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ARTIFICIAL INTELLIGENCE-BASED PERSONALIZED LEARNING IN ENGLISH LANGUAGE TEACHING

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Abstract. Artificial intelligence (AI) has emerged as a transformative force in English Language Teaching (ELT), providing new opportunities for personalized learning and adaptive instruction. AI-based personalized learning systems analyze learners' proficiency levels, linguistic challenges, learning styles, and progress patterns to create individualized learning pathways. Through technologies such as machine learning algorithms, natural language processing (NLP), intelligent tutoring systems, automated feedback tools, and adaptive testing, AI enables real-time assessment and customized content delivery. These tools enhance learner engagement by offering tailored vocabulary practice, grammar exercises, reading materials, pronunciation training, and writing feedback based on each learner's needs. Moreover, AI supports teachers by reducing routine workloads, enabling data-informed decision-making, and facilitating a more student-centered pedagogical approach. Personalized learning not only improves linguistic accuracy and fluency but also increases learner autonomy, motivation, and long-term retention. Despite significant advantages, AI integration in ELT also raises challenges, including issues related to data privacy, digital literacy, teacher preparedness, and potential overreliance on technology. Nevertheless, current research indicates that AI-based personalized learning can substantially enhance the efficiency and effectiveness of English language teaching when implemented responsibly. This article examines the theoretical foundations, technological applications, benefits, and limitations of AI-driven personalization in ELT, offering insights into future pedagogical innovations.
Keywords. Artificial intelligence, personalized learning, English language teaching, adaptive learning, machine learning, natural language processing, intelligent tutoring systems, automated feedback, learner autonomy, digital pedagogy.

Аннотация. Искусственный интеллект (ИИ) становится ключевым инструментом в сфере обучения английскому языку, открывая широкие возможности для персонализированного и адаптивного обучения. Системы персонализированного обучения на основе ИИ анализируют уровень владения языком, типичные ошибки, стиль обучения и динамику прогресса каждого учащегося, формируя индивидуальные траектории обучения. Использование технологий машинного обучения, обработки естественного языка (NLP), интеллектуальных обучающих систем, автоматизированной проверки письменных работ и адаптивного тестирования позволяет осуществлять непрерывную диагностику и предоставлять учебные материалы в соответствии с потребностями конкретного студента. Такие инструменты способствуют повышению вовлечённости учащихся, обеспечивая персонализированную практику лексики, грамматики, чтения, произношения и письма. Кроме того, ИИ облегчает работу преподавателей, снижая нагрузку, связанную с рутинными заданиями, и предоставляя данные для более точного педагогического анализа. Персонализированное обучение

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способствует развитию автономии, мотивации и долговременного усвоения знаний. Несмотря на очевидные преимущества, интеграция ИИ в обучение английскому языку сопровождается вызовами — это вопросы конфиденциальности данных, цифровой грамотности, готовности преподавателей и возможной зависимости от технологий. Тем не менее современные исследования подтверждают, что персонализированное обучение на основе ИИ значительно повышает эффективность преподавания английского языка при условии ответственного и критически осмысленного применения. В данной статье рассматриваются теоретические основы, технологические решения, преимущества и ограничения ИИ-ориентированного персонализированного обучения, а также перспективы дальнейших инноваций в педагогике.
Ключевые слова. Искусственный интеллект, персонализированное обучение, обучение английскому языку, адаптивное обучение, машинное обучение, обработка естественного языка, интеллектуальные обучающие системы, автоматизированная обратная связь, автономия учащихся, цифровая педагогика.

INTRODUCTION

In recent years, the rapid advancement of Artificial Intelligence (AI) technologies has significantly influenced educational systems worldwide, particularly in the field of language learning. English Language Teaching (ELT), as one of the most dynamic and globally demanded areas of education, has witnessed a progressive shift from traditional teaching approaches to technology-driven, data-informed, and learner-centered methodologies. Among these innovations, AI-based personalized learning systems play a crucial role in transforming how learners acquire linguistic knowledge and develop communicative competence.

Personalized learning supported by AI enables the creation of adaptive learning environments where instructional materials, difficulty levels, feedback types, and learning trajectories are automatically tailored to each learner's individual needs. Such AI systems analyze students' performance data, language proficiency levels, learning speed, cognitive patterns, and learning preferences to provide customized tasks, real-time feedback, and predictive recommendations [1]. This level of adaptability increases learner motivation, autonomy, and engagement, contributing to more efficient and sustainable English language acquisition.

Moreover, the integration of AI technologies in ELT has expanded opportunities for formative assessment, intelligent tutoring systems, automated writing evaluation, speech recognition tools, chatbots, and digital language assistants. These applications not only enhance the learning process but also support teachers by reducing workload, enabling data-driven decision-making, and improving the accuracy of instructional planning. In addition, AI-enhanced analytics allows educators to identify learning gaps early and provide timely interventions, thereby increasing overall learning outcomes.

Despite numerous advantages, the implementation of AI-based personalized learning in ELT also raises a number of challenges related to data privacy, digital literacy, ethical considerations, and technological accessibility. Understanding these strengths and limitations is essential for designing effective pedagogical models that incorporate AI responsibly and sustainably [2].

Therefore, this study aims to analyze the role, effectiveness, and pedagogical implications of AI-based personalized learning in English Language Teaching. The research explores theoretical foundations, practical applications, technological frameworks, benefits, and challenges associated with integrating AI into modern ELT practices. The findings contribute to the ongoing academic discussion on how AI can support language education and offer insights

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for policymakers, educators, and researchers seeking to optimize English language learning in the digital age.

MAIN BODY

Artificial Intelligence (AI) has become a transformative tool in English Language Teaching (ELT), offering unprecedented opportunities for personalized and adaptive learning. Traditional language teaching methods often follow a one-size-fits-all approach, which may not effectively address individual learners' differences in cognitive abilities, learning styles, motivation, or proficiency levels. AI-based personalized learning systems address this gap by creating adaptive learning pathways tailored to each student, enabling a more efficient and meaningful language acquisition process [3]. These systems utilize machine learning algorithms, natural language processing (NLP), and intelligent tutoring technologies to analyze learner data and generate individualized recommendations, activities, and assessments.

One of the primary advantages of AI in ELT is its capacity to provide real-time, data-driven feedback. Intelligent tutoring systems can detect errors in grammar, vocabulary usage, pronunciation, and writing structure and provide immediate, constructive feedback. This process not only facilitates error correction but also encourages learners to engage in self-regulated learning, promoting autonomy and reflection on their language use. Additionally, AI-powered writing evaluation tools and chatbots enable learners to practice writing and speaking interactively, receiving personalized guidance and reinforcement that would be challenging to replicate in a traditional classroom with limited teacher attention.

AI-based personalized learning also enhances learner engagement and motivation. By adapting content difficulty and types of exercises according to the learner's performance, AI ensures that students are neither under-challenged nor overwhelmed. For instance, vocabulary drills, reading passages, listening exercises, and speaking simulations can be automatically adjusted to the learner's current proficiency level. This dynamic adaptation supports continuous cognitive development and prevents frustration or disengagement, which are common issues in conventional ELT settings [4].

Furthermore, AI systems offer significant benefits for teachers by reducing routine administrative and evaluative tasks. Automated grading, error detection, progress tracking, and performance analysis free up teachers to focus on instructional design, creative pedagogy, and personalized mentoring. AI analytics also provide valuable insights into class-wide and individual learning patterns, allowing educators to make informed pedagogical decisions, identify learners at risk of falling behind, and implement targeted interventions.

Despite these advantages, the integration of AI in ELT presents several challenges. Data privacy and security are paramount, as AI systems require access to extensive learner data to function effectively. Teachers and students must possess sufficient digital literacy to use AI tools effectively, and institutions must ensure equitable access to technology to avoid widening the digital divide. Additionally, overreliance on AI may risk diminishing human interaction, which remains crucial for developing communicative competence, pragmatic understanding, and socio-cultural awareness in language learning [5]. Ethical considerations regarding algorithmic bias, transparency, and accountability must also be addressed to maintain fairness and inclusivity in AI-mediated language education. In practice, AI-based personalized learning has been successfully implemented across various ELT contexts. For example, adaptive platforms such as Duolingo, Grammarly, and Lingvist provide individualized learning experiences based on continuous performance tracking. Intelligent writing assistants support

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structured essay composition, offering suggestions for vocabulary enhancement, sentence structure, and coherence. Speech recognition technologies enable pronunciation practice and oral fluency improvement through interactive simulations. These tools, when combined with teacher guidance, create a blended learning environment where AI augments, rather than replaces, human instruction [6].

Moreover, AI fosters metacognitive development and critical thinking in learners. Personalized learning systems encourage students to monitor their progress, reflect on errors, and evaluate their strategies for improvement. By receiving instant feedback and observing patterns in their performance, learners develop problem-solving skills and adapt their learning approaches to maximize efficiency. This metacognitive awareness is particularly valuable in ELT, as language acquisition is a complex, iterative process that requires constant adjustment, practice, and reflection [7].

Overall, AI-based personalized learning represents a paradigm shift in English Language Teaching. It combines technological innovation with pedagogical principles to create learner-centered, adaptive, and efficient learning environments. By addressing individual needs, promoting autonomous learning, enhancing motivation, and supporting teachers, AI holds significant potential to improve both the quality and accessibility of English language education. When implemented responsibly, AI does not merely serve as a technological aid but as a strategic pedagogical partner that enables more effective and meaningful language learning.

CONCLUSION

In conclusion, Artificial Intelligence (AI)-based personalized learning has emerged as a powerful and transformative approach in English Language Teaching, offering significant benefits for both learners and educators. By providing adaptive learning pathways, real-time feedback, and individualized instructional materials, AI enables students to engage more deeply with language content, practice skills at their own pace, and develop greater autonomy in the learning process. The analysis presented in this study demonstrates that AI-based systems enhance linguistic proficiency, including grammar, vocabulary, reading comprehension, writing coherence, and oral fluency, while simultaneously fostering cognitive and metacognitive development through reflective learning and self-regulation.

Moreover, AI-supported personalized learning positively impacts motivation and engagement by tailoring tasks to learners' individual needs, preventing frustration and disengagement, and encouraging consistent practice. For educators, these technologies reduce routine workloads, facilitate data-driven decision-making, and provide valuable insights into student performance, enabling timely interventions and more effective instructional strategies. The integration of AI also promotes a learner-centered pedagogical approach, where technology complements human teaching rather than replacing it, creating a blended learning environment that maximizes both instructional efficiency and educational quality.

Despite its advantages, the adoption of AI-based personalized learning presents challenges, including data privacy concerns, the necessity of digital literacy, ethical considerations, and potential overreliance on technology. Addressing these challenges requires responsible implementation, equitable access, and careful teacher guidance to ensure that AI serves as a supportive tool rather than a substitute for human interaction. When these considerations are properly managed, AI-based personalized learning has the potential to revolutionize English Language Teaching, making it more adaptive, inclusive, and effective.

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Ultimately, this study underscores that AI-driven personalized learning is not merely a technological innovation but a pedagogical strategy capable of enhancing the overall quality of English language education. By supporting individualized learning, promoting autonomous and motivated learners, and providing data-informed guidance to educators, AI-based systems contribute significantly to the development of proficient, confident, and lifelong English language learners. The findings highlight the importance of continued research, careful implementation, and ongoing evaluation to optimize AI applications in language education, ensuring that learners and educators alike benefit from the transformative potential of these emerging technologies.

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