

Approaches to Personalizing the Learning Process in Teaching English with the Help of Artificial Intelligence

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Annotation. The article analyzes the essence and peculiarities of personalized learning. It was proved that such learning refers to an educational approach that adapts the educational process to students' individual needs, interests, and skills. The article aims to analyze the personalization of the educational process in teaching the English language, focusing on using artificial intelligence. The tasks of the article concern the interpretation of the notion of personalization, the comparative analysis of personalized learning and traditional learning, the description of instruments for personalization of the educational process of teaching the English language, and the development of the plan of personalized lessons. During the investigation, the theoretical research methods were used. They included a literature review, analysis, synthesis, and comparative analysis. The findings showed that teaching foreign languages with a personalized approach has several advantages. At the same time, the comparative analysis demonstrated that personalized teaching of the English language is characterized by the consideration of the individual learning style of a student, the use of educational materials which are developed according to interests, level of knowledge, and educational purposes of students; the use of feedback; the application of motivation instruments; the implementation of student-oriented approach; and the continuous assessment. In the research, we distinguished the principles of personalization in teaching the English language from those of artificial intelligence. These principles were oriented towards adaptability, individualization, and interactivity. Based on these findings, we outlined the strategies that ensure the educational process's efficiency. Also, specific applications and platforms were described that are used for personalized teaching of the English language using artificial intelligence algorithms to adjust the educational materials to students' individual needs. The schematic plan for personalized English language lessons was developed, and the practical recommendations for enhancement of its efficiency were presented.

Keywords: artificial intelligence instruments, personalized learning, chatbots, personalized educational platforms, personalized educational environment, personalized lessons, virtual tutors.

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Introduction

The modern world is undergoing rapid technological advancement, transforming every aspect of human life, from communication and healthcare to education and industry. Innovations such as artificial intelligence, the Internet of Things, blockchain, and quantum computing are reshaping how we interact, work, and learn. These advancements provide an unprecedented level of automation, eliminate geographical barriers, and optimize complex processes [1]. In education, for example, technology is revolutionizing teaching and learning by introducing virtual classrooms, adaptive learning platforms, and artificial intelligence-driven personalization, making education more accessible and effective [2].

Teaching methodologies have undergone significant transformations over the past decades, influenced by technological progress and research in pedagogical science [3, 4]. Traditional methods, such as rote memorization and teacher-centered learning, have gradually been replaced by learner-centered approaches, including competency-based learning, interactive teaching, differentiated instruction, and problem-based learning. With the advent of digital technologies, blended learning models and online education have become prevalent, enabling more dynamic and interactive teaching methods [5]. These developments have laid the foundation for individualizing the educational process and organizing personalized learning trajectories for students [6].

In the 21st century, the demand for personalized education has increased due to the diverse individual needs of learners [7] and the global knowledge economy, which recognizes knowledge, ideas, and technologies as key drivers of economic growth [8]. Today's learners represent a wide range of cultural, linguistic, and socio-economic backgrounds, making universal approaches to teaching less effective. Personalization aims to address these differences by adapting content and teaching methods to the individual needs of students [6].

This revised and proofread text adheres to the academic tone suitable for publication in scientific journals, maintaining clarity, structure, and proper referencing. Let me know if further adjustments are needed.

Artificial intelligence (AI) serves as the cornerstone of personalized learning, as it enables the analysis of individual learner needs and the construction of an effective educational process [9]. Within the educational environment, AI facilitates the adaptation of learning content, teaching methods, and assessment processes, ensuring that every student receives the most suitable and effective educational materials. Using AI-based tools, educators can create adaptive learning environments that support independent and individualized learning, providing real-time feedback and assistance [10].

Contemporary research demonstrates that personalized learning not only enhances student engagement and motivation but also improves competencies and learning outcomes. This is because it allows educators to address the unique strengths and weaknesses of each learner [11; 12].

It is noteworthy that personalized learning proved to be especially crucial during the COVID-19 pandemic and in times of war. H. Sklyanichenko [13] asserts that personalized learning addresses the challenge of limited access to education, enabling learners to study according to their own schedules, receive teacher support, and adapt to circumstances arising from emergencies. In the context of war, where students may be displaced or experience psychological trauma, personalized learning offers flexibility and adaptability, providing a safe space for continuing education tailored to individual needs, even in challenging situations [14].

Personalization is particularly vital in foreign language teaching, aligning the educational process with the unique needs, interests, and abilities of individual learners, thereby increasing their motivation and engagement with exercises [15]. Typically, students within the same educational group differ significantly in terms of language proficiency, learning styles, interests, and academic or professional goals. By addressing these individual differences, personalized learning ensures that every student receives the most relevant and practical instruction.

Integrating AI into education remains a pressing topic in contemporary pedagogical discourse. For instance, I. Vizniuk and N. Buhlai [2] and O. Panukhnyk [10] have extensively explored the fundamental concepts of AI in education and the trends in utilizing AI-based tools within educational settings. Meanwhile, several researchers, including H. Kvandeng [12], H. Sklyanichenko [13], N. Saienko, H. Sozykina [15], S. Vadkington, and M. Bernatski [16], have highlighted personalized learning as a means of enhancing the effectiveness of higher education and provided detailed analyses of its advantages and disadvantages. H. Peng, S. Ma, and J. Spector [17] identified personalization as a prerequisite for an effective "smart" learning environment, while K. Lu [19] described the role of personalized technologies in learning and their contribution to improving student achievements.

The personalization of foreign language teaching with the integration of artificial intelligence (AI) has been explored in the works of N. Saienko, H. Sozykina [15], A. Brutman, T. Naumchuk [19], R. Jiang [20], T. Sana [21], K. Alharbi, and L. Khalil [22], among others. Specifically, R. Baa and S. Minj [23] have justified the use of gamification technologies in personalized educational environments, while Y. Xiao and Y. Zhi [24] investigated the implementation of chatbots for developing foreign language communicative competence among learners. Additionally, the studies of J. Hsiao and J. Chang [25] have highlighted the enhancement of writing skills using AI tools. In this context, the contributions of B. Feng [26] are significant, as they present findings on the application of virtual tutors in foreign language teaching.

However, among the available domestic and international research, there is a noticeable gap in studies that address approaches to personalizing the learning process in teaching English, particularly with the use of AI-based tools.

Aim of the Study

The aim of the article is to elucidate the pedagogical phenomenon of personalized learning in the teaching of English, with a focus on the use of AI to create personalized English lessons.

Objectives of the Study

1. To define the concept of personalization in pedagogy and outline its specific features in the teaching of English.
2. To conduct a comparative analysis of personalized learning processes in English teaching and traditional teaching methods.
3. To identify AI-based tools used for personalizing foreign language teaching.
4. To develop a schematic plan for a personalized English lesson.
5. To propose practical recommendations for using AI tools in organizing personalized English lessons.

Materials and Methods

The study on the personalization of English language teaching using AI-based tools employed theoretical research methods, including literature review, analysis, synthesis, and comparative analysis. The review of scientific and pedagogical literature identified key theories on the use of artificial intelligence in education, as well as the approaches and methods that underpin its effective implementation in the educational process.

A comparative analysis of various AI tools used in personalized English language teaching was conducted, evaluating how different applications and platforms contribute to the personalization of learning. Through the method of comparative analysis, the advantages of personalized learning were outlined.

The methods of analysis and synthesis were utilized to identify factors influencing the educational process and to study the features of effective personalized English lessons using AI-based tools. Additionally, the synthesis method enabled the authors to present strategies and tools that are most effective for different groups of learners.

Results

The introduction of the term "personalized learning" into active academic discourse occurred in the late 20th and early 21st centuries. Although the idea of adapting education to individual learner can be traced back to early education theorists such as John Dewey and Maria Montessori, personalized learning became more formalized only with the advent of digital technologies and an increased focus on learner-centered education [27].

The growing role of information and communication technologies in education led to more structured research on personalized learning in the late 1990s and early 2000s [12; 27]. During this period, educational reformers emphasized the importance of tailoring education to the unique needs of learners, moving away from the traditional, one-size-fits-all approach to teaching.

Subsequently, the use of artificial intelligence (AI) in education enabled the customization of learning content for individual students, making personalization a feasible and scalable phenomenon [28]. Discussions around modernizing education, particularly in countries like the United States, underscored personalized learning as a means of addressing achievement gaps and enhancing student engagement [29].

The continued adoption of online learning platforms, learning management systems, and educational analytics tools has positioned personalized learning as one of the central themes in contemporary pedagogical discourse. Today, personalized learning is recognized as a transformative approach aimed at creating a more inclusive and effective educational environment for all learners [11]. According to H. Shevchuk [6], personalized learning is an educational approach that adapts the learning process to the individual needs, interests, and abilities of each student. One of the key features of personalized learning is its emphasis on learner motivation and readiness for independent study [30]. Teachers in this model act primarily as facilitators, providing support tailored to the individual needs of each learner.

Another critical aspect of personalized learning is the use of data and feedback to continuously improve educational materials and teaching methods [31]. This approach helps identify where students face challenges or achieve success, enabling more effective measures to enhance the organization of the educational process. According to N. Saienko and H. Sozykina [15], personalized learning not only addresses the cognitive needs of learners but also supports their social, emotional, and motivational development, creating a more individualized and supportive learning environment.

In light of this, teaching foreign languages, including English, through a personalized approach offers numerous advantages [15; 16]. One of the key benefits is that personalization allows for the adaptation of the learning pace, which is crucial in language acquisition. Learners can progress through new material at their own speed, spending more time on challenging aspects such as grammar or pronunciation while quickly mastering topics they find easier to grasp.

This flexibility ensures that students are not constrained by the boundaries of a standard curriculum, ultimately fostering more effective and productive learning. Learners gain a sense of control over their education, which enhances their motivation and engagement in the process of learning English.

Another significant advantage of personalizing the learning process in English language teaching is the ability to target specific skills and weaknesses [19]. Through adaptive technology or differentiated instruction, personalization allows learners to focus on the skills they need to improve, such as listening, speaking, or writing. With the implementation of personalized learning, learners can work with authentic language materials that are relevant to their interests, such as articles about their hobbies, films, or real-world conversations, making the learning process more engaging and meaningful. Moreover, personalized learning also contributes to greater autonomy and confidence of the future specialist, which are extremely important for successful foreign language learning [16; 30]. Based on the analysis of

scientific literature [15; 16; 30], a comparative analysis of the personalization of the learning process in teaching English and the use of traditional teaching was carried out, which is presented in Table 1.

Table 1

Comparative analysis of the personalization of the learning process in teaching English and the use of traditional teaching

| Personalized learning | Traditional education |
|---|--|
| Learning based on individual learning style | Fixed pace of learning regardless of the individual readiness of students |
| Learning materials are developed in accordance with the interests, level of knowledge, and educational goals of the student | Uniform content of educational materials |
| Real-time feedback | Lack of prompt feedback |
| Focused on the weaknesses of the individual student | Use of exercises to develop general foreign language skills |
| Flexible learning environment | Use of traditional teaching methods |
| Use of motivational tools | Structured learning environment |
| Use of innovative technologies | Limited use of technology |
| Interaction with other participants in the educational process through personalized online platforms | Limited interaction with other participants in the educational process |
| Personality-oriented approach | Teacher-centred learning |
| Taking into account the needs of the student in the organisation of the educational process | The educational process depends on the schedule of classes and methods used by the teacher |
| Continuous assessment, including electronic assessment | Periodic assessment |

Source: [15; 16; 30].

The principles of personalizing English language teaching using artificial intelligence focus on adaptability, individualization, and interactivity [17]. Artificial intelligence systems are designed to assess the level of foreign language competence of each learner, identify their strengths and weaknesses, and the teaching methods that will be effective. Data processing allows artificial intelligence to create lesson plans tailored to the interests and individual needs of students. At the same time, thanks to continuous assessment of learning outcomes, AI tools can create tasks for the individual work of students. Another key principle is the use of feedback [31]. AI-based tools provide instant correction of grammatical errors and pronunciation mistakes and overcome lexical difficulties encountered by students in the learning process. Simulation of the language environment with the use of AI-based chatbots promotes active interaction by simulating the use of language in real life [32]. In addition, artificial intelligence promotes multimodal learning, which involves the use of various learning tools, including videos, interactive exercises, and games [33]. According to a number of scholars, multimodal learning allows teachers to adjust their activities to the individual learning styles of students and thus increase the effectiveness of teaching English [30]. The formulated principles of personalization of English language teaching with the use of artificial intelligence determine the definition of specific strategies that guarantee the effectiveness of the educational process [12, 24, 30]. These include adaptive learning (automatic adaptation of learning materials and tasks to the level of language proficiency of the learner), interactive chatbots (communication with chatbots that simulate real conversations in a foreign language), personalized exercises

(completion of exercises or tests that include tasks on topics that are difficult for the student), analysis of learner's language errors (automatic recognition of grammatical lexical and phonetic errors, offering the learner the necessary explanation), language simulators (using artificial intelligence-based applications to practice speaking, listening, reading or writing that can generate various scenarios of language behavior), and emotional state analysis (monitoring the emotional state of the learner through text or voice analysis).

It is important to identify the AI-based tools used for personalizing foreign language teaching. An analysis of scientific literature has highlighted several applications and platforms that leverage advanced AI algorithms to adapt learning materials to the individual needs of learners [23–25; 34]. These tools include language learning applications, speech recognition tools, chatbots, personalized educational platforms, grammar and writing assistants, virtual tutors, interactive learning tools, and translation tools with embedded educational functions.

Figure 1 presents an analysis of AI-based tools utilized for personalizing English language teaching. By combining these tools, educators can create a personalized learning environment for studying English tailored to learners' specific educational needs, preferences, professional goals, and emotional states.

The scientific and pedagogical literature emphasizes that for effective personalization of English language teaching using AI, educators should focus their efforts on adapting learning materials and engaging all participants in the educational process [19, 22, 25]. First, lessons should be designed to utilize AI tools capable of assessing individual knowledge levels and skills, including vocabulary range, grammatical understanding, or pronunciation proficiency [22].

The selected tools must provide effective feedback and address the needs of each learner, ensuring that the learning materials match their foreign language proficiency level. It is essential to incorporate various interactive exercises, such as quizzes, games, and discussions, which use AI algorithms to personalize tasks [23]. Lessons should also include mechanisms for tracking learners' progress, enabling educators to monitor AI-generated data to identify learning gaps and provide additional explanations as needed [21].



Figure 1. AI-based tools used to personalize English language teaching

Source: [23-25; 34].

Additionally, a personalized English language lesson should promote active engagement and collaboration among learners. AI-based tools, such as chatbots, speech recognition software, or personalized educational platforms, should be integrated into the lesson plan and

aligned with the learning objectives [24]. Educators must ensure that these tools are user-friendly and accessible to all students, regardless of their technological or technical skills.

Moreover, the lesson plan should allocate time for instructor-led activities, allowing for the explanation of complex linguistic phenomena or the development of interpersonal communication skills [30]. It is important to emphasize that personalizing English language teaching using AI does not imply abandoning teacher-led tasks. On the contrary, this approach maximizes the effectiveness and inclusiveness of lessons, creating a supportive environment for all participants in the educational process.

Table 2 presents a schematic plan for a personalized English language lesson (B1 level) using AI tools.

Table 2

Schematic Plan for a Personalized English Lesson Using Artificial Intelligence Tools

| | | |
|--|-------------|---|
| <i>Stage of the Lesson</i> | B1 | |
| <i>Introductory Part</i> | 80 min | |
| Stage of the lesson | Time | Description of the stage |
| Introduction | | |
| Communicating the topic of the lesson and educational objectives | 2 min | The teacher announces the topic and objectives of the class. |
| Speech warm-up | 5 min | Tasks: Revise vocabulary using platforms such as Quizlet or Memrise. |
| Checking individual tasks | 10 min | Tasks: Presentation of individual writing tasks. During the class, students upload their individual assignments to Grammarly, which provides detailed feedback on grammar, punctuation, sentence structure, and vocabulary. Artificial intelligence highlights mistakes, offers explanations for corrections, and describes ways to improve writing skills. |
| Main part | | |
| Introduction to new vocabulary | 10 min | Objectives: Learning new vocabulary. The teacher uses Duolingo or Busuu to introduce 15-20 new words related to the topic of the lesson. |
| Introduction to grammatical material | 8 min | Objectives: Learning new grammar material. The teacher uses Edpuzzle, which allows you to embed interactive questions into grammar videos. To check grammar skills, the teacher uses Kahoot! |
| Speaking practice (making up dialogues) | 12 min | Tasks: Work in pairs and create dialogues. To create and practice dialogues, use ChatGPT or Mondly. These tools help learners create dialogues based on specific scenarios, and teachers can customize the prompts to suit the learning activity (e.g., learning specific vocabulary or grammatical structures). |
| Working with authentic video | 10 min | Objective: Watch an authentic video using Edpuzzle. The instructor uploads or selects existing videos and adds questions, quizzes, and comments at specific |

| | | |
|---------------------------------|--------|--|
| | | points in the video. During the lesson, Edpuzzle tracks student engagement and performance by providing a report on their work. |
| Completion of individual tasks | 15 min | Tasks: Completion of individual tasks after watching the video. The teacher uses Quizizz to develop questionnaires to check video comprehension. Artificial intelligence adapts the questions in the questionnaire according to the student's learning outcomes. In addition, Quizizz offers detailed analytics, providing information on student engagement. |
| Final part | | |
| Final evaluation | 5 min | Tasks: Organisation of the final survey. The teacher uses Google Forms in conjunction with the Formative app to create a personalized summative assessment. |
| Analysis of errors | 7 min | Tasks: Analyse errors and correct them. Flubaroo highlights incorrect answers. The app aggregates data to show trends in the study group. This helps the teacher to identify patterns of errors and adapt their further actions to the needs of the students. |
| Explanation of individual tasks | 1 min | The teacher explains the requirements for individual assignments. |

Source: developed by the author

Given the relevance of artificial intelligence (AI) in personalizing the learning process for English language teaching, we outline methodological recommendations to enhance the effectiveness of personalized English lessons:

1. Utilize AI-based lexical and grammatical tests to assess learners' individual proficiency levels [21].
2. Create interactive video content and embed interactive questions within video lessons [35].
3. Automate the assessment of learners' academic achievements [17; 21].
4. Personalize vocabulary acquisition [19; 15; 22].
5. Integrate AI into group management, such as monitoring the academic progress and behavior of individual learners [20].
6. Incorporate feedback mechanisms [31; 32].
7. Encourage collaborative learning using tools like Padlet, enabling students to share and create learning materials independently [28].
8. Employ AI-powered translation tools [36].
9. Design personalized writing assignments [21; 25].
10. Integrate virtual tutors to assist learners with conversation practice, pronunciation, and grammar [26; 34].
11. Leverage AI for summarizing educational content, such as texts or videos [35].
12. Gamify language teaching [23; 33].
13. Provide detailed error analysis [31; 32].
14. Use virtual language labs where students can practice with virtual instructors or complete scenario-based exercises [26].
15. Schedule consultations considering learners' individual timetables [17; 30].

Thus, AI-enabled personalization in English language teaching offers extensive opportunities to adapt learning materials to the educational needs of individual learners. AI

tools facilitate feedback, personalized content delivery, and progress tracking, significantly enhancing the educational process. As AI continues to advance, its integration into language education holds transformative potential, creating a learner-centered, flexible educational environment that aligns with learners' needs and learning styles.

Conclusions

It has been established that personalized learning is aimed at creating a more inclusive and effective educational environment for all learners. This approach ensures the adaptation of the educational process to the individual needs, interests, and abilities of each student. One of the key features of personalized learning is its emphasis on learner motivation and readiness for independent learning, with teachers acting primarily as facilitators. Teaching foreign languages through a personalized approach offers several advantages, including the adaptation of learning pace and material mastery at an individual speed, the creation of a flexible educational environment, and a focus on developing specific skills.

A comparative analysis of personalized and traditional teaching methods in English language instruction was conducted based on a review of scientific literature. The results demonstrated that personalized English language teaching considers individual learning styles, uses materials tailored to the learner's interests, knowledge level, and educational goals, provides feedback, applies motivational tools, adopts a learner-centered approach, and ensures continuous assessment.

The study identified principles for personalizing English language teaching using artificial intelligence, focusing on adaptability, individualization, and interactivity. These principles define specific strategies that ensure the effectiveness of the educational process, including adaptive learning, interactive chatbots, personalized exercises, analysis of learners' language errors, language trainers, and emotional state analysis. The literature review revealed several applications and platforms for personalized foreign language teaching that utilize advanced AI algorithms to adapt learning materials to individual needs. These tools include language learning applications, speech recognition tools, chatbots, personalized educational platforms, grammar and writing assistants, virtual tutors, interactive learning tools, and translation tools with educational functions.

In this context, a schematic plan for a personalized English language lesson was developed, along with practical recommendations to enhance its effectiveness. It was determined that instructors should focus their efforts on adapting learning materials and engaging all participants actively in the educational process. Selected AI-based tools should provide effective feedback and cater to the needs of each learner. Lessons should include interactive exercises and mechanisms for tracking learners' progress.

Future research will focus on the methodological foundations of teaching English using AI tools and on developing personalized lesson methodologies. A well-designed methodology is expected to assist instructors in effectively planning lessons aligned with educational objectives, while appropriately chosen AI-based tools will help foster knowledge, skills, and competencies, enhance learners' motivation for academic activities, and encourage creative thinking. At the same time, implementing personalized learning methodologies will address individual learner characteristics and adapt the educational process to their needs.

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