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ORIGINAL

Transforming Foreign Language Education: The Role of AI-Based Adaptive Learning Systems in Enhancing Personalized Learning Amid Global Instability

Transformación de la enseñanza de lenguas extranjeras: El papel de los sistemas de aprendizaje adaptativo basados en la IA para mejorar el aprendizaje personalizado en medio de la inestabilidad mundial

Roman Poznanskyy[1], Liliia Pryimak[1], Halyna Apelt[1], Nadiia Savchuk[1], Liliia Kopchak[1]

[1]Vasyl Stefanyk Precarpathian National University, Department of Foreign Languages and Country Studies. Ivano-Frankivsk, Ukraine

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Autor para la correspondencia: Roman Poznanskyy

ABSTRACT

The article addressed the urgent issue of personalized foreign language learning during periods of instability, such as war, economic crises, and pandemics. It explored the effectiveness of using educational technology (EdTech) and artificial intelligence (AI) to adapt the learning process to individual student needs. The aim of the study was to analyze the mechanisms of integration of adaptive AI systems in foreign language teaching to achieve maximum personalization of learning and to develop recommendations for their effective use in order to increase the resilience of the educational process to the challenges of global instability. The focus lay on developing future foreign language teachers' metacommunicative competence, encompassing both organizational (grammatical and textual) and pragmatic (illocutionary and sociolinguistic) components. The study, conducted at Vasyl Stefanyk Precarpathian National University, analyzed students' awareness of and readiness to use AI in language instruction. The article provided clear recommendations for the effective application of AI tools, including personalized learning, spoken language practice, writing skill development, interactive instruction, and the integration of online resources. Findings indicated that AI-supported foreign language teaching enhanced motivation, improved learning efficiency, and increased accessibility while fostering essential 21st-century skills. However, the research also emphasized the need to address ethical concerns and ensure high-quality teacher training for the successful integration of such technologies. The study identified various AI tools that supported students in enhancing their language proficiency and presented examples of the most commonly used ones. It concluded that AI had the potential to make language learning more personalized, engaging, and effective, especially in contexts marked by instability. The article was intended for teachers, methodologists, students, and all those interested in innovative approaches to foreign language education in challenging circumstances.

Keywords: Adaptive Learning Systems; Artificial Intelligence; Edtech; Personalized Learning; Foreign Language Learning; Flexible Learning Paths.

RESUMEN

El artículo abordaba la urgente cuestión del aprendizaje personalizado de lenguas extranjeras durante periodos de inestabilidad, como guerras, crisis económicas y pandemias. Exploraba la eficacia del uso de la tecnología educativa (EdTech) y la inteligencia artificial (AI) para adaptar el proceso de aprendizaje a las necesidades individuales de los estudiantes. La atención se centró en el desarrollo de la competencia

metacomunicativa de los futuros profesores de lenguas extranjeras, que abarca tanto componentes organizativos (gramaticales y textuales) como pragmáticos (ilocutivos y sociolingüísticos). El estudio, realizado en la Universidad Nacional Precarpática Vasyl Stefanyk, analizó el conocimiento y la disposición de los estudiantes para utilizar la IA en la enseñanza de idiomas. El artículo ofrecía recomendaciones claras para la aplicación eficaz de las herramientas de la IA, como el aprendizaje personalizado, la práctica de la lengua hablada, el desarrollo de la destreza escrita, la instrucción interactiva y la integración de recursos en línea. Los resultados indicaban que la enseñanza de lenguas extranjeras con ayuda de la IA aumentaba la motivación, mejoraba la eficacia del aprendizaje y aumentaba la accesibilidad, al tiempo que fomentaba las destrezas esenciales del siglo XXI. Sin embargo, la investigación también hizo hincapié en la necesidad de abordar los problemas éticos y garantizar una formación del profesorado de alta calidad para integrar con éxito estas tecnologías. El estudio identificó varias herramientas de IA que ayudaban a los estudiantes a mejorar su competencia lingüística y presentó ejemplos de las más utilizadas. Concluía que la IA tenía el potencial de hacer que el aprendizaje de idiomas fuera más personalizado, atractivo y eficaz, especialmente en contextos marcados por la inestabilidad. El artículo iba dirigido a profesores, metodólogos, estudiantes y todos aquellos interesados en enfoques innovadores de la enseñanza de lenguas extranjeras en circunstancias difíciles.

Palabras clave: Sistemas de Aprendizaje Adaptativos; Inteligencia Artificial; Edtech; Aprendizaje Personalizado; Aprendizaje de Lenguas Extranjeras; Vías de Aprendizaje Flexibles.

INTRODUCTION

Artificial intelligence (AI) is rapidly integrating into the educational process, offering personalized and adaptive learning methods. Adaptive learning systems based on AI are able to analyze the progress of each student, identify their weaknesses, and adjust the curriculum to meet individual needs. In the context of globalization, knowledge of foreign languages is becoming increasingly important. AI can significantly improve the language learning process by providing interactive learning, automatic pronunciation checking, and personalized feedback. The modern world is characterized by high volatility and instability (military conflicts, pandemics, economic crises). In such conditions, adaptive learning systems can ensure the continuity of the educational process, allowing higher education students to study anytime and anywhere. In the context of the war in Ukraine, AI technology can help educate those who have been forced to leave their homes. Traditional teaching methods often fail to take into account the individual characteristics of learners. AI-based adaptive systems allow for the creation of personalized learning environments that increase motivation and learning effectiveness.[1]

In today's dynamic educational landscape, artificial intelligence (AI) opens up new horizons for foreign language learning. Thanks to technological advances, particularly in AI, language learning is becoming more personalized and accessible. AI-based adaptive learning systems have great potential for individualizing the educational process of training future translators by analyzing data, adapting materials, and providing personalized support to each higher education student.[2,3]

In addition to practice, these platforms provide personalized feedback on pronunciation and grammar. Feedback is given in real time, enabling students to quickly correct mistakes and effectively improve their language skills. Furthermore, feedback is tailored to each student's individual needs, ensuring the necessary support for successful language learning.[4]

As the field of AI is rapidly evolving, it is bringing significant changes to all scientific and technical fields. Today, there are many AI-based tools for language learning, such as language translators, chatbots for simulating communication with native speakers, adaptive learning platforms for personalized learning, and interactive exercises with instant feedback. These tools offer higher education students convenient and effective means of learning foreign languages. Language skills are key to effective communication and play an important role in all areas of life.[5]

The rapid development of AI technologies opens up new opportunities for creating innovative educational products. Research in this area is important for understanding the potential of AI in education and developing effective methods of its application. Thus, the research and implementation of adaptive learning systems based on AI is a relevant and promising area of education development, especially in times of instability.

Modern education is on the verge of significant transformations driven by the rapid development of artificial intelligence (AI). Both in Ukraine and abroad, researchers are actively exploring the potential of AI, its tools, and its impact on various aspects of the learning process, including foreign language learning.[6,7,8,9,10]

These efforts are supported by strategic government documents, such as Ukraine's Concept of Digital Education and Science, which defines the main directions and strategies for the digital transformation of

education and science. Ukraine is making significant progress in artificial intelligence research.

Leading scientific institutions, including the Glushkov Institute of Cybernetics, the Institute for Problems of Artificial Intelligence, and Taras Shevchenko National University of Kyiv, are actively developing new AI algorithms and models. Their research has significant potential for the development of Ukrainian science and the economy.[11,12,13]

Researchers[14,15,16] divide the application of AI in education into three main categories, targeting different user groups: student-centered, teacher-centered, and system-centered. Students use AI for individualized learning, personalized curricula, and access to adaptive learning resources. AI automates routine tasks for teachers, such as grading, feedback, and plagiarism detection, reducing the teaching load and improving teaching effectiveness. Administrative staff use AI at the institutional level for data analysis, process modeling, and educational institution management. Overall, the application of AI in education includes learning profiling and prediction, assessment, adaptability and personalization, and the creation of intelligent learning systems.[9,10]

In the context of "Education 4.0," which Bykov et al.[12] define as a new paradigm of learning, AI plays a key role in preparing people for life and work in the digital age. This paradigm is based on flexibility, personalization, collaboration, and extended learning. AI systems can analyze data about each student to create personalized learning plans, automate teachers' tasks (assessment, lesson planning), and make education more accessible and interactive through simulations, virtual environments, games, and quizzes.

Chaka[13] argues that AI can automate numerous educational processes in vocational education, opening up new opportunities for students and facilitating the work of teachers. In an environment of rapidly changing information, teachers can use AI to create diverse and interesting tasks, adapting them to different abilities and opinions of students. However, as experts point out, AI is only a supplement, not a replacement for teachers, whose presence in the classroom remains indispensable.

Some authors[14,15,16] emphasize that AI offers numerous opportunities to improve vocational education by ensuring that future professionals are trained to meet the needs of the modern labor market. The main arguments in favor of using AI include: personalization of learning, improvement of practical skills, increased accessibility of education, preparation for working with AI, and increased teacher effectiveness. At the same time, there are certain challenges, such as the potential bias of AI systems, the need to ensure cybersecurity and data privacy, and ethical considerations. However, the benefits far outweigh the risks, and AI has the potential to revolutionize vocational education by making it more personalized, accessible, and effective. The role of the teacher, in turn, is transforming into that of a mentor who provides quality education using digital resources.

Garcia-Martinez et al.[17], researching the use of AI in education, emphasize the need for its implementation in vocational training as a requirement of the digital society. AI systems use complex algorithms to analyze and interpret data, learn from their own experience through machine learning, and are capable of making autonomous decisions. They can perform a variety of tasks, from image recognition to text generation.

Salas-Pilko et al.[18] are actively researching AI implementation methodologies, identifying the following types: narrow AI, which is focused on performing a single specific task (e.g., face recognition); general AI, which possesses general cognitive abilities; and superintelligence, which surpasses human intelligence in all aspects. The emergence of "digital universities" based on virtual reality and AI is predicted, indicating the active use of digital technologies in the transformation of the educational process.

Research by Yara et al.[19] confirms the concept of adaptive learning, where AI analyzes large amounts of data, identifies patterns, and predicts the further development of each student, automating routine tasks of the teacher and promoting a deeper understanding of the learning process.

The main objective of the study was to explore the mechanisms for integrating adaptive AI systems into foreign language teaching. We sought to achieve maximum personalization of learning and develop practical recommendations for their effective application. This will make the educational process more resilient in the face of global challenges.

Given the research on this topic, there are still questions that need to be addressed, namely: How do adaptive systems respond to different types of instability (e.g., economic crises, political conflicts, natural disasters)? How does the use of AI affect the motivation and emotional state of students under stress? Does excessive dependence on AI lead to a decrease in autonomy and critical thinking? How do adaptive systems take into account the importance of social interaction in language learning? Does the use of AI limit opportunities for real communication and cultural exchange? How can we ensure the privacy and security of learner data, especially in times of instability? How to prevent bias in AI algorithms and ensure equal access to education for all? How is the role of teachers changing in the context of widespread use of adaptive systems? What are the long-term implications of the use of adaptive learning systems for language development and general education? How will these systems affect the labor market and future opportunities for graduates? Thus, there is a need for research.

METHOD

The type of research is empirical. The research focuses on the study of the process of personalized foreign language teaching in higher education, especially in conditions of instability (wars, economic crises, pandemics). The key aspects of personalized learning are identified: individual approach, flexibility, motivation, and the use of technology. The advantages of personalized learning are described: increased efficiency, motivation, and development of independence. The importance of EdTech and artificial intelligence (AI) for personalized learning is emphasized.

The first stage of the research consisted in preparing a theoretical framework for further study. The analysis, synthesis, comparison, and generalization of scientific and educational literature on the research problem were carried out, which made it possible to determine the directions of development of pedagogical ideas in the field of study and the methodological basis of the study. Working with the AI approach requires the formation of learning and teaching components to integrate a foreign language with other disciplines of the curriculum. The result of this process is the creation of competencies, which are understood as the ability to independently transform structural units into a temporal and spatial organization. A brief overview of the theoretical basis of the influential models presented in the research outlines the panorama of modeling the development of metacommunicative competencies.

At the second stage of the study, a two-part questionnaire was developed on the basis of the European Framework for the Training of AI Teachers to show the preliminary awareness of future foreign language teachers about the methodology and teaching of AI. 320 students of Vasyl Stefanyk Precarpathian National University, which trains specialists in the field of international legal interaction and international security, were involved in the survey. The case study "Personalized Foreign Language Teaching in an Unstable Environment" was used for the survey's ascertaining stage. The structure of the case included the following stages: context, identification of aspects, development of a solution, and implementation of the methodology. Instant translation and speech synthesis tools were used to develop conversational skills. A study was conducted at Vasyl Stefanyk Precarpathian National University to determine the level of metacommunicative competence of future foreign language teachers. Students were surveyed about their awareness of AI, and their answers were analyzed for the benefits and challenges of teaching using AI methods. A questionnaire with closed and open-ended questions was used to assess AI competence. Additionally, a survey was conducted to show the level of students' awareness of using AI technology as a separate didactic tool and AI teaching as an academic environment.

Starting from the third year, some disciplines are taught in English, which indicates that students are familiar with AI technology and its tools. The level of English of students is quite high and does not pose a serious difficulty for the selected target group to work in the AI environment. At the same time, the main condition for the pilot study was knowledge of English at least B1, since the focus of the study was on the use of AI technology in accordance with the student's competence. Thus, the target group was selected on the basis of balanced training in the foreign language major. The data was interpreted using a statistical data processing program, and the results were visualized in the form of histograms.

Thus, the data obtained during the survey can be considered as indicators that have potential facts for determining the expected educational competencies of a modern specialist, which will allow developing new strategies for training and introducing new courses into educational programs.

RESULTS

To determine the level of future foreign language teachers' metacommunicative competence, a study was conducted at Vasyl Stefanyk Precarpathian National University with 320 respondents. At the ascertaining stage, the control group was offered the case study "Personalized Foreign Language Teaching in an Unstable Environment". The structure of the case included the following stages.

Context and problem

In times of instability (wars, economic crises, pandemics), traditional methods of teaching foreign languages become less effective. Higher education students face numerous challenges: limited access to educational institutions, changes in schedules, and psychological factors. In such conditions, personalized learning becomes especially important, allowing adapting the educational process to the individual needs of each student.

Highlighting the key aspects of personalized learning

Individual approach adaptation of teaching methods to the personal characteristics and needs of students. Flexibility and adaptability the ability to study anytime and anywhere. Motivation and engagement the use of interactive technologies and gamification. Technological support - the use of online platforms, mobile applications, and artificial intelligence.

Conducting the research

A study was conducted at Vasyl Stefanyk Precarpathian National University, which included a survey of 320 students on their level of awareness of AI in three components: motivational, cognitive, and activity, and analysis of students' answers about the benefits and challenges of learning using AI methods. The survey consisted of open-ended questions, in particular: "I understand AI as...", "I see my task in the context of AI education as.."', "The main advantages of AI education that I see are...", "For me, the challenges of AI education can be", "I will solve these difficulties in such ways as...", "I realize that there are difficulties/things I cannot influence, and among these difficulties I mean...", "I see ideal scenarios of AI education as...". The survey results were processed using the tools of grounded theory, with the distribution of the obtained codes and the corresponding categories formed according to the above three components.

Also, the results of the students' knowledge assessment allowed us to conclude that cognitive skills have weak associative connections, knowledge is not supported by practical skills necessary for high-quality professional communication, the practical orientation of English is at a low level, the content of the disciplines taught to students needs to be improved, as it has a limited range of communication situations and the choice of context-dependent language forms.

Taking into account Bloom's Taxonomy, students' skills stopped at the levels of "knowledge", "understanding" and "use" and did not manage to reach the levels of "analysis", "synthesis" or "evaluation".

The results of the survey on the three components showed that the overall level of motivation to develop metacommunicative competence is average: 21 % of respondents had a high level of motivation, 42 % had an average level, and 37 % had a low level.

The results of the survey showed that the level of readiness of higher education students to develop metacommunicative competence in the cognitive component is low. Only 21,3 % of the 80 future teachers surveyed consider their level of readiness to be high; 38,3 % rated their training as average; 37,3 % said they were not ready to use AI in their future activities; and 3,1 % were unable to determine their level of readiness.

The formation of the activity component was also assessed by means of a questionnaire. According to the results, 38,2 % of higher education students demonstrate a low level of desire for self-development, do not have clear goals for its implementation and self-improvement, and are not sufficiently cognitively and professionally motivated to succeed. At the same time, 27,9 % of respondents showed a strong desire for self-development, which is expressed in the desire to create their own professional development program, for example, through taking advanced training courses on the use of AI in their work. Another 33,9 % of future teachers intend to engage in professional self-development, but have not developed a specific action plan, which negatively affects their low level of self-development.

The use of AI tools in foreign language learning opens up many opportunities for personalizing and optimizing this process. It is proposed to use the main methods:

1. Personalized learning: AI platforms assess the current level of language proficiency, identifying strengths and weaknesses. This allows for the creation of individualized learning plans tailored to the needs of each learner. AI tools are able to adjust the complexity of tasks based on the student's performance, and also allow learning at their own comfortable pace, which is especially important in the case of inclusion.
2. Communication language: Chatbots simulate conversations with a real native speaker, thereby modeling various communication scenarios. At the same time, they analyze pronunciation skills, identify errors, and correct them.
3. Improving writing skills: analyzing students' written work for errors allows making recommendations for optimizing the style and structure of the text, which helps to expand vocabulary and improve understanding of grammatical structures.
4. Interactive education: AI games make learning more engaging and motivating. It can have competitive elements, which helps to remember stuff better. VR and AR create an immersive environment where one can practice speaking in realistic situations. For example, there can be an option to visit a virtual store or restaurant where it is necessary to communicate in a foreign language.
5. Integration of the potential of online resources: online translators and online foreign language platforms, mobile applications serve as a tool for creating interactive exercises. The use of AI tools in foreign language learning makes the process more efficient, interesting, and accessible.

Taking into account the research results, there is a need to develop clear rules for the use of artificial intelligence in the process of forming metacommunicative competence, including the definition of acceptable and unacceptable practices; training conversations with students on the ethical use of artificial intelligence systems and academic integrity; offer students alternative methods and tools for performing tasks that do not require the use of artificial intelligence; develop a model of an updated methodology for cognitive assessment.

The results of the study at the ascertaining stage of the experiment showed that respondents of both the

control and experimental groups have a low and medium level of motivation to use artificial intelligence systems in their activities. This indicates their unwillingness to develop professionally. The insufficient level of formation of the cognitive and activity components also emphasizes the need to update the methodological system of using artificial intelligence in the process of forming metacommunicative competence.

Thus, it became necessary to conduct the formative stage of the experiment. Its purpose was to introduce into the educational process a methodological system of using artificial intelligence in the process of forming metacommunicative competence. This methodology is the author's model of professional training of future specialists in the technologies of forming its components. In the control group, classes were conducted according to the traditional methodology, and in the experimental group - according to the proposed methodology, using digital educational resources based on artificial intelligence.

Among the currently available artificial intelligence technologies, the most effective proposals that have proven their effectiveness in the international educational field were selected. Despite the different interpretations of innovative AI-assisted learning, in the context of the current study, it is understood as a model that combines elements of distance learning with traditional classroom learning.

The approach "1 student - 1 ICT tool" was used, which is feasible due to the multifunctionality of smartphones. The subject of the simulation is a university student (future foreign language teachers); the object is the system of professional pedagogical training, and the subject is the training process itself.

At the organizational and preparatory stage of the experiment, the respondents were differentiated into experimental and control groups. A total of 320 students took part in the study, divided into an experimental group (164 people) and a control group (156 people). The equivalence of the groups was analyzed on the basis of the baseline test.

The results of diagnosing the formation of higher education students' readiness by motivational, cognitive and activity components at the stating stage of the study are presented in figure 1.

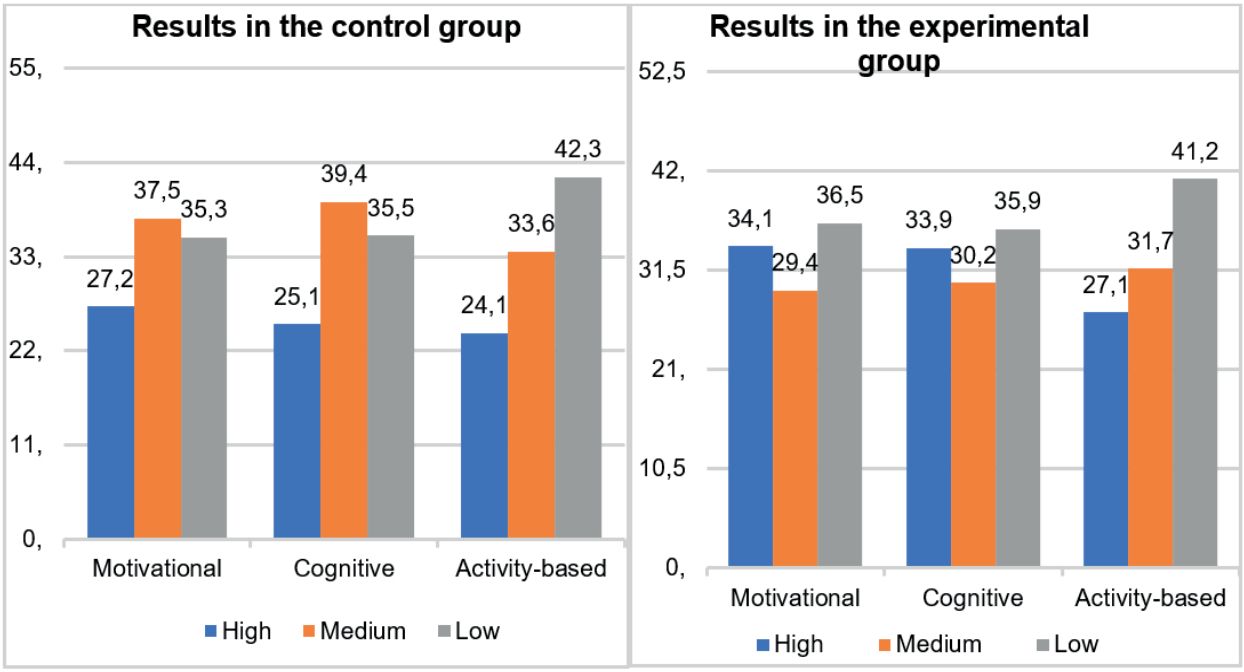

Figure 1. The results of diagnosing the readiness of future specialists in the process of forming metacommunicative competence at the ascertaining stage of the experiment in the control and experimental groups

The purpose of the ascertaining stage of the pedagogical experiment was to identify the initial level of future teachers' competence by conducting a questionnaire and pre-testing the level of readiness to use AI in the experimental and control groups, as well as observing students, group and individual conversations.

The formative stage of the experiment was based on the developed digital content, relevant methodological support, and an innovative training workshop. The duration of the training was 36 academic hours, including 14 hours of classroom instruction, 20 hours of independent work, and 2 hours of module tests.

The program is based on a modular principle:

1. Module I. Theoretical foundations of using AI in foreign language learning;
2. Module II. Practical aspects of integrating innovative technologies into the process of acquiring foreign language competencies. The module involves the use of multimedia and immersive technologies

in every classroom lesson. For independent work, a chatbot and the MyEnglishLab interactive platform are used. The module includes a project assignment.

At the formative stage of the experiment, such basic diagnostic methods as testing and modeling were used. Various forms of independent work, creative projects, and module tests were used to represent qualitative changes in the development of future foreign language teachers' metacommunicative competence.

At the control stage of the experiment, control sections were conducted in both groups of respondents. This made it possible to trace the dynamics and helped to test the effectiveness of the proposed model. The methods of mathematical statistics were used to analyze quantitative and qualitative indicators and to establish their scientific reliability.

Thus, after the ascertaining stage of the experiment, information was obtained on the initial state of the use of artificial intelligence systems in the process of forming metacommunicative competence, artificial intelligence programs were studied and the methodology for their use was outlined, and an experimental updated methodological system for the use of artificial intelligence in the process of forming metacommunicative competence was developed and implemented. The updated methodology was tested by forming metacommunicative competence and outlining the components of readiness to use artificial intelligence systems.

The results of the distribution of respondents by levels at the stage of the formative experiment are shown in figure 2.

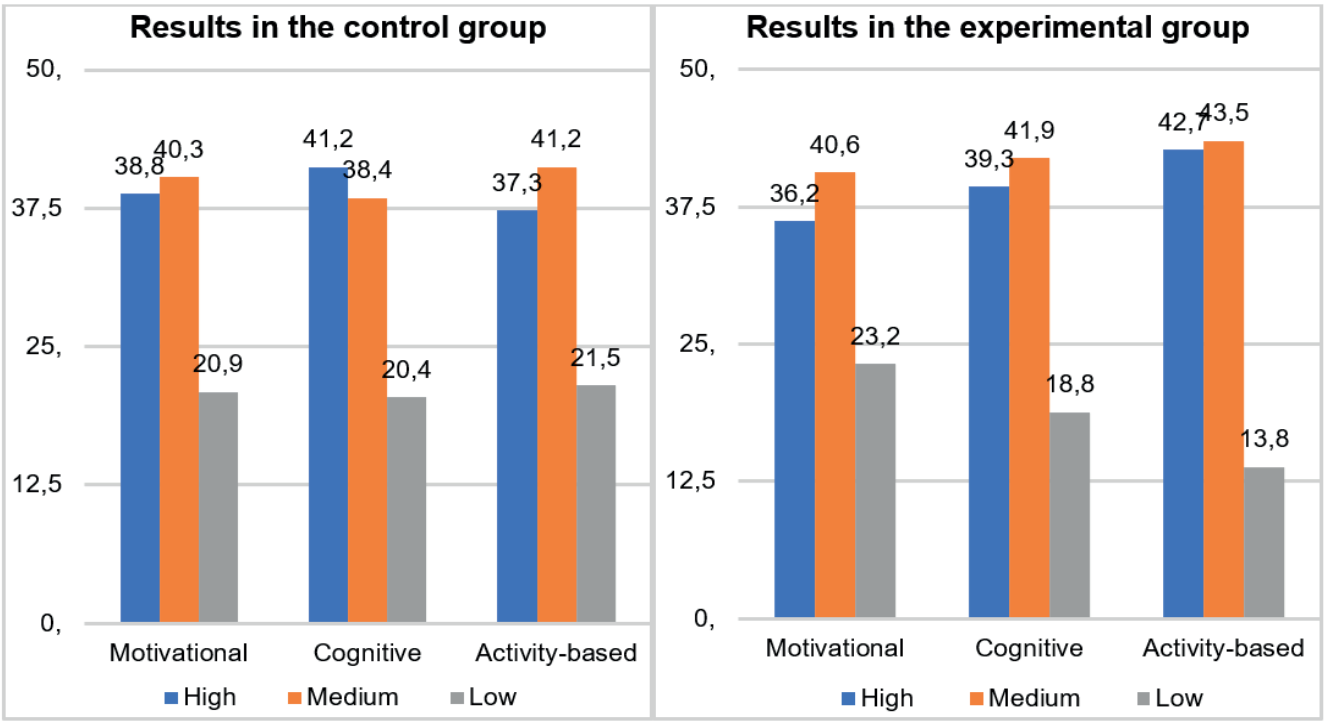

Figure 2. Results of diagnosing the readiness of future specialists in the process of forming metacommunicative competence at the formative stage of the experiment in the control and experimental groups

Based on the results of the study, it was found that the updated methodology of using artificial intelligence in the process of forming metacommunicative competence makes sense because in the experimental group at the formative stage of the experiment, the indicators increased to a medium and high level compared to the data obtained at the ascertaining stage of the experiment.

Personalized, 'customized' FL learning with the help of EdTech and artificial intelligence tools helps in tailoring the educational process to contemporary challenges. It boosts language skills, motivates students, and makes them ready to learn languages on their own in the future, in particular within life-long learning.

DISCUSSIONS

Personalized foreign language learning in an unstable environment is of particular importance, as it allows adapting the educational process to the individual needs, capabilities and circumstances of each higher education student. The key aspects of personalized learning in the study include: individual approach, flexibility and adaptability, motivation and engagement, and the use of technology. In the context of instability, personalized

learning allows for adaptation to changes in the lives of higher education students and teachers, such as moving, changing schedules, or limiting access to traditional educational institutions. An individual approach allows taking into account the psychological state of higher education students and providing the necessary support. The advantages of personalized learning include increased learning efficiency, increased motivation and engagement of higher education students, development of independence and responsibility, preparation for independent language learning in the future.[20]

In the context of instability, such as war, economic crises, or pandemics, EdTech becomes a particularly important tool for learning foreign languages in the context of personalized learning. EdTech allows learning anywhere and anytime, which is especially important when traditional forms of education are not available. Online platforms and mobile applications provide access to learning materials even with limited Internet access. EdTech makes it possible to adapt the educational process to the individual needs and pace of each student. Artificial intelligence can analyze the progress of future foreign language teachers and provide personalized recommendations. Interactive learning materials, games, and gamification make the language learning process more interesting and engaging. Virtual and augmented reality create immersive learning environments that promote better learning. Online platforms and mobile applications provide opportunities for communication with native speakers and other learners. Virtual classrooms and videoconferencing allow you to conduct group lessons and practice speaking. Online courses and mobile apps are often more affordable than traditional courses. EdTech allows saving time and money on traveling to the place of study. The advantages of using EdTech include: increased accessibility of education, individualization of learning, increased engagement and motivation of students, development of 21st century skills, and improved learning outcomes.[10]

An important condition for future foreign language teachers to acquire communicative skills in the context of personalized learning is the formation of metacommunicative competence, which is understood as the ability to master a language. It includes organizational and pragmatic components. The organizational component is understood as grammatical and textual competence, and the pragmatic component includes illocutionary and sociolinguistic competence.

Each component of metacommunicative competence is divided into structural parts: grammatical (vocabulary, morphology, syntax and spelling); textual (cohesion and rhetorical organization); illocutionary (ability to express thoughts and emotions, manipulative, heuristic and creative capabilities of the subject of foreign language communication); sociolinguistic (sensitivity to dialect and style differences of languages, naturalness (authentic use of language), understanding of cultural phenomena and rhetorical figures).[21]

The use of artificial intelligence in foreign language teaching opens up new perspectives, making the process more accessible, effective and interesting for students. Their advantages include[22]: individualization of learning, which allows you to adapt the learning process to the needs and pace of each student; increased motivation; improved pronunciation; enrichment of vocabulary through interactive exercises and games; and development of listening skills. There is a wide range of AI tools that can be used to develop language skills, such as: speech recognition programs that allow practicing pronunciation and receiving instant feedback; pronunciation trainers that offer targeted exercises to improve pronunciation and intonation.

To develop conversational skills, students can use instant translation tools that translate text or speech in real time. Speech synthesis tools that allow you to listen to the text being read are useful for improving listening and comprehension. Personalized learning is provided by interactive learning platforms that offer students individualized materials and tasks.

Integration of AI elements into the process of learning foreign languages provides significant advantage: unhindered access to authentic materials and interactive tasks. This contributes to developing natural pronunciation skills and makes the process more dynamic. AI-based language learning platforms represent a valuable tool for students seeking to improve their language skills, as well as for teachers in the context of distance learning, since they provide instant feedback for each student. Therefore, the integration of AI tools into foreign language learning has great potential to transform the educational process.[23]

According to Almehmadi,[3] artificial intelligence, as a strategic technology, plays a key role in the changes taking place in people's lives and society as a whole. It contributes to the transformation of the economy and symbolizes a new stage not only in the history of digital technology but also in the global development of modern civilization. The introduction of AI tools into language learning programs allows teachers to create a more engaging and interactive educational environment, promoting the development of students' language skills. An important aspect is transparency in learning, which ensures that students understand the benefits of using AI in language education.

The process of organizing bilingual education is based on a communicative approach as a way of organizing the educational process.[24] According to leading scholars Akbaeva and Asanova,[25] language competence is seen as a set of knowledge and skills acquired in the learning process, an integrative quality of a personality that contributes to the successful implementation of acquired knowledge and skills in practical experience.

We should agree with the opinion of Kartal,[4] who understands AI as an educational approach that includes

certain skills necessary for learning and teach ing subjects in a foreign language in a non-linguistic way. Its role is aimed at helping students master both the subject and the language. We share the author's views and believe that AI provides the integration of language into a real-world context as a convenient way to learn a foreign language. This contributes to a deeper level of learning when studying language functions to obtain and memorize new information through metacognitive processes related to critical thinking, creativity, and collaboration. AI improves the level of foreign language acquisition.

We agree with the opinion of Lokaryeva and Bakhmina[26] and believe that the use of AI is very popular among universities; however, there is fragmented and nationally contextualized knowledge about the specifics of the approach, which is mainly based on practice. Recently, there has been a significant increase in the number of publications on AI methodologies and the presentation of national experience in educational institutions regarding its practical application among foreign language teachers.

Yatsyna and Kudinov[27] believe that fundamental, subject-linguistic, methodological and evaluation skills of designing learning materials and learning environment should be distinguished. The authors distinguish reflection-related competencies as general pedagogical competencies. We support the opinion of Marsh et al.[28] and define competence as "the demonstrated ability to use knowledge, skills, and personal, social, and/or methodological abilities in work or learning situations, as well as in professional and personal development".

The outlined scientific achievements are based on Coyle's 4Cs curriculum (1999), which has four elements, namely: the content of a specific discipline curriculum based on the use of innovative technologies, learning a foreign language through communicative communication, developing critical thinking, and understanding the prospects for further use of a foreign language. Thus, there is a need to identify the existing concepts of the development of a subject-linguistic approach to the development of future foreign language teachers' metacommunicative competence.

CONCLUSION

In times of instability, such as wars, economic crises, and pandemics, personalized foreign language learning becomes not only desirable but critically necessary. It enables adaptation of the educational process to each student' individual needs and circumstances. Individual approach, flexibility, motivation, and the use of technology represent the key aspects of such learning. AI tools such as speech recognition software, pronunciation trainers, instant translation instruments, and interactive learning platforms open up new opportunities for language skill development. The formation of metacommunicative competence, which includes organizational and pragmatic components, is essential for successful foreign language learning. AI can be effectively used to develop this competence by promoting critical thinking and the application of theoretical knowledge in practice. For the effective use of AI in education, it is necessary to adapt curricula, methodologies, and materials. Teachers need to improve their qualifications in the use of AI and take into account the ethical aspects of its application. The introduction of AI and EdTech is a promising direction for the modernization of Ukrainian higher education. The combination of AI and social networks, as well as openness in learning, contribute to the effective use of technologies for the development of students' language skills. A study conducted at Vasyl Stefanyk Precarpathian National University found that students are positive about the use of AI in education but need additional training. The analysis of the results showed the need to adapt curricula and materials, as well as to improve the qualifications of teachers. The study demonstrated the effectiveness of adaptive AI solutions for the development of students' language skills.

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AUTHORSHIP CONTRIBUTION

Conceptualization: Roman Poznanskyy.
Data curation: Roman Poznanskyy.
Formal analysis: Liliia Pryimak.
Research: Liliia Pryimak.
Methodology: Halyna Apelt.
Project management: Halyna Apelt.
Resources: Nadiia Savchuk.
Software: Nadiia Savchuk.
Supervision: Roman Poznanskyy.
Validation: Liliia Kopchak.
Display: Liliia Kopchak.
Drafting - original draft: Nadiia Savchuk.
Writing - proofreading and editing: Liliia Kopchak.