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AI-Assisted Literary Analysis as a Tool for Teaching Reading Skill

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Abstract

With the advent of the Fourth Industrial Revolution (Industry 4.0), Artificial Intelligence (AI) has become increasingly integrated into a wide range of sectors, including education. In Uzbekistan, particular emphasis is currently placed on the development of digital education, with innovative technologies such as Virtual Reality (VR), Augmented Reality (AR), and various online learning platforms being actively implemented. Despite these advancements, scholarly research examining the application of AI-powered tools in English as a Second Language (ESL) classrooms remains limited. This gap is especially notable given the growing demand for technology-enhanced language learning and the potential of AI to support personalized instruction, adaptive feedback, and learner autonomy. Therefore, a comprehensive review of AI-driven tools in ESL education is both timely and necessary to better understand their pedagogical value and practical implications within the Uzbek educational context.

Keywords

Education Landscape, Artificial Intelligence, Eading Comprehension, Language Learning

Introduction

The introduction should briefly place the study in a broad context and highlight why it is The contemporary education landscape is undergoing rapid transformation due to continuous technological advancements, particularly the emergence of Artificial Intelligence (AI). Twenty-first-century learning reflects a significant shift from traditional teacher-centered instruction toward a more student-centered approach that actively incorporates modern technological innovations (Santhanasamy & Yunus, 2021). Recent developments in AI have notably influenced language learning, as AI enables computer systems to simulate human intelligence and perform complex tasks such as problem-solving, data analysis, and information interpretation (Hassani et al., 2020). Furthermore, the growing use of AI-powered applications, including ChatGPT and Grammarly, demonstrates the substantial potential of AI in supporting language development,

emphasizing the need to integrate such technologies into contemporary language curricula and classroom practices. In addition, AI contributes to the automation of routine educational tasks such as grading and assessment, allowing educators to devote more time to personalized instruction and the monitoring of individual learner progress (Singh et al., 2020). As a result, AI holds significant promise for enhancing teaching efficiency and improving learning outcomes in language education.

Literature Review

Reading comprehension is a fundamental skill that underpins academic achievement and lifelong learning (National Reading Panel, 2000). In the context of online and digital learning environments, this skill becomes even more essential, as learners must also possess additional digital literacy competencies. Despite its importance, a significant number of students experience difficulties in understanding written texts, and conventional methods of reading instruction do not always meet the needs of all learners. Data from the National Assessment of Educational Progress (NAEP) indicate that in 2019 only 35% of fourth-grade students in the United States achieved reading proficiency or higher (NAEP, 2019). This gap in reading achievement is particularly evident among students from low-income backgrounds and minority groups (Reardon et al., 2012; National Center for Education Statistics, 2019). Learners with weak reading comprehension skills often encounter serious academic and social consequences, including restricted access to knowledge, limited educational opportunities, and decreased earning potential later in life (Kirsch et al., 2011). Therefore, identifying effective and practical interventions to support the development of reading comprehension is of critical importance. Recent studies highlight the value of personalised and adaptive learning approaches in enhancing reading comprehension, along with the growing role of educational technologies in addressing diverse learner needs (Fisher & Frey, 2020; EdTech, 2021).

Discussions

In a similar vein, Khan and Mutawa (2021) investigated the effectiveness of an AI-based personalised reading platform in enhancing the reading comprehension abilities of Arab learners of English as a foreign language. The platform was developed to deliver tailored reading material recommendations by taking into account learners' reading proficiency, interests, and language competence. Findings from the study revealed a significant improvement in learners' reading comprehension skills, alongside increased motivation and engagement in reading activities. Despite these positive outcomes, further empirical research is required to examine the effectiveness of AI-driven personalised reading platforms across broader educational contexts, particularly in reading instruction. Accordingly, the present study aims to evaluate the impact of AI-based personalised reading platforms on students' reading comprehension development. It also seeks to explore optimal design and implementation strategies for such platforms and to examine their influence on learners' motivation and engagement in reading.

By assessing the effectiveness of AI-based personalised reading platforms, this study aims to contribute to the advancement of more effective instructional strategies for reading instruction and literacy development. The results may also provide important guidance for the design and application of personalised learning platforms in various educational contexts. Overall, the integration of Artificial Intelligence with personalised learning technologies demonstrates strong potential to enhance reading instruction and deliver targeted, effective support for learners who face challenges in reading comprehension.

Numerous quantitative studies have demonstrated that AI-supported reading interventions can lead to statistically significant gains in reading comprehension, particularly among struggling readers and low-performing students. However, this positive trend is not uniform across all learner groups. For example, Li and Chen (2024) reported that high-performing students exhibited stagnation or even regression in comprehension outcomes when over-relying on AI-generated reading summaries. These findings raise critical questions about the differential effects of AI on diverse learner profiles and suggest that a one-size-fits-all approach may not be suitable for AI-based reading tools.

Results

The integration of AI in education has revolutionized how literacy and reading comprehension are approached in the classroom. Reading comprehension, which involves understanding, interpreting, and evaluating text, is a fundamental skill necessary for academic success and lifelong learning. Given that traditional approaches often fall short in meeting the diverse and evolving needs of learners, AI-based tools are emerging as powerful educational technologies that offer personalized, adaptive, and engaging strategies to improve reading comprehension outcomes (Chen et al., 2020; Zawacki-Richter et al., 2019)

The conceptual framework of this study is grounded in the integration of AI-based learning environments aimed at enhancing students' reading comprehension. Central to the framework are learners who engage with AI-driven tools within a digitally mediated educational context. The AI-based learning environment incorporates three core technologies: AI chatbots functioning as virtual tutors, intelligent text analysis systems, and adaptive reading applications. Collectively, these tools offer immediate feedback, targeted vocabulary support through systematic cues, and personalised learning pathways aligned with individual learner abilities. Consequently, these AI-driven components promote increased learner engagement and motivation, which act as mediating factors in the learning process. This enhanced engagement ultimately contributes to improved reading comprehension outcomes. Overall, the framework depicts a dynamic and responsive learning ecosystem in which AI technologies not only support but also personalise the learning experience, addressing individual learner needs and facilitating deeper cognitive processing essential for reading proficiency.

This study examined the role of AI-based personalised reading platforms in enhancing students' reading comprehension within digitally mediated learning environments. The findings highlight the strong potential of Artificial Intelligence to support student-centered learning through adaptive instruction, immediate feedback, and personalised learning pathways. By integrating AI-driven tools such as chatbots, intelligent text analysis systems, and adaptive reading

applications, learners are provided with targeted support that addresses individual needs and promotes deeper cognitive engagement.

Conclusion

Moreover, the study emphasises learner engagement and motivation as key mediating factors that contribute to improved reading comprehension outcomes. The results suggest that AI-based personalised learning environments not only enhance reading proficiency but also foster greater learner autonomy and sustained interest in reading activities. Overall, the integration of AI in reading instruction represents a promising approach to addressing persistent challenges in reading comprehension and literacy development. Future research is recommended to explore long-term impacts, diverse learner populations, and contextual applications of AI-based reading technologies in different educational settings.

References

EdTech. (2021). The role of educational technology in personalized learning. EdTech Research Group.

Fisher, D., & Frey, N. (2020). Improving reading comprehension through personalized instruction. ASCD.

Hassani, H., Beneki, C., Unger, S., Mazinani, M. T., & Yeganegi, M. R. (2020). Artificial intelligence (AI) or intelligence augmentation (IA): What is the future? AI & Society, 35(4), 971–979. https://doi.org/10.1007/s00146-020-00946-2

Khan, R. M. I., & Mutawa, A. M. (2021). The effectiveness of an AI-based personalized reading platform for EFL learners. Journal of Language and Education, 7(3), 35–47.

Kirsch, I., Jungeblut, A., Jenkins, L., & Kolstad, A. (2011). Adult literacy in America: A first look at the findings of the National Adult Literacy Survey. National Center for Education Statistics.

National Assessment of Educational Progress (NAEP). (2019). Reading assessment results. National Center for Education Statistics.

National Center for Education Statistics. (2019). The nation's report card: Reading. U.S. Department of Education.

National Reading Panel. (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. National Institute of Child Health and Human Development.

Reardon, S. F., Valentino, R. A., & Shores, K. A. (2012). Patterns of literacy among U.S. students. Educational Researcher, 41(4), 153–166.

Santhanasamy, C., & Yunus, M. M. (2021). A systematic review of digital tools in 21st-century learning. International Journal of Education and Practice, 9(2), 234–246.