than it was.
The types of AI applications according to (Jaya et al., 2018) are as follows:
 1. Military intelligence analysis
 2. Computer program analysis
 3. Disease diagnosis
 4. Game playing
 5. Control and retrieval of video disk information
 6. Robot control
 7. Computer configuration
 8. Intelligent data management
 9. Weapon control management
 10. Chemical compound forecasting
 11. Natural language system
 12. Office automation system
 13. Computer operator expert system
 14. Hardware repair expert system
 15. CAD/CAM design and manufacturing system
 16. Speech system

METHODS

The researcher describes the approach that this investigation will take. A framework known as methodology is employed by researchers to direct the gathering, processing, and presentation of data.

Research Design

A study can be classified as library research in terms of data collecting if the information and resources required are found in libraries and include printed or digital books, dictionaries, journals, encyclopaedias, documents, and magazines. (Harahap, 2014). This approach will involve the analysis and synthesis of relevant literature to gain in-depth information and understanding on optimizing the use of artificial intelligence in learning. Library research was chosen as it allows researchers to compile a comprehensive review of the topic, integrating findings from various literature sources to build a strong theoretical foundation.

Object Of Research

The object of this research is relevant literature that discusses various facets of AI application in the context of learning English. This literature collection consists of books, papers, scientific journals, and other literary sources that are pertinent to the subject of the study.

Data And Data Source

The data for this research has been obtained from digital and print literature. The main data sources are scientific articles, books and publications related to artificial intelligence in English language learning. The data includes theories, models, research findings, and expert views relevant to the research objectives.

Instrument

The main instrument in this research is literature analysis. The researcher will use critical analysis skills to evaluate and synthesize information from the collected literature. The use of this instrument will help build a clear and holistic picture of the development and implementation of artificial intelligence in English language learning.

Data Collection Steps

There are several steps of data collection in this research. The following are the steps of data collections:

1. Identifying relevant literature related to the use of artificial intelligence in English learning.
2. Selecting the most relevant and qualified literature to build the theoretical basis.
3. Reading and extracting relevant information from the selected literature.
4. Document key information, such as relevant findings, theories and models.
5. Organizing the data for easy access and use during the data analysis process.

Data Analysis

This study involves multiple stages of data analysis. The steps involved in data analysis are as follows:

1. Analyse the theories underlying the use of artificial intelligence in English learning.
2. Synthesize the findings from the collected literatures.
3. Classify and categorize the information according to key themes and concepts.
4. Identify patterns or trends that emerge from the analysed literature.

FINDINGS AND DISCUSSIONS

Implementation of AI in English language learning

Literature on the use of artificial intelligence (AI) in English language learning reveals several prominent theories, each demonstrating different types of AI in enhancing the educational experience.

Interactive Conversation Assistant

Education has been greatly impacted by technological advancements, particularly in the area of artificial intelligence. Natural language processing (NLP) technology is used by intelligent computers like ChatGPT, which can simulate human speech (Setiawan & Luthfiyani, 2023). The advantages of ChatGPT are not only limited to its ability to communicate, but can also be utilized to produce scientific writing by using effectively formulated initial prompts (Setiawan, 2019). Teachers today have easy access to technology, which makes their jobs easier to do (Arbi et al., 2023). One implementation of AI technology that can be utilized by educators is a chatbot, which is a computer program designed to interact with users through conversation (Setiawan & Luthfiyani, 2023), an intelligent machine that can provide assistance in understanding and practicing English (Aulia & Wijirahayu, 2022). By using chatbots such as ChatGPT, students can gain convenience in the English learning process. Interaction with chatbots can help improve English language skills in a practical and interactive way, providing students with a more interesting and efficient learning experience. One of ChatGPT's advantages is its versatility, as it can be used for a wide range of jobs and situations, from general inquiries to more specialized subjects (Fahada et al., 2023).

As a chatbot, ChatGPT has unique capabilities in assisting the English learning process. In the context of English learning, ChatGPT can act as a virtual assistant that provides assistance in grammar comprehension, vocabulary, and speaking practice. In addition, this AI can also be an instrument for developing writing creativity, improving vocabulary, simulating actual conversations, enriching literature, and providing additional information. English teachers can utilize ChatGPT as a tool to provide additional explanations, answer students' questions, or provide language exercises tailored to their level of understanding. The speed of response and availability of this AI makes it an effective partner in enhancing interactivity in the English classroom. It can also be used by teachers and educators to paraphrase their writing and provide reading materials so that it can be a partner when improving reading skills. This AI has the ability to review student writing.

An example of ChatGPT's implementation in the English teaching and learning process engages students in text-based conversations with ChatGPT. Students can practice making sentences, ask word meanings, and get instant grammar suggestions. Teachers can also use this AI to help create their learning administration. Teachers can also utilize this technology to write materials, reading materials, and create quizzes. Thus, the use of ChatGPT in the context of English learning provides an innovative alternative and supports individualized student learning.

Tools for Effective Presentation

In English learning, presentation is one of the effective ways to convey knowledge dynamically. Utilizing artificial intelligence in presentation making helps students and teachers to create educational and interesting materials more efficiently. One AI that is very useful as a presentation-making tool is Tome App which can be accessed by link (<https://tome.app>). This AI technology, as a visualization tool, has the ability to generate presentations. Tome App is an efficient solution in writing English subject assignments, assisting in the creation of informative, efficient, and accurate presentations. The advantages of this AI include the acceleration of data visualization creation and data customization, making it very supportive of the English learning process, both teachers and students.

A Personal Guide to English Language Learning

According to some literature, learning English can be made more effective with the help of AI technologies such as ELSA Speak. This app focuses on improving English-speaking skills, making it an essential tool for learners seeking individualized guidance. ELSA speak can be categorized as an English learning app that uses AI technology, so this app allows students to learn English according to their abilities and needs. The app has menus such as daily lesson practice, speech enhancement, and learning by needs. The app has capabilities including analysing speech, creating lesson sets, having a dictionary feature (meaning finder), finding relevant English lessons, providing a coach or tutor, providing interactive and fun game features, and having the skill of measuring students' abilities.

With the ability to analyse speech, ELSA Speak can provide very specific feedback regarding pronunciation and intonation, helping students improve their speaking skills. With the help of speech recognition technology, Thanks to its over 95% mispronunciation detection rate, ELSA can help users improve and correct their English pronunciation (Luu et al., 2021). In addition, the app can create customized learning sequences according to the needs and skills of each student so that it supports teachers in the process of creating differentiated learning. The dictionary feature is a significant addition to the app. Students can access words that are difficult for them and understand the context in which they are used. Thus, this has the potential to enrich students' English vocabulary.

ELSA Speak also has their excellent Tutor feature. The presence of this feature gives a personalized dimension to learning. With the help of a trainer, students can get more advanced guidance in the process of learning English. ELSA Speak also provides fun and interactive games. This feature not only makes the learning process more entertaining but also improves students' learning ability. With a fun approach, students can be more motivated to continue honing their English skills. In addition, ELSA Speak's ability to measure students' proficiency is an effective evaluation tool. With skill measurement, students can see their progress over time, motivating them to continue improving their English skills. These capabilities can be the attraction of ELSA Speak as an English learning application with AI technology. To strengthen the theories about the advantages of ELSA features, research conducted by (Anes et al., 2023) revealed that students have given positive responses to the use of ELSA Speak media.

Tools for Educational Material Creation

In the context of academic assignment writing, the utilization of artificial intelligence improves the efficiency and improvement of the quality of the work (Akhyar et al., 2023). Teachers are responsible for creating optimal learning materials, and with AI, this task can be completed more efficiently, positively impacting the quality and meaning of the learning materials produced. One AI that can help with writing material is Perplexity, which can be accessed on the page (<https://www.perplexity.ai>). This AI is a chatbot and search engine that can be used to find comprehensive answers and a high level of accuracy. In the context of creating English materials, teachers can utilize this application to find information related to English learning materials because this AI provides precise and accurate information. The information provided by this search engine comes from credible sources. Teachers are also given direct access to reference links that support the information provided by this search engine. Thus, Perplexity is an effective solution in supporting the process of preparing English learning materials.

AI in Educational Illustration Image Creation

In the context of English education, the presence of AI has a positive impact, especially in creating illustrations easily, quickly, and effectively. The use of images in teaching, especially in English learning, can be a powerful tool to encourage students to understand concepts visually (Elizar, 2022). One of the AIs that can be used to generate images from written descriptions. This means that Bing Image Creator can be an innovative solution with its ability to generate images. As an example of its implementation in English learning, teachers can create illustrations of images of objects, animals, buildings, or tourist attractions that students are required to describe using English descriptions. Bing Image Creator can also generate illustrative images that visualize the meaning of words or phrases.

These illustrative visuals are made possible by the application of AI, which enhances the learning resources and gives students a more dynamic and engaging learning experience. Students can view concepts in English as visual aids. This has the potential to strengthen their understanding of the learning material. Thus, the implementation of AI technology such as Bing Image Creator can be an essential aspect in improving the quality of English learning in educational environments.

AI Text-to-Speech or Speech Generator

In the era of digital learning, the application of AI Text-to-Speech (TTS) or speech generator technology is an innovation that has the potential to increase the effectiveness of English learning. Written language can now be translated into sounds with vocals and natural intonation thanks to technology. This tool will help students understand and absorb the subject matter better. The application of AI can help students improve their ability to listen and understand English, along with developing their speaking and pronunciation skills. Teachers can also be helped by the presence of this AI because they can create listening exercises by utilizing the capabilities of text-to-speech technology. For example, the use of AI Text-to-Speech can be combined with written text of English subject matter to create a more immersive learning experience. Students can listen to correctly spoken text and gain a better understanding of pronunciation and intonation. This helps improve listening skills and build connections between written words and their pronunciation, creating an interactive and inclusive learning environment.

In this context, the application of the Text-to-Speech solution to improve English language learning comprehension has a positive effect and shows improvement (Manu & Masan, 2020). This finding provides a strong foundation to appreciate the positive impact of utilizing AI in improving students' comprehension of English. By providing a more dynamic and inclusive solution, this technology can assist students in achieving higher levels of English language skills effectively and efficiently. Elevenlabs is one of the AI Text-to-Speech platforms. It can be accessed at (<https://elevenlabs.io>)

Discussion

The findings reveal a comprehensive landscape of AI Application in English language learning, aligning with prior research on the substantial benefits of artificial intelligence in education, particularly language instruction (Subiyantoro et al., 2023). This discussion interprets the data, draws comparisons with previous studies, outlines the implications of the research findings. The identified AI tools, including ChatGPT, Tome App, ELSA Speak, Perplexity, Bing Image Creator, and Text-to-Speech technology, underscore the versatility and impact of AI in English language learning. Subiyantoro's (2023) assertion regarding the profound benefits of AI in language education is validated through the various application explored in this study. These AI tools offer innovative solutions, enhancing different facets of the learning process.

The continuous emergence of AI Applications, as observed in the identified tools, resonates with Subiyantoro's perspective on the boundless opportunities AI creates for educators and students. The tools discussed demonstrate the evolving nature of AI in providing diverse resources for English language learners. This aligns with the notion that AI's adaptive capabilities cater to the dynamic needs of education, offering new possibilities for instruction and learning. The ability of AI to assist in instant problem-solving, particularly in language learning challenges, aligns with Subiyantoro's (2023) observation. Tools such as ChatGPT and Perplexity serve as immediate resources for answering questions, providing explanations, and aiding in the creation of learning materials. This real-time support contributes to the effectiveness of AI as an on-demand education tool.

The broader impact of AI on education, as noted by (Manongga et al., 2022), encompasses management, teaching, and learning. The findings of this study corroborate the transformative influence of AI on the educational landscape. From interactive conversation assistants to materials creation tools, AI is demonstrated to significantly affect various aspects of language education. The implications extend beyond language learning, indicating a broader integration of AI educational practices.

While the previous studies provided general understanding on AI's benefits in language education, the current study delves into specific AI applications, showcasing their practical implications in the English language learning context. The tools discussed offer tangible examples of how AI can enhance interactivity, personalization, and efficiency in language instruction.

The implications of these discoveries highlight how AI has the ability to revolutionize language instruction today. The AI applications that have been identified provide educators and students a range of tools to enhance learning outcomes. Research must continue as AI technologies advance in order to investigate long-term efficacy, handle potential problems, and provide fair access in a variety of learning contexts. In addition, to protect data privacy and encourage the appropriate use of AI, ethical issues surrounding its application in education need to be continuously addressed. Subsequent studies may concentrate on the long-term effects of AI applications, adding to the increasing corpus of information regarding AI's function in language instruction.

CONCLUSION

In conclusion, this research illustrates the great potential of utilizing artificial intelligence in English language learning. Based on the findings, AI implementations such as ChatGPT, ELSA Speak, and Perplexity proved their success in improving interactivity, personalization, and efficiency of English language learning. This supports previous research findings on the benefits of AI in education, particularly language learning. Therefore, the application of AI in this context opens up new opportunities for educational innovation. The continuous evolution of AI applications is in line with the growing opportunities for educators and students in the realm of digital education. The implementation of the AI tools identified in this study has shown potential in addressing various aspects of English language learning.

For future research, it is recommended to explore the long-term efficacy of artificial intelligence (AI) applications in English language learning to evaluate the sustainable impact. Further examination of ethical considerations, such as data privacy, technology dependency, and pedagogical skill development, is warranted. In addition, research could focus on strategies to ensure equitable access to AI-enhanced language learning resources, particularly across different educational settings and taking into account diverse student demographics. It is also important to investigate how AI tools can complement and integrate with traditional teaching methods, creating a balanced and effective language learning environment. Finally, conducting studies to understand the user experience and satisfaction levels of students and educators when using AI tools in the context of Language learning can provide valuable insights.

ACKNOWLEDGEMENT

This research would not have been possible without the support of various parties who have made significant contributions. The researcher would like to express his deepest gratitude to all those who have participated in this research, ranging from data providers, input providers, to those who provide moral support.

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