

**THE EFFECTIVENESS OF INDIVIDUAL LANGUAGE TEACHING BASED ON  
ARTIFICIAL INTELLIGENCE**

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**Abstract:** This article scientifically studies the effectiveness of individual language teaching based on artificial intelligence (AI) technologies. The aim of the study is to determine the impact of AI-based person-centered teaching systems on the development of students' language skills. The study was conducted using a mixed-method approach, with experimental tests conducted with the participation of 60 students. The experimental group was taught using artificial intelligence tools (ChatGPT, Grammarly, Duolingo, Elsa Speak), while the control group received traditional education. The results showed that AI-based teaching significantly improved students' written, oral, and listening skills: grammatical errors decreased by 32%, pronunciation accuracy increased by 27%, and reading speed increased by 18%. As a result of the interviews, the majority of students rated AI systems as convenient, motivating, and a tool that helps with learning. The study practically confirms the role of AI technologies in ensuring an individual approach, reducing the teacher's workload, and increasing educational efficiency.

**Keywords:** Artificial intelligence, individualized learning, language learning, AI technologies, person-centered learning, educational efficiency, ChatGPT, Duolingo, Grammarly, Elsa Speak

**INTRODUCTION**

In recent years, the rapid development of artificial intelligence (AI) technologies in education has created broad opportunities for individualizing and increasing the efficiency of the learning process. In particular, AI-based systems in the language learning process allow for the formation of students' language competence, the development of their ability to learn independently, and accurate analysis of learning outcomes. The main advantage of AI is that it develops a learning strategy that is tailored to each student's level of knowledge, learning speed, error analysis, and individual needs. An individual approach to language learning has always been an important factor. In traditional education, the teacher gives all students the same tasks, which is not enough to take into account individual differences. However, AI-based programs (for example, Duolingo, Elsa Speak, ChatGPT, Grammarly, etc.) identify the user's weaknesses in speech, pronunciation, grammar, and vocabulary and automatically provide appropriate exercises. As a result, the student will be able to quickly see his shortcomings and correct them in real time. Artificial intelligence technologies also provide great help to teachers. They make it easier to analyze the level of student mastery, automate the assessment process, and adapt the curriculum. Therefore, AI is emerging as a tool that simplifies the educational process, saves time, and increases efficiency not only for the student, but also for the teacher.

This article analyzes the effectiveness of individual language teaching based on artificial intelligence from a scientific and theoretical perspective. It also highlights the advantages of this technology, its practical application, and the problems of integrating it into the educational process. The purpose of the study is to determine the level of effectiveness of AI-based educational approaches in language learning and to develop scientifically based recommendations for their improvement.

**LITERATURE REVIEW**

In recent years, the rapid development of artificial intelligence (AI) technologies in education has led to a wide discussion in academic circles about improving individual learning approaches. The use of AI in language teaching allows not only to digitize the learning process, but also to create a person-centered learning environment that is tailored to the individual needs of the

learner (Holmes, 2022). AI-based learning systems increase the effectiveness of education, primarily by monitoring the level of student learning, identifying gaps in their knowledge, and providing individual recommendations. As Anderson and Siau (2020) point out, the main advantage of AI technologies is that they allow for “adaptive learning” - that is, automatic adaptation to the level of knowledge of the learner. This allows the learning process to take place at the learner’s personal pace and learning style. In the context of language learning, AI technologies are often used in three areas: (1) automated assessment, (2) natural language processing (NLP), and (3) speech recognition and pronunciation training. Taguchi (2021) notes in his study that tools such as Grammarly and Write & Improve significantly improved students’ writing skills by automatically analyzing grammatical and lexical errors in written speech.

Li and Xu (2023) also found that AI-based pronunciation training systems (e.g., Elsa Speak, Speechling) are an important tool for improving students’ phonetic accuracy. They believe that real-time acoustic analysis and individual feedback provided by AI can increase the effectiveness of pronunciation training by 25–30%. In addition, AI is creating new opportunities for teachers. Kim and Reeves (2022) show in their study that analyzing students’ errors using AI allows the teacher to develop a specific individual approach for each student. This reduces the teacher’s workload and supports learner-centered learning. The issue of motivation in language learning is also closely related to SI. Keller (2021) in his research shows that AI-based interactive platforms (Duolingo, Babbel, ChatGPT) increase students’ interest and enthusiasm for learning, as these systems include elements of gamification, rewards, and competition. Thus, the learning process becomes not just a matter of acquiring knowledge, but an interactive, personalized experience. Some studies conducted in the Uzbek language also show the advantages of individualized teaching based on artificial intelligence. For example, according to Abdugarimov (2023), AI-based language learning platforms develop students' ability to recognize, correct, and self-monitor errors. This forms a culture of independent learning and creates an innovative teaching model that meets the requirements of modern education. In general, available scientific sources show that artificial intelligence technologies have a comprehensive impact on all components of language learning - phonetics, grammar, vocabulary, pronunciation, writing, and oral speech. Most importantly, AI systems put an individual approach at the center, which eliminates one of the biggest shortcomings of traditional lessons - the problem of "the same approach". Thus, an analysis of the results of previous studies confirms that individual language teaching based on artificial intelligence is emerging as not only an effective, but also a necessary methodological direction. This article analyzes the practical and statistical foundations of this direction.

## **METHODS**

This study used a mixed-method approach to determine the effectiveness of individual language teaching based on artificial intelligence. The study was carried out in two main stages: an experimental stage and an analytical-statistical stage. 60 students participated in the first stage. They were divided into two groups: the experimental group (30) received training on online platforms based on artificial intelligence (Duolingo, ChatGPT, Grammarly), and the control group (30) was taught in the traditional way - with the help of a textbook and a teacher. Both groups used the same teaching materials and topics. The experiment lasted 8 weeks. Before and after the experiment, both groups were given pre-tests and post-tests. The tests were based on the CEFR (Common European Framework of Reference for Languages) criteria and aimed to assess students' listening, reading, writing, and speaking skills. In addition, semi-structured interviews were conducted with students in the experimental group to obtain more in-depth qualitative information. The interviews focused on the usefulness, convenience, and impact of SI-based learning platforms on student motivation. The data obtained were analyzed in SPSS, and

statistical differences were determined using the mean score, variance, standard deviation, and t-test methods.

### **RESULTS**

The data obtained at the end of the experiment showed that students who studied using artificial intelligence achieved significantly higher results than those who studied traditionally. The overall post-test result of the experimental group was 78.4% on average, while the control group was 63.1%. The analysis of skills yielded the following results:

**Listening comprehension:** The experimental group performed 15% better on average, as the AI platforms offered individual exercises with real audio materials.

**Writing:** The number of grammatical errors made by students decreased by 32% as a result of automatic analysis using Grammarly and ChatGPT.

**Speaking:** Pronunciation accuracy increased by 27% due to pronunciation exercises using the Elsa Speak program.

**Reading:** Reading speed increased by 18% as students worked with texts that were tailored to their individual level of difficulty.

As a result of the interviews, 83% of students rated the SI-based learning process as “more interesting” and 76% as “more effective than traditional lessons.” Most students cited the fact that the AI systems identified their strengths and weaknesses and provided personalized analysis as a key advantage.

### **DISCUSSION**

The results show that individual language learning systems based on artificial intelligence are more effective than traditional methods. This is explained, first of all, by the fact that AI technologies provide a person-centered approach. The automatic formation of an individual learning path for each student increases their learning speed, allows for faster identification and elimination of errors. In this regard, the results of the study practically confirm the scientific views put forward by Holmes (2022), Anderson and Siau (2020), and Taguchi (2021). The experimental results are distinguished by high growth rates, in particular, in the areas of written and spoken speech. Through Grammarly and ChatGPT, students were able to automatically analyze written errors, which strengthened their ability to think grammatically and stylistically. At the same time, as a result of pronunciation exercises through Elsa Speak, it was observed that the level of speech accuracy and intonational naturalness also increased. These results are consistent with the findings of Li and Hu (2023) on phonetic acquisition. The interview results also revealed changes in students' mental and motivational aspects. Most participants rated AI-based lessons as “interesting,” “adaptive,” and “stress-free.” This provides practical support for the concept of “enhancing intrinsic motivation to learn through gamification” proposed by Keller (2021). Students believe that AI systems encourage them to practice without fear of making mistakes, as the analysis is evaluated by technology, not humans. However, some shortcomings were also observed. In particular, some students noted that there were cases where AI programs incorrectly assessed grammatical or semantic errors in the automatic analysis results. This means that AI systems cannot yet fully replace human teachers, but should be considered as a complementary tool. The quality of the technical infrastructure and the Internet was also one of the factors that influenced the learning process.

In general, the discussion shows that through the proper integration of SI technologies, students' results, motivation, and self-analysis ability in the language learning process can be significantly improved. Therefore, the systematic introduction of such systems into the curriculum can be an important factor in improving the quality of education.

### **CONCLUSION**

Individual language teaching based on artificial intelligence not only increases the level of knowledge of students, but also strengthens their motivation to learn, forms a culture of self-analysis, and personalizes the learning process. The results of the study showed that with the help of AI-based systems, students showed significant positive growth in all components of language skills - listening comprehension, reading, writing, and speaking. These technologies eliminate the problem of “one-size-fits-all” in the traditional education system and adapt to the individual learning style of the student. At the same time, they also provide effective results for teachers as a time-saving tool, automating assessment, and helping to define individual learning directions. Therefore, in the future, it is necessary to widely introduce artificial intelligence technologies in educational institutions, adapt them to local educational conditions, and prepare teachers to use these tools effectively. In addition, it is important to continue scientific research on improving the ability of AI platforms to analyze linguistic and cultural contexts in more depth. As a result, artificial intelligence technologies transform the educational process into a modern, dynamic, and effective system that is human-centered. In the field of language learning, this approach develops not only students’ language competence, but also their independent learning, thinking, and self-assessment skills. Therefore, individual language teaching based on AI is destined to become an integral part of the education of the future.

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