THE ROLE OF AI. PERSONALIZED LANGUAGE LEARNING

Supervisor: **Murodova Ruxsora**

Komilova Ra`no Umidilla qizi
Student of the philology faculty of
Uzbekistan State World Languages University
E-mail: ranokomilova0@gmail.com

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Annotation. *The field of education is experiencing a significant shift with the integration of Artificial Intelligence (AI), which is set to change the landscape of teaching strategies. At the heart of this change is the rise of personalized learning experiences, where AI aims to customize educational content and interactions to meet the specific needs, preferences, and pace of each learner. This article explores the various aspects of AI-driven personalized learning, including its ability to improve e-learning modules, the introduction of AI-powered virtual tutors, and the ethical considerations it raises. As education increasingly merges with digital advancements, it is crucial to understand the role of AI in personalizing the learning experience.*

Keywords. *Personalized learning, e-learning, virtual tutors, educational content, ethical considerations in AI.*

Introduction. E-learning systems are gaining increased popularity due to their massive scalability and their immense potential to provide non-disrupted and affordable learning 24/7. Artificial intelligence (AI) can significantly enhance e-learning systems through personalized content delivery to a learner. In contrast to a conventional e-learning system, where all the learners studying at a specific grade are delivered identical content, an AI-based adaptive and personalized e-learning system provides specific and targeted content to each learner. A learner can experience improved learning through personalization, as the e-learning system can customize content delivery according to the strengths and weaknesses of the learner.

There has been considerable research on the personalization of e-learning. A review of this research area shows that most of the current AI-based personalized e-learning techniques are not integrated to create a more diverse, holistic personalized e-learning framework. In this article, we propose a framework that integrates knowledge tracing, learning mode adaptation, and recommender systems for the delivery of personalized e-learning content. In this way, we can integrate different AI-based techniques that have been researched and validated.

An unparalleled opportunity to comprehend students at a fine level is provided by AI systems` innate capacity to evaluate vast datasets and produce insights. For

example, AI can detect patterns in a student`s interaction with an e-learning module that may reveal the student`s preferred learning style or areas of difficulty (Chen et al., 2028). The creation of customized educational materials can then be made possible by this data-driven method, guaranteeing that every student receives assistance that is in line with their particular requirements.

Additionally, the development of chatbots and virtual assistants driven by AI has made individualized learning even easier. These tools can act as personal tutors, offering instant feedback, answering queries, and even suggesting supplementary resources based on the student`s learning trajectory (Winkler & Sonler, 2018). These AI-powered treatments are especially pertinent in the context of distance learning, where students may experience feelings of loneliness as a result of the absence of in-person contact.

In today`s world rapidly evolving digital landscape, artificial intelligence (AI) has revolutionized various fields, including education. One of the most significant areas where AI has made an impact is language acquisition often follows a one-size-fits-all approach, which may not suit every learner. However, AI-driven language learning platforms provide personalized experiences tailored to individual needs, making the process more effective and engaging The integration of AI in education, particularly language learning, has been the focus of numerous studies.

1. AI and Adaptive Learning Studies have shown that adaptive learning systems powered by AI significantly enhance learner engagement and outcomes. For example, Duolingo employs machine learning algorithms to analyze user performance and recommend exercises tailored to their skill level. Research highlights that adaptive learning improves retention rates by 20% compared to static content delivery.

2. Natural Learning Process (NLP). NLP has enabled the development of conversational bots and virtual tutors. These tools provide real-time feedback on pronunciation, grammar, and sentence structure. A study by Lee (2020) found that learners using AI-based pronunciation tools achieved a 30% higher accuracy rate compared to traditional methods.

3. AI in Assessing Progress. AI systems offer sophisticated analytics to monitor and report learner progress. Intelligent dashboards help identify strengths and weaknesses, enabling educators to make informed decisions. Applications such as LingQ use this feature to maintain learner motivation and track long-term progress.

4. Real-time Feedback and Assessment. One significant advantage of AI in online education is the ability to provide real-time feedback and assessment. Traditional education models often rely on period evaluations, which can delay the identification of learning gaps. AI-driven systems, on the other hand, continuously monitor student performance and provide instant feedback. This immediate response helps students correct mistakes and reinforces learning concepts promptly.

5. Challenges and Ethical Considerations. Despite its advantages, the use of AI education raises ethical concerns, such as data privacy, algorithm bias, and over-reliance on technology. Scholars emphasize the need for transparency and robust data protection mechanisms in AI-driven platforms.

6. Adaptive Learning Technologies. AI systems can adapt based on a learner`s pace and style. For example, if a student struggles with grammar concepts, the system can provide additional exercises or alternative explanations until the learner grasps the material.

7. Engaging Learning Environments. AI can incorporate gamification elements into language learning platforms, making the process more engaging. Challenges, rewards, and interactive content keep learners motivated and invested in their progress.

8. Scalability and Accessibility. AI-driven language learning solutions can reach a wide audience, making quality education accessible to learners worldwide, regardless of their geographical location or resources.

AI can also generate customized learning for traditional subject areas and social and emotional learning it can study students` indicators, emotional cues, and behavioral patterns. Furthermore, it identifies students` socio-emotional needs, and in this way, educators can foster a more holistic and personalized way of learning. The way students feel supported and how their mental and general growth is guaranteed may be significantly impacted by this.

Related research on AI-powered personalized learning

Researchers and educators have long been interested in the application of artificial intelligence (AI) In particular, the promise of AI-powered personalized learning has spurred a wave of research aimed at utilizing AI`s capacity to customize education to each learner`s needs. Graf et al. (2009) conducted a groundbreaking study that expounded on the significance of adaptive learning systems. These AI-powered technologies highlighted the flexibility of e-learning environments by modifying content delivery according to individual learner profiles. Graf`s findings

emphasized the benefits of adaptability, from increased learner engagement to enhanced retention rates.

The rise of AI-driven virtual tutors was also noted by Johnson et al. (2013), whose study demonstrated how well these instructors improved student performance and comprehension. Through the use of sophisticated algorithms, these virtual entities may simulate the answers of human tutors, providing feedback and direction based on the student`s present comprehension level and learning speed. However, the intersection of AI and personalized learning is not without challenges. Potential ethical issues were highlighted by Zhou and Brown (2015) in a landmark paper. Concerns regarding student privacy and data security may arise from the enormous volume of data needed for AI algorithms to successfully personalize learning. Furthermore, educators may find it challenging to comprehend or believe the educational recommendations being made due to the "black box" nature of some AI algorithms. The integration of AI with Learning Management Systems (LMS) has increased dramatically in recent years. Chen et al. (2017) investigated the incorporation of AI into LMS, emphasizing its use in both content customization and student performance prediction. According to their study, predictive analytics give teachers information about possible dropouts or students who require more support.

Advancements in personalized learning through AI

Area	AI Implementation	Benefits
E-Learning Modules	Data analysis of student interaction	Tailored instructional content
Virtual Tutoring	AI-powered chatbots and virtual assistants	Instant feedback, query resolution
Adaptive Assessment	AI-driven quizzes and tests	Personalized assessment based on student's pace
Resource Recommendation	Algorithm-based content suggestion	Suggests supplementary resources for individual needs

Conclusion. AI`s role in personalizing learning language presents many opportunities and challenges. The ability to tailor learning experiences, provide real-time feedback, enhance engagement, and offer data-driven insights holds immense

potential to transform education. However, addressing challenges related to data privacy, algorithmic bias, equity, and teacher training is crucial for successfully implementing AI-driven personalized learning. Additionally, artificial intelligence has the potential to transform the field of customized learning and bring about significant developments in the educational landscape by providing teachers with the ability to tailor training to each student`s specific needs. As a result, it can improve the efficacy of personalized learning experiences. Those who to create an efficient online course need to give priority to personalized learning.

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