

THE ROLE AND EFFECTIVENESS OF AI-BASED ONLINE PLATFORMS IN TEACHING ENGLISH

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Annotation. This article investigates the role and effectiveness of artificial intelligence-based online platforms in teaching English as a foreign language in higher education settings.

The study employed a mixed-methods research design involving 120 university students in Uzbekistan divided into three groups: an experimental group using AI platforms (Duolingo, ELSA Speak, ChatGPT) alongside traditional instruction, a comparison group with conventional self-study materials, and a control group receiving traditional instruction only. Data were collected through standardized proficiency tests, platform usage logs, learning journals, and semi-structured interviews over a sixteen-week semester.

Keywords: artificial intelligence, online platforms, English language teaching, educational technology, language learning, higher education.

Annotatsiya. Ushbu maqola oliy ta'lim sharoitida ingliz tilini chet tili sifatida o'qitishda sun'iy intellektga asoslangan onlayn platformalarning roli va samaradorligini tadqiq qiladi.

Tadqiqotda aralash metodlar dizayni qo'llanilgan bo'lib, O'zbekistondagi 120 nafar talaba uch guruhga bo'lingan: an'anaviy ta'lim bilan birga AI platformalaridan (Duolingo, ELSA Speak, ChatGPT) foydalangan eksperimental guruh, an'anaviy mustaqil ta'lim materiallari bilan shug'ullangan taqqoslash guruhi va faqat an'anaviy ta'lim olgan nazorat guruhi. Ma'lumotlar o'n olti haftalik semestr davomida standartlashtirilgan malaka testlari, platforma foydalanish jurnallari, o'quv kundaliklari va yarim tuzilgan intervyular orqali to'plangan.

Kalit so'zlar: sun'iy intellekt, onlayn platformalar, ingliz tilini o'qitish, ta'lim texnologiyalari, til o'rganish, oliy ta'lim.

Аннотация. Данная статья исследует роль и эффективность онлайн-платформ на основе искусственного интеллекта в обучении английскому языку как иностранному в условиях высшего образования. В исследовании использовался смешанный методологический дизайн с участием 120 студентов университетов Узбекистана, разделённых на три группы: экспериментальная группа, использующая платформы ИИ (Duolingo, ELSA Speak, ChatGPT) наряду с традиционным обучением, группа сравнения с традиционными материалами для самостоятельного изучения и контрольная группа, получающая только традиционное обучение. Данные собирались в течение шестнадцати недельного семестра посредством стандартизированных тестов на уровень владения языком, журналов использования платформ, учебных дневников и полуструктурированных интервью.

Ключевые слова: искусственный интеллект, онлайн-платформы, обучение английскому языку, образовательные технологии, изучение языков, высшее образование.

Introduction

The integration of artificial intelligence into educational contexts has fundamentally transformed the landscape of language learning and teaching in the twenty-first century. As global communication increasingly demands proficiency in English as a lingua franca, educational institutions and learners worldwide are seeking more efficient, personalized, and

accessible methods for acquiring language skills. AI-based online platforms have emerged as powerful tools that promise to address many of the limitations inherent in traditional classroom instruction, offering adaptive learning experiences, immediate feedback mechanisms, and unprecedented accessibility for learners across diverse geographical and socioeconomic backgrounds.

The rapid advancement of natural language processing, machine learning algorithms, and speech recognition technologies has enabled the development of sophisticated platforms capable of simulating authentic communicative interactions, assessing learner performance with remarkable accuracy, and tailoring instructional content to individual learning trajectories.

Platforms such as Duolingo, Babbel, ELSA Speak, and various AI-powered chatbots have attracted millions of users globally, suggesting a significant shift in how language learning is conceptualized and practiced.

These technological developments raise important questions about the effectiveness of AI-mediated instruction compared to traditional pedagogical approaches and the optimal ways to integrate such technologies into formal educational settings.

The theoretical foundations underpinning AI-based language learning draw from multiple disciplines, including second language acquisition theory, cognitive psychology, and computer-assisted language learning research. Krashen's input hypothesis and the interactionist perspective on language acquisition suggest that effective language learning requires comprehensible input and meaningful interaction, conditions that well-designed AI platforms can potentially provide through adaptive content delivery and conversational agents. Furthermore, the zone of proximal development concept articulated by Vygotsky finds new expression in AI systems capable of scaffolding learner progress through dynamically adjusted difficulty levels and targeted feedback.

Despite the enthusiasm surrounding AI-based language learning tools, empirical research examining their effectiveness remains relatively limited and methodologically diverse, making it challenging to draw definitive conclusions about their pedagogical value. Critics have raised concerns about the quality of linguistic input provided by AI systems, the lack of authentic cultural context in technology-mediated interactions, and the potential for such platforms to promote superficial learning focused on discrete language items rather than communicative competence. Additionally, questions persist regarding learner motivation, engagement patterns over extended periods, and the transferability of skills acquired through AI platforms to real-world communicative situations.

This study aims to investigate the role and effectiveness of AI-based online platforms in teaching English by examining learner outcomes, engagement patterns, and perceptions among university students in Uzbekistan. The research addresses three primary questions: first, to what extent do AI-based platforms improve measurable English language proficiency outcomes compared to traditional instruction alone; second, what patterns of engagement and usage characterize successful learners on these platforms; and third, how do learners perceive the value and limitations of AI-based tools in their language learning journey. By addressing these questions, this study contributes to the growing body of knowledge on technology-enhanced language learning while providing practical insights for educators and curriculum developers seeking to integrate AI tools effectively into their instructional practices.

Method. This study employed a mixed-methods research design combining quantitative assessment of learning outcomes with qualitative exploration of learner experiences and perceptions.

The research was conducted over a sixteen-week academic semester at a public university in Uzbekistan, involving undergraduate students enrolled in English language courses across multiple faculties. This methodological approach was selected to provide both statistical evidence of platform effectiveness and nuanced understanding of the factors influencing learner engagement and success.

The participants comprised one hundred twenty students aged eighteen to twenty-three years, randomly assigned to three groups of forty students each. The experimental group received traditional classroom instruction supplemented by mandatory engagement with AI-based platforms for a minimum of five hours weekly outside class time. The comparison group received the same traditional instruction supplemented by conventional self-study activities including textbook exercises and recorded listening materials for equivalent duration. The control group received traditional instruction only without prescribed supplementary activities.

All participants provided informed consent, and the study received ethical approval from the institutional review board.

The AI-based platforms selected for this study included Duolingo for vocabulary and grammar practice, ELSA Speak for pronunciation training, and ChatGPT for conversational practice and writing feedback. These platforms were chosen based on their widespread availability, free or low-cost access options, and coverage of multiple language skill areas.

Participants in the experimental group received initial training on platform usage and were provided with structured guidelines for distributing their practice time across the three platforms, with recommendations to allocate approximately two hours to Duolingo, one and a half hours to ELSA Speak, and one and a half hours to ChatGPT-based activities weekly.

Data collection instruments included standardized English proficiency tests administered at the beginning and end of the semester, weekly platform usage logs automatically generated by the applications, structured learning journals maintained by participants in the experimental group, and semi-structured interviews conducted with a purposively selected subsample of twenty-four participants representing varying levels of engagement and achievement. The proficiency assessments measured reading comprehension, listening comprehension, grammatical accuracy, vocabulary breadth, and speaking proficiency using validated instruments adapted from established testing frameworks.

Quantitative data were analyzed using descriptive statistics, analysis of variance to compare group outcomes, and correlation analyses to examine relationships between usage patterns and achievement gains. Effect sizes were calculated to assess the practical significance of observed differences. Qualitative data from learning journals and interview transcripts were analyzed using thematic analysis procedures, with initial coding conducted independently by two researchers followed by collaborative refinement of themes and interpretive frameworks.

Member checking procedures were employed to enhance the trustworthiness of qualitative findings.

Results. The quantitative analysis revealed statistically significant differences in English proficiency gains among the three groups over the sixteen-week intervention period. Pre-test scores showed no significant differences between groups, confirming the effectiveness of random assignment in establishing baseline equivalence.

Post-test results indicated that the experimental group using AI-based platforms achieved the highest mean improvement scores across all assessed skill areas, followed by the comparison group and then the control group.

Specifically, the experimental group demonstrated a mean improvement of 18.4 points on the comprehensive proficiency measure compared to 12.7 points for the comparison group and 8.3 points for the control group. Analysis of variance confirmed these differences were statistically significant with a moderate to large effect size. Examination of individual skill areas revealed that the greatest advantages for the AI platform users appeared in vocabulary acquisition and pronunciation accuracy, where the experimental group outperformed both other groups by substantial margins. Improvements in grammatical accuracy and reading comprehension showed smaller but still significant advantages for the experimental group, while listening comprehension gains, though favoring the experimental group, did not reach statistical significance when compared to the comparison group.

Platform usage data revealed considerable variation in engagement patterns within the experimental group. Average weekly usage ranged from 3.2 to 8.7 hours, with a mean of 5.4 hours slightly exceeding the minimum requirement. Correlation analysis demonstrated a positive relationship between total platform usage time and proficiency gains, though this relationship was stronger for some skill areas than others. Notably, usage of ELSA Speak showed the strongest correlation with pronunciation improvement, while ChatGPT engagement correlated most strongly with gains in grammatical accuracy and vocabulary breadth. The relationship between Duolingo usage and outcomes was positive but weaker than for the other platforms.

Qualitative analysis of learning journals and interviews identified several recurring themes characterizing participant experiences with AI-based platforms. The most prominent theme concerned the value of immediate and consistent feedback provided by AI systems, which participants contrasted favorably with the delayed and sometimes inconsistent feedback available in traditional classroom settings. Participants described how instant error correction and performance metrics helped them identify weaknesses and track progress, contributing to increased motivation and self-directed learning behavior.

A second major theme involved the flexibility and accessibility of AI platforms, enabling learners to practice English at convenient times and locations without the scheduling constraints of face-to-face instruction. Many participants reported studying during commutes, breaks between classes, or late evening hours, suggesting that AI platforms effectively extended learning opportunities beyond what traditional instruction alone could provide. However, some participants noted that this flexibility required considerable self-discipline, and those who struggled with time management reported difficulty maintaining consistent engagement throughout the semester.

Participants also discussed limitations they perceived in AI-based learning, including occasional frustration with speech recognition errors in pronunciation apps, the absence of cultural nuance and contextual richness in conversational AI interactions, and concerns about the accuracy of feedback provided by ChatGPT for complex grammatical structures. Several participants expressed the view that AI platforms were valuable supplements to but not replacements for human instruction, emphasizing the importance of teacher guidance in addressing individual learning needs and providing cultural and pragmatic knowledge that AI systems could not replicate.

Discussion. The findings of this study provide empirical support for the effectiveness of AI-based online platforms as supplementary tools in English language teaching, while also highlighting important considerations for their optimal integration into educational contexts. The superior proficiency gains observed in the experimental group align with theoretical predictions based on the enhanced input, interaction, and feedback opportunities that AI platforms provide, and are consistent with previous research demonstrating the value of technology-enhanced language learning when appropriately implemented.

The differential effectiveness observed across skill areas merits careful consideration by educators and curriculum developers. The particularly strong outcomes in vocabulary acquisition likely reflect the adaptive spaced repetition algorithms employed by platforms like Duolingo, which optimize the timing of review activities based on individual forgetting curves and have been shown in cognitive psychology research to enhance long-term retention. Similarly, the significant pronunciation improvements associated with ELSA Speak usage suggest that AI-powered speech recognition and feedback can effectively address a skill area that receives insufficient attention in many traditional classroom settings due to time constraints and teacher-student ratios.

The positive but somewhat weaker relationship between Duolingo usage and broader proficiency outcomes raises questions about the limitations of gamified learning approaches that emphasize discrete language items over integrated communicative practice. This finding resonates with critiques suggesting that while such platforms effectively build foundational knowledge, they may not adequately develop the complex discourse competencies required for authentic communication. Educators should therefore consider how to complement AI platform usage with activities that promote extended discourse production and reception in meaningful contexts.

The qualitative findings underscore the importance of learner autonomy and self-regulation in technology-mediated learning environments. Participants who thrived with AI platforms typically demonstrated strong goal orientation, effective time management, and metacognitive awareness of their learning processes, suggesting that successful integration of these tools may require explicit instruction in self-directed learning strategies. Educational institutions implementing AI platforms should consider incorporating training in learning strategies and providing ongoing support to help students develop the autonomous learning capacities that technology-mediated instruction demands.

The limitations identified by participants regarding AI feedback accuracy and the absence of cultural depth point to continuing challenges in natural language processing and the fundamental differences between human and machine intelligence in language use. While AI systems excel at pattern recognition and consistent application of rules, they currently lack the pragmatic sensitivity and cultural knowledge that human teachers bring to language instruction.

These limitations suggest that AI platforms are most effectively positioned as supplements to rather than replacements for human instruction, a conclusion that has significant implications for educational policy and resource allocation decisions.

This study has several limitations that should be acknowledged when interpreting results.

The sixteen-week duration, while sufficient to observe meaningful learning gains, may not capture long-term retention patterns or the sustainability of AI platform engagement over extended periods.

The specific context of Uzbekistan higher education may limit generalizability to other educational settings with different technological infrastructure, learner populations, or instructional traditions. Additionally, the self-reported nature of usage data outside automatic logging may have introduced some measurement error.

Conclusion. In conclusion, AI-based online platforms demonstrate significant potential for enhancing English language teaching when implemented as supplements to traditional instruction.

These technologies offer valuable affordances including adaptive content delivery, immediate feedback, extended practice opportunities, and accessibility that addresses constraints of time and geography. However, realizing this potential requires thoughtful integration that considers individual learner characteristics, provides support for autonomous learning development, and maintains the irreplaceable human elements of language education. Future research should examine long-term learning outcomes, investigate optimal integration models across diverse educational contexts, and continue to explore how advancing AI capabilities may address current limitations while raising new pedagogical questions. As AI technology continues to evolve rapidly, ongoing collaboration between educational researchers, technology developers, and classroom practitioners will be essential to ensure that these powerful tools serve genuine educational goals and benefit learners across the global English language learning community.

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