Accessibility and Responsibility: Use of Generative AI by Ukrainian Students

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Abstract **– The article highlights the results of a survey of students at Ukrainian universities on the use of artificial intelligence (AI) systems in the educational process. The main advantages and risks of using generative AI in education have been analyzed. For collecting data, a questionnaire created with Google Forms was used. There were 177 students from different regions of Ukraine who participated in the survey. It has been found that the vast majority of respondents (94.4%) use AI to perform various educational tasks. The most common AI services among students turned out to be ChatGPT, Gemini, MidJourney and DALL-E. It has been found that Ukrainian teachers allow the use of ChatGPT in classes with certain restrictions and instructions. 90.4% of students adhere to the principles of academic integrity and process the text generated by ChatGPT. Further research is planned to determine the possibilities of ChatGPT for developing critical thinking through reading and writing.**

Keywords **– Generative artificial intelligence, ChatGPT, student, learning process, academic integrity.**

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1. Introduction

The rapid development of artificial intelligence (AI) methods and technologies has led to the large-scale implementation of solutions based on innovative approaches to data and knowledge processing in various areas of human activity. Intelligent systems, web services and other AI tools have made it possible to optimize production processes [1], improve communication and learning, increase corporate and personal security, etc. The works by [2], [3] emphasize the great potential of AI for the modernization of the content of education due to its understanding of natural language, the ability to form new knowledge based on existing data, the formation of high-quality expert decisions, individualization of learning, etc. The popularity of artificial intelligence and its significant impact on education is proved by the increase in the number of relevant scientific publications indexed in the Scopus abstract databases. Studies by [4], [5] mention that in recent years researchers have been paying increased attention to machine learning, neural networks, AI tools, integration of artificial intelligence into curricula, etc.

An important step in the technogenic development of society was the emergence of generative models, the use of which opened up new opportunities in the research and practical application of AI.

Due to generative models, artificial intelligence systems and services are able to create high-quality texts, images and other types of multimedia content, which previously required exclusively human creativity. Chatbot ChatGPT, based on the GPT (Generative Pre-trained Transformer) model, has proven to be a fairly popular and effective tool in various subject areas. It is widely used in educational activities, in particular in medical education [6], [7], [8], in the process of training early childhood teachers [9], in teaching programming [10], [11], [12], to ensure interactive learning [13], to conduct scientific research [14], [15] etc. Along with its advantages, ChatGPT has potential risks when used in the educational process, which is reflected in the works by [16], [17], [18]. The specifics of using ChatGPT in higher education have been discussed in the works by [19], [20], [21] and others.

The main advantage of ChatGPT, which is the generation of text content that is almost indistinguishable from human-like in quality and content, poses a significant potential risk related to academic integrity [22] and proper use of the generated information. Scientists see the solution to this problem in raising students' awareness of the possibilities of generative AI and developing their critical thinking [23]. In this context, the studies by [24], [25] highlight the main methodological recommendations for the correct integration of ChatGPT into the educational process, which will allow us to use the potential of generative artificial intelligence and obtain a sustainable positive effect.

Considering all of the above mentioned, the purpose of the research lies in two planes. The first is to access how well Ukrainian students are aware of artificial intelligence and its possibilities. The second is to determine the extent to which students adhere to academic integrity when using ChatGPT to complete educational tasks. The obtained results will allow us to determine the state of students' awareness of AI possibilities and the degree of application of their own intellectual abilities when processing the text content created by ChatGPT. Based on the obtained results, it will be possible to form a list of methodological recommendations for the effective modernization of student learning technology through reading and writing with ChatGPT.

2. General Background of Research

This section is dedicated to reviewing the general possibilities and potential risks of using generative artificial intelligence in the educational process. Subsection 2.1 outlines the connection between generative AI, large language models (LLMs), and GPT for the creation of unique content, personalization of learning, etc.

The advantages and possibilities of using ChatGPT in the educational process are presented in Subsection 2.2. The emphasis is placed on its role for the personalization of learning, development of critical thinking, support of academic research, curricula design, and assistance to both students and teachers. Subsection 2.3 focuses on highlighting the main risks associated with the use of ChatGPT in education. These include mistakes and information distortion, academic dishonesty, impact on users' cognitive skills, legal and ethical issues that may arise when working with this technology. Potential threats to scientific activity, personal data security, intellectual property rights, etc. have also been analyzed.

2.1. Using AI as an Important Direction in the Informatization of Education

Improvement of future specialists' information culture and their preparation for modern life is solved through the informatization of education, which involves: a) The widespread introduction of information and communication technologies (ICT) into educational activities, b) The implementation of electronic document management, c) The active use of digital resources, including immersive [26] and cloud technologies, etc. In the context of the rapid development of artificial intelligence, the informatization of education contributes to the creation and use of new pedagogical technologies in accordance with the requirements of the digital society [3], it ensures effective individualization of learning [19], it helps to teach students and manage their learning [27]. In addition, artificial intelligence systems can be used to assess the degree of informatization of education, as reflected in the work by [28]. It should be noted that the informatization of education in Ukraine is rapidly developing, electronic resources and digital technologies have become part of the everyday activities of higher education institutions [29].

Generative artificial intelligence, along with online services [30], has been actively used in the educational process recently. It expands the possibilities for automating creative processes and allows the creation of various-type content. Using neural networks and deep learning technology, generative AI is able to analyze, recognize and learn from input data, understand the patterns, structure and context of the user's request. This allows it to create (generate) original content (text, images, music, etc.) that is very similar to the content created by a person [22]. A subset of generative artificial intelligence is LLM, which are built on the basis of neural networks and are capable of generating text content. Due to the fact that they are trained on large volumes of text data, the formed text is logically connected and grammatically justified [2].

LLM demonstrate high performance in a wide range of natural language processing tasks, so they can be used in many areas.

GPT is a separate type of LLM, developed by OpenAI company and designed for generating text content. This model is distinguished by its versatility, high learning speed, and ability to process large text sequences. The GPT model was used as the basis for a chatbot with a conversational interface, which was called ChatGPT. According to scientists, it is the most famous and advanced chatbot at the moment. Users have access to a free version based on the use of LLM versions of GPT-3.5 (full access) and GPT-4o (limited access). You can also use the paid versions of ChatGPT "Plus", "Team", which have a larger number of tokens and requests, additional functions, etc.

2.2. Advantages and Possibilities of Using ChatGPT in Education

Since AI systems are able to perform a variety of intellectual tasks, they have significantly changed the traditional role of the teacher in transferring the accumulated social experience to students [2]. The use of ChatGPT in the educational process allows teachers and students to obtain numerous benefits, some of which are reflected in Table 1.

Table 1. Advantages of using ChatGPT in the educational process

Possibilities and advantages	For students	For teachers
Individualization of learning	+	+
Detailing of learning material	+	+
Development of critical thinking	+	+
Managing the discipline content	-	+
Communication	+	+
Simplified registration	+	+
Versatility	+	+
Research work	+	+

ChatGPT can become an experienced and patient virtual tutor who, if the request is correctly made, can highlight the educational topic, offer relevant examples, and explain unclear questions. Depending on the educational needs of students, it can offer relevant electronic resources for familiarization, provide personalized assistance in studying disciplines [18], [20], or solving problems, not necessarily educational [19]. Among the main areas of ChatGPT use as an assistant, the work by [17] distinguishes assistance (collaboration, answering questions, providing educational content) and assessment (checking students' answers, helping with writing research papers, etc.).

The work [13] mentions the following functions of ChatGPT as an assistant: a) Explanation of the educational topic, b) Formation of questions for the student, c) Checking the student's answers, d) Communication with the student in an interactive mode.

With the help of ChatGPT, students can become more developed and successful by acquiring basic knowledge in various academic subjects. It can display text content in different ways, give an answer with different levels of detail depending on the educational needs of the user [16]. On the other hand, teachers can supplement lecture or practical material with generated information. For example, they can provide more examples on a certain complex topic [31], demonstrate how to use the acquired knowledge, give practical advice, etc. In this way, it is possible to ensure that the volume of educational material corresponds to the purpose of a specific academic discipline [17].

As it is known, skills of critical thinking cannot be formed by simply memorizing the text. This requires active thinking processes, when the student uses methods of scientific knowledge, considers the information received, compares it with other sources, and argues for his/her own opinion. As a result, critical thinking and cognitive skills are directly related to each other. According to [32], these skills are necessary for a modern specialist and they are best developed during university studies. According to scientists, the use of ChatGPT in the educational process will help develop critical thinking in students. To do this, you can ask it to generate different approaches to solving a problem [19] or life situations for their further analysis and discussion. This ensures the connection of the obtained theoretical knowledge with its practical application [10], hence the educational material is better remembered.

Sometimes ChatGPT is used to create working curricula for a discipline or even an educational program for training future specialists. This advantage is emphasized in the works by [17], [25], and it is also confirmed by the authors' practical experience. Indeed, if you specify the name of the course, the number of lectures and practical classes, the type of control (test or exam), and other criteria in the request for ChatGPT, then in response you can get a list of topics from a specific discipline, recommendations for the structure of the educational discipline, etc.

A significant advantage of ChatGPT is its ability to imitate human conversation and adapt to a specific user [24]. As a result, it can be considered an ideal interlocutor who listens to the user's requests, has a high level of speech culture, can communicate in different languages, etc. This allows ChatGPT to be used at all levels of education, for self-education and professional development [25].

In addition, to work with ChatGPT, you do not need to fill out complicated registration forms [21], which allows you to immediately switch to communicating with the chatbot.

It should be noted that most of the advantages listed above can be applied to both students and teachers. This makes ChatGPT a universal educational tool that is not tied to a specific target audience. The above phenomenon can be explained by the example of studying programming. Advanced programming skills are a necessary component in training a computer science specialist, in particular a software engineer. For their development, you can use various electronic resources and methodological approaches [33], but without practical experience and communication with IT specialists, this process will be quite complicated. And here ChatGPT can provide valuable assistance. It can explain complex program structures to the student, advise a programming language to solve an applied problem, generate workable program code, check the correctness of the program and correct errors [10], [12]. At the same time, the teacher can ask ChatGPT to create examples of program structures for lecture material, to identify mistakes in the program code sent by the student for verification, etc.

Also, it is worth noting the advantages of ChatGPT for users who are conducting scientific research. It can advise on research directions in a certain scientific field, provide expanded terminology, explain an unclear scientific term, and suggest related concepts [31]. ChatGPT can offer relevant scientific publications that are in the field of the researcher's interests. A useful function of ChatGPT is to reduce scientific text to the size of an annotation or abstract while preserving its meaning. In case English is not researchers' native language, ChatGPT can recommend more correct versions of the scientific text for international publications, etc.

2.3. Risks of Using ChatGPT in Education

Along with the emergence of new opportunities for working with text and modernization of pedagogical technologies, the authors' practical experience and analysis of scientific research have revealed a list of potential risks that teachers and students may encounter when using ChatGPT. In particular, these are inaccuracies or distortions of information, academic dishonesty and scientific plagiarism, partial deterioration of users' cognitive abilities, legal and ethical risks (violation of privacy, copyright protection, fraud). Some of the shortcomings deal with the functionality of generative AI. Another part of the risks lies in the area of individual responsibility, that is, how people use the generated information.

When using ChatGPT, you should keep in mind that the information provided is not always true, as it may contain random errors. Sometimes the proposed answer options contradict the information that was previously provided on a similar topic [16]. In the work by [8] attention is drawn to significant errors of ChatGPT while generating medical information. Sometimes ChatGPT provides outdated information that is no longer used. Without critical analysis and refinement such content has low practical significance and negatively affects learning.

The ability of ChatGPT to generate plausible text close to the human one leads to the encouragement of academic dishonesty in educational activities. A student who knows the technology of work with ChatGPT might ask "Why study the educational material and prepare for exams by myself, if ChatGPT can do it for me?" Therefore, sometimes instead of their own work, students submit generated text to be checked by the teacher, or use generated answers during exams as their own work. To do this, it is enough to copy the task into the chatbot's query field and get an answer. As a result, copying or completing tasks with the help of generative AI prevents objective assessment of the student's academic performance and causes significant concern among teachers [17], [19].

According to researchers, a successful attempt of submitting an artificially created work instead of one's own leads to an increase in cases of laziness among students [16]. In addition, using a ready-made text without its analysis and revision can become an obstacle to the development of critical thinking [25], [31]. As noted in the work by [18], the lack of developed cognitive skills can lead to the development of high trust in the text generated by ChatGPT. Taking into account the risks mentioned above, this situation can negatively affect the process of a future specialist training.

In the context of scientific activity, the works by [14], [18], [20] identify the most common risks and shortcomings of ChatGPT, namely the use of material without proper reference to the original sources, use of non-existent references to the relevant scientific field, inaccurate reproduction of research results, etc. As a matter of fact, not all scientists are responsible in their work. Some of them create pseudoscience based on generated text without proper verification of the information and its confirmation by the research of other scientists. Unfortunately, this problem is quite widespread and requires a separate study.

The use of ChatGPT poses several legal and ethical risks, when a powerful tool leads to destructive consequences. First, some researchers draw attention to the potential violation of confidentiality when working with ChatGPT [16].

This can occur, for example, when users enter personal information in a request to the chatbot. It should be noted that ChatGPT itself denies the fact of storing personal information about the user unless asked to do so. Another risk is associated with the accidental reproduction of the text content protected by copyright [7] or confidential information that has the status of a secret. In addition, ChatGPT's possibilities can be used by conmen to mislead users and demand money from them.

3. Methodology

The analysis of scientific research has shown numerous educational benefits of ChatGPT. At the same time, it is necessary to take into account the potential risks that may arise in the process of using generative AI for educational tasks. Awareness of teachers and students about the advantages and risks of ChatGPT enables its more effective use in the educational process.

In order to determine the state of artificial intelligence use, in particular ChatGPT, by Ukrainian students, a survey was conducted using Google Forms. The questionnaire was anonymous and accessible to all those interested; it contained 8 closed-ended questions with multiple answer options. Students could fill out the questionnaire within a month from the moment of its distribution.

The questions were formulated and arranged in such a way as to comprehensively research the issue outlined. To determine the territorial affiliation of the respondents, they were asked question *Q1: What region is the higher education institution where you are studying located in?*

In order to determine the awareness of students about the possibilities of generative artificial intelligence and the degree of its use in the educational process, questions Q2 – Q7 were formulated:

Q2: Does artificial intelligence arouse cognitive interest in you?

Q3: How often do you use artificial intelligence in your studies/everyday life?

Q4: What artificial intelligence systems/services are you familiar with?

Q5: Where did you learn about artificial intelligence?

Q6: Did your teachers tell you about artificial intelligence in classes?

Q7: Do your teachers allow you to use artificial intelligence in classes or during independent work?

In order to determine to what degree students processed the text content generated by ChatGPT, they were asked question:

Q8: Imagine a hypothetical situation. You need to write a text for an educational project. To complete the task, you were allowed to use the possibilities of ChatGPT. What operations will you perform on the generated text?

Processing and visualization of the survey results was carried out automatically by means of Google Forms.

4. Results

The research involved 177 students studying at higher education institutions in different regions of Ukraine. Based on the analysis of the answers to question Q1, it was found that the survey represented Kyiv (32%), Zaporizhzhia (20%), Kirovohrad (22%), Cherkasy (18%), and Poltava regions (8%).

The analysis of the answers to question Q2 confirmed that a significant part of the respondents is interested in artificial intelligence technologies (138 students, 77.97%). Some students showed increased interest in AI and its practical application, which is 15.25% of the total number of respondents. At the same time, only a small part of respondents (12 students, 6.78%) expressed an indifferent attitude towards AI and its possibilities (Figure 1).

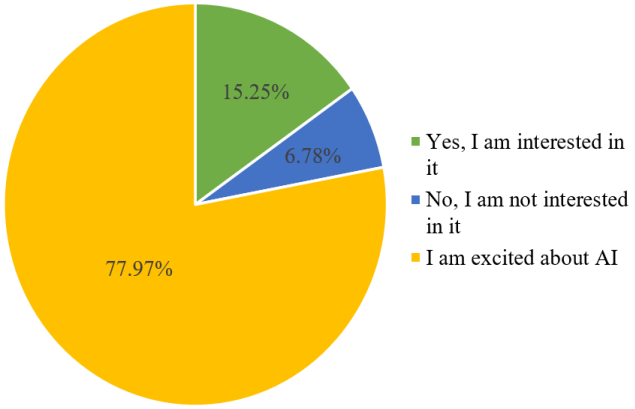

Figure 1. Student interest in using AI

According to Figure 1, the vast majority of students (93.22%) are interested in the possibilities of AI and use it for various tasks. This can be explained by the widespread popularization of artificial intelligence technologies in the media, including the Internet. In addition, numerous online and offline events which highlight possibilities of AI, especially ChatGPT, have been taking place in Ukraine recently. The initiators of such events are the Ministry of Education and Science of Ukraine, Ministry of Digital Transformation of Ukraine, higher education institutions, public organizations, etc.

To determine the frequency of using AI technologies by students in their studies/everyday life, they were asked question Q3. According to the survey results, only 5.6% of the surveyed young people do not use artificial intelligence in their everyday lives. At the same time, 94.4% of respondents use AI with varying frequency in their daily lives or studies, which is quite a high indicator (Figure 2).

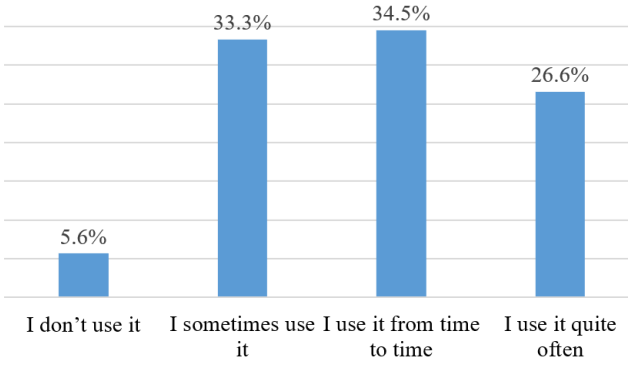

Figure 2. Frequency of using AI technologies by students

According to Figure 2, most students use AI from time to time (34.5%) or sometimes (33.3%). It can be explained by the wide scope of AI applications, in particular for generating text or images, communicating, and getting answers to questions in an interactive mode. To determine the areas of AI use, students were asked question Q4 regarding their awareness of artificial intelligence systems/services (Figure 3).

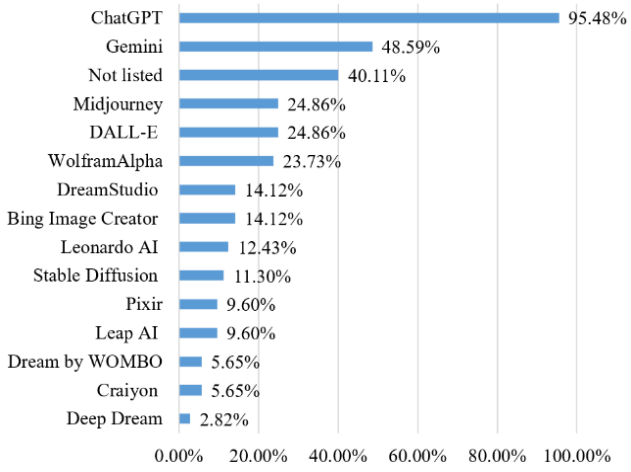

Figure 3. Directions of using AI technologies by students

According to Figure 3, the vast majority of respondents (95.48%) use ChatGPT. Also, the top five services which are most popular among students include Gemini (multimodal AI, designed to perform complex tasks and interactive discussions by processing text and visual data), MidJourney, DALL-E (generative AI for creating images), WolframAlpha (computational expert AI for performing mathematical calculations, scientific data analysis, etc.).

They are used by 48.59%, 24.86%, 24.86%, 23.73%, respectively. The percentage of respondents (40.11%) who chose the option "Not on the list" was unexpectedly high. Perhaps some of them meant using the Copilot Intelligence Service, which has recently attracted a lot of attention from users, but which was absent from the list offered in question Q4.

The variety of information sources about artificial intelligence, in particular about the possibilities of ChatGPT, affects the volume, completeness and quality of information that students receive. Thus, the quality and scope of this information influence how students apply AI in everyday life, academic settings, etc. In order to determine the sources of student receiving information about AI, they were asked questions Q5 and Q6. The summarized results are presented in Table 2.

Table 2. Sources of information about AI

Sources of information	While studying (%)	Beyond studying (%)
In Computer Science classes	18.08	-
In classes on other subjects	59.89	-
Teachers didn't tell us about AI	22.03	-
Virtual social networks (Youtube, Facebook etc.)	-	74.01
Friends told me about it	-	18.08
Parents, relatives told me about it	-	2.83
For the first time I learnt about it from a teacher	-	1.13
Another variant	-	3.95
Total	100	100

According to Table 2, the majority of respondents (74.01%) learned about AI from virtual social networks. This is quite logical, because students spend a lot of time in the virtual space [34] and receive a large amount of information there. The next most common source of information about artificial intelligence is friends, as reported by 18.08% of respondents. This is also logical, since friends and acquaintances are usually classmates and peers who are almost constantly on the Internet and are interested in modern information technologies. It should be noted that a small part of respondents (1.13%) first learned about artificial intelligence from university teachers.

The vast majority of respondents (77.97%) pointed out that they had received the information about AI possibilities in class. At the same time, only 18.08% of students received information about AI in Computer Science classes. The results obtained indicate that teachers of various subjects are aware of the possibilities of artificial intelligence and they wish to transfer this knowledge to students.

In addition, the survey results indicate the versatility of AI, which can be used for teaching various disciplines. Unfortunately, 22.03% of respondents received information about AI from other sources (not from teachers). This may lead to uncontrolled use of AI systems, in particular ChatGPT, without taking into account its potential risks (Figure 4).

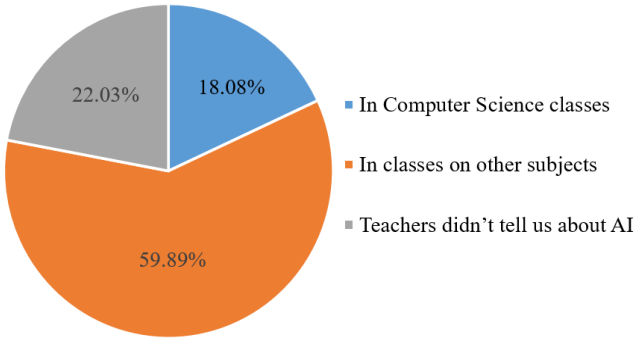

Figure 4. Sources of information about AI outside the university

The respondents' answers to question Q7 made it possible to determine the extent to which students are encouraged to use AI in the classroom (Table 3).

Table 3. Use of AI in classes

Variants of answers	Number of answers (%)
Use of AI in classes is forbidden	10.73
We can use it at home for independent work	3.39
We can use it if the teacher allows	29.38
We can use it in situations stipulated by the teacher	30.51
Since teachers did not forbid to use AI, we can use it	25.99
Total	100

Analysis of the answers to question Q7 indicates positive dynamics in creating certain pedagogical conditions for students, during which they can use AI to complete educational tasks. This was mentioned by about 60% of respondents. 10.73% of students reported that AI was prohibited from being used in classes. This might be explained by several factors: a) Teachers are not willing to spend time checking the plausibility of the text generated by ChatGPT and determining the degree of student contribution, b) The ban on the use of ChatGPT was influenced by cases of academic dishonesty on the part of students, c) eachers do not have developed IT competencies and are not aware enough of AI possibilities.

It should be noted that some students (25.99%) use AI even in those cases when teachers fail to mention that it is allowed. This proves the need for clear instructions on the use of ChatGPT when completing some tasks even when the teacher does not plan to use it.

The percentage of responses regarding the use of AI for completing the tasks submitted for independent work was not high enough (3.39%). This is due to the fact that the teacher does not control this process, and therefore recommends using AI in the classroom. On the other hand, having talked to teachers, it was determined out that completing independent work with ChatGPT leads to the need for changing the complexity, content and structure of educational tasks. In the opposite case, the use of AI levels the student's educational task and independent work.

The final stage of the research involved clarifying the options for processing the generated text. For this, question Q8 provided a simulated situation in which ChatGPT generated the text the student needed. Under the hypothetical situation, the level of text processing and editing depends on students. They can process the generated text (fully or partially) or leave the text unchanged (Table 4).

Table 4. Maintaining academic integrity when working with ChatGPT

Variants of answers	Number of answers (%)
I will leave the text unchanged and submit the work for review.	9.60
I will submit the work for review with minor edits.	16.95
I will completely rewrite the text, add references to literature, etc.	36.16
I will refine the generated text depending on the task and situation.	37.29
Total	100

According to the survey results (Table 4), 36.16% of respondents will not submit their work to the teacher for review until they make changes to the generated text, supplement it with the necessary facts, dates, references to sources, etc. Another 37.26% of students are also ready to revise the text, but only if there is enough time for this or the task by default involves editing the text. Some students (16.95%) will not change the main content of the text, they will only make minimal revisions to it (formatting, errors, etc.) and submit their work for review. So, in total, about 90.4% of respondents make changes to the generated ChatGPT text in one way or another. Only about 10% of students can submit the generated text for review without any edits or changes.

5. Discussion

Currently, artificial intelligence systems are actively used in academic and industry institutions [2], and in the future they may become an integral part of social life [22]. Thanks to generative AI, the possibilities of online education [24] and lifelong learning have significantly expanded, and considerable changes have occurred in the methods and approaches to learning. As a result, most participants of the educational process use AI to some extent in their professional activities, studies, and everyday life, as reported by 94.4% of surveyed students at Ukrainian universities (Figure 2). Due to the variety of generative AI services, students can create text and graphic content, perform calculations of different levels of complexity, etc. The most popular service is ChatGPT, as reported by 95.48% of respondents (Figure 3).

The analysis of the research results (Table 2) demonstrates that 77.97% of respondents received information about the possibilities of artificial intelligence from teachers in class. This is a fairly good indicator, which demonstrates the awareness of teachers and students about modern digital technologies. At the same time, 22.03% of students received information about AI outside the educational institution. This can be explained by several factors.

First, educators and experts in various fields of education occasionally make alarming forecasts about the use of artificial intelligence in the educational process [16]. Second, some teachers believe that AI is not able to replace them, since it does not create an emotional connection between the teacher and student, it does not allow exchanging ideas [3], it cannot build new learning strategies [21], etc. Third, some teachers are not well aware of the possibilities provided by generative artificial intelligence, so they do not use it. This might have made teachers avoid this topic and not inform students about AI models that are capable of generating texts or images.

Although some scientists highlight the idea of alternative learning with the help of artificial intelligence but without teacher participation [21], the authors agree with the opinion of [8] and consider ChatGPT to be a teacher's assistant, not a full-fledged replacement. At the same time, since the use of generative AI and ChatGPT is a natural step towards the informatization of education, teachers should be aware of these technologies and be able to use them. According to [24], understanding the weaknesses and strengths of AI will contribute to the responsible and effective use of AI in the educational process. As a result, conscious and modern teachers will popularize AI among students and allow them to use its capabilities.

This trend is observed in Ukrainian universities, as noted by 59.89% of respondents (Table 3).

At the same time, when using ChatGPT in the educational process, several methodological recommendations should be followed.

It is necessary to ensure that training tasks are checked for the text generated by ChatGPT. This task can be achieved, for example, by using external services. It should be noted that such tools cannot always recognize the generated text if it is creatively processed [22]. The results of the survey have shown that only 9.60% of respondents can send the generated text without any modifications (Table 4). Therefore, in this case it will be difficult to recognize the help of ChatGPT when completing tasks. Another way is to increase the professional skills of teachers [17], who can learn from their own practical experience how to recognize the most common features of generated text (for example, the simultaneous use of colons and lists).

A more effective way to ensure academic integrity while doing tasks is to promote it [20]. It is necessary to explain to students the importance of independent completion of educational tasks when ChatGPT is used as an auxiliary tool for improving reading and writing skills. As a result, it is better not to prohibit the use of ChatGPT while doing tasks (this is practically impossible to do without violating students' academic freedom), but to allow its use under certain conditions and with certain restrictions. Moreover, instead of mechanically checking the assignment for the presence of theoretical provisions, researchers recommend using an oral defense of the work using multimedia presentations [19]. At the same time, it should be taken into account that increasing the level of complexity or volume of homework can lead to a decrease in students' cognitive interest, especially among those who do not use or do not want to use AI. Therefore, the tasks for independent work should be differentiated and include tasks with and without AI.

The analysis of the survey results made it possible to conclude that texts generated by ChatGPT can be used to develop students' critical reading and writing skills. An approach where students generate texts independently using AI and critically analyze them during group work in the classroom will be particularly interesting. A similar idea is highlighted in [23]. This approach helps not only to improve writing and reading skills, but also to identify students who have spent more effort on analyzing and improving the text.

It should be added that other scientists also offer certain recommendations for the use of generative AI (including ChatGPT) in education.

Thus, [9] proposed a theoretical structure (model), which consists of four large blocks and involves a) Defining the goal and results expected from generative AI, b) Ensuring ethical issues related to the use of AI, c) Ensuring the required level of automation when using AI in the educational process; d) Assessing the effectiveness of the use of artificial intelligence. For the effective implementation of ChatGPT in the educational process researchers [35] suggest identifying educational and organizational opportunities, defining specific educational goals that will be achieved with ChatGPT, drawing up clear methodological guidelines, and taking into account the importance of critical thinking skills when using ChatGPT. In this context, the work by [7] emphasizes the importance of cooperation between educators and researchers of artificial intelligence to develop effective methodological approaches, stimulate a responsible and ethical attitude towards its possibilities.

The conducted research has certain limitations. First, the survey did not include students from certain regions. However, the nationwide use of AI reduces the significance of this limitation. The second limitation is the absence of the Copilot Assistant in the list of artificial intelligence systems (question Q4), which has recently attracted a lot of attention from users and which is integrated into the Edge browser.

6. Conclusion

Thus, artificial intelligence systems are actively used in educational activities to ensure the informatization of education and improve the quality of learning in the context of the informatization of society. Generative AI helps participants of the educational process to create text, graphic and multimedia content, perform complex calculations, etc. The most common representative of generative AI is ChatGPT, which has numerous advantages for teachers and students, makes it possible to individualize learning, to ensure the generation of text content of various degrees of detailing, to develop critical thinking in students, to help in scientific research, etc. At the same time, the use of ChatGPT in the educational process can lead to negative consequences. This applies to academic dishonesty, laziness among students and the deterioration of their cognitive abilities, violation of the confidentiality of personal data, etc.

In order to determine the state of use of artificial intelligence, in particular ChatGPT, in Ukrainian universities, a survey was conducted with the participation of 177 students. It has been found that the vast majority of students (94.4%) use various AI systems and services.

The most common among them turned out to be ChatGPT (95.48% of respondents) and Gemini (48.59% of respondents).

Ukrainian students can use the possibilities of generative AI in classes under certain conditions determined by the teacher, as reported by 59.89% of respondents. This indicates that teachers understand the importance of informatization of education and the introduction of elements of artificial intelligence into educational activities. The majority of students (90.4%) adhere to the principles of academic integrity and process the text generated by ChatGPT, depending on the situation or the requirements of the teacher.

It should be noted that processing of the generated text requires the ability to critically analyze the information received, as well as developed research and cognitive skills. Therefore, further research is expected to determine the possibilities of ChatGPT for the development of critical thinking through reading and writing.

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