



Artificial Intelligence (AI): A Review of Its Uses and Impacts in English Language Teaching and Learning

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Abstract— Artificial Intelligence (AI) refers to the imitation of human thought processes by a computer system to behave in a human-like manner. As a key factor of the Fourth Industrial Revolution, AI is transforming education by facilitating more accessible and customized learning experiences. To explore the cause of the rising integration of AI in education, this article analyses the latest literature and AI tools employed in the industry to comprehend the role of AI in English language teaching and learning. This study uses a qualitative research method to collect and analyse fifty citable, recently published scholarly writings available at the Google Scholar database. The data is synthesized and examined through content analysis techniques to summarize and integrate key information for precise and accurate results. The results suggest that AI fosters a supportive environment, provides rich materials according to the learner's proficiency, career goals, and personal interests, significantly upgrading the teaching and learning experience in ELT. Despite its limitations and challenges, the role of AI in education is going to expand with the development of technology offering even more innovative approaches and tools to enhance both teaching practices and learning outcomes in the field of English language education.



Keywords— Artificial Intelligence (AI), AI Applications, AI-powered tools, Digital Learning, Learning English

I. INTRODUCTION

The 21st century has witnessed a crucial advancement in technology and transmitting information through text, images, and sound. Research and experiments are ongoing to develop new technologies that make human tasks and activities easier. Artificial Intelligence (AI) is among the emerging technologies that provide a valuable opportunity to enhance English language skills. With various learning tools available, students can grasp English more rapidly. AI-driven ELT

apps provide students with a diverse range of resources to support their learning. These technologies include tools like Google Translate, Text to Speech (TTS), Orai, ELSA, English ABLE, Chatbots, Duolingo, Neo platform, and others. By employing methods suitable for computers and mobile devices, these intelligent systems can replicate human-like intelligence and decision-making processes.

Artificial Intelligence (AI) is a type of computational creativity that has attracted considerable attention because of its rapid development and advancement (Anantrasirichai

& Bull, 2022). To foster creativity in computers, numerous artificial intelligence technologies have been introduced. According to Rahman and Rahman (2009), Artificial Intelligence (AI) develops software that filters knowledge and performs various autonomous functions, such as computation and student search. Artificial Intelligence (AI) produces "intelligent" technology, such as computer systems (online platforms) and computerized machines (robots) that function and react similarly to the human brain (Karsenti, 2019). Artificial Intelligence (AI), also referred to as Machine Intelligence, is the type of intelligence exhibited by machines that aims to replicate the natural intelligence demonstrated by humans. In other words, AI refers to the integration of human-like intelligence into machines, enabling them to carry out tasks. According to Mehrotra (2019), Artificial Intelligence (AI) is a field of computer science focused on analyzing and developing intelligent machines and applications.

Artificial Intelligence can comprehend certain aspects of human intelligence, including speech recognition, language understanding, decision-making, and visual perception. There is a growing demand for AI to develop expert systems and address complex challenges, such as recognition and natural language processing (Devi et al., 2020). AI as a language tutor provides relentless, personalized training by delivering extensive feedback and scaffolding activities essential for achieving fluency, all in a low-pressure environment where learners feel more comfortable taking risks and making mistakes (Fitria, 2021). The significant promise of AI is its potential to accelerate the development of language skills.

Artificial Intelligence—which includes machine learning, intelligent search, and natural language processing—can effectively advance the reform of English teaching and learning (Wang, 2019). According to Ribeiro (2020), Artificial Intelligence in English Language Teaching (ELT) offers the most practical and effective approach for English language teachers to incorporate into their teaching practices. English is a widely spoken language that follows a structured grammatical framework. Therefore, ESL/EFL (English as a Second/Foreign Language) students often find it extremely difficult to master English language.

Walker et al. (2007) emphasized the significance of utilizing AI applications to create written texts, enhance students' abilities in sentence construction and text development, and practice writing and reading skills. Similarly, Lotze (2016) noted that using AI applications aids in the development of English language skills and communication abilities through the use of intelligent dialog boxes. Mukhallafi (2020) cited that language

development processes are enhanced by various intelligent resources, including dialog and discussion windows, communication tools, text generation programs, and information extraction tools. These resources contribute to the development of reading comprehension skills.

II. METHOD

This section outlines the methodologies used in the current review of the relevant literature. It covers the research design, including the sampling of research materials, data collection methods, and data analysis procedures employed in synthesizing the review.

2.1. Research design

The current study uses a qualitative research design, specifically content analysis, to find out the uses and impacts of AI in teaching and learning English. Content analysis is defined by Fraenkel et al. (2011) as the study of any written material found in books, essays, newspapers, novels, articles, recipes, music, political speeches, ads, and images. Therefore, the review of literature in this paper is based on recent research articles and academic sources, as the researcher synthesizes relevant information from these sources to find out the results of this study.

2.2. Research materials sampling

The articles for the literature review were gathered from the Google Scholar database, focusing specifically on recently published and citable documents. A systematic search strategy was used in the month of July to August 2024 to collect research papers, relevant scholarly articles, conference presentations, and other academic sources. Fifty scholarly publications were chosen based on specific criteria, with a focus on titles related to the use of Artificial Intelligence in English language teaching and learning. The summary (abstract), results, and conclusion of each article were reviewed to select those that met the criteria of the investigation.

2.3. Data collection procedures

The data collection technique used in this investigation is documentation, which involves gathering information on relevant topics or factors from books, journals, research articles, and other academic sources to evaluate the concepts and hypotheses based on the existing literature. Additionally, only articles that provide full papers were selected and carefully read, understood, and interpreted to extract the core content presented by the researchers. From each source, useful information was extracted, such as the author(s), year of publication, study goals, techniques employed, significant results, and implications for teaching and learning English. This

approach ensured that significant insights and findings from each study were thoroughly captured.

2.4. Data analysis

The literature was reviewed using the thematic analysis method to find common themes, developments, and perspectives. Key themes might include the efficiency of AI tools for language learning, the impact of AI on language assessment, and the implications, difficulties, and future prospects. A comprehensive review of the subject was done by applying content analysis techniques, summarizing and integrating the information from the specified sources to get precise and accurate results.

2.5. Precise inclusion and exclusion criteria

A well-defined set of inclusion and exclusion criteria was devised in order to choose pertinent material for the review. The criteria included recently released research works, peer-reviewed materials, English-language publications, and a specific focus on the use of AI in English language teaching and learning with exclusion of articles from newspaper, commercial sites, nonacademic writings, and out dated research findings.

2.6. Critical evaluation

The chosen literature was critically examined in order to determine its quality, accuracy, and relevancy of each source. The evaluation took into account a number of parameters, including the sample size, collection techniques, research methodology, constraints, and the study's overall benefit to the subject.

2.7. Synthesis and interpretation

The results from the chosen sources were combined and analysed to create a rational narrative for the literature review. The review emphasized the most significant findings, arguments, and impacts that come from integrating AI into teaching and learning of the English language.

2.8. Discussion and conclusion

The discussion section offers an in-depth analysis of AI's impact on English language teaching and learning, covering the identified themes, challenges, and potential future directions. The conclusion highlights the key findings, synthesizes the literature, and provides recommendations for future research and practice in the field.

2.9. Limitations and gaps

The limitations of the chosen studies as well as the overall literature review procedure is acknowledged and discussed. The possibility of biases is taken into account, including language and publication prejudice. The

literature's shortcomings are also noted, indicating areas that need more investigation and further study.

III. RESULTS AND DISCUSSION

This section presents the research findings and provides an in-depth discussion based on a thorough study and analysis of the relevant literature in the field.

3.1. Artificial Intelligence in English Language Teaching and Learning

Digital platforms have made learning and teaching English easier, and AI technology now offers opportunities to further enhance English language skills. Combining technology with language literacy is an effective strategy to increase global competency. As a result, applying AI technology would improve teaching and learning of foreign languages (Yingsoon, 2021). According to Mukhallafi (2020), applying AI in the field of education enhances the organization, arrangement, and selection of content. It also broadens instructional methods and educational pathways based on students' proficiency levels. Additionally, it improves instructional strategies and assessment techniques by tailoring self-study processes and emulating intelligent and expert systems as stated by Ghafar et al. (2023).

AI plays a significant role in delivering various types of information and enhances the effectiveness of the English learning process. The availability of diverse learning technologies makes it easier for learners to grasp what the teacher has explained. Students also benefit from the convenience of learning without needing direct interaction with teachers. Some vital roles played by AI in the field of English language teaching and learning are discussed below.

3.1.1. Transforms learning environment

AI transforms English learning environments, making immersion learning possible. Learning becomes more immersive and visually engaging by integrating and processing data such as images, audio, and text within intelligent devices. Through the human-computer interface, students can interact with AI, which boosts the authenticity of language environments. According to Wang et al. (2023), Artificial Intelligence (AI) has the ability to significantly improve adult learners' English proficiency by creating a personalized environment that is tailored to their individual needs, career goals, and language proficiency.

3.1.2. Promotes the efficiency of teaching and learning

AI maximizes the efficacy by providing an authentic conversational platform for teachers and learners

of English. It helps students become more proficient in both written and spoken English as well as in comprehension. Teachers find it convenient to present customized contents with the help of audio-visual aids keeping students active and engaged for a longer time. AI's profound knowledge of the cultures and customs of diverse English-speaking countries can be used to build significant connections with students. By integrating this cultural knowledge into lessons, AI can make learning English more engaging and relatable, which can considerably boost students' motivation and interest in mastering the language.

3.1.3. Develops practical skills

AI helps students develop stronger practical skills in English language learning. To successfully integrate AI into English Language Teaching (ELT), it is essential for both teachers and students to become proficient in using these systems and solving problems quickly. As AI continues to play a larger role in teaching and learning English, it enhances students' and teachers' ability to develop and apply practical skills in real-world scenarios.

3.1.4. Makes learning user-friendly and specific

AI-based educational programs are designed to be user-friendly and tailored to meet the specific needs of learners. These AI-driven teaching tools align the learners' contextual demands with their educational goals, ensuring a more personalized and effective learning experience. Effective English language teaching and learning must be aligned with the learners' precise standards and explicit expectations. If the learners' needs are not taken into account, the teaching process becomes ineffective.

3.1.5. Offers superior content

AI applications offer superior content with unlimited choices in accordance with individual needs and interests. The development of high-quality teaching and learning resources that address all facets of language acquisition—listening, speaking, reading, and writing—is now possible with artificial intelligence.

3.1.6. Provides immediate feedback

AI provides an immediate feedback system, enhancing the language learning process. Various AI-driven models can be developed specifically for learning English, allowing students to receive real-time feedback on their progress. In AI-based educational systems, the technology can be utilized to assess and analyse students' input based on their specific needs. AI can evaluate students' performance comprehensively by grading, providing reviews, cross-verifying information, and delivering in-depth presentations, ensuring that their achievements are measured from multiple perspectives.

3.1.7. Transforms the role of teacher

The teacher's role as a director and guide is transformed by AI-based technology. While it is difficult to completely remove the teachers from the teaching process or replace their role, AI alters how teachers function in English Language Teaching (ELT). Rather than eliminating the teachers' presence, AI shifts their role, allowing them to focus more on guiding and supporting students in a more dynamic and technology-driven environment. Teachers should continue to guide and support students, even with the integration of AI-based applications.

3.1.8. Allows global connectivity

The AI system allows significant global connectivity breaking linguistic and cultural barriers, connecting people worldwide through its digital platform. With so many AI-related educational systems available, students worldwide have endless possibilities to learn and gain new experiences, resolving time and space constraints. It allows remote access using facial identification, voice recognition, and tracking of students' mobility. AI-driven solutions can magnificently monitor and control students' activities globally.

3.1.9. Supports students' learning styles

Students' learning styles are supported by the AI learning platform, which gives them the opportunity to highlight and repeat difficult ideas as well as participate in engaging activities that align with their interests. AI-driven educational apps are developed to facilitate English teaching and learning experience according to the individual needs, learning styles, and proficiency levels.

3.1.10. Delivers customized course materials

AI applications provide customized course materials fulfilling the desires of the learners. Making the learning process more efficient and relevant, the course materials are generally created to target the knowledge and skills that students wish to acquire. With an emphasis on student-centred customization, the courses are tailored to each student's own learning preferences and areas of interest, giving them a more active role in directing their own educational path.

3.2. Challenges and limitations of AI in English language teaching

Although AI plays a significant role in developing and enhancing the teaching and learning of English, it is not without its challenges and limitations. Some crucial factors are outlined below.

3.2.1. Lack of human touch

The absence of human interaction in AI systems is its most significant flaw. Students receive their education through computer-generated content. They cannot feel the close connection a teacher can develop with them in person. They might not receive the comprehensive instruction, feedback, and inspiration that come from a human teacher.

3.2.2. Inaccurate data analysis

The excellence of AI systems is highly dependent on the data they are trained on. If the training data is biased, the AI system is likely to reinforce these biases, producing unfair and discriminatory results. As a result, AI can only be as intelligent or successful as the data you feed it. Therefore, the intelligence or effectiveness of AI can't be achieved without providing perfect, impartial, and accurate data.

3.2.3. Data security and privacy

The issue of data security and privacy is a major concern in delivering relentless, personalized training through AI in education. AI systems need large amounts of data to operate efficiently, including sensitive details about students' academic records, personal information, and behaviour. Therefore, it can't be assured that the given information will remain intact and secured in future and there will be no unauthorized access in the system.

3.2.4. Technical requirements

Another significant barrier to AI integration is technical requirements, particularly in remote or under-resourced areas. Implementing AI technologies typically demands substantial investment in infrastructure, such as high-speed internet, advanced hardware, and continuous technical support. Schools in low-income regions or developing countries may not have access to these resources, putting their students at a disadvantage.

3.2.5. Cultural sensibility

In AI-generated lessons, cultural sensitivity is a major challenge. Cultural differences might not be fully understood by an AI system. It may make comments or use phrases that are appropriate in one culture but considered inappropriate in another. It might have trouble understanding ideas that differ greatly between nations, such as humour or sarcasm.

3.2.6. Ethical concerns

Ethical concerns, for example privacy issues and over-reliance on AI, can hinder students' ability to think critically and solve problems. When students rely on AI-generated answers and solutions, their ability to think judgements and solve problems independently may

decrease over the time. They may face a critical situation due to any breach of sensitive data related to their family, education, or behaviour.

3.3. AI Technologies used in ELT

AI technology is being utilized widely in English Language Teaching (ELT) to help learners by generating coherent, grammatically correct texts, analysing language, and offering remedial exercises. Some of the most important AI technologies used in English language learning are mentioned below.

3.3.1. Google Translate

It is a free tool offered by Google that provides increasingly precise and natural-sounding translations by utilizing cutting-edge natural language processing technology, such as neural networks and machine learning. Students can use it to convert English words, phrases, sentences, and paragraphs into their mother tongue and vice versa. It is a useful free tool for learning correct pronunciation and to verify the spelling of words that appear incorrectly.

3.3.2. Text-to-Speech (TTS)

It is an assistive technology that converts digital text into spoken words. With just a single click or tap, text on a computer or digital device can be transformed into audio using TTS technology. TTS is an excellent tool for both children and adults who struggle with reading. However, it can also help with writing, editing, and staying focused. Nearly all personal digital devices, such as PCs, cell phones, and tablets, are compatible with TTS and any type of text file, including Word and Pages documents can be read aloud.

3.3.3. English ABLE

It is a grammatical assessment-based learning environment that guides instruction from a range of sources (such as formative and summative assessments) by applying assessment expertise (Zapata-Rivera et al., 2007). English ABLE refers to an exam-focused learning environment aimed at helping English language learners (ELLs) master English grammar. Using a TOEFL CBT job library, English ABLE creates fresh sets of better assignments targeted at certain ELL component abilities. Packages designed to help students master various aspects of English grammar are also available in a flexible, scaffolded learning environment.

3.3.4. Orai

It is an AI-powered tool that helps users practicing presentations and receiving immediate feedback on lacking areas for development. Orai is a fun and user-friendly tool that offers a quick, self-guided way to improve public

speaking skills. With the help of Orai students receive immediate feedback on communication metrics such as energy, speaking tempo, energy-enhancing words, facial expressions, clarity, use of pauses, and overall confidence. Based on their communication requirements and goals, students can complete engaging, interactive sessions. According to Suryani et al. (2019), Orai is an app designed to improve students' English speaking abilities.

3.3.5. ELSA

The English Language Speech Assistant (ELSA) is a fun and practical tool designed specifically to help learners improve their English-speaking communication abilities. The AI system developed by ELSA is created with the use of voice recordings of English speakers with different accents. This distinguishes ELSA from the majority of other voice recognition techniques by enabling it to identify the speech patterns of non-native speakers (Tamala et al., 2023). This software assesses pronunciation and fluency and provides quick, in-depth feedback. This makes it possible for students to recognize and pick up the proper pronunciation fast enabling a two-way learning process. For instance, users can pronounce specific English words or sentences, and the system will analyse their speech and offer corrective feedback.

3.3.6. Chatbots

According to Nghi et al. (2019), chatbots is a type of artificially intelligent conversational system that is designed to speak with computers and humans autonomously. Chatbots make learning English more effective and interesting by offering 24/7 accessibility, individualized instruction, immediate feedback, and interactive learning. The basic chatbot function begins with the user's message and the Chatbot, using Natural Language Processing (NLP), interprets the message by referencing the current database (Haristiani, 2019). The use of chatbots as a good learning tool, particularly for learning English, has been revealed by a number of earlier researches like Nghi et al. (2019) and Afrianto et al. (2019).

3.3.7. Duolingo

The most well-known language learning software in the world, Duolingo, is a fun and free tool that offers short, bite-sized language courses in over 40 languages (Shortt et al., 2023). Students might practice speaking, reading, writing, and listening in order to improve their vocabulary and grammar. The customization that Duolingo provides is an additional advantage. With tailored practice and feedback, the platform adjusts to each student's unique learning needs, allowing them to progress at their own pace.

3.3.8. Neo+

It is a tried-and-true learning tool that meets the learners' English-fluency objectives by combining online self-study with one-on-one coaching. Both young learners and adults can use Neo+ to study on their mobile devices whenever they choose, even just a couple of times a week, in short sessions of 30 to 45 minutes. The AI used in the Study Application of Neo+ continuously examines user behaviour and data to deliver content that automatically changes as users advance. Neo+ gives users the same advantage of having a professional personal tutor to help them learn English more quickly. Users can use the powerful speech recognition feature of the Neo+ Study Application to educate themselves to pronounce words correctly until they can speak English fluently (Perez & Triastuti, 2022).

3.4. Gaps and future directions

One limitation of this study is its reliance solely on secondary sources, like published articles and research reports. These sources may contain inaccuracies or misinterpretations, which could unintentionally contribute to the dissemination of biased or incorrect information. Although current research provides valuable insights into AI's contribution to English language learners' skill development, many gaps and opportunities remain for further research. To investigate the long-term influence of AI on language learners' ability, longitudinal research is necessary, even though most studies have focused on the short-term consequences of the technology. Furthermore, additional study is required to determine the optimal methods for using AI technologies into language training. Zhang et al. (2020) stress that in order to optimize the advantages of AI technologies in language learning situations, pedagogical techniques combining AI with successful teaching methodologies must be taken into account.

IV. CONCLUSION

With the rise of digital platform technologies, computers and smartphones have the potential to expand access to a broader global audience and enhance the use of artificial intelligence. In particular, digital learning tools rely heavily on customized content. An adaptive system powered by big data and Artificial Intelligence is now available, allowing us to tailor English learning methods to each user's specific needs and schedules as claimed by Ali (2020). The review underscores the crucial role of AI in language teaching and learning, highlighting its numerous advantages. These findings are valuable for educators looking to incorporate AI into their classrooms.

On the basis of an extensive analysis of the scholarly literature, the current research highlights and recommends the following important points:

4.1. AI technologies, including speech recognition systems and virtual tutors, have proven to be effective in enhancing learners' speaking and pronunciation abilities. Learners who received AI-driven feedback showed marked improvements compared to those who did not as observed by Ahmad et al. (2023).

4.2. Integrating AI into language learning environments brings pedagogical advantages by customizing instruction and fostering learner autonomy. Adaptive learning platforms and AI-powered chatbots deliver personalized feedback, practice opportunities, and individualized learning paths, resulting in greater engagement and improved language proficiency.

4.3. To further address privacy, security, bias, and transparency issues in AI-driven language learning, extensive ethical frameworks and guidelines are required. To protect learners' rights and advance equitable access to high-quality language learning opportunities, it is crucial to ensure the appropriate and ethical deployment of AI technologies as they continue to advance.

4.4. There are still gaps and areas that need to be investigated in spite of the encouraging results. The long-term effects of AI on language learners' competency require longitudinal research. To find the best integration tactics and pedagogical techniques that blend AI with successful teaching methodologies, more research is recommended.

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