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POSSIBILITIES AND TRENDS IN THE USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES

Abstract

This article examines the possibilities and trends of using artificial intelligence (AI) technologies in the practice of teaching foreign languages in educational organizations. Particular attention is paid to such AI tools as intelligent learning systems, chatbots, automatic checking of written assignments, creation of exercises and voice assignments. The advantages of using AI for personalizing learning s, increasing student motivation and optimizing teacher work are analyzed. The prospects for integrating AI into the educational process, as well as potential difficulties such as technological dependence, ethical issues and the need for digital literacy of teachers are considered. The paper emphasizes the relevance of introducing AI as a means of improving the effectiveness of teaching foreign languages in the context of a modern digital school, and also emphasizes that, with proper integration, AI can become a powerful tool for increasing efficiency, accuracy and innovation in various fields. The theoretical foundation of pedagogy in the educational context has not yet sufficiently explored the model of interaction between humans and machines. In this regard, issues such as the emergence of new roles for teachers, changes in lesson planning procedures, group monitoring, and individual support, as well as how collaborative decision-making between humans and artificial intelligence takes place, are being examined.

Keywords: artificial intelligence, foreign language, digital technologies, intelligent learning systems, chatbots, digital literacy, innovations in education.

Introduction

In the field of education, artificial intelligence (AI) has great potential today, as it allows for the optimisation of the learning process at the individual level, improves learning outcomes, and increases the effectiveness of learning systems. Artificial intelligence systems automate the work of educational institutions, open up new opportunities for students and teachers, and comprehensively improve the learning process.

One of the main possibilities for using AI in education is the creation of personalized learning trajectories for each student. Since learners differ in their level of preparation, learning pace, and ability to perceive information, AI helps address these issues by taking individual characteristics into account and adjusting learning materials accordingly.

Another important application of AI in education is automated assessment systems. AI can automatically check tests, assignments, and exams, saving teachers' time and making the assessment process more objective. AI also provides students with timely feedback after completing tasks and exercises, allowing them to evaluate their own knowledge.

An additional advantage of automated assessment systems is that they can track all student actions and provide precise information about their mistakes and achievements throughout the learning process. This enables teachers to continuously monitor each student's knowledge level and academic progress.

Another promising AI application in education is the use of intelligent chatbots. Chatbots act as assistants in the educational process, answering students' questions, testing their knowledge, and offering learning materials. They support students' learning and help teachers improve the efficiency of the educational process. In general, intelligent chatbots are based on scientifically and technically grounded architectures (see Figure 1).

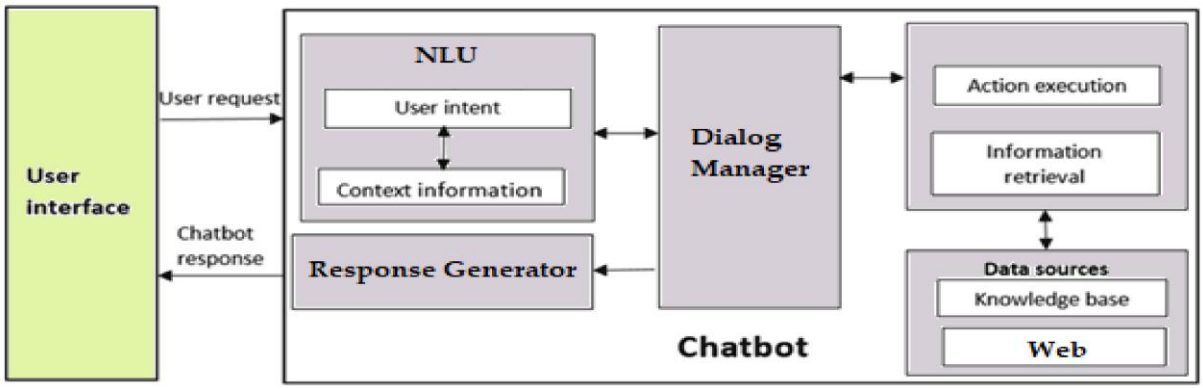

Figure 1. Chatbot Architecture

Note: Figure compiled based on source [1].

Intelligent chatbots can answer students' questions through a question–answer system, automatically check tasks and exercises, and provide feedback to motivate learners. Chatbots respond to frequently asked questions during the learning process and present them in a format that is convenient for students to use. This also reduces teachers' workload, as the chatbot can interact with students around the clock [1].

The use of artificial intelligence technologies in education is not limited to information processing and assessment. Technologies such as virtual reality (VR) and augmented reality (AR) are also being integrated into the educational process. With these tools, students can perceive information visually across various subjects and gain a better understanding of complex phenomena through virtual laboratories and simulations. Virtual reality enables the acquisition of practical skills, the modeling of unique situations, and the implementation of scientific research in the learning process. Artificial intelligence allows these tools to be used for personalizing instruction and improving learning outcomes.

The integration of artificial intelligence (AI) technologies into the education system is one of the key directions actively pursued in many developed countries. Nations such as the United States, China, the United Kingdom, Finland, South Korea, and Singapore have advanced experience in implementing AI at the preschool, secondary, and higher education levels. The experience of these countries demonstrates AI's significant potential for improving educational quality, monitoring student performance, personalizing the learning process, and supporting educators [2].

Through teacher-oriented tools, AI systems assist in lesson planning, analyzing student performance, and providing feedback. The U.S. government has moved toward developing dedicated national strategies and grant programs to support AI integration into the education system, paying special attention to the ethical use of AI technologies.

China is also implementing AI technologies in education on a large and systematic scale. The country has thousands of companies developing AI solutions targeted at the education sector (for example, Squirrel AI, Yixue Education, and iFLYTEK). The Squirrel AI platform accurately assesses students' knowledge levels and offers personalized, adaptive learning content. This system has been introduced in more than 1,000 schools across China.

Figure 2 - Squirrel AI (AI) Platform

Note: The figure shows the interface of the Squirrel AI (AI) platform.

In Chinese schools, the use of video surveillance, facial recognition, and emotion analysis systems to monitor students' attention has become widespread. These technologies are employed to assess student engagement and focus during lessons. In addition, AI systems analyze teachers' work and provide recommendations aimed at improving their effectiveness. The Chinese government supports the integration of artificial intelligence into education at the national level; since 2017, the National Artificial Intelligence Development Plan has been in effect in this area.

The United Kingdom and other European countries place priority on upholding the principles of equality, fairness, and autonomy when using AI technologies in education. Century Tech, a UK-developed platform, uses artificial intelligence to analyze students' learning style, pace, and mastery of a topic, and then creates a personalized learning pathway.

In Finland's education system, pilot projects have been successfully implemented in areas such as AI-based adaptive learning, learning process analytics, and teacher retraining.

The education systems of South Korea and Singapore are considered among the most effective in the world, and both countries are actively engaged in digital transformation. In Singapore, the integration of AI into schools is part of the digitalization of the learning process. AI-enabled Teacher Assistant tools monitor students' learning progress and suggest teaching strategies.

An analysis of international experience reveals the following common trends:

- *Personalization of learning:* AI takes into account students' individual characteristics to offer the most effective learning pathway.

- *Automated assessment and analytics:* Reduces teachers' workload and ensures accurate and objective evaluation.

- *Teacher support tools:* AI systems assist with lesson planning and analyzing student performance.

- *Focus on ethical issues:* In Europe in particular, great importance is placed on autonomy and fairness in the use of AI.

- *Government support and strategies:* National programs and investments are being developed to introduce AI technologies into education systems.

As international experience demonstrates, artificial intelligence offers great opportunities for education: it improves teaching efficiency, helps unlock students' full potential, and reduces teachers' workload. However, the introduction of AI technologies must take into account ethical, technical, and legal issues. For Kazakhstan, this experience represents an important direction for identifying effective ways to modernize the education system.

Materials and research methods

In recent decades, the introduction of artificial intelligence (AI) elements into the field of education has firmly established itself in both scientific discussions and practical experiments. However, at both the theoretical and practical levels, a set of complex problems arises, the need to address which determines the relevance of this topic.

First, in pedagogy, artificial intelligence functions both as a technology and as a methodological category. On the one hand, AI elements are understood as specialized software solutions – adaptive learning platforms, expert systems, intelligent learning systems, and automated tools for analyzing data on student activities [3].

Second, the issue of integrating AI technologies into teachers' research and instructional practice is hindered by the lack of methodological guidelines. The majority of pedagogical experiments take the form of testing a specific system within a single course or a single school.

Third, there is the question of teachers' readiness to adapt to changes in their professional role. The emergence of intelligent assistants alters the nature of teaching: certain teacher functions (checking homework, diagnosing basic knowledge, generating learning tasks) are assumed by algorithms, which requires a rethinking of the teacher's competency profile.

Technical infrastructure and resources, a stable high-speed Internet connection, a sufficient number of modern devices, technical support, and the presence of highly competent IT staff are of critical importance in practice.

Fourth, teachers must simultaneously act as developers and methodologists who provide the pedagogy for designing AI systems: selecting appropriate learning tasks, creating adaptive scenarios for "student–machine" interaction, integrating elements of gamification and reflective pauses, assessing students' cognitive load and emotional state. It is important to note that an excessive number of automated recommendations reduces the motivation for independent decision-making, while poorly considered visualization of AI outputs may cause distrust and doubt.

Fifth, strict constraints on the content and format of tasks, in line with the requirements of the State General Education Standard, make experimental flexibility difficult: any changes to algorithmic scenarios or the addition of new adaptive elements require approval from methodological services and amendments to curricula. Moreover, compliance with the provisions of the Law of the Republic of Kazakhstan "On Personal Data" as well as international GDPR/COPPA standards is mandatory.

Taking all the above factors into account, Kazakhstani teachers must possess not only in-depth knowledge in pedagogy and programming, but also project management skills, legal literacy in data protection, and the ability to form intra-school and inter-school coalitions to collaboratively address the complex issues of developing and maintaining AI systems in the educational environment. These efforts also face certain challenges (Table 1).

Table 1. Challenges in AI Implementation

№	Challenge	Result	Solutions
1	Limited technical infrastructure (weak devices, unstable internet, lack of servers)	Inability to run heavy models; dependence on external services	Development of lightweight offline modules; use of Edge AI; organization of local educational "clusters" with small servers
2	Lack of localized datasets (Russian/Kazakh) for training models	Algorithmic bias, low accuracy of adaptive recommendations	Creation and annotation of data corpora; crowdsourced labeling; sharing of datasets through online communities
3	Lack of ML and advanced programming skills among teachers	Dependence on external contractors; increased training time costs	Integration of ML modules into professional development; in-school "expert clusters"; online courses on TensorFlow Lite, PyTorch Mobile
4	State educational standard and rigid curriculum framework	Limited flexibility of experiments; complex coordination of changes	Development of modular AI components that do not require curricular changes; pilot projects within existing programs
5	Law "On Personal Data"	Need for encryption, anonymization, and transparency of algorithms	Implementation of EncryptedSharedPreferences, certificate pinning; documentation of model logic; obtaining informed consent
6	Lack of funding and server capacity	Inability to provide long-term support; risk of system obsolescence	Seeking grants, establishing partnerships with universities and IT companies; use of free

			cloud quotas
7	Absence of a professional community on pedagogical AI	Duplication of efforts, limited sharing of best practices	Creation of regional and online platforms for case exchange; hackathons and workshops
8	Risk of cognitive overload for learners	Decline in motivation, superficial learning	Instructional design: micro-modules, breaks for reflection, adaptive complexity
9	Difficulty of long-term support without specialized IT staff	System downtime, increase in errors	Training "super users" among teachers; contracting IT students for support
Note: The table was developed based on source [19].			

Given the limited technical infrastructure of Kazakhstani schools—where at least 30% of devices operate on outdated operating systems and only 20% have stable internet access—the effective implementation of our own AI informatics systems is possible through the use of lightweight models compatible with mid-range devices and Edge AI technologies. This approach avoids the need to migrate data to certain local school servers, Raspberry Pi sites, or example servers. At the same time, it is critically important to create and share localized corpora of training data in Russian and Kazakh through crowdsourced evaluation among high school students and pedagogical university students. Such efforts can increase the accuracy of algorithm training by more than 15% and ensure compliance with national educational standards.

Since 60% of subject teachers report a lack of competencies in machine learning and complex model development, it is necessary to organize a systematic professional development program. This program should include TensorFlow Lite and Kotlin/Java courses, methods of AI-based instructional design, as well as workshops and seminars. By shortening the duration of such workshops by 30–40%, intra-school and district-level mentoring clusters can be established. To integrate AI modules into lessons without violating state educational standards and to minimize administrative barriers, they should be introduced as autonomous "plugins" within pilot projects, particularly in elective and extracurricular courses.

The legislative and ethical requirements set out in the Law of the Republic of Kazakhstan "On Personal Data," as well as international GDPR/COPPA standards, mandate compulsory encryption of locally stored data (AES-256 or SQLCipher), the use of secure communication channels (HTTPS with certificate pinning), and the development of transparent, explainable algorithms for decision-making, which help increase parental trust.

Programs such as Digital Kazakhstan, Erasmus+ grant funding, and partnerships with IT companies make it possible to provide schools with cloud quotas and equipment, while engaging IT students in internships and practical training ensures the necessary technical support without increasing staffing costs. Building professional communities through online platforms, forums, and regional hackathons facilitates the exchange of components, code samples, and instructional scenarios, thereby accelerating the replication of successful solutions [4].

The pedagogical design of micro-modules (5–7 minutes), based on the "theory-practice-reflection" model, prevents cognitive overload and increases student retention rates by up to 60%. Meanwhile, adaptive algorithms that dynamically adjust task complexity according to Vygotsky's Zone of Proximal Development model improve training accuracy by 20.2%. To ensure long-term updates and support of these systems, each school should appoint a support team consisting of 2–3 teachers and 1–2 motivated students. By applying standardized CI/CD procedures, these teams can update models, reduce the number of critical failures by 30%, and guarantee the sustainable development of AI solutions within the education system.

Results and its discussion

To ensure the quality of learning materials, it is recommended to involve IT experts and methodologists, as well as to make use of open educational resources (MOOCs, GitHub repositories, Kaggle). The organization of practical sessions for teachers should include internships and professional placements in innovative schools and educational centers where AI solutions are already being applied. It is also crucial to establish university laboratories equipped for experimentation: servers for training models, Internet of Things (IoT) devices, and VR and AR kits for simulating educational scenarios. In such laboratories, students can acquire skills in installing servers, deploying containerized applications (Docker, Kubernetes), and implementing dynamic knowledge assessment systems [5].

The formation of an ethical and legal culture of AI use is a further priority: future teachers must be familiar with the principles of personal data protection (the Law of the Republic of Kazakhstan "On Personal Data"), GDPR requirements, and UNESCO's international recommendations on the ethics of digital technologies [6].

Systematic monitoring and evaluation of teaching quality is required: criteria and indicators must be developed to assess graduates' competence levels in AI. Such criteria may include project outcomes, mastery of practical skills (e.g., working with TensorFlow, creating solutions based on neural networks), as well as the ability to conduct reflective analyses of pedagogical scenarios involving AI integration [7].

The experiment was organized at the M. Auezov Secondary School in Kurmangazy village, Kurmangazy district, Atyrau region. The school is equipped with basic digital resources (an interactive whiteboard, multimedia projectors, and a computer lab); however, a systematic integration of artificial intelligence technologies had not previously been undertaken. A total of 14 teachers from different subject areas participated in the study. All participants voluntarily agreed to complete a training course on the use of AI in educational activities.

Subject distribution:

- Mathematics – 3 teachers
- Physics – 2 teachers
- Computer Science – 1 teacher
- Russian language and literature – 2 teachers
- Foreign languages (English) – 2 teachers
- History and social studies – 2 teachers
- Biology – 1 teacher
- Geography – 1 teacher

Thus, only one informatics teacher participated in the experiment, making it a particularly important task to involve and train representatives from other subject areas not directly related to ICT.

Age and teaching experience:

- Age of participants: 30 to 54 years
- Teaching experience: 7 to 26 years
- Educational background: 100% hold higher pedagogical education
- Digital literacy: basic or intermediate (self-assessed)

Sample characteristics:

An interesting aspect of this group was the predominance of humanities and natural sciences teachers, who are not directly related to ICT. This made it possible to assess the universality of AI tools for different school subjects. The single informatics teacher in the experiment assumed the role of providing consultative support to colleagues on technical issues.

Preliminary motivation and expectations:

According to the preliminary survey:

- 10 teachers (71%) had never used AI in their work before;

– 3 teachers (21%) had heard of AI tools but had not applied them in practice;

– 1 participant (the IT teacher) had a general understanding of AI capabilities but had not systematically integrated them into the educational process.

Diagnosis of the initial level of AI usage

Before the start of training, a comprehensive diagnostic assessment was conducted with the aim of identifying teachers' initial level of knowledge in artificial intelligence technologies, their practical experience, as well as their attitudes toward the potential use of AI in educational activities. The diagnostic procedure consisted of three stages: questionnaires, testing, and short interviews.

1. *Questionnaire*

Teachers were asked to answer 15 questions grouped into the following blocks:

- General knowledge of AI: familiarity with terms such *as* machine learning, neural network, algorithm, automation, *etc.;*
- Self-assessment of their level of digital literacy;
- Experience in using digital/AI tools in teaching;
- Expectations from the course and motivation for participation.

Results

- 71% (10 teachers) admitted that they did not have a clear understanding of AI technologies and had not used them in their work;
- 21% (3 teachers) had heard about AI applications (e.g., ChatGPT, Google Lens) but had not used them professionally;
- 8% (1 computer science teacher) possessed a basic understanding and some experience in using AI tools for simple tasks such as generating quizzes or checking code.

2. *Diagnostic Testing*

The test consisted of 20 tasks (multiple-choice and short open-ended questions) that assessed:

- knowledge of basic AI concepts;
- understanding of AI principles (machine learning, data processing);
- awareness of educational AI tools;
- ability to distinguish between ethical and unethical uses of AI.

The average score across the group was 9.2 out of 20 (46%). Only one participant (the computer science teacher) scored above 70%. This indicates that the majority of teachers possessed only a basic or fragmented level of knowledge.

3. *Short Interview*

4. At the qualitative diagnostic stage, participants were asked to answer two questions:

1. "In your opinion, what can AI do that would be useful for your teaching practice?"
2. "What concerns do you have regarding the use of artificial intelligence in schools?"

The main responses included:

Advantages:

- saving time on checking assignments;
- creating adaptive tasks;
- assisting in material selection and supporting personalized learning.

Challenges:

- difficulties in mastering new technology;
- reduction of the teacher's role;
- issues related to the privacy of student data.

Diagnostic Conclusion

Data analysis showed that:

- most participants were motivated to learn but had little to no knowledge of AI tools;

- the level of theoretical knowledge was at a beginner stage;
- there was a clear need for systematic training with a focus on both the practical use and the ethics of AI in education;
- special attention should be given to supporting humanities teachers, who experience greater challenges in digital environments.

The results served as a basis for designing a beginner-level course, with an emphasis on simple and easy-to-use AI tools, complemented by practice-oriented activities and examples from everyday school life.

Course Content on the Use of Artificial Intelligence Technologies for Teachers

The professional development course designed for school teachers is aimed at developing basic knowledge of artificial intelligence, building practical skills in working with AI tools, and fostering an understanding of the ethical and pedagogical aspects of their use in educational settings.

Course Objective.

To develop teachers' basic AI competencies by facilitating the effective and safe use of modern AI tools in the teaching and learning process.

The total course duration is 36 academic hours, including:

- 12 hours – theoretical lectures;
- 16 hours – practical classes;
- 8 hours – independent work and project activities.

The course includes the following modules:

Module 1. Introduction to Artificial Intelligence (6 hours)

1. Definitions and history of AI development
2. Key concepts: machine learning, neural networks, algorithms
3. Classification of AI: weak, strong, generative
4. Main application areas (medicine, finance, education)

Module 2. AI in Education (6 hours)

5. AI possibilities to support teachers and students
6. AI services for automating routine tasks
7. Examples of AI integration in school education
8. Adaptive learning practices

Module 3. Practical AI Tools for Teachers (10 hours)

9. Introduction to popular services: ChatGPT, Canva, Google Bard, Smodin, Eduaide, Curipod
10. Creating assignments, tests, and lesson plans with AI
11. Using AI in developing visual and interactive content
12. Platforms for automatic grading of written work

Module 4. Ethics and Safety in AI Use (6 hours)

13. Student data privacy
14. Copyright and academic integrity
15. Risks of "overuse" of AI
16. Digital hygiene and critical thinking

Module 5. Integration of AI into Teaching Practice (8 hours)

17. Designing learning scenarios with AI
18. Personalizing and differentiating instruction with AI
19. Mini-project: designing and delivering a lesson with AI
20. Reflection and discussion of practical experiences

Teaching Formats and Methodological Approaches

- Online webinars and video lectures
- Step-by-step tutorials and workshops

- Small group work
- Individual assignments with feedback
- Final stage: defense of a mini-project

1. Online Webinars and Video Lectures

• Objective: To provide access to theoretical information and familiarize participants with new AI concepts and tools.

• Description: Online webinars and video lectures served as the main medium for delivering theoretical content. They were conducted using videoconferencing and recordings, allowing teachers to access the material at their own time and convenience.

• Examples of webinar topics: Fundamentals of Artificial Intelligence, modern AI tools in education, ethical aspects of AI use.

• Features: Webinars and lectures could include slides with explanations, video presentations, and interactive elements such as polls and quizzes to check understanding.

• Advantages: Teachers could participate without being tied to a physical location. Lectures were recorded, giving them the option to revisit materials at any time.

2. Step-by-Step Tutorials and Workshops

• Objective: To teach teachers how to use specific AI tools through detailed instructions and hands-on practice.

• Description: Workshops were a key component of the course, enabling participants to gain practical experience. Step-by-step tutorials provided detailed explanations of how to work with specific AI services and tools.

• Examples of instructions: Creating tests with ChatGPT, designing learning materials in Canva AI, using neural networks for data analysis.

• Features: Tutorials helped participants confidently master new technologies. Workshops were problem-oriented, addressing real challenges that could be solved using AI.

• Advantages: Teachers developed practical technology skills, boosting their confidence in applying AI in the future.

3. Small Group Work

• Objective: To develop teamwork, experience-sharing, and collaborative problem-solving skills in the context of AI use.

• Description: Small group sessions provided an environment where participants could exchange ideas and approaches. Groups worked on case studies, developing solutions and educational projects applicable in lessons.

• Examples of tasks: Designing AI-supported materials for teaching Russian language, creating a history lesson with AI elements, solving educational problems using machine learning algorithms.

• Features: Each group was responsible for a specific aspect of the task. Group discussions and collective decision-making enhanced critical thinking and shared responsibility.

• Advantages: Participants engaged with diverse materials and approaches, gaining a broader perspective on AI applications in teaching.

4. Individual Assignments with Feedback

• Objective: To support personal learning through individual tasks and provide feedback from instructors and peers.

• Description: After each theoretical block, teachers were given assignments tailored to specific pedagogical tasks. These included working with AI tools and creating educational materials such as quizzes or teaching resource

• Examples of tasks: Designing student assignments with generative AI tools; developing a lesson plan incorporating AI for assessment.

• Features: Feedback on completed tasks offered valuable guidance on improving AI use. Assignments were flexible and practice-oriented.

• Advantages: Individual work enabled participants to build personal skills and confidence in using AI technologies.

5. Final Stage: Mini-Project Defense

• Objective: To demonstrate participants' practical achievements and consolidate the knowledge and skills gained during the course.

• Description: The final stage required teachers to present the results of integrating AI into their teaching practice. Projects included elements covered during the course, such as creating tests with AI or planning lessons using AI tools.

• Examples of projects: Developing a lesson scenario for teaching mathematics with AI support; creating quizzes with ChatGPT; designing an AI-based teaching resource for foreign language learning.

• Features: The defense gave teachers the opportunity to showcase not only their knowledge but also their ability to implement new technologies in practice.

• Advantages: Teachers could see the practical impact of their learning, receive feedback, and improve their approaches for the future.

Experimental Results

A noticeable improvement in participants' knowledge levels was observed. After completing the course, a re-test was conducted. The results showed:

– The average test score increased to 85% of the maximum possible score.

– 90% of teachers began actively applying AI tools in their practice.

– 80% of teachers designed and implemented lessons with AI support.

Participant Feedback

The survey revealed that:

– *95*% of teachers considered AI a useful tool for the educational process.

– 85% of teachers expressed readiness to continue learning and improving their AI skills.

– Some teachers suggested adding more practical exercises and real-life school examples to the course.

Challenges and Recommendations

During the experiment, the following issues were identified:

Some classrooms lacked the necessary technical equipment to effectively use AI tools. There was a need for additional teacher training on data protection and privacy issues.

The conducted experiment demonstrated the high effectiveness of the professional development course on the use of AI for school teachers. Participants showed a significant improvement in their knowledge and skills, as well as a positive attitude toward integrating AI into the educational process. It is recommended to continue developing and implementing similar courses in other educational institutions.

Recommendations

It is recommended to equip schools with the necessary tools for the use of AI. The course curriculum should also be expanded to include more comprehensive sections on data security and privacy.

Conclusion

The modern processes of digitalization in education require teachers not only to possess basic digital literacy, but also to be capable of integrating advanced technologies, including artificial intelligence (AI), into their daily teaching practices. The relevance of the study is determined by the rapid penetration of AI technologies into various spheres of life, including education.

To achieve the goal of strengthening the competencies of school teachers in using AI technologies in subject teaching, a pedagogical experiment was conducted that included theoretical, practical, and analytical components, as well as the testing of a specially designed professional development course.

At the initial stage of the experiment conducted at M. Auezov Secondary School (Kurmangazy village, Kurmangazy district, Atyrau region), baseline data were collected on the digital and AI competencies of 14 teachers representing different subject areas. The initial survey and testing showed that most participants had little understanding of AI capabilities and possessed minimal or no practical experience with relevant tools. Nevertheless, all participants expressed strong interest in learning and demonstrated high motivation for professional development.

At the control stage, the learning outcomes were evaluated through final testing and project analysis. A comparative analysis of the results before and after completing the course demonstrated positive dynamics across all main criteria: the level of theoretical knowledge about AI increased by an average of 45%, and practical skills by 60%. Participants became confident in applying AI to develop assignments, visualize learning materials, and create tests and presentations. Teachers emphasized that AI significantly reduces lesson preparation time while making classes more engaging and accessible for students.

Thus, systematic training of teachers in AI technologies leads to the enhancement of their professional competencies and improves the effectiveness of the learning process.

The practical significance of the selected topic lies in the fact that the proposed course model can be used as a basis for:

- professional development programs for teachers in the regions;
- in-school training courses (within the framework of pedagogical councils, seminars, etc.);
- distance or blended formats of teacher training;
- further modernization of the methodological support system in schools.

In addition, the research results may be useful for educational authorities, methodological associations, and educational institutions interested in developing digital pedagogical competencies.

This work also opens opportunities for further scientific and applied research in the following areas:

- in-depth study of subject-specific models of AI application (for example, in teaching mathematics, history, or foreign languages);
- development of monitoring and evaluation systems for the effectiveness of AI integration into the educational process;
- investigation of the impact of AI applications on students' learning motivation and academic performance;
- creation of long-term support programs for teachers in the process of digital transformation of education.

The study confirms that training teachers to use artificial intelligence technologies is a crucial condition for the successful modernization of the general education system. Only a teacher with modern digital and methodological competencies can adapt to the demands of the time under conditions of rapid technological development and provide students with quality education.

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ЖАСАНДЫ ИНТЕЛЛЕКТ ТЕХНОЛОГИЯЛАРЫН ҚОЛДАНУДЫҢ МҮМКІНДІКТЕРІ МЕН ТЕНДЕНЦИЯЛАРЫ

Аңдатпа

Мақалада білім беретін ұйымдарда шет тілдерін оқыту тәжірибесінде жасанды интеллект (АТ) технологияларын қолдану мүмкіндіктері мен тенденциялары қарастырылған. Зияткерлік оқыту жүйелері, чат-боттар, жазбаша тапсырмаларды автоматты түрде тексеру, жаттығулар мен дауыстық тапсырмаларды жасау сияқты АТ құралдарына ерекше назар аударылады. Оқытуды жекелендіру, оқушылардың ынтасын арттыру және мұғалім жұмысын оңтайландыру үшін АТ пайдаланудың артықшылықтары талданған. Интеллектуалды интеллектіні білім беру үдерісіне интеграциялау перспективалары, сондай-ақ технологияға тәуелділік, этикалық мәселелер және мұғалімдердің цифрлық сауаттылығының қажеттілігі сияқты ықтимал қиындықтар қарастырылған. Жұмыс заманауи цифрлық мектеп жағдайында шет тілдерін оқытудың тиімділігін арттыру құралы ретінде АТ енгізудің өзектілігін атап көрсетеді. Жұмыс дұрыс біріктірілген жағдайда, АТ әртүрлі салалардағы тиімділікті, дәлдікті және инновацияларды арттырудың қуатты құралы бола алатыны атап көрсетілген. Педагогиканың теориялық негізі білім беру контекстіндегі адам мен машинаның өзара әрекеттесу моделін әлі жеткілікті терең зерттелмегендіктен, мұғалім үшін жаңа рөлдердің пайда болуы, сабақты жоспарлау, топтық бақылау және жеке қолдау көрсету процедуралары қалай өзгереді, адамдар мен ЖИ арасында бірлескен шешім қабылдау қалай жүретіндігі талданады.

Негізгі сөздер: жасанды интеллект, шет тілі, цифрлық технологиялар, интеллектуалды оқыту жүйелері, чат-боттар, цифрлық сауаттылық, білім берудегі инновациялар.

ВОЗМОЖНОСТИ И ТЕНДЕНЦИИ ИСПОЛЬЗОВАНИЯ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА

Аннотация

В данной статье рассматриваются возможности и тенденции использования технологий искусственного интеллекта (ИИ) в практике преподавания иностранных языков в образовательных организациях. Особое внимание уделяется таким инструментам ИИ, как интеллектуальные системы обучения, чат-боты, автоматическая проверка письменных заданий, создание упражнений и голосовых заданий. Анализируются преимущества использования ИИ для персонализации обучения, повышения мотивации учащихся и оптимизации работы учителя. Рассматриваются перспективы интеграции ИИ в образовательный процесс, а также потенциальные трудности, такие как технологическая зависимость, этические вопросы и необходимость цифровой грамотности учителей. В работе подчеркивается актуальность внедрения ИИ как средства повышения эффективности обучения иностранным языкам в условиях современной цифровой школы, также подчеркивается, что при правильной интеграции ИИ может стать мощным инструментом для повышения эффективности, точности и инноваций в различных областях. Теоретическая основа педагогики в контексте образования пока ещё недостаточно глубоко исследовала модель взаимодействия между человеком и машиной. В этой связи рассматриваются вопросы появления новых ролей для учителя, изменений в процедурах планирования уроков, группового контроля и индивидуальной поддержки, а также то, как происходит совместное принятие решений между человеком и искусственным интеллектом.

Ключевые слова: искусственный интеллект, иностранный язык, цифровые технологии, интеллектуальные системы обучения, чат-боты, цифровая грамотность, инновации в образовании.

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