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IRYNA SLADKYKH
https://orcid.org/ 0000-0003-0688-4620
Iryna.Sladkykh@hneu.net
Candidate of Pedagogic Sciences,
Associate Professor of the Department
"Pedagogy, foreign philology and translation"
Simon Kuznets Kharkiv National University of Economics
Kharkiv, Avenue of Science, 9-A, 61166, Ukraine

THE USE OF ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS: PEDAGOGICAL CONDITIONS

This article examines the pedagogical conditions for the effective integration of artificial intelligence (AI) technologies into contemporary education. Based on an analysis of research literature, regulatory documents, and practical implementation experience, key factors supporting successful AI adoption are identified, including the didactic appropriateness of AI tools, educators' readiness to use them, and learners' digital literacy. The study highlights AI's potential to personalize learning, adapt educational content, automate routine tasks, provide timely feedback, and support independent learning. It also emphasizes the importance of ethical AI use, academic integrity, data protection, and risk mitigation. The article concludes that effective AI implementation requires a comprehensive approach grounded in the concept of hybrid intelligence, combining human and artificial capabilities while preserving the teacher's central role in ensuring educational quality and learner development.

Keywords: *artificial intelligence; artificial intelligence technologies; digital transformation of education; digital competence; digital literacy; personalized*

learning; educational technologies; pedagogical conditions; hybrid intelligence; academic integrity.

Ірина Сладких
https://orcid.org/ 0000-0003-0688-4620
Iryna.Sladkykh@hneu.net
кандидат педагогічних наук
доцент кафедри педагогіки,
іноземної філології та перекладу,
Харківський національний економічний
університет імені Семена Кузнеця,
Харків, просп. Науки, 9-А, 61166, Україна

ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ В ОСВІТНЬОМУ ПРОЦЕСІ: ПЕДАГОГІЧНІ УМОВИ

У статті досліджуються педагогічні умови ефективного використання технологій штучного інтелекту (ШІ) в сучасному освітньому процесі в контексті цифрової трансформації освіти та зростання ролі інноваційних технологій у навчанні. На основі аналізу вітчизняних і зарубіжних наукових праць, нормативних документів та практичного досвіду впровадження інтелектуальних систем у закладах освіти визначено ключові чинники, що забезпечують результативність інтеграції ШІ в освітнє середовище. Особливу увагу приділено дидактичній доцільності використання інструментів штучного інтелекту, їх відповідності цілям, змісту та методам навчання, а також здатності підвищувати якість освітніх результатів.

Обґрунтовано, що важливою педагогічною умовою є належний рівень підготовленості педагогічних працівників до роботи з технологіями ШІ, що передбачає розвиток цифрової компетентності, формування навичок критичного оцінювання результатів роботи інтелектуальних систем і

готовність до використання нових моделей взаємодії в освітньому процесі. Розглянуто значення цифрової грамотності здобувачів освіти як необхідної передумови безпечного, відповідального та ефективного застосування інструментів штучного інтелекту в навчальній діяльності.

У статті висвітлено потенціал ШІ для персоналізації навчання, адаптації освітнього контенту до індивідуальних потреб і можливостей здобувачів освіти, автоматизації рутинних завдань, надання оперативного зворотного зв'язку та підтримки самостійної роботи. Водночас акцентовано увагу на необхідності дотримання етичних принципів використання штучного інтелекту, забезпечення академічної доброчесності, захисту персональних даних і запобігання можливим ризикам, пов'язаним із надмірною залежністю від автоматизованих систем.

Зроблено висновок про доцільність комплексного підходу до впровадження технологій ШІ в освіту, що базується на концепції «гібридного інтелекту», яка передбачає ефективне поєднання можливостей людини та штучного інтелекту. Наголошено на збереженні провідної ролі педагога як організатора, фасилітатора та наставника в освітньому процесі, що є необхідною умовою забезпечення якості освіти та гармонійного розвитку особистості в умовах цифрового суспільства.

Ключові слова: *штучний інтелект; технології штучного інтелекту; цифрова трансформація освіти; цифрова компетентність; цифрова грамотність; персоналізація навчання; освітні технології; педагогічні умови; гібридний інтелект; академічна доброчесність.*

To substantiate the pedagogical conditions that would facilitate the effective use of artificial intelligence (AI) in the learning activities of higher education students, we examined existing definitions of pedagogical conditions. In our view, the most well-founded and applicable definition for higher education learning activities is as follows: pedagogical conditions are the result of the purposeful

selection, design, and application of content elements, methods (techniques), and organizational forms of teaching to achieve specific educational objectives.

The digital transformation of education has highlighted the issue of preparing educators to use modern technologies, particularly AI. In pedagogy, AI is considered not merely as a technical tool but also as a means of optimizing the educational process, enhancing its individualization and effectiveness.

According to studies by international organizations, the implementation of AI in education promotes adaptive learning and improves educational outcomes, yet it requires adherence to pedagogical principles and values, such as the humanization of education and the agency of learners [12]. Contemporary research emphasizes that AI should be regarded not as a replacement for the teacher, but as a tool to strengthen the educational process [9]. Studies in higher education indicate that most participants view AI as a complement to teacher activities rather than a substitute [4]. These studies were conducted across eight universities in Hong Kong, all public institutions with English as the medium of instruction. Student populations ranged from 3,000 to 22,000, with the majority being local residents.

The results revealed that both students and educators provided significant input. Assessments were conducted using a Likert scale. Overall, the data indicate varying perspectives on the potential of AI to replace teachers. Analysis of open-ended responses identified three main categories:

- AI replaces the teacher;
- AI works collaboratively with the teacher;
- AI opposes the teacher.

These categories reflect different perceptions of AI's role in education and demonstrate a complex and ambiguous outlook for the future of learning. Generative AI has the potential to:

- improve lesson planning;
- enhance teaching effectiveness;
- develop students’ research skills;

- provide personalized learning and immediate feedback.

Differences in perception were noted:

- students are more open to AI use;
- teachers express concerns (dependency, reduced learning quality).

Limitations include a small sample size, limited representativeness, and the need for further cross-cultural research.

Research by Cecilia Ka Yuk Chan and Louisa H.Y. Tsi showed that students perceive generative AI more positively than teachers. However, both groups agree that AI cannot replace the human qualities of a teacher necessary for students' personal development. Therefore, there is a need to identify pedagogical conditions that ensure the effective and methodologically grounded use of AI in teachers' and educators' professional practice [2; 15]. We highlight ten pedagogical conditions for the use of AI in the educational process, which we consider relevant in the current stage of e-learning development (Table 1):

Table 1.

Pedagogical Conditions for The Use of AI in the Educational Process

Pedagogical Conditions	**Indicator of a pedagogical condition**
1. Didactic appropriateness in the teacher's activities	*Alignment of AI with learning outcomes*
	Consideration of students' age and psychological characteristics
	Choice of methods that enhance understanding rather than simplify learning
2. Methodical integration of AI into the learning process	*Development of AI-based tasks*
	Use of AI to explain complex topics
	Organization of independent learning
	AI as part of pedagogical technology
3. Development of Teachers' ICT and AI Competence	*Digital Educational Resources*
	Using AI for Learning Materials
	Critical Evaluation of AI Outputs
4. Fostering Learner Autonomy	*Teacher's Role*
	AI as Support, Not Substitute
	Analysis, Comparison, and Argumentation
	Educational Autonomy

Table 1 (continued).

Pedagogical Conditions	Indicator of a pedagogical condition
5. Pedagogically Appropriate Feedback	*Knowledge Assessment*
	Identifying Common Errors
	Timely Feedback
6. Personalized and Differentiated Learning	*Task Adaptation*
	Pace of Learning
	Individual Learning Pathways
7. Accessibility and Inclusivity	*Text-to-Speech (TTS)*
	Speech-to-Text (STT)
	Image Captioning
8. Adherence to Pedagogical Ethics and Values.	*Principles of Humanistic Pedagogy*
	Academic Integrity Standards
	Personal Data Protection
9. Rethinking the Assessment System	*Shift focus from result to process*
	Use open-ended tasks
	Evaluate analysis and practical application
10. Pedagogical Design of the Educational Environment	*Designs*
	Organizes
	Adapts to learning goals

Next, we will examine in more detail the indicators of the pedagogical conditions for use of AI in the educational process:

1. Didactic appropriateness in the teacher's activities. Modern education is actively transforming under the influence of digital technologies, among which AI occupies a special place. AI integration in education opens new opportunities for personalized learning, improving teaching effectiveness, and expanding students' intellectual resources. However, successful use of AI is impossible without adhering to the principle of didactic appropriateness, i.e., aligning technological tools with educational goals. Didactic appropriateness in teaching is a key factor determining the effectiveness and ethical integration of AI.

- *Alignment of AI with learning outcomes:* The teacher's first task when using AI is to align the technology with specific learning outcomes. It is essential to

recognize that AI is not an end in itself but a tool to enhance knowledge acquisition and competency development. For example, generative algorithms can help students analyze large amounts of information or create learning projects, but without a clear connection to educational goals, such tools risk becoming mere entertainment or sources of informational noise. The teacher must formulate expected learning outcomes, define the competencies and skills the student should develop, and only then select AI tools that best support these objectives.

- *Consideration of students' age and psychological characteristics*: Another aspect of didactic appropriateness is accounting for students' cognitive, psychological, and age-related characteristics. Younger and middle-school students perceive information differently than older students or university students, and their ability to work independently with digital tools varies. AI can offer adaptive tests, interactive simulations, or personalized learning paths, but without attention to psychological factors, the effectiveness of such tools is significantly reduced. Teachers must assess students' levels of thinking, attention, and emotional state to ensure that AI tools support rather than overwhelm them.

- *Choice of methods that enhance understanding rather than simplify learning:* A third key principle is selecting AI methods that enhance the learning process rather than merely simplify it. There is often a temptation to use AI to automate all aspects of learning, such as generating ready-made answers, tests, or essays. However, true learning involves developing critical thinking, analytical skills, and the ability to formulate independent conclusions. AI should be used to deepen understanding – for example, through interactive simulations, modeling complex phenomena, data analysis, or project-based learning. The teacher, using these technologies, creates an environment in which students actively think, compare perspectives, ask questions, and seek answers alongside a digital assistant.

Didactic appropriateness in teaching is a fundamental principle for the effective use of AI in education. Aligning technology with learning outcomes, considering students' age and psychological traits, and choosing methods that enhance

understanding allow AI to be integrated not as a teacher replacement but as a powerful tool for intellectual, creative, and autonomous development. Only when these principles are followed can digital technologies become a true partner in learning, fostering competent, critical-thinking students.

2. Methodical integration of AI into the learning process. Modern education increasingly relies on digital technologies, with AI playing a central role. Its integration opens new horizons for improving learning efficiency, personalizing the educational process, and analyzing students' achievements. However, for AI use to be truly beneficial, it must be methodically integrated into the learning process. This means that AI should not replace the teacher but serve as a tool for automating routine processes, preparing materials, creating virtual simulators, and analyzing learning outcomes. New teaching methods must combine traditional pedagogy with modern technologies.

- *Development of AI-based tasks:* The first step in methodical integration is designing tasks that leverage AI's potential. This includes creating interactive exercises, adaptive tests, or tasks stimulating critical thinking. AI can automatically adjust task difficulty to each student's ability, create individualized learning paths, and track progress in real time. The teacher actively shapes content, integrating technology into the educational process. For example, AI algorithms can analyze student errors and generate differentiated exercises to strengthen weak areas. Tasks using AI thus become tools for learning and development, not merely assessment.
- *Use of AI to explain complex topics:* Another important aspect is using AI to clarify complex subjects. In many disciplines, students face abstract concepts or large amounts of information that hinder understanding. AI can provide visualizations, simulations, interactive demonstrations, and accessible explanations. For example, in physics or chemistry, algorithms can model chemical reactions or physical phenomena, allowing students to "see" processes that would remain theoretical in a traditional classroom. The teacher acts as coordinator and moderator,

guiding attention and helping students interpret the data, thereby fostering analytical and critical thinking.

- *Organization of independent learning:* The third aspect is facilitating independent learning through AI. Independent study develops autonomy and responsibility for one's educational process. AI can act as a mentor, helping students plan tasks, provide hints, and analyze results. In online courses, AI algorithms can suggest individualized assignments, track errors, and generate additional exercises to reinforce knowledge. The teacher defines the goals, framework, and assessment criteria, while AI supports students in achieving them. This approach encourages active engagement, autonomy, and deeper knowledge acquisition.
- *AI as part of pedagogical technology:* Crucially, AI should be systematically integrated into pedagogical technology rather than used episodically. It must become an integral part of lesson planning, material preparation, classroom instruction, and assessment. Only through a systematic approach can AI provide real benefits: enhanced learning efficiency, development of student competencies, and the creation of a dynamic, adaptive educational environment. Episodic AI use – for isolated exercises or demonstrations – does not yield lasting effects or fully realize the technology's potential.

Methodical integration of AI is key to effective technology use in modern education. Developing AI-based tasks, using AI to explain complex topics, organizing independent learning, and integrating AI into pedagogical technology ensures not only improved learning outcomes but also fosters critical thinking, autonomy, and creativity. In this context, AI does not replace the teacher but strengthens their role as mentor, moderator, and coordinator, making learning more effective, flexible, and personalized.

3. Development of Teachers' ICT and AI Competence. Modern education is experiencing rapid digital transformation, with artificial intelligence (AI) and information and communication technologies (ICT) becoming integral components of pedagogical practice. Teachers must combine traditional pedagogical approaches

with digital tools and AI, acting as organizers of the learning environment, facilitators, and analysts of educational data.

• *Digital Educational Resources*. Teachers should effectively use and evaluate digital resources, including e-textbooks, interactive platforms, online courses, virtual laboratories, and educational applications. Competence includes adapting content to educational contexts, creating original materials, and integrating them into teaching. Proficiency in distance and blended learning tools is essential as education increasingly extends beyond the classroom.

• *Using AI for Learning Materials*. Teachers should employ AI tools to automate routine tasks such as creating assignments, tests, presentations, and learning scenarios, including differentiation for various student levels. AI enhances preparation efficiency, allowing focus on creative and methodological aspects. Teachers must remain experts who validate and adapt AI outputs to meet educational standards.

• *Critical Evaluation of AI Outputs*. Teachers must critically assess AI-generated information, verifying accuracy, logical consistency, and relevance. This requires analytical thinking, digital media literacy, and awareness of ethical issues such as authorship, data privacy, algorithm transparency, and bias [3; 8]. Critical thinking is both a professional skill and a pedagogical responsibility.

The integration of ICT and AI competence with critical thinking and pedagogical creativity ensures that digital technologies enhance education effectively rather than serving as mere trends.

4. Fostering Learner Autonomy. Modern education shifts from passive knowledge consumption toward fostering learner autonomy, critical thinking, and self-directed learning. AI supports, rather than replaces, cognitive development. Skills that AI cannot substitute include critical thinking, creativity, interpersonal interaction, and socio-emotional development.

• *Teacher's Role.* Teachers act as facilitators, creating conditions for independent knowledge construction. Learning tasks should encourage analysis, investigation, questioning, and self-discovery. AI use must be pedagogically justified.

• *AI as Support, Not Substitute.* AI should aid thinking by providing prompts, additional information, or scenario modeling without delivering ready-made answers, which would hinder cognitive development.

• *Analysis, Comparison, and Argumentation.* AI can generate alternative solutions or perspectives for student evaluation, promoting critical engagement and analytical skills [7; 8].

• *Educational Autonomy.* Learners should independently set goals, plan activities, access resources, and evaluate progress. AI can act as a personal assistant but final decisions remain with students. Teachers scaffold autonomy through assignments, projects, and reflection.

Properly guided, AI supports independent learning, critical analysis, and creative thinking.

5. Pedagogically Appropriate Feedback. Effective education requires organized feedback. AI provides tools for rapid knowledge assessment and learning analysis [3; 8], while teachers interpret results and guide instruction.

• *Knowledge Assessment.* AI can automatically evaluate knowledge through tests and interactive exercises, identifying learning gaps [11; 13]. Teachers must analyze results to develop specific competencies rather than rely solely on metrics.

• *Identifying Common Errors.* AI detects frequent errors, enabling targeted interventions and tailored exercises [7; 8]. Teachers use this data to address individual needs.

• *Timely Feedback.* AI delivers immediate feedback, essential for distance and blended learning [11; 13]. Teachers interpret results and adapt instruction accordingly, ensuring a feedback system where digital tools enhance but do not replace pedagogy [7; 8].

Organized feedback combines automated assessment, error analysis, and responsive support, promoting comprehensive competency development [3; 13].

6. Personalized and Differentiated Learning. Personalization and differentiation enhance learning efficiency by addressing individual student needs. AI enables adaptive learning pathways and tailored tasks [3; 7; 8].

• *Task Adaptation.* AI adjusts tasks to students' knowledge and skill levels, balancing challenge and ability [11; 13]. Teachers define adaptation parameters and oversee implementation.

• *Pace of Learning.* AI accounts for individual learning speeds, offering repetition or acceleration as needed [7; 8], reducing stress and improving motivation.

• *Individual Learning Pathways.* AI supports personalized educational pathways, recommending activities, resources, and tasks [3; 11; 13]. Teachers monitor progress and adjust plans to ensure competency development. Personalized learning fosters autonomy and creative engagement.

AI-driven personalization and differentiation support each student's development, enhance motivation, and cultivate key competencies [7; 8].

7. Accessibility and Inclusivity. Artificial intelligence should be used to ensure equal access to education for all, including students with disabilities, special needs, visual or hearing impairments, or mobility limitations. The use of modern AI technologies significantly enhances the efficiency of the learning process and creates an environment aligned with the principles of inclusive education. Key tools and their capabilities include:

• *Text-to-Speech (TTS)* allows individuals with visual impairments to "read" content, listen to books, articles, or educational materials in audio format. Modern AI systems provide not only natural-sounding voices but also adapt the pace and intonation to individual user needs, greatly facilitating information comprehension [1].

• *Speech-to-Text (STT)* assists individuals with hearing impairments or those unable to type. Automatic speech recognition technologies convert spoken language

into text in real time, making lectures, seminars, and online classes accessible to all students. Additionally, these systems can integrate with subtitling and translation tools, providing multilingual support [10].

• *Image Captioning:* AI analyzes visual content and generates textual descriptions of images or videos. This is critical for blind users, who otherwise cannot access visual information. Modern image captioning systems can consider the context of educational material and provide more detailed information [6].

Thus, AI usage not only ensures physical accessibility of content but also promotes social and academic integration of students with special needs, creating equal opportunities for all participants in the educational process.

8. Adherence to Pedagogical Ethics and Values. Implementing AI in education involves not only technical aspects but also strict adherence to ethical principles. The use of intelligent systems should be accompanied by transparency in their application, protection of personal data, and conscious avoidance of algorithmic bias. Key provisions include:

• *Principles of Humanistic Pedagogy:* AI does not replace the teacher but supports their activity, fostering critical thinking, creativity, and student independence. Technology use should respect individual needs and promote emotional intelligence [14].

• *Academic Integrity Standards:* Any tasks, assessments, or learning materials created or evaluated with AI must be transparent regarding sources and the algorithm's role. This helps prevent plagiarism and develops students' responsible attitude toward their learning [16].

• *Personal Data Protection:* AI systems collect large amounts of student data, including learning outcomes and behavior in educational environments. It is essential to ensure the security of such information according to legal and international standards (GDPR, Ukrainian personal data legislation) and to explain to students and parents how their data is used [5].

Teachers act as transmitters of these values. They not only monitor technology use but also cultivate students' awareness of ethical boundaries, critical assessment of AI-generated information, and responsibility for its use in learning and professional activities.

9. Rethinking the Assessment System. Rapid AI development is significantly changing modern education. AI tools can already generate texts, create presentations, perform translations, analyze data, and even solve complex learning tasks. Consequently, the traditional assessment system, long focused primarily on evaluating final results, requires profound reconsideration. Education must adapt to conditions where access to information and automated solutions is nearly unlimited.

Educators must be skilled in using AI tools, understand technological possibilities and limitations, and teach students to critically evaluate information. AI should not be perceived solely as a threat to academic integrity; instead, it can be a powerful resource for developing creative thinking, research skills, and personalized learning. Effective integration of AI requires changes not only in teaching methods but also in assessment principles.

In traditional assessment, the focus was often on correctness, material reproduction, and conformity to standards. With AI tools, students can obtain ready-made answers in seconds. Simple knowledge reproduction no longer indicates true competence. Greater importance is now given to critical thinking, information analysis, formulation of conclusions, and argumentation skills.

In AI-supported environments, educators should:

• *Shift focus from result to process.* A key transformation is focusing on the process rather than the final product. Previously, assessments emphasized the finished work—essays, reports, solved problems, or presentations. Today, it is crucial to track how students achieve results. Skills such as planning, researching, analyzing sources, verifying data, and adjusting actions are essential.

Student reflection on their own activity is especially important. They should explain tools used, reasons for chosen approaches, challenges faced, and problem-

solving strategies. This allows educators to assess not only knowledge but also independent thinking and responsible digital technology use.

Process-oriented assessment develops cross-disciplinary competencies: teamwork, time management, activity planning, error analysis, and iterative improvement – skills crucial in a constantly evolving technological society.

• *Use open-ended tasks.* Traditional tests or single-answer exercises are increasingly ineffective, as AI can generate correct solutions quickly. Open-ended tasks encourage creativity, independent analysis, and personal perspective formation. Examples include essays, research projects, real-world case analysis, original product creation, discussions, and interdisciplinary projects. These tasks require knowledge integration, fact comparison, argumentation, and independent conclusions.

Open-ended tasks also support personalized learning, allowing students to demonstrate their thinking style, creativity, and personal experience. Ready-made answers are less effective in this format, as originality and depth of analysis are valued.

Educators must develop clear assessment criteria, such as logical structure, argument strength, source use, independence, creativity, or practical significance. Transparency ensures objective evaluation and trust in the educational process.

• *Evaluate analysis and practical application*. In an AI-rich environment, evaluating students' ability to analyze and apply knowledge is essential. Memorization is insufficient; students must effectively work with information and make reasoned decisions. They must verify data, detect manipulation, analyze perspectives, and draw critical conclusions – key 21st-century skills. Educators should create situations for applying knowledge to practical, real-life, or professional tasks.

For example, instead of simple content reproduction, students can analyze a problem, propose multiple solutions, and justify their choice, assessing understanding, logical reasoning, and knowledge transfer. Assessment must also consider ethics, academic integrity, and responsible technology use.

Rethinking assessment is thus crucial for effective AI-era education. Modern educators must focus not only on knowledge verification but also on fostering critical thinking, creativity, independence, and information literacy. Shifting from outcome- to process-based assessment, using open-ended tasks, and emphasizing practical application make education adaptive, humanistic, and aligned with digital society demands.

10. Pedagogical Design of the Educational Environment. Modern education has entered a phase of profound transformation under the influence of artificial intelligence technologies. AI has already ceased to be merely a tool for supporting the learning process and is becoming an integral part of the educational environment, creating new opportunities for both teachers and students. In this context, the pedagogical design of the educational environment acquires particular significance, as the effectiveness of learning and the development of students' competencies depend on competent planning and organization.

AI makes it possible to create adaptive learning environments that take into account students' individual needs, learning pace, and specific ways of perceiving information. As a designer of the educational process, the teacher must be able to integrate these technologies in such a way that they contribute to the development of critical thinking, creativity, and learner autonomy, rather than merely automating routine processes.

• *Designs*. The design of the educational environment involves the deliberate creation of a structured space in which students' learning activities and the use of AI tools are interconnected and support educational objectives. Teachers must determine which technologies and resources are necessary to achieve learning outcomes, how to integrate digital tools into learning tasks, and which methodologies should be employed to stimulate students' cognitive activity.

Design also involves creating conditions for the development of transversal competencies, such as the ability to work with information, analyze data, make informed decisions, and collaborate in teams. The use of AI in this process enables

educators to model various learning scenarios, anticipate students' needs, and adjust the educational process in real time.

• *Organizes.* Following the design stage, the teacher proceeds to organize the educational environment. This includes planning learning activities, selecting instructional forms and methods, and integrating interactive platforms, simulations, and other AI-based tools. It is important that the organization of the environment promotes active student engagement, supports collaboration, and encourages independent work.

Organization also involves establishing an assessment and feedback system that takes into account not only final outcomes but also the learning process itself. For example, the use of adaptive learning platforms enables educators to monitor each student's progress and adjust tasks according to their level of competence.

• *Adapts to Learning goals*. Equally important is the teacher's ability to adapt the educational environment to specific learning objectives. Every course, lesson, or project has its own goals, and AI tools should be used in a manner that maximizes the effectiveness of achieving them. Adaptation may include the personalization of tasks, the selection of materials according to students' interests and abilities, and adjustments to the learning pace.

An adaptive educational environment makes it possible to implement a differentiated approach to students by supporting those who are struggling while encouraging more advanced learners toward independent development. This fosters a learning culture focused on individual progress, the development of critical thinking, and information literacy skills.

Based on research findings, scholarly publications, and the personal pedagogical experience of the research team, it can be concluded that the effective use of artificial intelligence in the educational process is possible only under a set of pedagogical conditions. These include clearly defined learning objectives, competent design and organization of the educational environment, the integration of adaptive

technologies, and the development of students' critical thinking and independent learning skills.

Thus, the pedagogical design of the educational environment in the age of AI becomes a key factor in successful learning. It combines technological potential with pedagogical expertise aimed at developing a competent, critically thinking, and autonomous learner of the twenty-first century.

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