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THE POSSIBILITIES OF APPLYING ARTIFICIAL INTELLIGENCE IN THE ACTIVITIES OF EMPLOYEES OF EDUCATIONAL INSTITUTIONS

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Abstract. The sudden emergence and rapid advances in Artificial Intelligence (hereinafter – AI) have impacted the entire education sector, opening up new educational opportunities for every educator. Research shows that ChatGPT's AI model already have the highest number of monthly active daily users by 2023, surpassing even the most popular social networks such as TikTok and Instagram. Tools such as ChatGPT, Gemini, Microsoft Copilot can not only generate text responses, create virtual images, but also artworks, create music from text. This provides employees of educational institutions with a wider range of options for creating more engaging and interesting learning content and faster information retrieval. The aim of this study is to reveal the possibilities of application of artificial intelligence in the activities of employees of educational institutions. The study found that AI includes the following opportunities for staff in educational institutions: ideas generation, translation, text paraphrasing, lesson planning. It was also found that AI enriches the learning process, encourages creative solutions, speeds up preparation time and reduces routine work. However, difficulties in using AI were also noted, such as: lack of information, lack of knowledge of what queries to make in the AI system, and lack of training in the use of AI.

Keywords. Artificial Intelligence, ChatGPT, employees of educational institutions

INTRODUCTION

The sudden emergence of AI and its rapidly developing progress have influenced the entire education sector, opening up new educational opportunities for every educational worker. Research shows that ChatGPT's AI model has become the page with the highest number of monthly active daily users in 2023 (Trust, Whalen, 2023). To ensure the responsible and effective use of AI in education, educators must stay up-to-date with the latest developments in AI. This is especially important as technological advancements continuously reshape the educational landscape. While AI systems can improve learning opportunities, simplify tasks and provide feedback, in the same time AI applications in education can also help personalize needs, allowing educators to create more engaging and effective learning environments, content that takes into account the strengths, weaknesses and learning styles of each individual learner. AI-based tools can also improve assessments by providing immediate feedback and allowing for more accurate assessment of student performance (Gillani et al., 2023).

However, without proper knowledge and understanding, there is a risk that these opportunities will not be fully utilized. It is therefore relevant to explore how these technologies can contribute to improving work efficiency, fostering creativity, modernizing teaching and learning. Also, it is important to talk about the challenges that need to be overcome to make AI an integral part of everyday practice in the activities of employees of educational institutions.

Problematic questions:

1. What application possibilities does AI provide in the activities of educational workers?
2. What impact does AI work have on work processes?
3. What are the challenges of working with AI?

Research object – the possibilities of applying AI in the activities of employees of educational institutions.

The purpose of the research – to reveal the possibilities of application of artificial intelligence in the activities of employees of educational institutions.

Tasks:

1. Describe the concept of artificial intelligence.
2. To determine the possibilities of application of artificial intelligence in the activities of educational workers.
3. Identify the impact of artificial intelligence on work processes.

To reveal the challenges faced by education workers when working with artificial intelligence.

CONCEPT OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence (hereinafter – AI) is a man-made system of computer algorithms and programs that can perform tasks that normally require human intelligence. AI frameworks found in the most popular platforms used in everyday life, such as Youtube, Amazon, Meta, Google Translate, Google Maps, etc. These “intelligences” are integrated into systems that have functions such as image processing, speech recognition, decision-making, language translation or even artificial creation (Chan, Colloton, 2024). According to Indroes et al. (2023), AI refers to the ability of a digital machine to carry out tasks usually involving intelligent beings, and the technologies associated with it can be divided into

different branches, such as: machine learning, computer vision, computer-aided speech and communication, and natural language, image, and record processing. One of the most remarkable achievements of the AI is the emergence of advanced language models such as ChatGPT. These models are designed to understand and generate human-like content in conversations, to answer questions, engage in dialogue and provide useful information to users. Another emergent AI is DALL-E, which is designed to create image models, to generate images – the images generated correspond to realistic images based on textual descriptions. In addition, the AI has also made very significant advances in sound processing, using models such as Whisper. These models have been trained to analyze and generate human-like speech, enabling applications such as voice assimilators and text-to-speech systems (Indroes et al., 2023).

Chen (2020), pointed out that not only is AI focused on language processing, but it is also capable of adapting to new situations, solving problems, answering questions perfectly and performing other tasks that normally require a certain level of intelligence in humans. According to the author, the AI is a complete computer innovation, or as the author puts it, a "computational culmination", which enables it to function in a human-like way. Kamalov et al. (2023), argue that the most important characteristics of AI are: learning, reasoning, problem solving, language comprehension and the ability to perform tasks normally performed by a human; Kothari (2024) refers to characteristics such as – learning and adaptation, language recognition and processing, problem solving; automated tasks and modelling of human behavior and emotions; Charles (2022) notes the following – adaptability, automation involving every day and work tasks, problem solving based on the data provided, adapting to the user's needs, and simulated human interaction. It can be noted that all authors emphasize these emergent characteristics, such as: communication, problem solving, automated tasks, etc. (Figure 1).

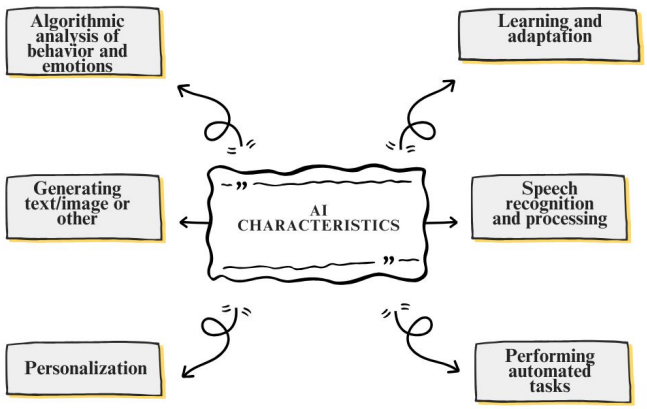

Figure 1. **Compiled by the author (2024), based on Kamalov (2023), Kothari (2023), Charles (2022).**

Thus, the rapid development and growth of AI is increasingly changing the way people communicate, collaborate, work, teach, and learn, and that changes the processes of work. The unexpectedly rapid progress and emerging capabilities of AI have had a particular impact on the entire education sector, opening up new educational opportunities for every education worker.

AI IN EDUCATION

Digital learning tools, information communication tools and other digitalization have long entered the education sector, but AI is a sudden factor in the development of education. According to Limna (2022), AI is increasingly used as a digital assistant, helping educational staff (and students) to use teaching (learning) material in various ways, integrate it into the teaching content, individualize it, taking into account teaching (learning) needs and different teaching (learning) experiences. The author indicates that the application of AI in education has provided new opportunities to create more inclusive learning activities, technologically improve teaching programs and personalize environments, improve feedback, speed up work and task preparation or even submission. Zeide (2019) talked about AI before it was fully developed and had not reached its highest potential; the author revealed that there are three main categories of AI applications in education: institutional, learner support and educational. Institutional is intended for the development and improvement of the curriculum, the improvement of the educational subject; learner support – for consultations, information search, familiarization with the most important information; educational – for the development of individual content, self-development, pedagogical development. Thus, such opportunities for the application of AI in education not only contribute to the improvement of the quality of teaching (learning), but also promote the development of new teaching methods and the modernization of the educational process. The rapid advancement of AI has made it a ubiquitous and transformative force integrated into the field of education, which means that teaching and learning can be improved and fundamentally changed. It is believed that the potential of AI will continue to grow in the future and will fundamentally change the education sector. According to Zadorina (2024), AI tools will provide the opportunity to create content and focus on learning choices that will adapt to the progress of each learner. Tobler (2024) points out, that AI facilitates the creation of tasks, automates assessment by answering questions with immediately provided answer options,

and improves feedback. It is emphasized that natural language recognition, imitation of human emotions – not only facilitate work employees of educational institutions, but also enrich educational content. The author found that educational institution employees who are interested in and use AI tools transform the traditional learning process into an interactive and engaging experience, as their content includes quizzes, simulations, and gamified elements that are particularly attractive to learners. Thus, such opportunities for applying AI in education not only contribute to improving the quality of teaching, but also encourage the development of new teaching methods and the modernization of the educational process.

RESEARCH METHODOLOGY

In order to reveal the possibilities of applying AI in the activities of educational institution employees, a qualitative study was chosen, which allows a better understanding of the experiences and opinions of the research participants. According to Merriam and Tisdell (2016), qualitative research helps the researcher to focus on subjective aspects that cannot be observed in quantitative research: focusing on the motivations, experiences, feelings of the research participants. Qualitative research is particularly useful for answering 'how' and 'why' questions related to people's experiences. Thus, in order to uncover the applicability of AI in the work of education staff – the aim was not only to find out whether the AI tool itself is easy to use, but also, from a human factors point of view, to understand the opinions, experiences and challenges of education staff in their work with these tools. This approach has provided deeper insights into the integration of the AI into educational processes and has helped to understand the factors that lead to a more effective use of these technologies in daily activities.

The data collection method is a semi-structured interview. The survey was attended by 10 research participants (hereinafter – RP) – employees of educational institutions (9 teachers and 1 social pedagogue). The data were analyzed using qualitative content analysis. The ethical principles of anonymity, confidentiality, personal freedom to answer the interview questions, and privacy protection were observed during the study.

RESEARCH FINDINGS. THE POSSIBILITIES OF APPLICATION OF ARTIFICIAL INTELLIGENCE IN THE ACTIVITIES OF EDUCATIONAL WORKERS

The results of the study revealed that the possibilities of applying AI in the activities of employees of educational institutions are very wide. The research participants revealed that AI can be widely applied in the education sector, and the possibilities of application are very wide, including idea generation, lesson planning, creation of visual content and tasks (Table 1).

Table 1

Possibilities of application of AI in the activities of educational workers

Subcategory	Confirmatory Statements
Generating ideas	*Save time generating ideas<...>(RP2)* *First of all – for generating ideas and planning lessons. (RP2)* *DI makes the work easier, because the material is written quickly, the information helps to structure the work. (RP4)* *It is mostly used for creating tasks and generating ideas. (RP5)* *Helps save time generating new ideas. (RP7)*
Translation from/into Foreign Languages	*Save time in idea generation, translation from English. (RP2)* *I use ChatGPT for translations, which quickly solves translation issues. (RP8)* *For search, text editing, and translation, it works very well.(RP3)* *AI tools are most useful in translations... (RP5)* *Most commonly used tools in the work environment are Google Translate and ChatGPT. (RP7)* *Translate a necessary scientific paper written in an incomprehensible foreign language. (RP9)*
Text Paraphrasing	*I use Quillbot to rewrite and paraphrase texts. (RP1)* *ChatGPT for information search, text structuring. (RP2)*
Lesson Planning	*Speeds up lesson preparation. (RP1)* *Made it easier to prepare for lessons, find ideas for organizing various activities. (RP4)* *Lesson planning, test preparation, but the tests should not be administered through the computer, but written by hand. (RP2)* *I now spend half the time on lesson preparation compared to before. (RP6)*

Task Creation	*For quizzes and tests. (RP1)* *For test preparation. (RP2)* *For task preparation. (RP3)* *Mostly used for task creation, idea generation. The tool has been used more intensively only since this September, so it's still the beginning and a learning stage. (RP6)*
Visual Content Creation	*I create visuals, plan lessons, and have tried creating an electronic book. (RP2)* *For students' practical work (illustration with GDI images). (RP3)* *GDI – generative AI computer-generated visuals. Created visuals help better illustrate teaching materials. (RP6)* *Canva allows creating representative announcements. (RP7)* *Creation of slides, pictures, etc. (RP9)*
Machine Translation	*For conversations, images, videos, for example, I have tried turning on automatic translation in MS Teams. (RP3)*
Presentation/Slide Creation	*I use Quillbot to rewrite and paraphrase texts, and I create slides based on the presented results. (RP1)* *ChatGPT helps generate material for slides. (RP2)* *It could greatly help other teachers prepare for lessons and create assessment tasks, but I haven't tried much yet. (RP10)*
Individual Plan Preparation for Students with Special Educational Needs	*Facilitates preparation for lessons and the development of individual plans for SEN students. (RP2)*
Communication with Administration and Parents	*I think it could also be useful in communication with the administration or parents to reach compromises in certain situations. (RP6)* *Communication in a foreign language. (RP8)* *"Sometimes I need advice on how to 'nicely' inform parents about their children's issues (e.g., developmental), or to find out if certain behaviors are normal. (RP9)*
Information Structuring	*Materials are quickly written, and information helps me structure tasks, lesson plans. (RP7)*
Activity Reflection	*Evaluation, self-assessment, reflection." (RP4)* *Helps focus on problem areas and provide more effective feedback. (RP7)*

Thus, as can be seen from the presented research results, the possibilities of applying AI in the activities of employees of educational institutions are extremely wide and cover various areas of activity. The main areas in which AI is used among educational employees are idea generation, translation from/to a foreign language, text creation and paraphrasing. AI is also widely used for lesson planning, task creation and helps in preparing individual plans for students with special needs. Moreover, the study showed that AI tools are not limited to pedagogical activities. They are also used to facilitate communication and collaboration with the administration and parents, ensuring a smoother flow of information and more effective communication. For example, automated tools help to produce and distribute newsletters, manage timetables and respond quickly to parent/administration queries and to create beautiful and appropriate text. Such applications underline the versatility of AI in both pedagogical and administrative processes, highlighting its role as a source of efficiency and innovation in educational institutions. Also, it is noted that AI tools make an important contribution to processes of reflection, and feedback for improvement. AI tools make it easier for educational staff in to identify problem areas and enable more accurate and effective feedback. Automated AI functions help to quickly summarize the strengths and weaknesses of work, while suggesting personalized ways to improve. In addition to encouraging reflection, AI help to analyze the effectiveness of teaching and encourage learners to review their own learning process and identify areas that need more attention.

Further research results revealed the impact of AI on work processes. The study highlighted that AI not only speeds up routine tasks, but also improves the efficiency of lesson preparation and diversifies teaching methods (Table 2).

Table 2

The impact of AI on work processes

Subcategory	Confirmatory statements
Speeding up preparation for lesson	*Speeds up lesson preparation. I look up information on Google, but very often I also open ChatGPT and ask for advice on lesson planning." (RP1)* *Saves time in idea generation. (RP1)* *Speeds up and saves time. (RP3)* *Helps me structure tasks and lesson plan, helps create several tasks faster than I used to. (RP4)* *I now spend half the time on lesson preparation compared to before." (RP6)* *Helps create several tasks faster than I used to. (RP7)*
Diversifying the teaching process	*Speeds up, saves time, and diversifies the teaching process. For example, I cannot always come up with or find enough ideas to present to students, but I ask AI, and it gives me many ideas that I improve and adapt to my needs, then give them to students. (RP3)* *Facilitates creative decisions. (RP7)*
Facilitating creative decisions	*AI helps generate creative decisions, create tasks faster than usual. (RP7)* *Reduces errors and facilitates creative decisions. (RP8)*
Reduction of routine tasks	*Routine tasks should be reduced. (RP3)* *Speeds up routine tasks. (RP4)* *Daily tasks become more efficient and less stressful. (RP5)*
Facilitating the search for information	*Facilitates information search and data analysis. (RP7)*

The results of the research revealed that AI reduces the volume of routine work, simplifies information search, thereby providing more time and opportunities to focus on other work processes. Also, AI reduces the volume of routine work, simplifies information search, thus providing more time and opportunities to focus on other work processes. In addition, AI tools help to structure information more effectively, prepare educational materials and tasks, thus contributing to improving the overall quality of education. It can be noted that one of the most important features that emerged is that the AI significantly speeds up preparation for lessons. Participants in the study reported that the process of searching for information is much faster, often using not only the traditional Google search engine but also ChatGPT, which provides additional ideas for lesson planning ("*Speeds up lesson preparation. I look up information on Google, but very often I also open ChatGPT and ask for advice on lesson planning.*" (RP1)). AI tools not only save time in generating ideas, but also help to structure tasks and lesson plans efficiently, allowing for faster preparation of several tasks at once. In addition, participants in the study highlighted that they now spend half as much time on lesson preparation as they used to ("*I now spend half the time on lesson preparation compared to before.*" (RP6)), which leads to greater productivity and less stress. AI also encourages new creative solutions and makes it easier to adapt learning content to the individual needs of students. As mentioned by the research participants "*AI helps generate creative decisions*" (RP7), AI tools reduce the likelihood of errors, ensure more efficient and creative task creation, so employees of educational institutions can better meet individual educational goals. Making creative decisions with AI becomes easier and smoother, allowing teaching to become a more interesting and interactive process. It helps to improve interactivity in the classroom, promotes active learning and enhances the learning experience for both teachers and learners.

Further research results revealed that employees of educational institutions seeking to apply AI tools in their activities face various challenges (Table 3).

Table 3

Challenges of working with AI

Subcategory	Confirmatory statements
Choosing the right tools	*How to find the most suitable tool(s)... I mainly use one, but it's hard to choose because you need time to learn." (RP3)*
Reliability of information	*I think the hardest part is distinguishing whether the information is appropriate and well-presented. (RP1)* *The challenge is to carefully monitor the language of the information provided. (RP6)* *Sometimes there are doubts about the accuracy of the information. (RP7)*
Formulating the right query	*The relevance of search terms for formulating questions. (RP5)* *Properly selecting the necessary commands to ensure the AI-generated result meets the need. (RP8)*

Paid versions	*If I find some more advanced feature, or something interesting, they usually only give a free trial version, and after that, you have to pay. (RP2)* *It would be nice if it were free because many tools are paid. (RP4)* *There aren't any versions or licenses purchased. (RP5)*
Lack of knowledge about AI	*I face difficulties in understanding how to make the most of AI's capabilities. (TD7)* *Honestly, I lack knowledge about AI and how it could simplify the teaching process. (RP9)* *At first, when this novelty appeared, some teachers, especially older ones, found it harder to adapt. I'm used to traditional teaching methods, so it's difficult for me to adjust, but if someone showed me how to use it, I would. (TD10)*
Lack of AI training	*So far, no training has been organized at the institution. (TD6)* *No [training], but it is planned for the future. (TD9)* *No [training]. But if needed, various organized training opportunities will be used. (TD10)*

The results of the research revealed that, first of all, it is difficult to choose the right tools for their activities that would meet their needs and ensure the reliability of information. It was also noted that there are difficulties in formulating appropriate AI queries, and for others, paid versions of AI limit their accessibility. In addition, some educational workers face a lack of knowledge about AI and are not trained to work with it, and their institutions do not provide sufficient training on the applicability and use of AI.

Participants stressed that ensuring the reliability of AI-generated information is a complex process, requiring careful monitoring of the results. One participant shared the experience: "*I think the hardest part is distinguishing whether the information is appropriate and well-presented.*" (RP1), another added: "*Sometimes there are doubts about the accuracy of the information."* (RP7). It can be seen that not all employees of educational institutions trust and use AI, so they need to carefully select the information, check it and then use it to develop educational content. In addition, many participants mentioned difficulties in formulating appropriate AI queries, and incorrectly formulated queries can produce not only irrelevant but also erroneous results. For example, one respondent said: "*Properly selecting the necessary commands to ensure the AI-generated result meets the need." (RP8).* Another issue is the availability of AI tools only in paid versions. Research participants noted that if they want to use more advanced features, they are usually only offered a free trial version and then have to pay when free version expires. One participant mentioned, *"It would be nice if it were free because many tools are paid."* (RP4). This creates an additional financial burden for employees who want to fully exploit the potential of AI tools, while using an undeveloped version of the AI can lead to a higher incidence of misinformation or incomplete assignments. In addition, many of the participants in the study cited a lack of knowledge about AI and the fact that their institutions do not yet provide enough specialized training to extend their knowledge. Participants noted, that "*I face difficulties in understanding how to make the most of AI's capabilities."* (TD7). This means that AI is not fully integrated into the daily work of staff in educational institutions, which limits the progress of both individual educators and the educational institution as a whole.

CONCLUSIONS

1. AI – machine's ability to perform the cognitive functions we associate with human minds: perceiving, reasoning, learning, interacting with the environment, problem-solving and etc.
2. It has been determined that the possibilities of applying AI in the activities of an educational worker include: generating ideas, translating from/into a foreign language, paraphrasing text, planning lessons, creating tasks, creating visual content, creating presentations, preparing individual plans, creating communicative messages, structuring information.
3. It has been identified that in the work process, AI diversifies the teaching process, facilitates creative solutions for employees of educational institutions, speeds up the time of preparation for activities, reduces routine activities, and facilitates the search for information.
4. It was revealed that employees of educational institutions seeking to apply AI in their work find it difficult to choose suitable AI tools, lack of information reliability, difficulty in properly formulating AI requests, lack of AI training.

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