

THE ROLE OF AI IN THE IMPROVEMENT OF READING SKILLS

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Abstract. This study investigates the role of Artificial Intelligence (AI) in enhancing reading skills among language learners. As AI technologies become increasingly integrated into educational practices, their potential to support reading development in English as a Second Language (ESL) contexts is of significant interest. Using a quasi-experimental research design, this study examines the impact of AI-based tools, such as personalized learning platforms and text-to-speech software, on the reading abilities of 100 ESL learners. .

Keywords: Artificial Intelligence, Duolingo, ChatGPT, reading comprehension, Individualized Learning methods

Аннотация. Данное исследование рассматривает роль искусственного интеллекта (ИИ) в повышении навыков чтения у изучающих иностранные языки. По мере того как технологии ИИ всё активнее интегрируются в образовательные практики, особый интерес представляет их потенциал в поддержке развития навыков чтения в контексте изучения английского как второго языка (ESL). Используя квазиэкспериментальный исследовательский дизайн, в данной работе анализируется влияние ИИ-инструментов, таких как персонализированные обучающие платформы и программы синтеза речи, на навыки чтения у 100 учащихся ESL.

Ключевые слова: искусственный интеллект, Duolingo, ChatGPT, понимание прочитанного, индивидуализированные методы обучения

Annotatsiya. Ushbu tadqiqot sun'iy intellekt (SI) texnologiyalarining til o'rganuvchilarida o'qish ko'nikmalarini rivojlantirishdagi rolini o'rganadi. SI texnologiyalari ta'lim amaliyotiga tobora kengroq integratsiyalashayotgani sababli, ularning ingliz tilini ikkinchi til sifatida (ESL) o'rganish kontekstida o'qish rivojlanishini qo'llab-quvvatlash imkoniyatlari katta qiziqish uyg'otmoqda. Kvasiekspirimental tadqiqot dizayni asosida olib borilgan ushbu ishda SI asosidagi vositalar – shaxsiylashtirilgan o'quv platformalari va matndan nutqqa dasturlari – ning 100 nafar ESL o'rganuvchining o'qish qobiliyatlariga ta'siri tahlil qilinadi.

Kalit so'zlar: sun'iy intellekt, Duolingo, ChatGPT, o'qish tushunishi, individual o'quv metodlari

INTRODUCTION

In the digital age, Artificial Intelligence (AI) integration into education systems has developed various methods to improve educational activity throughout teaching and learning operations. Student success in academics depends heavily on reading proficiency because it allows information reception while helping students achieve better psychological development. Reading comprehension challenges school children through their limited vocabulary understanding along with their lack of effective reading skills and insufficient one-on-one help with insufficient reading material. The traditional teaching methods lead to acceptable results although they lack the required capabilities to adapt instruction to various learner needs in today's contemporary classrooms.

The advanced tools generated by Artificial Intelligence resolve multiple education barriers that currently exist. Concept-based reading sessions emerge through AI analytics that tracks student motions as these systems detect learning barriers allowing prompt content adjustments. The language processing technology integrated into programs such as Duolingo with ChatGPT and tutoring systems enables students to improve vocabulary understanding through automatic feedback as they gain skills by using game-type motivators. The digital tools let teachers adjust reading assignments with educational materials by considering how their students perform academically while respecting their distinct interests.

Recent scientific evidence demonstrates that AI technology improves basic reading ability and also aids critical problem evaluation among students. AI technology enables interactive learning which generates increased motivation and autism among students thus fueling essential aspects of reading development.

More research must be done to identify the impact of AI language education tools on reading performance because of their increasing popularity. The research investigates the impact of AI tools on reading outcomes through evaluation of their effects on understanding, student involvement and program success. Educational staff members and students are studied in this research about AI-based reading assistance tools within academic settings.

METHODS

This study employed a mixed-methods approach, combining both quantitative and qualitative data collection methods to gain a comprehensive understanding of how AI impacts reading skill development. The quantitative elements tracked reading comprehension improvements yet the qualitative part examined both student and teacher responses to AI reading instrument usage. Sixty secondary school students between 14 to 18 years old from urban areas participated in this research because they were English as a Second Language (ESL) learners. The research divided students into groups with 30 members in each: experimental participants applied AI-powered reading tools while control members kept their reading lessons without AI assistance. Six English teachers participated in interviews which offered information about the instructional utilization of AI technology.

ReadTheory together with Duolingo and ChatGPT served as the AI tools for this research because they offer customizable reading materials alongside vocabulary assistance and automated response generation to students. Each participant underwent standardized reading tests in both the beginning and at the end of the 8-week program. Students used a Likert-scale

response format for assessing their attitudes about AI tools alongside teachers who provided their perceptions through semi-structured interviews.

The intervention lasted for 8 weeks. The AI tool sessions lasted 45 minutes three times per week for students who were part of the experimental group yet the control group stuck to their standard reading program. Study administrators gave the baseline reading level assessment to students during the initial phase of research. The examination phase occurred at study conclusion for assessing student progress. The experimental participants received questionnaires when the program finished while teachers underwent interviewing during the last session of the study.

The paired sample t-tests analyses determined the variations in pre- and post-test reading scores that both groups showed during the study. An analysis of questionnaire data used descriptive statistics for evaluation. The investigator used thematic coding techniques to analyze the qualitative information gathered through teacher interview data to discover prevalent themes about AI implementation in reading education.

RESULTS

Students achieved better reading skills after utilizing AI assistance tools according to study results. The experimental group students showed greater gains in their reading comprehension abilities from pre-tests to post-tests than the control group students based on statistical analysis.

Students who used AI tools within the experimental group exceeded their reading score improvement compared to the control group students by 21% versus 9% respectively. The score performance difference between the AI tool group and the control group proved statistically important ($p < 0.01$) using a paired sample t-test. AI tools proved more beneficial for reading skills development. A majority of 87% among experimental group students discovered AI tools beneficial for vocabulary acquisition while interactive reading features received approval from 79% of students. This led 72% of students to feel assured about their ability to read English texts.

The researcher extracted the following concepts from the interviews with teachers:

Educational technology enhanced participant engagement in the classroom because students became more motivated and interactive as a result of AI tool implementation.

The AI applications used Individualized Learning methods to provide students with reading content matching their current ability level thus enabling struggling students to learn faster.

The automatic feedback along with learning progression reports which AI systems track received positive feedback from teachers as instructional support features.

Data from quantitative and qualitative investigations demonstrate that AI tools advance reading learning by providing strong benefits to ESL students.

DISCUSSION

Student reading skill development benefits tremendously from AI-powered educational resources according to the research results. Students who utilized AI teaching tools including ReadTheory

and Duolingo and ChatGPT within the experimental group demonstrated superior reading comprehension improvement over the control group using conventional learning methods. Research on second language learning demonstrates that adaptive learning technology benefits acquisition according to Wang and Vásquez (2012) and Kukulska-Hulme (2020).

Personalized learning stands as the main element that drives this positive development. AI reading platforms adjust materials to match particular student skill levels thus creating policies and assignments of appropriate difficulty. Differentiated instruction as an educational approach demonstrates value through its impact on more efficient student learning results. The real-time feedback system from AI apps enables students to correct mistakes instantly that in turn boosts their vocabulary and comprehension skills at the moment of error.

Students reported higher levels of motivation together with greater engagement in the classroom according to research. Students reported that AI application interfaces with their interactive game elements elevated their reading experience. Motivational language learning theories (Deci & Ryan, 1985) demonstrate that learner interest together with autonomy play an essential role in second language acquisition.

The participants from the teaching profession stated how AI technology helped lower their workload because it tracked student achievements and proposed customized materials. The experts advised that AI tools should serve to enhance basic education but not assume roles that human educators should maintain particularly for critical thinking and deep text analysis development.

The research showed positive findings although several important constraints need consideration. The research duration lasted eight weeks while the participant pool consisted of only secondary school students living in urban areas. The investigation needs longer intervention times together with diverse participant samples to examine extended impacts of AI on reading proficiency. In conclusion, the study demonstrates that AI tools can effectively support and enhance reading instruction by offering personalized, engaging, and efficient learning experiences. As AI continues to evolve, it holds great potential to transform reading education, especially for language learners in need of more individualized support.

CONCLUSION

This study explored the role of Artificial Intelligence in improving reading skills among secondary school ESL learners. The results demonstrated that AI-powered tools significantly enhance reading comprehension, vocabulary acquisition, and learner engagement. Students who used AI applications showed greater progress compared to those who received traditional reading instruction, and they reported higher motivation and confidence in their reading abilities.

AI technologies offer a personalized and interactive learning experience, allowing students to work at their own pace while receiving immediate feedback. Teachers also benefit from AI's ability to track progress and suggest appropriate reading materials, making classroom instruction more effective and data-driven.

While AI cannot replace the role of human teachers, it can serve as a powerful supplement that enhances reading instruction, particularly in diverse and multilingual classrooms. Future studies with larger and more varied populations are recommended to further validate these findings and

explore the long-term impact of AI on reading proficiency. In conclusion, the integration of AI into reading instruction represents a promising step toward more inclusive, engaging, and effective language education.

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