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The influence of AI on the perception and assimilation of knowledge by students in the process of independent work

This article examines the impact of artificial intelligence (AI) technologies on the perception and assimilation of knowledge by students in the process of independent work. The conducted research included a survey of students, an analysis of their level of trust in AI, experiments comparing texts written by students and created with the help of AI, as well as studying students' dependence on intelligent algorithms. The results showed that AI has a significant impact on the structure of the educational process, facilitating access to information, personalizing educational materials, and automating of routine tasks. However, excessive reliance on AI can lead to a decrease in students' independent thinking, critical analysis, and decision-making ability without technological support. Experiments have revealed that teachers have difficulty distinguishing student papers from AI-generated texts, which indicates the need to review the methods of checking written assignments. It was also found that students who regularly use AI for educational purposes have difficulty performing analytical tasks without its support, which confirms the presence of an "addiction effect." The article highlights the importance of a balanced approach to integrating AI into the educational process.

Keywords: Artificial intelligence, independent work of students, cognitive processes, critical thinking, automation of learning, digital literacy, AI technologies in education.

Introduction

Artificial intelligence (AI) is increasingly being used in the field of education, offering new tools for learning and assimilation of knowledge. Modern intelligent systems analyze students' individual needs, adapt learning materials, provide personalized recommendations, and automate knowledge verification processes. Technologies such as adaptive educational platforms, virtual mentors, and chatbots make the learning process more flexible and accessible.

One of the most significant areas of the educational process influenced by AI is the independent work of students. Traditionally, students' independent work plays an important role in developing analytical skills, critical thinking, and the ability to independently find solutions. In the context of digitalization, students gain access to a wide range of intelligent tools that can facilitate the learning process. However, it is important to understand exactly how AI changes the structure and nature of independent work: whether it enhances students' cognitive activity or, conversely, reduces their initiative, simplifying cognitive processes.

However, along with the benefits, a number of important issues arise. Does constant interaction with AI affect the depth of knowledge acquisition? Does the use of algorithms contribute to the development of critical thinking, or, on the contrary, form students' dependence on external intelligent systems? Is the way information is perceived and processed changing in the context of digital learning? These questions are especially relevant in the context of students' independent work, where traditionally the skills of analysis, synthesis, and independent search for solutions play a key role.

In addition, interaction with AI can change the motivation to learn. On the one hand, intelligent systems make the process more interactive and exciting, reducing cognitive load and adapting the complexity of the material to the student's level. On the other hand, excessive automation can lead to a passive perception of knowledge, a decrease in initiative and a weakening of the ability to comprehend information in depth.

The interaction of artificial intelligence and students' independent work is an urgent topic for research. The main research problem is to determine the influence of AI on the cognitive processes of students in the process of independent work. It is important to understand how the use of intelligent technologies affects the development of critical thinking, the ability to analyze and find solutions independently. In addition, it is necessary to assess the potential risks associated with excessive reliance on AI and determine how these

technologies can be effectively integrated into the educational environment without reducing the quality of knowledge acquisition.

According to a study conducted at the University of the Balearic Islands, students, especially first- and second-year law students, often rely on AI to complete academic assignments. This leads to a decrease in critical thinking and independence, as about half of the surveyed students have difficulty understanding what they read and depend on AI technologies for their studies [1]. According to a study by Xiaoming Zhai, the key task of education remains the development of creativity and critical thinking, and not just mastering technical skills of working with AI [2].

In 2021, UNESCO member states adopted a Recommendation on the Ethics of Artificial Intelligence, which emphasizes the need for responsible use of AI in various fields, including education [3]. The document focuses on ensuring inclusivity, respect for human rights, and prevention of digital inequality in the implementation of AI technologies. In 2019, the Organization for Economic Cooperation and Development (OECD) developed Principles on AI aimed at ensuring the reliability, sustainability and security of AI systems [4]. These principles recommend that participating countries create conditions for responsible development and application of AI, paying special attention to its impact on education and professional training [5].

The heterogeneity of approaches to regulating the use of artificial intelligence (AI) in higher education reflects different strategies for adapting technology in the academic environment. In the United States, leading universities such as Harvard, Stanford, and Yale set their own rules, focusing on a balance between technological progress and academic integrity. Harvard Business School allows the use of generative AI, but requires mandatory citation of sources. Stanford University equates generative AI with human assistance, prohibiting its use for exams and assignments without disclosure. At Yale University, teachers independently determine whether AI tools are allowed in their courses, while they are required to clearly explain the reasons for the restrictions. In China, AI regulation in education is of a different nature: new approaches are being tested at mid-level universities, which avoids possible reputational risks for the country's leading universities. This cautious approach is aimed at minimizing the negative consequences in case of unsuccessful technology integration. Some universities have set limits on the amount of text that can be generated using AI (no more than 40 %) while other universities require mandatory disclosure of information about the use of generative AI, including the name of the model, software version and time of use. The Jiangxi Institute of Applied Sciences and Technology has introduced separate regulations prohibiting students from using AI to write analytical papers, but allowing it to be used for literature search, data processing, and supporting tasks.

A study of 500 universities included in the Quacquarelli Symonds (QS) 2022 ranking showed that less than a third of universities have implemented an official ChatGPT policy. Among the universities that have developed regulations, two-thirds have allowed the use of ChatGPT in teaching and learning, while the number of universities that have completely banned it is significantly lower. At the same time, most universities with a ban on generative neural networks provide teachers with the opportunity to deviate from the general policy and independently regulate the use of AI in the educational process. The evidence suggests that the higher the academic reputation of a university, the higher the likelihood of regulations, but not a complete ban on the use of AI. A 2024 study on the experience of leading Asian universities (Japan, Singapore, Hong Kong) revealed similar trends in AI regulation. However, the situation is different in China: the use of ChatGPT is officially prohibited there, but there are alternative national solutions in the field of generative neural networks, such as Ernie from Baidu. This demonstrates that the policy of regulating AI in education is shaped not only by academic considerations, but also by the national technology strategy. These studies emphasize that generative AI is increasingly becoming a part of the educational process, and even in universities where its use is formally limited, teachers are given the right to flexibly use technology. This confirms the need to further study the impact of AI on students' perception and assimilation of knowledge, as well as to develop balanced approaches to its integration into the educational process.

In 2025, at the Global Artificial Intelligence Action Summit, representatives from various countries emphasized the importance of international cooperation to develop common standards and guidelines in the field of AI. This collaboration is aimed at harnessing the potential of AI to improve living conditions, stimulate a sustainable economy, and build inclusive societies [6].

Government initiatives aimed at digitalizing education and integrating artificial intelligence (AI) technologies into the educational process are being actively implemented in the Republic of Kazakhstan. These efforts are supported by a number of regulatory documents and programs that emphasize the relevance of studying the impact of AI on students' perception and assimilation of knowledge in the process of independent work. In April 2024, the Government of the Republic of Kazakhstan approved the Concept of Artificial

Intelligence Development for 2024-2029 [7]. The document is aimed at creating conditions for the development and implementation of AI in various fields, including education. The concept provides for the development of public policy and the creation of a regulatory framework for the effective use of AI. In December 2024, the Prime Minister of the Republic of Kazakhstan instructed the Ministry of Science and Higher Education to develop educational programs and courses on artificial intelligence [8]. This initiative is aimed at training qualified personnel who are able to effectively use and develop AI technologies in various industries.

The purpose of this article is to investigate the influence of artificial intelligence (AI) on the perception and assimilation of knowledge by students in the process of independent work.

Literary review.

Kan J.S., Park M.K. (2023) concluded that the use of AI-Adaptive Learning (AI-AL) in English language teaching led to improved TOEIC test scores and increased student self-efficacy in the process of independent learning. The study analyzed the exam results and diaries of students, which recorded changes in their perception of their own learning abilities. The most frequent manifestations of independent learning were "desire to learn" (96.4 %) and "self-reflection" (91.1 %) which indicate the positive impact of AI on the development of self-education skills [9].

Wu D., Zhang S. (2024) found that generative AI promotes the development of Self-Directed Learning (SDL) by adapting educational content, increasing motivation, and improving student interaction with learning materials. Their study, which included a survey of 306 students, showed that the main factors influencing the perception of AI include teacher support, learning strategy, and technology adoption. High self-efficacy and positive experience of interacting with AI contributed to more successful learning educational material [10].

Namjoo F., Liaghat E. (2023) revealed the positive impact of AI tools on the involvement in the learning process and the material assimilation. During the interviews with the students, five key topics were identified: interaction with AI tools, educational outcomes, challenges and limitations, available support resources, and the general perception of AI in education. Despite the positive feedback about personalized recommendations and interactive AI features, students noted technical difficulties, limited content, and data privacy issues [11]. Zhou J., Zhang H. (2024) found that factors influencing the continued use of AI-assisted tools include the perception of usefulness, student motivation, and the level of satisfaction with the learning process. According to their study, satisfaction acts as a mediator between the perceived usefulness of AI and the intention of students to continue using it. The higher the level of students' autonomy and competence in working with AI, the higher their desire to continue using it in the future [12]. Wang S., Yi Z. (2024) conducted a 14-week randomized trial using the LearnGuide AI assistant. As a result, the students who used this tool showed significant improvement in critical thinking and self-assessment of knowledge. The average score on the self-study scale increased by 4.15 points, and on the critical thinking test by 7.11 points. These changes persisted throughout the study, confirming the effectiveness of AI in developing students' analytical and cognitive skills [13].

AI has a significant impact on students' perception and assimilation of knowledge, especially in self-study. Its use increases student engagement, personalizes the educational process and promotes the development of critical thinking. Research shows that AI tools enhance students' autonomy, improve their educational outcomes, and promote the continued use of technology in learning. However, unresolved issues remain, such as technical limitations, ethical aspects, and the need to adapt AI platforms to the individual needs of students. Further research in this area will make it possible to integrate AI more effectively into educational strategies of the future.

Materials and methods

Within the framework of the research, several experimental and analytical works were conducted aimed at studying the influence of artificial intelligence (AI) on the perception and assimilation of knowledge by students in the process of independent work.

The first stage was a survey of students, consisting of five questions regarding the frequency of using AI for educational purposes, the level of trust in its answers, the impact on independent thinking and the convenience of working with such tools. Students of various courses took part in the survey, which made it possible to identify a common attitude towards AI in educational activities, identify the main motives for its use, and assess the degree of dependence on such technologies.

1. What AI tools do you use when doing independent work? (You can select several options)
2. How often do you use AI when performing independent tasks?
3. What type of tasks do you perform with the help of AI in the process of independent work?
4. Do you think the use of AI affects your ability to think independently and analyze when performing training tasks?
5. What is your attitude toward the use of AI in the process of independent work?

The second stage was the "Blind Reviewer" experiment, which aimed to identify differences between texts created by students independently and with the help of AI. The students prepared essays on one topic, while half of them wrote the texts manually, and the other half used AI tools. Then all the works were handed over to the teachers without attribution, and his task was to determine which of them were created by students and which were generated by AI. The analysis of the results made it possible to identify the criteria by which the teacher determined the affiliation of the texts, as well as to assess how modern artificial intelligence models can imitate the style and argumentation of students.

The third stage was the "Dependency Effect" experiment, aimed at studying whether the constant use of AI affects students' ability to solve problems on their own. As part of the study, a group of students first solved complex problems using AI tools, and after a while they were then asked to complete similar tasks without using artificial intelligence. Then a comparative analysis was carried out, during which it was estimated how much the students' results declined and whether the work completion time increased. This experiment allowed us to determine whether students experience a "calculator effect" in which excessive use of AI reduces their ability to solve problems without technological support.

The fourth stage was the psychological experiment "Do students trust AI more than themselves?", the purpose of which was to study the level of students' trust in artificial intelligence responses compared with their own knowledge. To do this, students were given a simple test, which they first performed on their own. Then they were shown the AI's answers, of which half were correct and half were incorrect. After that, the students were asked if they wanted to change their initial answers. The final analysis revealed how many students trusted AI and changed correct answers to erroneous ones, and assessed the extent to which AI affects students' confidence in their knowledge.

The research conducted has provided a comprehensive understanding of how the use of AI affects the process of knowledge acquisition, critical thinking, students' independence, and their cognitive perception of educational information. The results provide an opportunity to evaluate both positive and potentially problematic aspects of integrating AI into the educational process.

Results and discussions

A survey of students about the frequency of using AI, the level of trust in its answers, and the impact on independent thinking revealed several key trends in the educational process. 47 students took part in the survey. The results showed that the most popular AI tools among students are ChatGPT (78 %), Copilot (46 %), and Google Bard (41 %). A significant number of respondents also noted the use of Claude AI (34 %) and QuillBot (32 %). At the same time, only 15 % of students stated that they do not use AI when performing independent tasks.

ChatGPT's popularity is explained by its versatility: it helps in writing texts, structuring thoughts, analyzing sources, and even solving complex problems. Microsoft Copilot and Google Bard are used by students as universal assistants for information retrieval and workflow automation. The high usage rate of Claude AI indicates a growing interest in alternative models that offer a more analytical and detailed approach to content generation.

More than 60 % of students use AI at least once a week, which indicates a high degree of inclusion of these technologies in the educational process. A significant proportion (29 %) uses AI on a daily basis, which may indicate both its effectiveness and the possible dependence of students on algorithms when completing tasks. On the other hand, 10 % of respondents do not use AI at all, which may be due to a preference for traditional learning methods or a lack of trust in artificial intelligence. AI is most popular as a tool for finding information and structuring thoughts (Fig. 1). This confirms the hypothesis that students use AI not only to get ready-made answers, but also to use it as an auxiliary tool for working with texts. Interestingly, 40 % of respondents use AI to solve problems in the exact sciences, which indicates that algorithms are in demand in STEM disciplines.

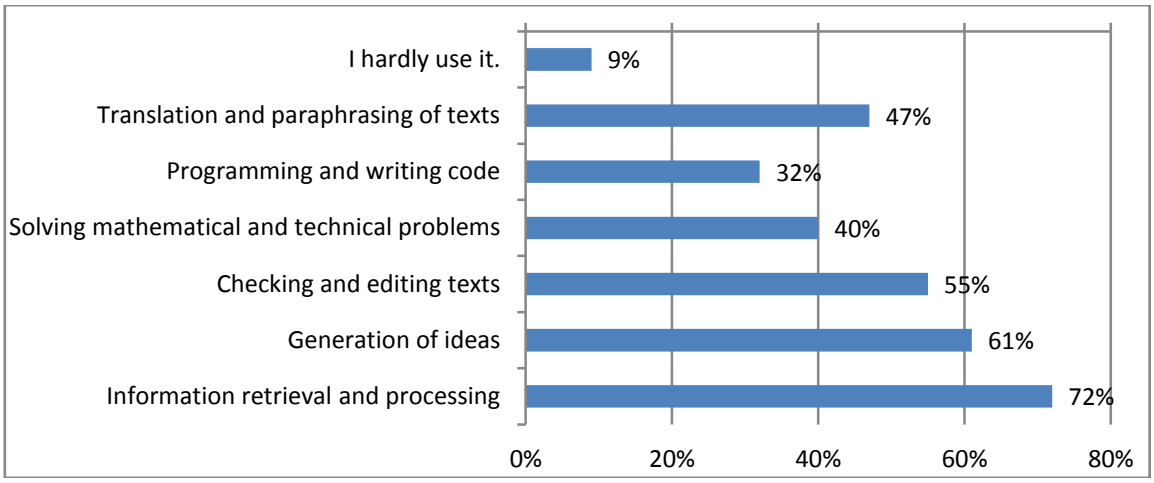

Figure 1. Reasons for using AI

Most students do not believe that AI negatively affects their ability to independently analyze information. However, 19 % of respondents admitted that the use of AI reduces their independence in learning, and 5% stated a complete suppression of critical thinking. This suggests that in some cases, students may become addicted to technology, which requires the development of methods for the conscious use of AI in teaching (Fig. 2).

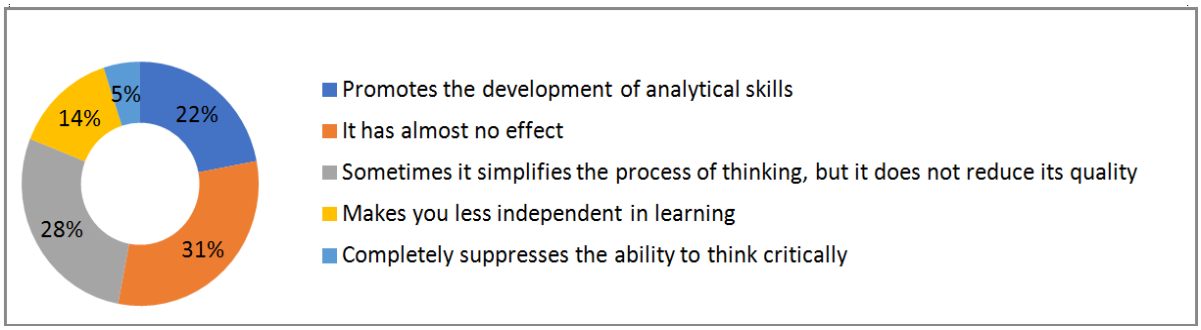

Figure 2. The impact of AI on students' ability to think independently

The majority of students (80 %) perceive AI as a useful tool, but 42 % of them believe that its use should be regulated so as not to undermine traditional principles of education. Only 5 % of students hold a negative opinion, pointing out its potentially harmful effect on the development of independent thinking.

The survey results show that AI has firmly entered students' independent work processes. It is actively used to search for information, create texts, solve problems, and check the structure of written works. Despite the positive perception of technology, some students note that AI can reduce their learning independence. The findings highlight the need for a balanced approach to integrating AI into education so that students can use it as a tool without losing their skills in independent analysis and critical thinking.

The "Blind Reviewer" experiment involved 20 students, of whom 10 wrote their essays manually, and 10 used ChatGPT. All participants wrote essays on the same topic, after which the papers were handed over to two teachers, who had to determine which of the texts were created by students and which were generated by artificial intelligence.

The topic chosen for the research was "The role of students' independent work in the formation of critical thinking in the context of the digital transformation of education." The topic was chosen considering the relevance of the issue of introducing AI into the educational process and its possible impact on students' cognitive abilities.

The structure of the essay:

- Introduction (relevance of the topic, problem statement)
- Main body (arguments in favor of the importance of independent work, analysis of the impact of digital technologies)

● Conclusion (conclusions regarding the need for a balanced approach to the use of AI)
● Literature (if applicable)

Students who wrote their essays manually could use any sources, but had to formulate their thoughts on their own. Those who used AI could use it to generate text, but had to make minimal edits to make the material look academic (Fig. 3).

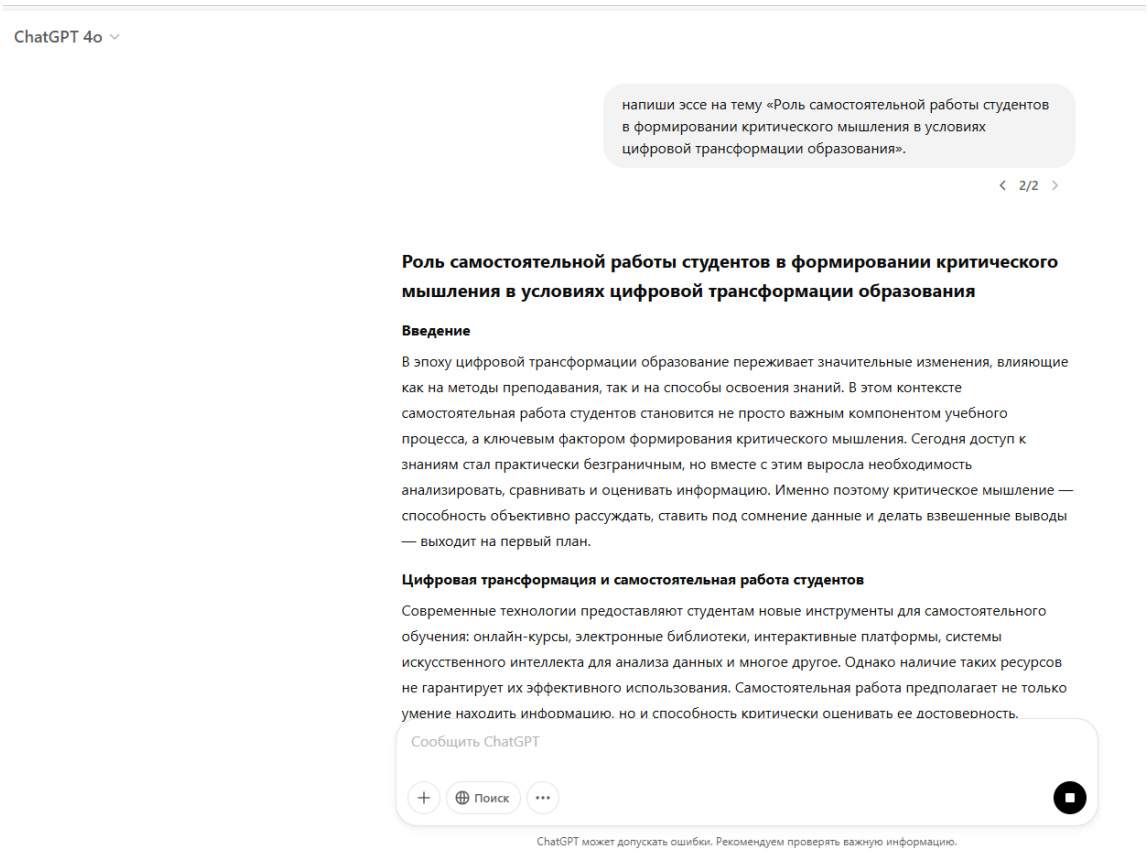

Figure 3. Student's work in ChatGPT

Two teachers acted as reviewers:
Teacher A is a specialist in pedagogy and digital technologies
Teacher B is a teacher of humanities

Both reviewers did not know which texts were written by AI and which by students. They evaluated the essays according to the following criteria:

Depth of analysis — presence of independent conclusions, examples, and interpretations.
Writing style — academic character of the text, the presence of subjective reasoning
Use of sources — originality and validity of citation

The results of the teachers' determination of the text affiliation are shown in Table 1.

Table 1

Results of teachers' identification of text affiliation

Category	Teacher A (correct definition)	Teacher B (correctness of definition)	Average accuracy percentage
Human texts	7 out of 10 (70 %)	6 out of 10 (60 %)	65 %
Texts created by AI	6 out of 10 (60 %)	5 out of 10 (50 %)	55 %
Overall accuracy level	65 %	55 %	60 %

Teachers were able to correctly identify 65 % of student texts, and 55% of AI texts. This confirms that human texts are slightly easier to recognize, but the difference is not critical. Errors were more often made when identifying AI texts (45 % of cases), which indicates a high degree of adaptation of generative algorithms to the academic style. Key distinguishing characteristics observed by teachers included:

1. Logical coherence — The AI texts were consistent, but sometimes too straightforward.

2. Originality of arguments — students' papers contained more personal examples and non-standard reasoning.

3. Errors and stylistic deviations — The AI texts were stylistically smooth, but without typical spelling errors.

The experiment showed that modern AI models can successfully mimic the scientific style, creating texts that teachers find difficult to distinguish from students' work. This highlights the need for new approaches to evaluating written assignments, and increases the relevance of developing methods to verify the originality of student papers in the digital learning era.

The "Dependency Effect" experiment was aimed at studying the impact of the constant use of AI on students' ability to independently perform critical text analysis. The study involved 20 students who were asked to first complete tasks using AI, and then solve similar tasks without its help.

Students were offered a fragment of an analytical text (a scientific article) and were asked to perform three stages of analysis:

- Identification of the author's key arguments
- Search for logical inconsistencies in the text
- Formulation of an alternative point of view

The students performed text analysis using ChatGPT. Next, they were asked to complete similar tasks, but without AI. After completing each stage, they were evaluated:

1. The accuracy of the selected arguments was measured by how correctly the student identified the key ideas of the text.

2. The depth of analysis was measured by how detailed the student identified logical inconsistencies.

3. The originality of the alternative point of view was measured by how independent the student's conclusions were.

Task completion time was how fast the student coped with the task.

The results of the tasks are shown in Table 2.

Table 2

Task completion results

Parameter	With AI	Without AI	Difference (%)
Average score for text analysis (out of 100)	87,1	64,95	↓ 25 %
Average execution time (in minutes)	15 min	31 min	↑ 107 %
Correctness of the highlighted arguments (out of 10)	9,2	6,5	↓ 29 %
Number of logical errors found in the text (out of 5)	4,4	2,8	↓ 36 %
Originality of an alternative point of view (out of 10)	7,8	5,3	↓ 32 %

A t-test for dependent samples was used to test the significance of differences in the results of tasks performed with and without AI.

The t-test formula for dependent samples (paired t-test) (1):

$$t = \frac{\bar{D}}{S_D / \sqrt{n}}, \quad (1)$$

Where:

$\bar{D}$ is the average difference between the results with and without AI

S_D is the standard deviation of the difference

n is the number of students

Average difference between results (with and without AI):

$$\bar{D} = 87{,}1 - 64{,}95 = 22{,}15$$

$$S_D = 1{,}39$$

$$n = 20$$

$$t = \frac{22{,}15}{1{,}39 / \sqrt{20}} = 71{,}42$$

$$p = 1.47 \times 10^{-24}$$

Since $p < 0.05$, the difference is statistically significant, which confirms the significant influence of AI on the performance of critical text analysis. Without AI, students identified 2.7 fewer key arguments on average than when using AI (9.2 vs. 6.5 out of 10). This indicates that AI helps to organize the material and facilitates the structuring of the text.

Students working without AI found 36 % fewer logical errors. This confirms that without automatic analysis, students have difficulty critically comprehending the text. The originality of the conclusions decreased by 32 %. Students working without AI were more likely to repeat ideas from the source text rather than offer their own interpretations. This indicates a decrease in the level of independent thinking with frequent use of AI. When working without AI, students spent twice as much time (31 minutes versus 15 minutes). This means that AI not only facilitates analysis, but also significantly speeds it up. The experiment showed that the constant use of AI leads to a decrease in independent analytical skills.

Students who are used to working with AI:

- Analyze text faster
- Identify key arguments more easily
- Identify more logical inconsistencies

However, without AI:

- Lose the ability to structure text quickly
- Have more difficulty finding logical errors
- Show less independent critical thinking

AI does make text analysis easier, but its constant use leads to cognitive laziness — students begin to rely on algorithms rather than their own analytical abilities.

The experiment “Do students trust AI more than they trust themselves?” was aimed at examining the level of students’ trust in AI responses compared to their own knowledge. The study involved 20 students who were offered a 10-question test.

The first stage: The students answered the questions on their own.

The second stage: They were shown AI responses, of which 50 % were correct and 50 % incorrect.

The third stage: Students had the opportunity to change their answers after reviewing the AI’s answers.

The final stage: It analyzed how many students changed correct answers to erroneous ones and how often they trusted the AI even in the case of contradictions with their initial answers.

The results of the experiment “Do students trust artificial intelligence more than they trust themselves?” are shown in Table 3.

Table 3

Results of the experiment “Do students trust AI more than themselves?”

Category	Number of students (out of 20)	Percentage (%)
Changed the correct answers to erroneous ones after viewing the AI responses	12	60 %
They kept their correct answers, despite the contradiction with AI	5	25 %

Continuation of Table 3

Category	Number of students (out of 20)	Percentage (%)
Have you changed your wrong answers to the right ones thanks to AI	10	50 %
We left all our original answers unchanged	3	15 %

60 % of the students changed their correct answers to incorrect ones after watching the AI's responses. This indicates a high level of students' trust in AI, even when their initial answer was correct. Only 5 out of 20 students (25 %) kept their correct answers, despite the contradiction with AI. This may indicate that students are not confident in their ability to analyze information on their own, especially if AI offers an alternative option. 50 % of the students corrected their mistakes, relying on the correct AI answers. This confirms that AI can be a useful tool when its answers are truly accurate. A small group of students (15 %) fully retained their initial answers. These students are probably either confident in their knowledge or skeptical of the information provided by AI.

The experiment showed that students tend to trust AI more than their own knowledge, even if it leads to mistakes.

- AI can have a strong influence on students' decisions, reducing their confidence in their own answers.
- Although AI helps to correct mistakes, it is also capable of being misleading if it contains incorrect data.
- It is necessary to be careful when using AI in teaching so that students do not lose their critical thinking skills and the ability to independently analyze information.

The conducted research has shown that the use of artificial intelligence (AI) has a significant impact on students' independent work, their cognitive abilities, critical thinking, and confidence in their own knowledge. A survey of students confirmed that AI is widely used in educational activities, especially for information retrieval, structuring thoughts and writing texts. At the same time, students are aware of both the advantages and risks of excessive use of technology. The "Blind Reviewer" experiment revealed that teachers have difficulty distinguishing texts written by students from those generated by AI. This confirms the ability of modern algorithms to mimic academic style, which requires a revision of approaches to checking written papers. The Dependency Effect experiment showed that the constant use of AI reduces students' ability to independently analyze texts, find logical inconsistencies, and formulate arguments. The experiment "Do students trust AI more than they trust themselves?" confirmed the high level of students' trust in AI answers, which in some cases led to the replacement of correct answers with erroneous ones.

These results indicate the need for a balanced approach to the implementation of AI in the educational process, so that it remains an auxiliary tool and does not replace the analytical and critical abilities of students.

Conclusions

The results of the study emphasize the dual role of AI in the educational process. On the one hand, AI technologies help automate routine tasks, personalize learning, and help students work with large amounts of information. On the other hand, their excessive use can lead to cognitive laziness, decreased critical thinking, and dependence on algorithms.

For effective implementation of AI in students' independent work, it is recommended:

- Include digital literacy courses in the curricula that teach students critical analysis of information received from AI.
- Emphasize the importance of verifying the accuracy of information proposed by algorithms.
- Encourage the performance of tasks without AI, especially in disciplines that require in-depth analysis and argumentation.
- Introduce practices that allow students to combine the use of AI with traditional methods of finding solutions.
- Develop strategies to identify AI-generated texts and encourage self-formulation of thoughts.
- Introduce tasks that require students to understand the material in depth, use personal experience and creative approaches.
- Use AI as an auxiliary tool rather than the main learning method.

- Develop customized learning strategies that not only consider the capabilities of AI, but also strengthen students' analytical and cognitive skills.

The use of these approaches will minimize the risks of excessive dependence on AI and ensure the development of key competencies necessary for students to work independently in digital education.

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Жасанды интеллектің студенттердің өзіндік жұмыс процесінде білімді қабылдауы мен игеруіне әсері

Мақалада жасанды интеллект (ЖИ) технологияларының студенттердің өзіндік жұмыс процесінде білімдерін қабылдауы мен игеруіне әсері қарастырылған. Зерттеу студенттерге сауалнама жүргізуді, олардың жасанды интеллектке деген сенімділік деңгейін талдауды, студенттер жазған және ЖИ арқылы жасалған мәтіндерді салыстыруға арналған эксперименттерді және студенттердің интеллектуалды алгоритмдерді қолдануға тәуелділігін зерттеуді қамтыды. Нәтижелер ЖИ білім беру процесінің құрылымына айтарлықтай әсер ететінін, ақпаратқа қол жеткізуді жеңілдететінін, оқу материалдарын жекелендіретінін және күнделікті тапсырмаларды автоматтандыруға ықпал ететінін көрсетті. Алайда, ЖИ шамадан тыс тәуелділік ойлаудың, сыни талдаудың және студенттердің технологиялық қолдаусыз шешім қабылдау қабілетінің төмендеуіне әкелуі мүмкін. Тәжірибелер көрсеткендей, мұғалімдерге студенттік жұмысты жасанды интеллект тудырған мәтіндерден ажырату қиынға соғады, бұл жазбаша

тапсырмаларды тексеру әдістерін қайта қарау қажеттілігін көрсетеді. Сондай-ақ, жасанды интеллекті білім беру мақсатында үнемі қолданатын студенттер аналитикалық тапсырмаларды қолдаусыз орындауда қиындықтарға тап болатыны анықталды, бұл «тәуелділік әсерінің» болуын растайды. Мақалада ЖИ білім беру процесіне біріктіруге теңдестірілген көзқарастың маңыздылығы көрсетілген. Интеллектуалды технологияларды тиімді қолдану үшін ЖИ көмекші құрал ретінде қолдануға ғана емес, сонымен қатар сыни тұрғыдан ойлау, ақпаратты талдау және тәуелсіз шешім қабылдау сияқты негізгі құзыреттерді сақтауға ықпал ететін стратегияларды әзірлеу қажет. Ұсынылған тәсілдерді қолдану ЖИ-ге шамадан тыс тәуелділік қаупін барынша азайтуға және студенттердің цифрлық білім беруде өз бетінше жұмыс істеуі үшін қажетті негізгі құзыреттердің дамуын қамтамасыз етуге мүмкіндік береді.

Кілт сөздер: жасанды интеллект, студенттердің өзіндік жұмысы, танымдық процестер, сыни ойлау, оқытуды автоматтандыру, цифрлық сауаттылық, білім берудегі жасанды интеллект технологиялары.

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Влияние искусственного интеллекта на восприятие и усвоение знаний студентами в процессе самостоятельной работы

В данной статье рассматривается влияние технологий искусственного интеллекта (ИИ) на восприятие и усвоение знаний студентами в процессе самостоятельной работы. Проведенное исследование включало опрос студентов, анализ их уровня доверия к ИИ, эксперименты по сравнению текстов, написанных студентами и созданных с помощью ИИ, а также изучение зависимости студентов от использования интеллектуальных алгоритмов. Результаты показали, что искусственный интеллект оказывает значительное влияние на структуру образовательного процесса, облегчая доступ к информации, персонализируя учебные материалы и способствуя автоматизации рутинных задач. Однако чрезмерная зависимость от искусственного интеллекта может привести к снижению самостоятельности мышления, критического анализа и способности студентов принимать решения без технологической поддержки. Эксперименты показали, что преподавателям трудно отличить студенческие работы от текстов, сгенерированных искусственным интеллектом, что указывает на необходимость пересмотра методов проверки письменных заданий. Также было обнаружено, что учащиеся, регулярно использующие ИИ в образовательных целях, испытывают трудности при выполнении аналитических заданий без его поддержки, что подтверждает наличие «эффекта зависимости». В статье подчеркивается важность сбалансированного подхода к интеграции ИИ в образовательный процесс. Для эффективного применения интеллектуальных технологий необходимо разработать стратегии, способствующие не только использованию искусственного интеллекта в качестве вспомогательного инструмента, но и сохранению ключевых компетенций, таких как критическое мышление, анализ информации и независимое принятие решений.

Ключевые слова: искусственный интеллект, самостоятельная работа студентов, когнитивные процессы, критическое мышление, автоматизация обучения, цифровая грамотность, технологии искусственного интеллекта в образовании.

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