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The Impact of Artificial Intelligence (AI) in Effective English Language Teaching

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Abstract

Background: Artificial Intelligence (AI) encompasses a range of technologies that allow computers to carry out various advanced tasks, such as recognizing, interpreting, and translating both spoken and written language, analyzing data, providing recommendations, and more.

Objective: This study aimed to examine the impact of AI on effective English language teaching and its role in the process. The research utilized article analysis and library resources to explore this influence.

Methods and materials: This study is a narrative review in which we analyze 21 scholarly articles to explore the impact of AI in effective English Language Teaching, material development, and learner outcomes. The articles were taken from reliable sources and search engines such as Google Scholar, ERIC, Scimago, JETLEE Journal, etc. It was considered to observe articles that are published in between 2013 – 2024.

Result: Findings reveal that AI's transformative potential through personalized learning experiences facilitated by intelligent tutoring systems and adaptive platforms. Furthermore, AI contributes to the development of innovative and engaging teaching materials.

Conclusion: The study came up with a result that AI significantly enhances ELT, responsible integration requires addressing these challenges to ensure equitable access and ethical implementation, ultimately maximizing AI's benefits for creating a more effective and inclusive learning environment.

Keywords: Artificial Intelligence (AI), Effective, English language teaching, learning, technology.

1. Introduction

Artificial Intelligence (AI) is a set of technologies that enable computers to perform a variety of advanced function including the ability to see, understand, and translate spoken and written language, analyze data, make recommendations, and more. Furthermore, artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Example of AI applications include expert systems, natural language processing, and speech recognition and machine vision. The mentioned AI applications are supportive for the development of English Language materials. English teachers have the open hand to utilize the AI for effective English language teaching process [1].

In the field of education, especially within English Language Teaching (ELT), artificial intelligence is transforming conventional teaching methods and providing creative ways to improve language learning. This introduction paves the way for examining the significant influence of AI in ELT, emphasizing its ability to customize learning, create engaging environments, and cater to the varied needs of students [2].

In the last ten years, progress in AI has led to the creation of intelligent tutoring systems, adaptive learning tools, and natural language processing technologies, all of which hold considerable importance for language education. These AI-powered resources assess extensive data, such as learners' behaviors, preferences, and performance indicators, to provide customized instruction that aligns with each student's learning style and skill level [3].

2. Literature review

The influence of artificial intelligence (AI) on language courses, particularly in the context of English language teaching, is becoming increasingly intriguing and relevant. In recent years, English teachers have observed the impact of artificial intelligence in language courses and how it has transformed how they teach and how students learn. With the rise of AI technology, there has been a shift in the way language courses are approached. Instead of relying solely on traditional teaching methods, AI-based tools have emerged to assist teachers and students in learning [4].

For instance; AI-based tools enable instant feedback and evaluation, giving students prompt guidance on various aspects of language learning, such as grammar, vocabulary, and pronunciation. Through the use of interactive

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chatbots, automated grading systems, and virtual language assistants, AI significantly improves the efficiency and quality of language instruction by offering personalized support and reinforcement tailored to each learner's needs [6].

Beyond offering personalized instruction, AI-based tools facilitate the development of immersive language learning settings that replicate real-world linguistic and cultural experiences. When combined with AI algorithms, virtual reality (VR) technologies allow learners to engage in simulated environments where they can practice speaking, listening, and interacting in English with virtual native speakers. These immersive experiences not only improve language proficiency and comprehension but also promote cultural understanding and enhance cross-cultural communication abilities [7].

Advancements in artificial intelligence (AI) have garnered increased attention due to AI being recognized as a form of computational creativity [8]. Numerous AI technologies have been employed to enhance the creative capabilities of computers.

AI refers to the development of software that performs autonomous tasks, such as computation or information retrieval [9]. Examples of AI-driven "intelligent" systems include online platforms and computerized devices like robots, which are designed to mimic human brain functions and responses [10].

AI as machine intelligence (MI), explaining that it is modeled on natural human intelligence to enable machines to predict and perform intelligent tasks [11]. In essence, AI involves equipping machines with human-like intelligence to execute specific functions [12]. AI is a branch of computer science focused on designing and analyzing intelligent devices and applications, aiming to create machines that can think and act like humans [13]. The core of AI technology lies in its intelligence. Furthermore, AI studies intelligent behaviors in humans, animals, and machines to find solutions to complex problems [14]. As the term AI combines "artificial," which implies imitation rather than falsity, with "intelligence," it is a concept [15]. It is difficult to define but encompasses traits like creativity, self-awareness, reasoning, and emotional awareness [16].

AI's objective is not necessarily to create hyper-intelligent machines but to develop systems that exhibit human-like cognitive abilities. [17]. According to computer system theory, AI can perform tasks that have traditionally required human intelligence, such as speech recognition, decision-making, language comprehension, and visual perception. AI is particularly valuable in areas like expert systems and solving complex problems such as natural language processing and pattern recognition [18].

In language education, AI serves as a tutor, offering continuous, personalized instruction in a low-pressure environment where students feel more comfortable taking risks and making mistakes. This personalized support, combined with abundant feedback and structured activities, is one of AI's most significant benefits in helping learners achieve fluency. However, the integration of AI in ELT is not without challenges and considerations [19].

Issues such as algorithmic bias, data privacy concerns, and the role of teachers in AI-driven learning environments must be carefully addressed to ensure equitable and ethical language instruction. Moreover, educators need adequate support and training to harness the potential of AI effectively and integrate it into their teaching practices. [20].

The impact of Artificial Intelligence on English Language Teaching is deep and complex, offering unprecedented opportunities to enhance language learning experiences and empower learners to achieve proficiency in English language skills. By leveraging AI responsibly and collaboratively, educators can revolutionize language education and prepare students for success in a globally connected world. [21].

Research Questions:

The study suggests answers to the following questions:

1. How does Artificial Intelligence impact in English Language Teaching?
2. How the integration of technology does contribute in developing effective English Language materials?

3. Methods and Materials

Research Design: This scientific article review was conducted using a qualitative approach. It pursued article review methods and came up with a narrative result.

Data collection tools: This study concentrated on reliable related scientific research articles about the Impact of AI in effective English Language Teaching. The articles were taken from reliable sources and search engines such as Google Scholar, ERIC, Scimago. JETLEE Journal and so on. It was considered to observe articles that were published in between 2013 – 2024.

Sampling Method: The study aimed to obtain answer for the research questions through article review. We observed and downloaded various articles from mentioned scientific journals. After that, the targeted data have categorized in to various themes. Consequently, the themes were reviewed profoundly and analyzed the concept to lead and emerge the result. Finally, the information was reported thematically devoid of errors and bias, as far as possible.

Sample Size: We collected at least 50 article about the effectiveness of AI in the process of learning. After close reading and categorizing the articles. We selected 21 relevant articles which will help us getting closer to our aim and to obtain the aimed result.

Data Analysis: We performed a close reading strategy in order to get required data and information to answer the research questions. Note taking, summarizing and paraphrasing were utilized to collect information and it paved the ground for data evaluation and synthesizing. The information analyzed thematically.

Study Setting: This scientific research performed at Kabul University of Medical Sciences "Abu Ali Ibn Sina", Afghanistan. It assisted teachers and lecturers to find out the usage of AI and its impact on developing teaching materials. Furthermore, to see if AI contributes teachers teaching effectively.

4. Result

The findings of this study highlight the transformative role of Artificial Intelligence (AI) in enhancing the effectiveness of English Language Teaching (ELT). Based on the thematic analysis of 21 relevant articles, several key results emerged:

1. Personalized Learning: AI has significantly contributed to the personalization of English language education. AI-powered tools such as intelligent tutoring systems and adaptive learning platforms provide customized instruction tailored to individual learners' needs, preferences, and skill levels. This has enabled students to progress at their own pace and receive targeted support in areas like grammar, vocabulary, pronunciation, and comprehension.

2. Immersive Learning Environments: The integration of AI with technologies like Virtual Reality (VR) has created immersive learning experiences that replicate real-world scenarios. These environments allow learners to engage in interactive and context-based exercises, improving their linguistic proficiency and cultural understanding. For instance, AI-driven virtual language assistants simulate conversations with native speakers, helping students develop communication skills in practical settings.

3. Efficient Feedback and Evaluation: AI tools provide instant and precise feedback on language use, enabling learners to identify and correct mistakes in real-time. Automated grading systems and natural language processing

applications assess students' written and spoken language with high accuracy, offering constructive guidance and reducing teachers' workload.

4. Development of Teaching Materials: AI has played a vital role in the creation of innovative and effective English language teaching materials. By analyzing large datasets, AI algorithms generate content that aligns with students' learning objectives and curriculum requirements. This includes the development of interactive exercises, video-based lessons, and gamified learning modules that make the learning process engaging and enjoyable.

5. Teacher Support and Collaboration: While AI enhances the teaching process, it does not replace the role of educators. Instead, it acts as a supportive tool, assisting teachers in lesson planning, classroom management, and identifying students' learning gaps. Teachers who are trained in using AI tools reported improved efficiency and effectiveness in their teaching practices.

6. Challenges in AI Integration: Despite its advantages, the study identified challenges in incorporating AI into ELT. These include concerns about algorithmic bias, data privacy, the digital divide among students, and the lack of adequate training and resources for educators. Addressing these challenges is essential to ensure equitable and ethical use of AI in language education.

In summary, the results of this study underscore the profound impact of AI on English Language Teaching. AI not only enhances the learning experience through personalization, immersion, and instant feedback but also supports educators in delivering high-quality instruction. However, its integration requires careful consideration of ethical, practical, and technical challenges to maximize its benefits and create a balanced, collaborative teaching environment.

5. Discussion

The findings of this study demonstrate the transformative potential of Artificial Intelligence (AI) in English Language Teaching (ELT), particularly in enhancing teaching effectiveness, supporting material development, and facilitating personalized learning. This discussion explores the implications of these results, evaluates their alignment with existing literature, and highlights challenges that must be addressed for the responsible integration of AI in language education.

Personalized Learning and Individualized Support: One of the most significant contributions of AI is its ability to personalize learning experiences. AI-powered tools, such as intelligent tutoring systems and adaptive learning platforms, tailor instruction to learners' unique needs, allowing them to progress at their own pace. This aligns with studies, which emphasize the role of AI in adapting to students' skills and preferences [13]. Personalized feedback on grammar, vocabulary, and pronunciation fosters targeted improvement, making the learning process more efficient and student-centered. However, the reliance on AI for personalization raises ethical questions regarding data privacy and algorithmic bias. [20]. Ensuring that these tools are accessible and unbiased is critical to their equitable use in diverse classroom settings.

Immersive and Engaging Learning Environments: The integration of AI with immersive technologies, such as Virtual Reality (VR), has introduced learners to interactive, real-world language practice. These AI-driven environments, simulate cultural and linguistic contexts, helping students develop communication skills in practical scenarios [7]. The ability to interact with virtual native speakers or engage in context-based exercises not only improves linguistic proficiency but also fosters cultural competence. This finding underscores the value of AI in bridging the gap between theoretical knowledge and practical application. However, as noted in the results, the adoption of such technologies may be limited by the digital divide, particularly in under-resourced educational settings, which could hinder widespread implementation.

Efficient Feedback and Evaluation: AI's capacity for real-time feedback and evaluation has significantly enhanced the learning process. Tools such as automated grading systems and natural language processing applications provide learners with instant insights into their progress. The studies emphasized how AI reduces teachers' workload by automating routine assessment tasks, allowing educators to focus on more complex instructional activities [6]. However, while AI feedback is highly accurate, it may lack the nuanced understanding and empathy of human instructors, which is essential for addressing learners' emotional and motivational needs. This highlights the importance of balancing AI-driven feedback with human interaction to maintain a holistic approach to education.

Material Development and Teacher Support: AI has proven instrumental in the creation of innovative and engaging teaching materials. By analyzing large datasets, AI algorithms develop interactive exercises, gamified lessons, and video-based content that align with curriculum goals. This not only enhances student engagement but also supports teachers in delivering high-quality instruction. Studies reinforce the idea that AI acts as a collaborative partner, assisting educators in lesson planning and identifying knowledge gaps [11]. However, researchers noted that the successful integration of AI in teaching practices requires adequate training and resources for educators [19]. Without proper professional development, teachers may struggle to harness the full potential of AI, limiting its effectiveness in the classroom.

Challenges and limitations: Despite its numerous advantages, the integration of AI in ELT is not without challenges. Issues such as algorithmic bias, data privacy concerns, and the potential for over-reliance on AI tools must be carefully addressed. For instance, biased algorithms could unintentionally disadvantage certain learner groups, while inadequate data protection measures may compromise students' privacy. Additionally, the digital divide remains a significant barrier, particularly in low-income regions where access to AI technologies is limited. These challenges echo concerns raised by researchers, who stress the need for equitable and ethical AI implementation in education [20]. Addressing these issues requires a collaborative effort from policymakers, educators, and technology developers to ensure that AI benefits all learners without exacerbating existing inequalities.

Implications for English Language Teaching: The study's findings highlight the profound impact of AI on ELT, offering opportunities to revolutionize teaching and learning processes. By leveraging AI responsibly, educators can create dynamic and inclusive learning environments that cater to diverse student needs [21]. However, the successful integration of AI requires a balanced approach that combines technological innovation with human expertise. Teachers remain central to the educational process, providing the empathy, creativity, and adaptability that AI tools lack. Moving forward, institutional support and policy frameworks will play a crucial role in enabling teachers to effectively incorporate AI into their practices.

Future research should explore the long-term effects of AI integration in ELT, particularly in terms of learner outcomes and teacher roles. Additionally, studies examining the impact of AI on equity and inclusion in education are essential to ensure that its benefits are distributed fairly. Finally, as AI technologies continue to evolve, ongoing evaluation and refinement will be necessary to address emerging challenges and maximize their potential in language education.

6. Conclusion

This study concludes that Artificial Intelligence (AI) tools significantly improve learner outcomes by addressing individual needs, providing instant feedback, and creating realistic language practice scenarios. AI offers unprecedented opportunities to revolutionize English language education and empower learners to achieve fluency and cultural competence. Despite

its challenges, AI remains a powerful tool for advancing the field of ELT and preparing students for success in a globally connected world.

Ethical approval

This study has been reviewed and approved by research committee of Afghan Medical Journal of Kabul University of Medical Sciences "Abu Ali Ibn Sina". All procedures were conducted in accordance with the ethical standards outlined in the appropriate guidelines. The study was a qualitative review articles; therefore, plagiarism and documenting the ideas of other researchers without in text and end text citations was intensely avoided.

Declaration of interest

The authors declare no conflicts of interest related to this study.

References

1. Han H. The impact of Artificial Intelligence (AI) and blockchain adoption in corporate governance: ethical perspectives (Doctoral dissertation, Brunel University London); 2022.
2. Peng C, Zhou X, Liu S. An introduction to artificial intelligence and machine learning for online education. Mobile Networks and Applications. 2022 Jun;27(3):1147-50.
3. Wang X, Liu C, Su M, Li F, Dong M. Machine learning-based AI approaches for personalized smart education systems using entropy and TOPSIS approach. Soft Computing. 2023 May 20:1-7.
4. Ahmet C. Artificial intelligence: how advance machine learning will shape the future of our world. Shockwave Publishing via PublishDrive; 2018 Nov 20.
5. Mijwil, Maad M., Omega John Unogwu, and Karan Kumar. "The role of artificial intelligence in emergency medicine: A comprehensive overview." Mesopotamian Journal of Artificial Intelligence in Healthcare 2023 (2023): 1-6.
6. Farooq MW, Nawaz F, Sabir RI. To Gain Sustainable Competitive Advantages (SCA) Using Artificial Intelligence (AI) Over Competitors. Bulletin of Business and Economics (BBE). 2024 Jun 1;13(2):1026-33.
7. Joshi AV, Joshi AV. Introduction to AI and ML. Machine learning and artificial intelligence. 2020:3-7.
8. Cheng SM, Day MY. Technologies and applications of artificial intelligence. InProceedings of 19th International Conference 2014 (pp. 21-23).
9. Sarker IH. AI-based modeling: techniques, applications and research issues towards automation, intelligent and smart systems. SN Computer Science. 2022 Mar;3(2):158.
10. Perez JA, Deligianni F, Ravi D, Yang GZ. Artificial intelligence and robotics. arXiv preprint arXiv:1803.10813. 2018 Mar;147:2-44.
11. Mehrotra R, Ansari MA, Agrawal R, Anand RS. A transfer learning approach for AI-based classification of brain tumors. Machine Learning with Applications. 2020 Dec 15; 2:100003.
12. Ghosh A, Chakraborty D, Law A. Artificial intelligence in Internet of things. CAAI Transactions on Intelligence Technology. 2018 Dec; 3(4):208-18.
13. Wang Y, Cao Y, Gong S, Wang Z, Li N, Ai L. Interaction and learning engagement in online learning: The mediating roles of online learning self-efficacy and academic emotions. Learning and Individual Differences. 2022 Feb 1; 94:102128.
14. Whitby B. Automating medicine the ethical way. In Machine medical ethics 2014 Sep 6 (pp. 223-232). Cham: Springer International Publishing.
15. Cavia AA. Interaction Grammars: Beyond the Imitation Game. In Choreomata 2023 Dec 21 (pp. 258-277). Chapman and Hall/CRC.
16. Boyatzis RE. The behavioral level of emotional intelligence and its measurement. Frontiers in psychology. 2018 Aug 13;9:1438.
17. Campesato O. Artificial intelligence, machine learning, and deep learning. Mercury Learning and Information; 2020 Jan 23.
18. Devi JS, Sreedhar MB, Arulprakash P, Kazi K, Radhakrishnan R. A path towards child-centric Artificial Intelligence based Education. International Journal of Early Childhood. 2022;14(3):9915-22.
19. Tulasi L, Rao CS. Integration of AI-technologies into ELT: a brief study. Journal for Research Scholars and Professionals of English Language Teaching. 2023 Jul;7(38).
20. Alet, J. Effective integration of artificial intelligence: key axes for business strategy. Journal of Business Strategy. 2024 Feb 15; 45(2), 107-114.
21. Tleuzhanova G, Tentekbayeva Z, Jantassova D, Kitibayeva A. The impact of artificial intelligence on english language teaching in the context of formal and informal higher education. Научно-аналитический журнал" Высшая школа Казахстана". 2024 Oct 27;48(4).