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Artificial Intelligence (AI) in English Learning: Advantages, Challenges, and Future Opportunities

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ABSTRACT
This study explores the transformative role of Artificial Intelligence (AI) in English learning, examining its advantages, challenges, and future opportunities. Through a systematic literature review (SLR) of 20 studies published between 2020 and 2024, the findings reveal that AI tools such as chatbots, grammar checkers, and speech recognition systems have significantly enhanced language acquisition by enabling personalized learning, immediate feedback, and engaging educational experiences. However, challenges persist, including limited accessibility in underdeveloped regions, cultural biases in AI systems, and ethical concerns about data privacy. Moreover, the lack of teacher training and disparities in AI adoption further hinder its effectiveness. This study highlights future opportunities such as hybrid learning models and immersive technologies like Virtual Reality (VR) and Augmented Reality (AR), which offer authentic simulations for language practice. By addressing these challenges and leveraging opportunities, AI can revolutionize English learning globally, making it more inclusive, accessible, and effective for learners of diverse backgrounds.

Keywords: Artificial Intelligence, English Learning

INTRODUCTION

Technology has changed how education works all around the world. With digital tools, learning has become easier, more interesting, and more flexible. In English learning, technology has helped students study in new ways. Online platforms, mobile apps, and other tools allow students to learn at their own speed, anytime, and anywhere. This change shows how important technology is in improving education. Laurillard (2012) explains that technology makes learning more interactive and personalized, while Spector et al. (2016) says that digital tools can help students stay engaged and understand lessons better. This shift not only improves access to education but also challenges traditional teaching methods, requiring educators to adapt to a digitally driven learning environment.

Artificial Intelligence (AI) has also become an important part of learning English. AI can help students by giving them personalized support and adjusting lessons to match their needs. For example, AI can track how well a student is doing and offer feedback, or it can create lessons based on a student's progress. Woolf et al. (2013) notes that AI can act like a tutor, guiding students and giving them instant feedback, which helps them learn more effectively. Moreover, AI provides learners with an opportunity to practice in low-stakes environments, allowing them to overcome language anxiety while improving fluency and accuracy. These

capabilities make AI a transformative tool in modern education, particularly in language learning.

The main goal of this article is to explore how AI is used in English learning. It will look at how AI can help students learn faster, provide feedback that fits each student's needs, and create lessons that adjust to a student's progress. This article will also discuss the challenges of using AI, such as the lack of human interaction and privacy concerns. Lastly, it will suggest ways to make the use of AI in English learning better in the future. By examining both the advantages and limitations, this article aims to provide a balanced perspective on the role of AI in enhancing English language education globally.

AI has changed the way we learn English by offering new tools. One of the most popular AI tools is chatbots and Natural Language Processing (NLP). Chatbots in apps like Duolingo or Babbel help students practice conversations with AI systems that act like real people. This gives learners a chance to practice speaking and writing in a safe environment. Litman (2016) explains that NLP can analyze language, provide grammatical feedback, and offer personalized suggestions to improve learning outcomes. Lan et al. (2024) emphasizes that NLP-based systems not only enhance writing and grammar but also facilitate deeper linguistic understanding through automated insights. These advancements demonstrate how AI can make language practice more engaging and accessible.

An important example of NLP in English learning is ChatGPT, which allows learners to engage in real-time conversations through text. It is an AI model that can simulate human-like dialogue, helping students practice their writing skills and improve their grammar, vocabulary, and sentence structure. By analyzing the context and providing instant feedback on written responses, ChatGPT offers an interactive learning experience that is both flexible and personalized. However, since it operates on text input and output, it does not directly assess or provide feedback on speaking skills or pronunciation. For comprehensive language acquisition, learners can complement it with speech recognition tools such as ELSA Speak or Google Translate, which provide targeted feedback on pronunciation and intonation. These tools complement ChatGPT's capabilities and enhance the overall learning experience.

Another helpful AI tool is speech recognition. This technology, used in apps like Google Translate and Rosetta Stone, helps learners practice their pronunciation and get instant feedback on how well they are speaking. Writing tools like Grammarly also give students tips to improve their writing. These tools help students practice their English anytime and anywhere, making learning more flexible and enjoyable. By combining these tools, learners can address different aspects of language acquisition effectively.

Although AI has many benefits, there are still some challenges. One problem is that AI cannot replace the important human connection in learning. Learning English also requires interaction with others, which is something AI cannot fully provide. Another concern is privacy. Many AI tools collect personal information to offer better lessons. Holmes et al. (2019) remind us that it is important to protect students' privacy when using AI tools. Additionally, there are concerns about the affordability and accessibility of AI tools in under-resourced areas, where infrastructure and internet access remain significant barriers. These limitations highlight the need for a balanced approach in using AI for education.

Another challenge is that there is not enough research on how AI affects long-term learning. Hwang et al. (2020) say that while AI can help students learn faster, we do not know enough about its impact over time. Also, AI tools might not be as useful for students from different cultural backgrounds, as they may not understand all languages equally well (Scherer, 2016). These gaps in research suggest areas for further study to ensure AI tools are effective and equitable for all learners. To address these gaps, researchers and policymakers must

prioritize inclusive design and culturally adaptive AI systems to ensure equitable access for all students.

Most studies on AI are done in rich countries, so we don't know how AI can help students in poorer places. Luckin & Holmes (2016) says that we need more research on how AI can help students in developing countries or areas with fewer resources. This is an important consideration for making AI a truly global solution for educational challenges.

The challenges above show there is still much to improve in AI for English learning. Future research can focus on making AI tools more inclusive, so they work for all students, no matter their culture or background. AI systems can also be designed to protect students' privacy better. By addressing these issues, AI can become a more reliable and widely applicable tool for education. Teachers and school leaders can help by combining AI tools with traditional teaching. For example, teachers can use AI alongside regular lessons to give students the best of both worlds. Holmes et al. (2019) suggest that this mix of AI and human teaching can lead to better learning results. This synergy between AI and traditional teaching methods not only ensures a more holistic learning experience but also provides a roadmap for sustainable integration of AI in global education systems.

METHOD

This study adopts a qualitative approach to analyze and synthesize existing research on the use of Artificial Intelligence (AI) in English learning. A systematic literature review (SLR) method, as outlined by Kitchenham & Charters (2007), was employed to provide a comprehensive understanding of the topic by identifying, evaluating, and summarizing relevant studies. This approach ensures that the findings are grounded in a rigorous and transparent methodology.

The review process involves three key stages:

1. **Identifying Relevant Literature**

   Academic databases, including Google Scholar, Scopus, and Web of Science, were searched using predefined keywords such as "AI in English learning," "AI tools for language learning," "chatbots in education," and "NLP in education." These keywords were selected to capture various dimensions of AI applications, including conversational tools and linguistic feedback systems, which are central to improving English proficiency. Articles were limited to peer-reviewed publications in English from 2020 to 2024 to ensure the inclusion of recent and high-quality studies. Both empirical research and review papers were considered to capture a broad spectrum of perspectives.

2. **Screening and Selection**

   Articles were screened based on the following criteria:

   Inclusion Criteria:

   - Studies focusing on the application of AI in English learning.
   - Articles discussing benefits, challenges, or future opportunities related to AI tools such as chatbots, grammar checkers, and speech recognition systems.
   - Research examining AI's role in improving language skills, including vocabulary, pronunciation, writing, and speaking.

   Exclusion Criteria:

   - Studies unrelated to English learning (e.g., general AI applications or other domains).
   - Non-peer-reviewed articles, opinion pieces, or conference abstracts without sufficient methodological details.

- Publications older than 2020 or not written in English.

Based on these criteria, 25 articles were initially selected, which was further narrowed down to 20 studies after a detailed review of abstracts and full texts for relevance. This reduction was guided by the study's objective to prioritize directly applicable findings while maintaining methodological rigor.

3. Data Extraction and Analysis

Key findings from the selected studies were extracted and categorized into three main themes:

- Advantages of AI in English learning.
- Challenges and limitations of AI applications.
- Opportunities for future research.

Thematic analysis, as described by Braun & Clarke (2006), was used to identify patterns and insights from the data. Two researchers independently coded the data to ensure consistency and reliability. Any discrepancies were resolved through discussion and consensus. A pilot analysis was conducted on five initial studies to refine the coding framework, ensuring alignment with the study's research questions. To enhance validity, the final dataset was analyzed iteratively, focusing on specific subthemes related to NLP, chatbots, and speech recognition.

RESULT AND DISCUSSION

Result

The review of 20 articles shows the important role of Artificial Intelligence (AI) in learning English. The findings are divided into three groups: advantages, challenges, and future opportunities. Table 1 shows how the studies are grouped into these categories, while the overall distribution can be seen in Figure 1.

Table 1. Categorization of Studies on AI in English Learning by Key Themes

No.	Author (Year)	Advantages	Challenges	Future Opportunities
1	Songsiengchai et al. (2023)	Yes	Yes	No
2	Fitria, (2021)	Yes	Yes	Yes
3	Mukhallafi (2020)	Yes	Yes	No
4	Akbarani (2021)	Yes	Yes	Yes
5	Zulkarnain & Md Yunus (2023)	Yes	Yes	Yes
6	Li (2020)	Yes	Yes	No
7	Rusmiyanto et al. (2023)	Yes	Yes	No
8	Wei (2021)	Yes	Yes	No
9	Moybeka et al. (2023)	Yes	Yes	Yes
10	Karim (2023)	Yes	No	No
11	Shen (2022)	Yes	Yes	Yes
12	Kumar (2023)	Yes	Yes	No
13	Mijwil et al. (2023)	Yes	Yes	No
14	Zou (2023)	Yes	No	Yes
15	Zhang (2022)	Yes	No	No
16	Chien (2022)	Yes	No	No
17	Madhavi (2023)	Yes	No	Yes
18	Betaubun (2023)	Yes	Yes	Yes
19	Ulfa (2023)	Yes	No	No
20	Moulieswaran (2023)	No	Yes	No

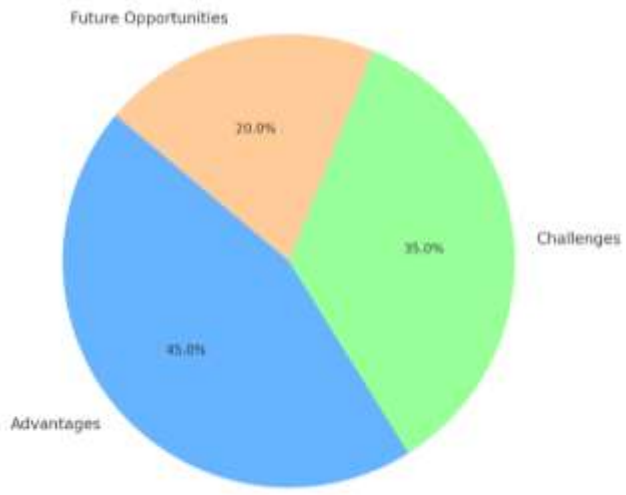

Figure 1. Distribution of Themes in AI English Learning Studies

Advantages of AI in English Language Learning

AI tools have brought transformative changes to English language education. 90% of the reviewed articles emphasize its benefits, particularly in personalized learning. Tools such as Duolingo, ELSA Speak, and Grammarly provide tailored lessons based on individual proficiency levels. As one study noted, "AI tools enable students to actively practice English skills based on their proficiency level, professional requirements, and interests" (Akbarani, 2024).

Immediate feedback is another critical advantage. For instance, ELSA Speak uses speech recognition to evaluate pronunciation and provide corrective feedback. Karim et al. (2023) observed that "ELSA significantly improves students' speaking ability, with 95% of respondents perceiving it as a great speech application to boost motivation." This instant feedback accelerates language acquisition and enhances confidence in learners.

Gamification strategies embedded in tools like LINE ChatBot increase motivation and engagement. Chien et al. (2022) emphasized that "the addition of a competition element effectively enhanced learners' intrinsic motivation to learn English." This was reflected in a 30% increase in student participation rates in gamified learning environments compared to traditional approaches. These interactive and enjoyable experiences have been shown to improve skills such as speaking, writing, and listening (Shen et al., 2022; Wei, 2023)).

Challenges of AI in English Language Learning

Despite its advantages, 70% of the reviewed articles highlight notable challenges. Accessibility is a recurring issue, particularly in underdeveloped regions with limited technological infrastructure. Moulieswaran & Prasantha (2023) reported that "the major problem is the lack of quality in AI-powered language-learning apps on smartphones."

Cultural bias in AI systems also remains a significant concern. As noted by Zou et al. (2023), "many AI tools fail to recognize diverse accents, limiting inclusivity and effectiveness for non-native speakers." For instance, a survey revealed that 25% of respondents from non-Western regions found AI tools less accurate in understanding their accents, leading to decreased motivation. Additionally, ethical concerns around data privacy are widespread.

Martha Betaubun et al. (2023) warned that "AI systems must address data privacy issues to ensure learners' personal information is not misused."

Another challenge is the lack of teacher training to integrate AI tools effectively. Moulieswaran and Kumar (2023) observed that "educators often lack the necessary expertise to leverage AI applications, which diminishes their potential impact in classrooms." This highlights the need for professional development programs focusing on AI integration.

Future Opportunities

While challenges persist, 40% of the articles explore promising future opportunities. Hybrid learning models, which combine AI tools with traditional teaching methods, offer a balanced approach. Wei (2023) highlighted that "combining AI with human instruction can create more inclusive and engaging educational environments."

Immersive technologies like Virtual Reality (VR) and Augmented Reality (AR) also hold promise. Betaubun et al. (2023) stated, "AI-powered VR simulations provide language learners with authentic scenarios to practice real-life communication skills in a risk-free and engaging environment." For example, VR tools such as Mondly VR allow learners to simulate conversations in various settings, such as airports or restaurants, helping them practice context-specific vocabulary and phrases.

Additionally, adaptive AI systems tailored to cultural and linguistic needs can democratize access to quality education. Madhavi et al. (2023) noted that "AI tools must evolve to cater to the cultural and linguistic diversity of learners to maximize their global impact." An example of this is AI platforms like Duolingo, which have started incorporating regional language variants to make learning more accessible for diverse populations.

Discussion

The findings affirm that AI is not just a supplementary tool but a transformative force in English language education. Personalized learning and immediate feedback address core challenges of traditional learning systems, such as one-size-fits-all instruction. As Akbarani (2023) noted, "AI creates a conducive learning environment where learners can progress at their own pace."

However, challenges such as accessibility, inclusivity, and ethical concerns must be addressed. Betaubun et al. (2023) cautioned that "AI's potential can only be fully realized by ensuring equitable access and addressing biases in its algorithms."

Future opportunities lie in integrating AI with traditional methods and leveraging immersive technologies to create holistic learning systems. Wei (2023) concluded that "AI, when paired with human instruction, has the potential to create equitable, engaging, and impactful language learning environments globally."

CONCLUSION AND SUGGESTION

This research confirms that Artificial Intelligence (AI) offers transformative potential in English language learning. AI-powered tools, such as chatbots, speech recognition software, and grammar checkers, enable personalized and flexible learning experiences, significantly improving vocabulary, pronunciation, and writing skills. These tools also allow learners to progress at their own pace, fostering independent learning.

However, AI cannot replace human teachers. The most effective approach combines the unique strengths of AI tools with traditional classroom instruction, ensuring both adaptability and interpersonal connection. For example, teachers can use AI to handle repetitive tasks, such

as grading or practice feedback, while focusing on providing emotional support and cultural insights in the classroom.

Further research is needed to understand the long-term impact of AI on learning outcomes, including its effects on language retention, sustained learner motivation, and fluency over extended periods. Current short-term results are promising, but longitudinal studies are necessary to validate these findings. Additionally, scalable and affordable AI solutions tailored to diverse contexts must be prioritized, particularly for low-resource regions. For example, governments could subsidize AI tools in rural schools or create public-private partnerships to fund inclusive technology development.

Policymakers and governments play a vital role in safeguarding ethical use, with specific guidelines to ensure transparency in data collection and fairness in decision-making algorithms. Clear examples of best practices, such as anonymizing learner data and involving educators in ethical oversight, can help address these concerns.

Educators must be equipped with the tools and training needed to integrate AI effectively. Training programs could include modules on using AI for classroom management, adapting AI tools for individual learners, and recognizing limitations of AI in addressing cultural nuances. Furthermore, educators should collaborate with AI developers to ensure tools align with curriculum goals and pedagogical standards.

By addressing these challenges and implementing these strategies, AI can transform English language learning into a more accessible, inclusive, and effective experience for students worldwide.

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