

Article

Using Artificial Intelligence Technologies in English Language Teaching

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Abstract: This article examines the integration of artificial intelligence (AI) technologies into the English language teaching process. The study was conducted in 2024 at a higher education institution in Uzbekistan with 96 students. A comparative analysis was conducted between the control (n=48) and experimental (n=48) groups. The results showed that students using AI tools achieved higher results in vocabulary by 18.8%, written expression by 18.2%, oral expression by 17.7%, and reading comprehension by 15.9%. Additionally, learning motivation increased by 34.4%. The study analyzes the effectiveness of AI platforms like ChatGPT, Duolingo, and Grammarly. In conclusion, AI technologies have proven to be an effective supplementary tool in English language teaching.

Keywords: Artificial Intelligence (AI), English language teaching, ChatGPT, Duolingo, EFL (English as a Foreign Language), adaptive learning, digital education, learner motivation, pedagogical technologies.

1. Introduction

Today, artificial intelligence (AI) technologies are bringing about fundamental changes in the global education system. In particular, the use of AI tools is growing rapidly in the field of English as a Foreign Language (EFL) teaching. The popularization of the ChatGPT platform in 2022 has further accelerated this process[1].

Research shows that from 2019 to 2024, the number of academic publications dedicated to AI and language learning increased by nearly fiftyfold. Specifically, while there were 62 publications in 2019, this figure reached 3,035 by 2024. This situation highlights the need for a fundamental understanding of the role of AI technologies in language education[2].

The demand for learning English in Uzbekistan is increasing year by year. President Shavkat Mirziyoyev's Decree of May 19, 2021, "On Measures to Further Improve the System of Learning Foreign Languages in the Republic of Uzbekistan" On the basis of the Decree of President Shavkat Mirziyoyev dated May 19, 2021, "On Measures to Further Improve the System of Foreign Language Learning in the Republic of Uzbekistan," the quality of English language teaching has been elevated to a matter of state policy. However, traditional teaching methods remain limited in terms of individual approaches, prompt feedback, and opportunities for continuous practice[3].

The purpose of the study is to empirically examine the effectiveness of AI technologies in English language teaching and to compare them with traditional methods. Our research questions are as follows: (1) How do AI tools affect students' language skills?

(2) Does AI integration increase learning motivation? (3) Which AI platforms are the most effective in practice?

2. Literature Review

An analysis of global scientific sources in the field of AI and language learning shows that the number of studies increased sharply in 2023-2024. A comprehensive analysis published in the journal Tandfonline, 78.3% (213) of the 272 empirical studies were published in the last two years, indicating the field's rapid development[4].

A systematic review published on ScienceDirect examined 144 peer-reviewed articles in accordance with PRISMA guidelines. The results showed that 86.7% of the studies were conducted in higher education institutions, and 86.1% were carried out in an EFL context. The main research areas were writing skills (42.4%), cognitive and attitudinal aspects, and teaching strategies.

Liu and Chen proved the effectiveness of AI applications in developing vocabulary in Taiwanese elementary school students. Kim noted that ChatGPT enhanced the reading comprehension skills of EFL learners in Korean schools. Zhang and Huang found in a controlled study that interactivity is a key factor in language teaching[5].

Duolingo. According to Duolingo's effectiveness studies, after 4-6 weeks of regular use, beginner-level learners achieved 90% accuracy in short conversations and written tasks. Users after three months showed significant improvement in all four language skills (speaking, reading, writing, listening). 96% of the educators surveyed stated that Duolingo helps them learn a language faster[6].

Grammarly. Biju et al. showed that AI-based instant feedback reduced students' anxiety about their written expression at universities in Bangladesh. Fathi et al. at an Iranian university reported positive results in EFL learners' oral fluency, coherence, and pronunciation using the Andy English chatbot.

Adaptive instruction theory provides an educational experience tailored to each learner's individual needs. AI is considered the most effective tool for putting this theory into practice. Cognitive load theory aims to make instruction effective by reducing excessive mental load. In Kohnke's study, it was shown that the prompt and clear feedback of AI tools reduced students' cognitive load[7].

3. Research Methodology

The study was conducted from February to May 2024 with students from a higher education institution. A quasi-experimental approach was used, and participants were divided into a control (n=48) and an experimental (n=48) group. The experimental group used the AI tools ChatGPT, Duolingo, and Grammarly to learn English, while the control group was taught using traditional teaching methods.

The study employed pedagogical experience, observation, tests, questionnaires, and comparative analysis methods. The students' vocabulary, reading, writing, and oral communication skills were assessed based on pre- and post-test results.

4. Analysis and Results

The table below shows the changes in the results of the 14-week experiment. Statistical significance was determined for all post-test indicators at the $p < 0.01$ level.

Table 1. Comparison of learning outcomes between the control and experimental groups (n=96, 14 weeks)

Indicator	Control Group (Traditional Method)	Experimental Group (With AI Tools)	Difference (%)
Vocabulary (Pre-test, Mean Score)	62.4	61.8	—
Vocabulary (Post-test, Mean Score)	71.2	84.6	+18.8%
Writing Skills (Pre-test)	58.0	57.5	—
Writing Skills (Post-test)	69.3	81.9	+18.2%
Speaking Skills (Pre-test)	55.6	56.1	—
Speaking Skills (Post-test)	67.4	79.3	+17.7%
Reading Comprehension (Pre-test)	60.1	59.8	—
Reading Comprehension (Post-test)	72.0	83.5	+15.9%
Learning Motivation (Likert Scale 1–5)	3.2	4.3	+34.4%

Vocabulary. The experimental group scored an average of 84.6 on the post-test, while the control group scored 71.2 ($t(94) = 8.73$, $p < 0.001$, Cohen's $d = 1.79$ — a large effect size). Daily vocabulary learning on the Duolingo platform and exercises on using words in context with ChatGPT were the key factors[8].

Written language. The experimental group achieved a 18.2% higher score as a result of Grammarly's instant feedback and essay writing exercises with ChatGPT. The students' number of grammatical errors decreased by 37%. These results are consistent with the findings of the study by Biju et al[8].

Oral speech. Conversational simulations with ChatGPT and pronunciation exercises yielded a 17.7% improvement in oral speech. Fathi also showed in a similar study at an Iranian university that chatbot conversations significantly improve fluency and accuracy[9].

Reading comprehension. In the Cambridge B2 level reading test, the experimental group scored 83.5 points, while the control group scored 72.0 points (a difference of 15.9%). Text discussion and question-writing exercises with ChatGPT enhanced critical thinking skills[10].

According to the Gardner AMTB questionnaire, the experimental group's motivation score reached 4.3/5.0 (control group — 3.2/5.0, difference +34.4%). According to the qualitative interview results, 89% of the students rated the AI tools as interesting and convenient; 76% even reported using the AI tools outside of class time. These results are consistent with a Duolingo effectiveness study: over 90% of users in the project noted that the AI tools increased their readiness to use the language[11-12].

Several limitations were identified during the study: (1) some students became overly reliant on AI responses without critically evaluating them; (2) unstable internet

connectivity disrupted sessions in some cases; (3) not all students were equally prepared to use AI tools at the beginning (digital literacy gap). Furthermore, the study's limitation to a single institution may hinder generalizability[13-15].

5. Conclusion

This study proved that integrating AI technologies into English language teaching leads to statistically significant gains in all key language skills—vocabulary, writing, speaking, and reading comprehension. According to the most significant results, the experimental group achieved higher results by 15.9-18.8% in all indicators, and motivation increased by 34.4%.

From a pedagogical perspective, the following recommendations were developed for the successful application of AI tools: AI tools should be used not as a complete replacement for traditional teaching, but as an additional tool to enrich it; teachers should receive special training on how to use AI tools effectively; students need to develop critical thinking skills regarding AI responses.

Priority areas for future research include conducting longitudinal studies, covering school students from various regions of Uzbekistan, and developing AI tools adapted to the local language.

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