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MARKETING RESEARCH ON THE USE OF ARTIFICIAL INTELLIGENCE IN MODERN EDUCATION

МАРКЕТИНГОВІ ДОСЛІДЖЕННЯ ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ В СУЧАСНІЙ ОСВІТІ

Summary. *Introduction. Artificial intelligence has transformed from an innovative technology into an integral component of the modern educational process, being actively implemented in Ukrainian educational institutions. The Concept of Artificial Intelligence Development in Ukraine defines its implementation in education as a strategic direction for state development. In the context of digital education transformation, artificial intelligence technologies create new opportunities for personalized learning, automated assessment, and increased efficiency in the educational process, while simultaneously generating new challenges regarding academic integrity, data privacy, and the preservation of students' critical thinking.*

Purpose. The purpose of the study is to determine the relevance of using artificial intelligence for educational purposes, analyze the most popular AI services among Ukrainian students, identify the main directions of artificial intelligence application in the learning process, assess the level of user satisfaction with intelligent systems, and determine the impact of artificial intelligence technologies on the professional activities and everyday life of higher education students.

Materials and Methods. The empirical research was conducted using the online survey method via Google Forms from September to October 2025. The sample consisted of 93 respondents from four leading educational institutions of Ukraine: National Technical University "Kharkiv Polytechnic Institute", V. N. Karazin Kharkiv National University, Semen Kuznets Kharkiv National University of Economics, and V. I. Vernadsky Kharkiv State Professional Pedagogical College. The survey covered questions

about the most frequently used AI services, frequency of their use, application areas, and the level of user satisfaction with the performance of intelligent systems.

Results. The results of the study showed that among students, the most popular artificial intelligence tool is ChatGPT, which is significantly ahead of other services. In second place in terms of popularity is Google Gemini. The main areas of use of artificial intelligence are learning, information search, and performing professional tasks. The regularity of use of such tools turned out to be very high – most students turn to them daily or several times a week.

The level of user satisfaction is generally positive: the assessment of the experience as satisfactory or completely satisfactory prevails. Among the advantages, students note assistance in solving complex educational tasks, preparing presentations, drawing up plans and significant time savings. At the same time, respondents name the inaccuracy of answers, restrictions on free access and the need for additional verification of the information received among the main difficulties.

Perspectives. The research results indicate deep integration of artificial intelligence into students' everyday lives and its transformation from a supplementary technology into a full-fledged partner in the educational process. Promising directions include further research on ethical aspects of AI use in education, development of institutional policies regarding artificial intelligence application, ensuring balance between automation and development of critical thinking, as well as studying the impact of AI on the formation of competencies of future specialists in the context of digital transformation of education in Ukraine.

Key words: *marketing research, artificial intelligence in education, digital transformation of learning, student survey, AI user satisfaction.*

Анотація. *Вступ. Штучний інтелект перетворився з інноваційної технології на невід'ємну складову сучасного освітнього процесу, що активно впроваджується в навчальних закладах України. Концепція розвитку штучного інтелекту в Україні визначає його впровадження в освіту як стратегічний напрям розвитку держави. В умовах цифрової трансформації освіти технології штучного інтелекту створюють нові можливості для персоналізації навчання, автоматизації оцінювання та підвищення ефективності освітнього процесу, однак водночас породжують нові виклики щодо академічної доброчесності, конфіденційності даних та збереження критичного мислення студентів.*

Мета. Метою дослідження є визначення актуальності використання штучного інтелекту в освітніх цілях, аналіз найпопулярніших AI-сервісів серед українських студентів, виявлення основних напрямів застосування штучного інтелекту в навчальному процесі, оцінка рівня задоволеності користувачів інтелектуальними системами та визначення впливу технологій штучного інтелекту на професійну діяльність і повсякденне життя здобувачів вищої освіти.

Матеріали і методи. Емпіричне дослідження проводилося з використанням методу онлайн-опитування через Google Forms у період вересень-жовтень 2025 року. Вибірка склала 93 респонденти з чотирьох провідних навчальних закладів України: Національного технічного університету «Харківський політехнічний інститут», Харківського національного університету імені В. Н. Каразіна, Харківського національного економічного університету імені Семена Кузнеця та Харківського державного професійно-педагогічного коледжу імені В. І. Вернадського. Опитування охоплювало питання щодо найчастіше використовуваних AI-сервісів, частоти їх використання, сфер застосування та рівня задоволеності користувачів роботою інтелектуальних систем.

Результати. Результати дослідження показали, що серед студентів найбільш популярним інструментом штучного інтелекту є ChatGPT, який значно випереджає інші сервіси. На другій позиції за поширеністю знаходиться Google Gemini. Основними напрямами використання штучного інтелекту виступають навчання, пошук інформації та виконання професійних завдань. Регулярність використання таких інструментів виявилася дуже високою – більшість студентів звертаються до них щодня або кілька разів на тиждень.

Рівень задоволеності користувачів загалом є позитивним: переважає оцінка досвіду як задовільного або повністю задовільного. Серед переваг студенти відзначають допомогу у розв'язанні складних навчальних завдань, підготовці презентацій, складанні планів і значну економію часу. Водночас серед основних труднощів респонденти називають неточність відповідей, обмеження у безкоштовному доступі та потребу у додатковій перевірці отриманої інформації.

Перспективи. Результати дослідження свідчать про глибоку інтеграцію штучного інтелекту в повсякденне життя студентів та його трансформацію з допоміжної технології у повноцінного партнера в освітньому процесі. Перспективними напрямами є подальше дослідження етичних аспектів використання AI в освіті, розробка інституційних політик щодо застосування штучного інтелекту, забезпечення балансу між автоматизацією та розвитком критичного мислення, а також вивчення впливу AI на формування компетентностей майбутніх фахівців в умовах цифрової трансформації освіти в Україні.

Ключові слова: *маркетингові дослідження, штучний інтелект в освіті, цифрова трансформація навчання, опитування студентів, задоволеність користувачів ШІ.*

Problem Statement. In the context of modern society's digitalization, artificial intelligence is actively being integrated into the educational process, creating new opportunities for improving the quality of learning while simultaneously raising serious concerns about its impact on the educational ecosystem. Ukraine has defined the concept of artificial intelligence development as a strategic direction of state policy, emphasizing

the importance of basic and applied research in this field for future economic growth and success in the international market of new technologies.

Despite the obvious advantages of using AI in education, particularly the ability to create personalized learning plans, adapt materials to individual student needs, and automate assessment processes, there are significant problems that require comprehensive research. The main problem is academic integrity and its violation, as students may abuse artificial intelligence to complete assignments or write academic papers. An additional problem is the absence or ambiguity of institutional policies regarding the use of artificial intelligence, leading to conflicts of views and opinions.

Furthermore, the reliability of information loaded into AI databases is not always reliable, forcing users to independently verify the received responses. The abstract AI model does not acquire knowledge independently and requires constant training on new data; without this, its development stagnates, reducing the effectiveness of using the system for educational purposes. Scientific development requires constant data updating, which over time in the artificial intelligence database may become outdated or incorrect.

The relevance of the research is conditioned by the need to determine the actual state of artificial intelligence technology use by Ukrainian students, assess their level of satisfaction with AI services, identify the main directions of application, and identify problematic aspects of artificial intelligence integration into the educational process. The absence of comprehensive empirical research on the specifics of AI use in the Ukrainian educational context necessitates conducting such an analysis to form a substantiated strategy for implementing intelligent systems in Ukrainian higher education.

Analysis of Recent Research and Publications. Ukraine has defined the concept of "artificial intelligence", its goals, principles, and objectives through the "Concept of Artificial Intelligence Development in Ukraine" [1]. Currently, there is active development of artificial intelligence technologies, which are becoming necessary in various fields, including education. It is extremely important for our country to continue basic and practical research in the field of artificial intelligence, because in the future, achievements in this area will be one of the integral components of the economic growth of any state and its success in the international market of new technologies.

Artificial intelligence today is an excellent assistant in many areas, including the learning process. It is used to create a personalized study plan for students, which helps to organize and systematize the learning process as a whole, with a final test of the person's knowledge. However, AI is not perfect because the information loaded into its databases is not always reliable, which sometimes forces users to check the answers themselves. An abstract AI model does not gain knowledge on its own, as if by magic, but needs to be trained on something. If it is not fed with new information, its development will stagnate, and there will be little point in using the system for educational purposes [4].

The main focus of proposals and documents on AI implementation is based on making learning more personalized and adaptive, respecting the ethics of AI use in education, and combining AI tools with modern learning principles. For example, platforms with integrated artificial intelligence can be adjusted to different student learning models and adapt learning materials to the individual needs of each student, which would be practically impossible for even a professional teacher to organize or would require a significant amount of time, which in turn would be inefficient.

Also, AI today has a much better ability to evaluate students and provide feedback than it did a couple of years ago. This allows AI to not only check test answers, but also evaluate written essays, compositions, and complex tasks, which greatly speeds up the process of checking each task by the teacher themselves [2].

However, despite these obvious advantages of using AI in the educational process, there are still well-known disadvantages and concerns about its implementation in education. The main problem at the moment is academic integrity and its violation, as students can abuse the usage of artificial intelligence for educational purposes, such as doing homework or writing research papers. Another problem with the use of AI in education is the absence or vagueness of educational institutions' policies on the use of artificial intelligence, which leads to a conflict of views and opinions [4].

Formulation of Article Goals. The purpose of this article is to conduct a comprehensive analysis of the use of artificial intelligence in the educational process, based on empirical research into the experiences of Ukrainian students.

Presentation of the Main Material. To analyze AI as a powerful tool that can significantly facilitate the educational process, a study was conducted on its use. The survey was conducted online and lasted from September to October 2025.

The study was conducted to find out how relevant the use of AI for educational purposes is at present. Analyzing the literature and the responses to our survey, which was conducted among mainly Ukrainian students, we can say with confidence that AI has become well established in the lives of many people, especially those who are currently studying. Forms to students of four leading educational institutions located in the Kharkiv region: National Technical University "Kharkiv Polytechnic Institute," V.N. Karazin Kharkiv National University, Semen Kuznets Kharkiv National University of Economics, and V.I. Vernadsky Kharkiv State Professional Pedagogical College.

As part of the study, 93 respondents were surveyed by sending a link to a Google form questionnaire to

educational institutions' messenger groups in order to determine the popularity of modern artificial intelligence services and the specifics of their use in everyday life. The survey covered questions about the most commonly used AI services, the frequency of their use, areas of application (education, creativity, entertainment, programming, etc.), and the level of user satisfaction with the performance of intelligent systems.

The survey was conducted among Ukrainian citizens who, at the time of the survey, were residing in the territory of Ukraine controlled by the Ukrainian government. Residents of territories temporarily not controlled by the Ukrainian government were not included in the sample, and the survey did not cover citizens who left the country after February 24, 2022.

Figure 1 shows a diagram illustrating the distribution of responses regarding the most commonly used artificial intelligence services among survey participants.

Analysis of survey responses regarding the most frequently utilized AI services reveals a pronounced market concentration phenomenon. ChatGPT emerged as the dominant AI tool, with 88.2% (n = 82) of respondents indicating regular use. This overwhelming prevalence substantially exceeds the adoption rates of competing platforms, indicating that ChatGPT has established market leadership and high recognition among its target demographic.

Google Gemini came in second in terms of popularity, with 50.5% (n = 47) of respondents saying they use it regularly. Its popularity can be attributed to its integration into the Google ecosystem, which offers quick access and a familiar interface.

Slightly fewer users preferred DeepSeek (20.4%, n = 19) and Gamma App (17.2%, n = 16), which specialize in text analytics and presentation creation, respectively. This indicates that students are not limited to traditional chat models, but are instead gradually exploring new areas of AI application.

Less popular are MidJourney (5.4%, n = 5), Copilot (2.2%, n = 2), Claude, Grammarly, NotebookLM, and other services (1–2%), which is explained by their narrow specialization or paid subscription requirements.

Thus, we can conclude that ChatGPT remains the clear leader among students; however, there is also a trend toward diversification of use, with a growing interest in tools that combine text, visual, and educational functionality.

The next stage of the study was to determine the primary purposes for which respondents most often use artificial intelligence tools. Figure 2 shows the results of a survey in which participants could select multiple answers to provide more accurate responses.

As can be seen from the results, the majority of respondents — 74.2% (n = 69) — utilize artificial intelligence for learning and education. This indicates that AI has become a powerful tool in the process of gaining knowledge: students use it to explain complex topics, write papers, search for examples, and test their knowledge. Thus, artificial intelligence is gradually becoming an extra educational resource that supports self-education and increases the effectiveness of the learning process.

The second most frequent use was searching for specific information — 50,5% (n = 47) of respondents said they turn to AI to quickly obtain accurate answers or facts. This confirms that models such as ChatGPT or Gemini often replace traditional search engines by providing more convenient and structured answers.

Professional and occupational applications were reported by 46.2% (n = 43) of respondents, encompassing tasks such as report preparation, textual editing, document compilation, and data analysis.

At the same time, 29% (n = 27) of participants use AI for communication or entertainment, indicating the development of the social and recreational functions of intelligent systems. Another 28% (n = 26) reported using AI to create images or videos, specifically for

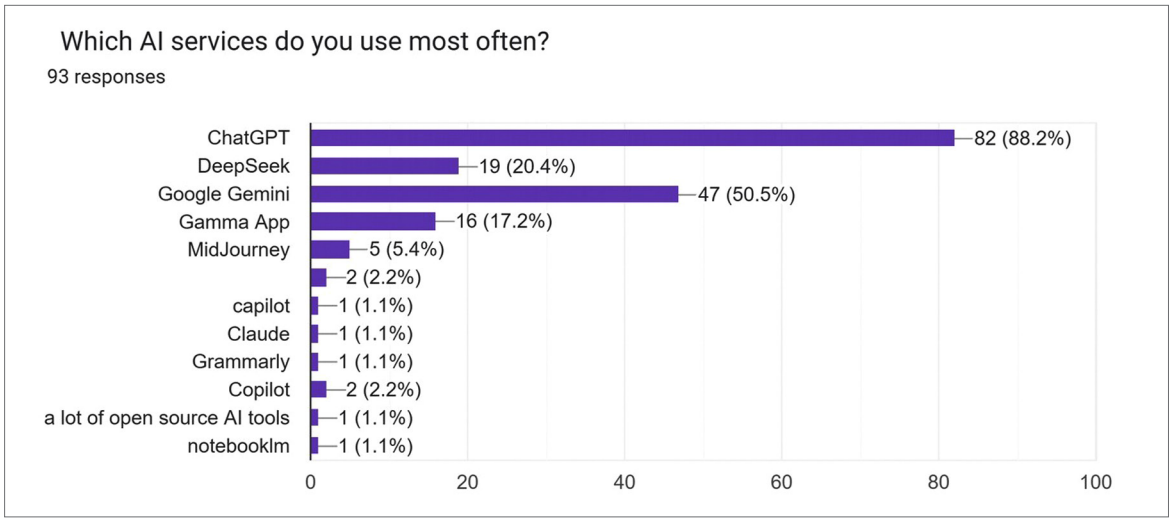

Fig. 1. Distribution of responses to the question "Which AI do you use most often?"

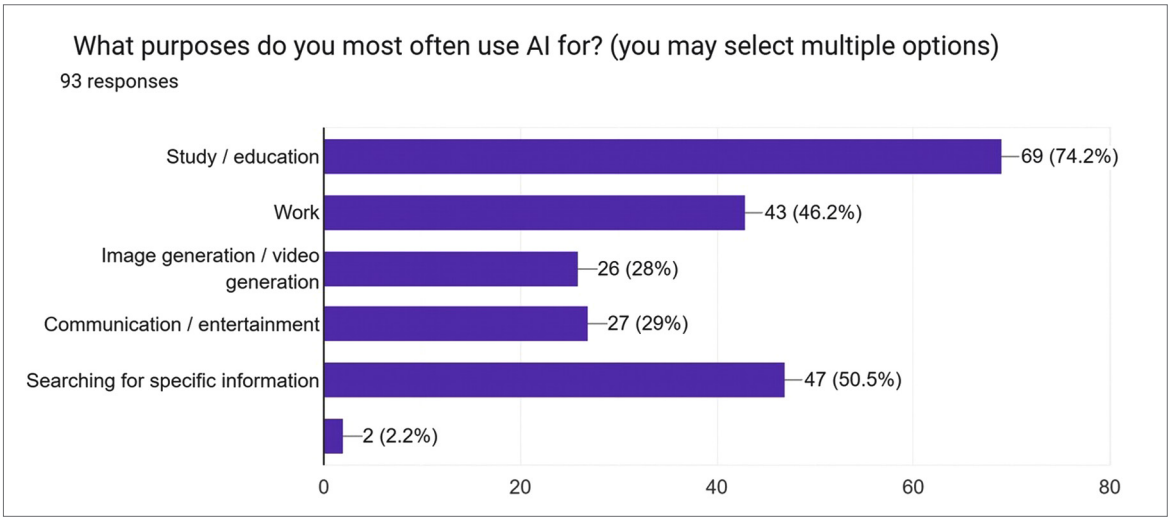

Fig. 2. Distribution of answers to the question "For what purpose do you most often use AI?"

creative purposes. This highlights the growing use of AI in visual content and the creative industries.

A small proportion of respondents (2.2%) chose other uses, such as specialized scientific or experimental tasks.

Overall, the results show that artificial intelligence is perceived by students primarily as a universal educational tool that helps in learning, searching for information, and professional activities, while gradually integrating into creative and communicative spheres.

The next aspect of the study was to determine how often students use artificial intelligence services. Figure 3 presents a pie chart showing the frequency of AI usage among respondents.

According to the results, 43% (n = 40) of respondents use AI tools daily. This indicates a high level of integration of artificial intelligence into students' everyday lives, as they increasingly employ it as a common tool for studying, working, or personal tasks.

Another 38.7% (n = 36) reported using AI several times a week, meaning that they interact with it regularly, though not necessarily every day. Thus, over 80% of participants engage with AI on a regular basis, demonstrating a stable habit of interacting with intelligent systems.

A smaller portion of respondents — approximately 10% — stated that they use AI once a week or once a month, while only a few (around 5%) reported using it less than once a month or found it difficult to specify the frequency.

The collected data suggest that artificial intelligence has become an integral part of students' educational process and digital routine. Its use is no longer episodic or experimental; rather, it has become systematic and is perceived as a natural extension of daily interaction with information.

An important part of the research was to determine the level of user satisfaction with artificial intelligence services. Respondents rated their experience on a five-point scale, from 1 (*not satisfied at all*) to 5 (*fully satisfied*) (Fig. 4).

Approximately 50.5% (n = 47) of respondents rated their experiences as "mostly satisfied," while 23.7% (n = 22) reported complete satisfaction, collectively representing 74.2% positive satisfaction. An intermediate satisfaction level was reported by 18.3% (n = 17) of

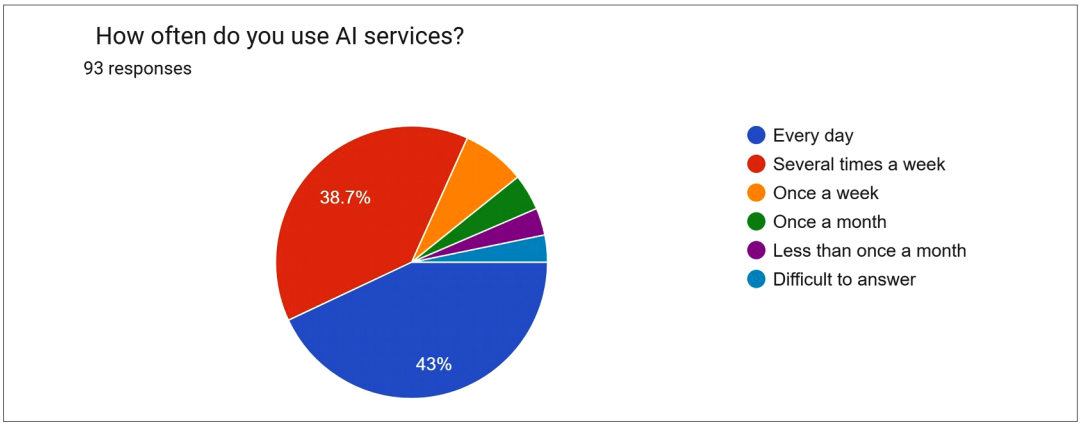

Fig. 3. Distribution of responses to the question *"How often do you use AI services?"*

respondents, with only 2.2% (n = 2) reporting negative experiences. These results indicate a high level of trust and acceptance of AI among students. Most users note its stability, usefulness in both educational and professional contexts, and the speed with which responses are obtained.

In open-ended responses, participants shared examples of their most successful experiences using AI. The most frequently mentioned cases included:

– assistance in solving complex academic questions ("It greatly helps to solve issues that arise during work," "Study: explain difficult topic");
– creation of presentations and educational materials ("Creation of presentations for lectures");
– support in drafting plans and texts ("Helped me create a plan," "GPT helped me to paraphrase texts");
– writing scientific or coursework papers, preparing résumés, or translating materials;
– use of AI in professional activity — for completing work tasks, consulting clients, or creating content;
– personalized examples, such as generating a customized diet, providing veterinary advice, or finding rare information not available in open sources.

Many students emphasized that AI helps them save time, reduce stress during studies, and simplify information search compared to traditional tools like Google.

Despite the generally positive evaluation, some participants also pointed out certain difficulties when working with AI. The most common issues included:

– inaccurate or incorrect answers that require additional verification ("Sometimes gives false or inaccurate information," "Inaccuracy in responses");
– incomplete understanding of context or user prompts, leading to superficial results;
– fabricated or unreliable sources of information ("Bad argumentation and non-existent sources");
– limitations of free access and restricted numbers of requests ("Limited number of free queries").

At the same time, many respondents emphasized that negative experiences are rare, and most issues can be resolved by refining the prompt or cross-checking the response using additional sources.

The final stage of the survey aimed to determine how the use of artificial intelligence has influenced students' lives and professional activities over the past three years.

Analysis of open-ended responses revealed that the vast majority of participants noted a positive impact of AI on their learning, self-organization, and productivity. The most frequently mentioned effects can be grouped into several key areas:

1. Increased work efficiency: respondents reported that thanks to AI, "it has become easier to complete tasks," "necessary information is found faster," and "the time required for preparing materials has been significantly reduced".

2. Improved self-education: students stated that AI "helps to better understand new topics" and "contributes to enhancing one's knowledge".

3. Optimization of work processes: many respondents emphasized that AI assists in structuring data, generating ideas, and preparing presentations or plans ("It helps me to organize some data, thoughts and plans").

4. Support for creativity: users mentioned AI's role in producing visual content — in particular, that it "generates images" and "helps in creating educational materials".

5. Overall life simplification: numerous respondents described AI as a tool that "saves time", "makes work easier and faster", and "assists with daily tasks".

Some responses also carried a critical tone. A few students observed that excessive reliance on AI might lead to reduced independence in learning:

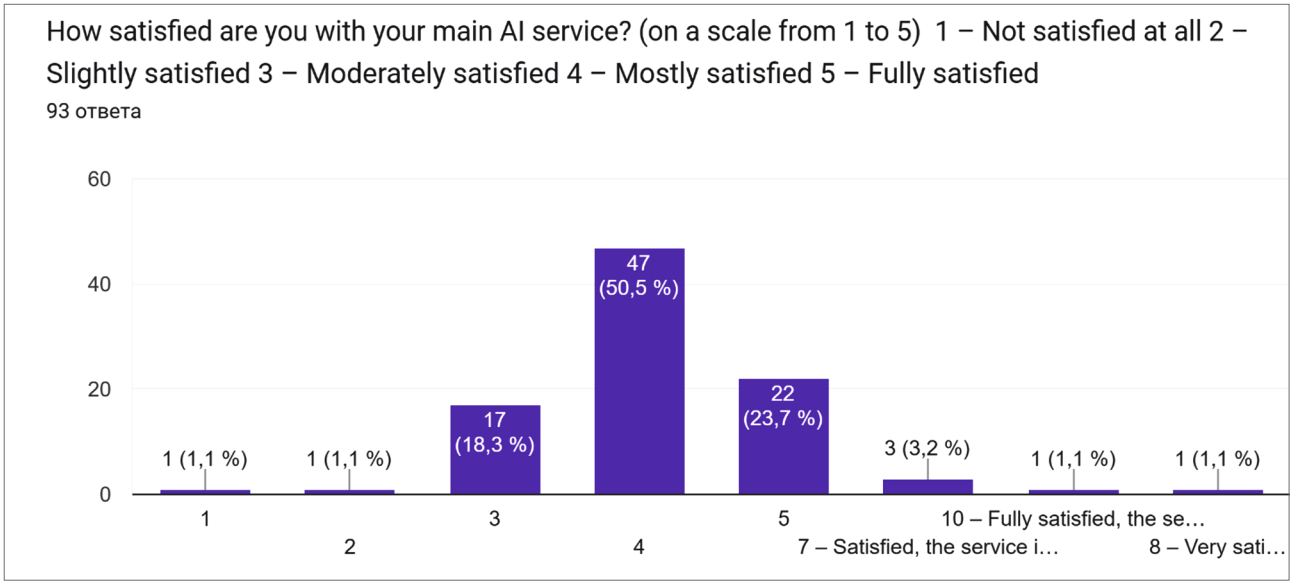

Fig. 4. Distribution of answers to the question: "How satisfied are you with artificial intelligence services?"

"Life has become too simple, so if we neglect spending time, we will all become even more stupid".

Such comments reflect users' awareness not only of the advantages but also of the potential risks of cognitive automation, emphasizing a mature and critical attitude toward emerging technologies.

Despite some concerns regarding accuracy or overreliance, the vast majority of students perceive artificial intelligence as a tool for personal growth, education, and self-development. Thus, AI is gradually evolving from a supplementary technology into a full-fledged partner in the educational and professional process.

Therefore, the development of artificial intelligence technologies in Ukraine is considered a modern and significant trend, given its far-reaching impact on all areas of life, including education. The concept of artificial intelligence development in Ukraine emphasizes the importance of its implementation in the educational process as a strategic direction for development [1]. It should be noted that artificial intelligence technology has enormous potential for enhancing interaction and support for students, but it also presents various challenges and concerns, primarily including privacy violations, the risk of violating academic integrity principles, and a decline in independent thinking and critical analysis skills. Despite these concerns, it is clear that AI has great potential to unlock productivity and potential in education [3]. It is essential to continue researching the application of artificial intelligence in education, ensuring the ethical and safe use of technologies and their seamless integration into the educational process.

Conclusions. The conducted marketing research demonstrates that artificial intelligence has become an integral component of Ukrainian students' educational practice and a means of optimizing learning activities. Empirical data confirm the massive integration of AI technologies into young people's daily lives: more than 80% of respondents regularly use AI services, with ChatGPT maintaining its position as the dominant market player. The predominantly positive assessment of user experience (74.2% of users satisfied) indicates a perception of AI as a powerful educational resource that contributes to increased efficiency, time savings, and improved learning outcomes. However, identified problems — response inaccuracy, unreliable sources, academic integrity violations — require serious attention and the development of institutional control mechanisms.

The research results substantiate the need for formulating a coordinated educational policy on the ethical use of AI that accounts for both the potential of these technologies to transform education and the risks associated with their excessive application. Particular importance lies in developing students' critical thinking, information verification skills, and understanding of ethical aspects of AI use. Future research perspectives include studying the long-term impact of artificial intelligence on the formation of professional competencies, the quality of academic writing, and critical thinking in youth, which will enable higher education institutions to develop comprehensive strategies for AI integration into the learning process, ensuring a balance between innovation and preservation of fundamental educational values.

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