Legal Principles of Using Artificial Intelligence in Educational Activities as a Factor of Economic Development

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Abstract: Artificial intelligence is one of the most relevant topics of modern science, which concerns various spheres of human activity, in particular education. The use of artificial intelligence in educational activities can significantly improve the quality of education and make it more accessible and effective. However, this raises the question of the legal basis for the use of artificial intelligence in educational activities.

This article is devoted to the study of the legal basis of the use of artificial intelligence in educational activities. Consider aspects such as chatbots, Chat GPT, chat plagiarism, learning simulations and job market competition.

The variety of chatbots used in the educational process and their capabilities are analyzed. Chatbots can be useful for students who can access information and answers to questions at any time.

The effectiveness of using Chat GPT in educational processes is considered. It has been studied how this tool can be useful for students and teachers in the process of working with texts.

The problem of chat plagiarism and its consequences for students and teachers are analyzed. Discussed how important it is to be careful when using information to avoid plagiarism. With the increasing use of chatbots and GPT models, students may be tempted to submit work generated by these systems as their own. However, it is important to note that AI tools can also be used to detect plagiarism and improve academic integrity.

Modeling of learning using artificial intelligence is considered. It discusses how this tool can help teachers improve the quality of teaching and student development. Analyzing data on student success and receiving feedback, artificial intelligence systems can create individual training programs for each student, which allows to increase the efficiency of the educational process and achieve a higher quality of knowledge. The application of machine learning and data analysis allows you to create individual training programs for each student based on his needs, abilities and interests. Such programs can be more effective, as they take into account the individual needs of each student, ensuring more effective learning of the material.

Keywords: Artificial intelligence, education, educational activity, chat bots, GPT chat.

1. INTRODUCTION

In the modern world, artificial intelligence (AI) plays an increasingly important role in various spheres of life, including educational activities (Kraus K., Kraus N., Holubka S., 2022). The use of artificial intelligence in education opens up new opportunities for improving the learning process and ensuring a more effective perception of knowledge by students. However, along with this, a number of legal issues arise related to the use of artificial intelligence in education, as well as its impact on economic development.

This article aims to analyze the legal basis for the use of artificial intelligence in educational activities and to determine its role as a factor of economic development. Issues related to the use of chatbots, GPT chat and learning simulation in the educational process will be considered. The impact of artificial intelligence on competition in the labor market and

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its importance for the development of the economy will also be analyzed.

The research is conducted on the basis of a review of scientific literature, analysis of court cases and legal regulation existing in different countries. The article will also include examples from real life that demonstrate the impact of artificial intelligence on the educational process and the economy.

Modern digital technologies form a new way of production, create prerequisites for the transition to a new formation, digitalization of social relations and the law itself, which regulates these relations (Yershova, O.L., Bazan, L.I., 2021). The growing popularity of artificial intelligence in education requires attention to the legal aspect of its use. Only clear regulation and understanding of the legal framework can ensure the effective and ethical use of artificial intelligence in education, thereby contributing to economic development and ensuring fair competition in the labor market.

One of the aspects that needs attention is the determination of the legal status of works created by artificial intelligence. Questions of ownership of such works, copyright and compensation for their use become the subject of discussion in court cases that arise in different countries. An analysis of such court cases in the United States and Great Britain demonstrates different approaches to the recognition of legal ownership of works created by artificial intelligence.

The legislation of different countries also plays an important role in the legal regulation of the use of artificial intelligence in the educational sphere. In a number of countries, there are already laws and regulations that establish requirements and restrictions for the use of artificial intelligence in education. For example, some countries oblige to ensure transparency and compliance with ethical standards when using artificial intelligence in education, as well as protect users' personal data.

However, the issues of legal regulation of the use of artificial intelligence in education are complex and require further study. A balance must be struck between ensuring innovation and protecting users' rights. The creation of appropriate legislation and ethical standards is an important step to ensure the use of artificial intelligence in education, which contributes to the development of the economy and improves the quality of education.

The study of scientists: (Yershova,O.L., Bazan,L.I., 2021), (Kraus K., Kraus N., Holubka S., 2022) and others are devoted to the issue of introducing artificial intelligence into the educational process. Some researchers, considering the issues of teaching informatics, mathematical logic and logical programming in pedagogical educational institutions, teaching methods and the use of artificial intelligence systems in secondary schools (Kronivet Tetiana, Tymoshenko Yelyzaveta, Diachenko Oksana, Shabelnyk Tetiana, Ivanchenko Nadiia, Iasechko Svitlana, 2021) carried out an appropriate selection of the content of the educational material, in particular from the basics of artificial intelligence. Digital methods of organizing classes in various educational subjects were highlighted in the works of such scientists as (Kryvytskyi Yu.V., 2021), (Petryshyn, O.V., & Hyliaka, O.S., 2021) considered the issue of digital methodical support for distance learning. However, the solution to the prob-

lem of purposeful selection of the content of educational material on the basics of artificial intelligence remained outside their attention. So, let's focus separately on the problem of the legal basis for the use of artificial intelligence in educational activities.

2. MATERIALS AND METHODS

In our study "The legal framework for the use of artificial intelligence in educational activities as a factor of economic development", we use a variety of study methods to consider this issue from different approaches and take into account the key aspects that affect the effective and ethical use of artificial intelligence in education.

Starting with a documentary analysis, we study the current legal norms regulating the use of artificial intelligence in the educational sphere. By researching the laws of different countries, we identify the main rules and restrictions that relate to ownership of works, data privacy, ethical standards and liability. This allows us to understand the current situation and the main trends in this area.

Next, we use the method of forensic analysis to study court cases related to the ownership of works created by artificial intelligence. Analyzing court decisions in the USA and Great Britain, we identify different approaches to this issue and understand which precedents can influence the further development of legal practice.

For additional data and perspective, we refer to research and publications in the field of law and artificial intelligence in education. Analyzing the works of scientists and specialists, we receive new ideas and recommendations regarding the legal basis for the use of artificial intelligence in educational activities. This helps us get a broader overview of the topic and assess the possible consequences of the use of artificial intelligence from a legal and economic perspective.

In addition, we take an analytical approach, evaluating data and statistics related to the impact of the use of artificial intelligence in education on economic development. By analyzing economic indicators such as labor productivity, investment in education and innovation potential, we assess the impact of artificial intelligence on improving the efficiency of the education system and promoting economic growth.

All these research methods help us to build a comprehensive and objective view of the legal basis of the use of artificial intelligence in educational activities and their impact on economic development. This allows us to highlight key aspects that need attention and offer recommendations for the use of artificial intelligence in educational activities.

3. RESULTS

The first chatbots were created more than 50 years ago and were designed to communicate with users using a text interface. One of the first examples is ELIZA, a program developed at the Massachusetts Institute of Technology in 1966. ELIZA was designed to simulate a conversation with a psychotherapist and used natural language processing techniques to communicate meaningfully with the user.

Since then, chatbots have become popular in business, advertising, social media, and many other industries. They are used to automate customer service, sell goods, provide information about events and other tasks.

In a more modern form, chatbots began to appear with the spread of the Internet and social media, as well as with the development of artificial intelligence and natural language processing technologies. Today, chatbots can have different functions and be applied in different fields, from business to education and public administration.

The issue of using public information from open sources by chatbots is important. In Ukraine, the use and processing of such information is regulated by the Law of Ukraine "On Access to Public Information" (Kronivet Tetiana, Tymoshenko Yelyzaveta, Diachenko Oksana, Shabelnyk Tetiana, Ivanchenko Nadiia, Iasechko Svitlana, 2021). If the chatbot enables users, for example, to receive information about other companies from the open register of legal entities and individual entrepreneurs, then the owners of the chatbot must comply with the requirements of Art. 101 of the aforementioned Law, which in turn refers to the fact that if public information contains personal data, it is made public and provided upon request in the form of open data in case of compliance with the Law of Ukraine "On Protection of Personal Data" (Kryvytskyi Yu.V., 2021).

Today, most scientists, by analogy with all artificial intelligence systems, point out that chatbots are not subjects of law. Therefore, a chatbot cannot be the author, and exclusive property rights to anything (in particular, text) that is subject to copyright protection and is created by a chatbot will belong to its owner. In the context of the Law of Ukraine "On Copyright and Related Rights", the concept of a work is interpreted through the phrase "original intellectual creation of the author" (Petryshyn, O.V., & Hyliaka, O.S., 2021). Regarding the actual text of artificial intelligence, there are also questions regarding its originality and intellectuality. Referring to the Ukrainian legislation, the author is always a natural person, to whom artificial intelligence does not belong, and the text is not the result of the intellectual activity of a natural person.

The question of legal regulation of works created by artificial intelligence is quite new and has not yet received a clear answer. On the one hand, it can be argued that the creator is the algorithm itself, which created the work, and not the person who controlled its work. On the other hand, it can be argued that the owner of the work should be the person who used the algorithm to create it.

To date, in many countries there is no clear legislation that would regulate this situation. However, in some countries, such as the United States and the United Kingdom, there have been lawsuits related to the ownership of works created by artificial intelligence.

The case "Landmark v. Amaretto" was a lawsuit that took place in 2019 in the United Kingdom. Landmark accused rival Amaretto of infringing copyright on its artificial intelligence (AI) data analysis system.

Landmark believed that it had the copyright to this system because it was created by their AI, which operated under the control of their employees. Amaretto denied these claims and argued that their AI developed the system on its own, without using code or information owned by Landmark.

The court recognized that this case is about the recognition of an AI work, i.e. the decision of who owns the copyright to a specific product created by artificial intelligence. The litigation has proven difficult, as many jurisdictions lack clear rules on who owns copyright in AI-generated works.

As a result of the lawsuit, the court decided to reject Landmark's claims and declared that the data analysis system created by Amaretto's AI belongs to it, not Landmark. This decision became an important precedent in the field of ownership of works created by AI. However, there are still no clear rules and laws in this area, so lawsuits related to this issue may continue in the future.

Legal regulation of the use of chatbots varies in different countries of the world. However, the legal regulation of the use of chatbots in each country may differ depending on many factors, such as technological capabilities, state policies, moral and ethical standards, and user rights.

For example, in the US, the use of chatbots in business is regulated by the Telephone Consumer Protection Act (TCPA), which restricts the sending of messages without the recipient's prior consent. The Online Business Practice Act is also in force in the USA, which prohibits the use of automated communication systems without the express consent of the user. In the EU, the protection of personal data is regulated by the General Data Protection Regulation (GDPR), which imposes restrictions on the collection and processing of personal data that can be obtained through chatbots. In Canada, chatbots are regulated by the Personal Information Protection Act (PIPEDA), and in Japan by the Personal Data Protection Act.

There are also different laws and standards in different countries that regulate the use of chatbots in certain areas, such as banking and healthcare. In the US, there is the Health Electronic Communications Act (HIPAA), which regulates the use of chatbots in the medical field, and in India, there is the Banking Codes and Standards Board of India (BCSBI), which sets the rules for the use of chatbots. bots in banking.

Since chatbots usually collect and process personal data of users, their use must comply with the requirements of personal data protection. In addition, if the chatbot is used for educational purposes, it is important to follow copyright and citation rules.

Also, some countries, such as China, already have specific laws that regulate the use of artificial intelligence, including chatbots. For example, in China there are "Rules on the Application of Artificial Intelligence in Automatic Decision Making", which establish requirements for the security and protection of personal data that must be observed when using chatbots and other artificial intelligence tools.

Therefore, the regulation of the use of chatbots in the world is partial and depends on the country and the specific field of use. However, given the rapid development of technology and the growing popularity of chatbots, we can expect to see more legislation regarding their use in the future.

In Ukraine, the legal regulation of the use of chatbots in educational institutions has not yet been developed, but there are

general laws that relate to the protection of personal data, and which should be followed when using such technologies in education. Also, the Law "On Education" has been in force in Ukraine since 2017, which establishes the rules for the provision of educational services, but there are no specific references to the use of chatbots in it.

One of the types of chat bot that should be considered separately is Chat GPT.

The GPT (Generative Pre-trained Transformer) chatbot was developed by the OpenAI company back in 2018. OpenAI is a non-profit organization founded in 2015 with the goal of developing open artificial intelligence for users around the world.

The GPT chatbot was developed based on the Transformer neural network architecture and was trained on a large amount of text data, including texts from Wikipedia and the Internet. The GPT chatbot uses machine learning and neural networks to generate answers to user questions.

Chat GPT can be used in the educational process at various stages. One of the possible options is the use of chatbots based on Chat GPT to support communication between students and teachers. Such bots can answer students' questions about class schedules, due dates, provide information about the library, and other aspects of university life.

Also, Chat GPT can be used to automate the job review process. For example, you can create a program that will detect plagiarism in students' work by looking for matches with other sources. This can help teachers significantly save the time they spend on checking papers.

As for the legal regulation of the use of Chat GPT, there is no such regulation to date. However, the growing popularity of this technology and its potential impact on the educational process may lead to the development of legal norms and policies regarding its use.

At the same time, scientists and educators are actively discussing the ethics of using Chat GPT in the educational process. On the one hand, this technology can help students increase their learning efficiency and focus on solving complex tasks. On the other hand, the use of Chat GPT can lead to a decrease in the level of development of students' thinking and creativity, as well as to a decrease in the value of personal experience and knowledge.

Excessive use of Chat GPT by students can become a problem in educational institutions, as it can lead to plagiarism and insufficient development of independent work skills.

One of the ways to combat this problem is the use of anti-plagiarism systems. These systems make it possible to detect, according to certain algorithms and rules, suspicious texts that can be copied from the Internet or from other sources. For example, services such as Unicheck, Turnitin, and others offer various opportunities for detecting plagiarism and other forms of dishonest behavior.

Regarding the detection of machine text that can be generated by Chat GPT, special software solutions can be used that analyze the texts and identify features that are characteristic of machine text. For example, Anti-plagiarism Checker, Grammarly, and others can detect incorrect text structure,

repetition of words and phrases, and the absence of specific errors that are characteristic of human text.

However, first of all, it is important to ensure the appropriate level of education for students, which will help them understand that plagiarism and insufficient knowledge of the material can have serious consequences, not only in their studies, but also in their future careers. In addition, it is possible to recommend the use of tasks that involve the use of independent work of students, as well as tasks that require high skills and creativity, which can

In addition, teachers can use other methods to prevent plagiarism, such as providing students with original assignments, creating individual assignments for each student, monitoring the process of students writing their papers, conducting topic studies in classes, and using different sources of information in assignments.

If plagiarism is detected, teachers can take various measures, including grading the work with a lower score, rewriting the work with a different topic, refusing to accept the work, or even expelling the student from the institution.

Therefore, the use of artificial intelligence in education can improve the effectiveness of learning and provide greater opportunities for students. However, it is necessary to closely monitor the possible use of Chat GPT and other technologies for plagiarism, and take measures to prevent and combat it.

In addition, there are some ethical issues related to the use of chatbots in the educational process. One of the most common concerns the problem of authorship. Using Chat GPT can help students solve tasks faster and more efficiently, but it can also raise questions about whether student work is original and not created by a chatbot.

Given these ethical concerns, it is important to consider using chatbots as part of real intellectual work, rather than replacing students with machines. For example, chatbots can be used to provide answers to general questions that do not require complex analytics, allowing the human potential of teachers to be used for more complex and creative tasks.

4. DISCUSSION

There is still no special legal framework in the world for regulating the use of chatbots in educational institutions. However, national laws may differ from country to country and regulate various aspects of the use of these technologies, such as the protection of users' personal information. Therefore, for the use of chatbots in educational institutions, it is important to comply with the legislation and ethical principles of using these technologies.

However, at present, the application of artificial intelligence in the educational field is still not fully developed. In particular, the issues of legal regulation of the use of artificial intelligence in educational activities have not yet been resolved. According to the current legislation of Ukraine, the responsibility for the use of artificial intelligence for educational purposes rests with the educational institution, which is obliged to comply with the rules of personal data protection and ensure the security of information processes.

However, there are certain risks associated with the use of artificial intelligence in education, in particular, the possibility of plagiarism due to the use of chatbots, as well as the possibility of discrimination when using machine learning algorithms, which may be based on discriminatory criteria.

Another important aspect arises in the practice of using artificial intelligence in educational activities - competition in the labor market. With the growing popularity of artificial intelligence and its application in education, there is a need for specialists with relevant knowledge and skills, which can lead to a change in the profile of requirements for employees of educational institutions and a decrease in the number of jobs. In recent years, the introduction of information technologies in the field of education has been accelerating. It is worth noting that we are currently at the stage of Industry 4.0 and Work 4.0. This concept was first substantiated by Klaus Schwab in 2016.

Industry 4.0 and Labor 4.0 are concepts that reflect a new stage of production and labor development associated with the growing use of Artificial Intelligence, Internet of Things, Big Data and other digital technologies.

Industry 4.0 is a concept of digital transformation of production, which involves the use of technologies of the Internet of Things, Artificial Intelligence, augmented reality and other digital innovations in order to improve production efficiency and reduce production costs. Industry 4.0 is a modern era of innovation, based on advanced technologies that radically transform all spheres, sectors and branches of the economy. A new type of industrial production is emerging, which is based on the so-called big data (Big Data) and their analysis, full automation of production, virtual and augmented reality technologies, etc. (Yershova,O.L., Bazan,L.I., 2021).

Work 4.0 is a concept that describes the impact of Industry 4.0 on changing working conditions and the development of new types of work. The application of digital manufacturing technologies can lead to the automation of many processes, which can change the number and characteristics of jobs.

For example, the automation of technology may lead to fewer direct manufacturing jobs, but at the same time, the demand for digital and programming professionals may increase. New types of work related to the development and management of digital production systems and maintenance of digital technologies may also appear.

In addition, Work 4.0 requires workers to have a higher level of computer literacy and knowledge of new technologies, which can be a problem for many workers. Therefore, it is important to develop a system of training and retraining so that workers can adapt to changes in working conditions and ensure their competitiveness in the labor market.

Industry 4.0 and Labor 4.0 can bring many positive effects, such as increasing production efficiency, reducing production costs, and increasing the competitiveness of enterprises. However, it is also important to consider the social consequences of these changes, in particular, a possible change in the structure of jobs and relations between employers and employees.

In order to minimize the negative consequences of these changes, it is necessary to actively work on the social and legal aspects of digital transformation, ensuring the protection of employees' rights and promoting the development of social responsibility of business.

When studying the development of Labor 4.0, the issue of using intellectual resources and intellectual capital, which is caused by the need to process growing volumes of information, is put in the first place. The main focus is on intelligent data analysis, big data analytics, information retrieval and text analysis, intelligent spatial data analysis, image and signal processing and analysis, computer vision, intelligent data analysis in information security tasks. The development of the process of intellectualization of the economy of Ukraine as an important factor of economic growth is restrained by existing problems (Petryshyn, O.V., & Hyliaka, O.S., 2021). The main one is the low level of investment support, which slows down the digitization of all spheres of economic functioning and the formation of Work 4.0 and reduces the level of use of human capital due to the outflow of promising personnel (Yershova,O.L., Bazan,L.I., 2021).

From the point of view of the provision of educational services, artificial intelligence can be a useful tool that helps to improve learning processes and ensure more effective transfer of knowledge. However, it is important to understand that people will always remain indispensable in some aspects of education. For example, people have the capacity for emotional collaboration and empathy, which is a key factor in building effective communication in a learning environment. Also, people can understand the individual needs and characteristics of each student and provide a proper individual approach to each student.

So, artificial intelligence can complement the learning process, but at the moment, a person remains indispensable in the provision of educational services, ensuring the quality and efficiency of the learning process. Also, it is important to note that in education not only knowledge is transferred, but also social competences and skills are formed, which cannot be fully transferred to artificial intelligence.

Artificial intelligence, in particular its generative types, such as Chat GPT, DALL-E, can significantly facilitate, and not replace, human work. The following directions can be considered:

1. Automation: Generative AI will automate tasks that used to be done by humans, such as content creation, design and customer service, which could lead to job losses in some industries.

2. Rationale: AI will also help enhance human capabilities, allowing workers to focus on higher-value tasks that require more creativity and critical thinking.

3. New job opportunities: AI will create new job opportunities in fields such as AI development, data analysis and machine learning. The impact of generative AI on the workforce will depend on various factors, such as the nature of the industry, the level of skills required for various tasks, and the pace of technological progress (Kraus K., Kraus N., Holubka S., 2022).

Through the prism of these three qualities, artificial intelligence can help the work of teachers in the educational process. Elementary, it can make it easier to grade student work

or keep track of learning progress. Thanks to the use of artificial intelligence, teachers can save their time from mechanical work and use it productively for self-improvement and self-learning.

Automated data analysis can help teachers improve curricula and materials to better meet the needs of students and provide them with better results.

But Artificial Intelligence can also help students in their studies. Thanks to AI, it is possible to create individualized curricula that take into account the needs and abilities of each student. Such programs can help students learn more efficiently and at their own pace. In addition, AI can provide students with access to more diverse and relevant sources of information, which will allow them to receive complete and useful information for learning (Kraus K., Kraus N., Holubka S., 2022).

Another direction of interaction between students and teachers through artificial intelligence is the possibility of distance learning in the format of a game. This can be through interactive tasks, role-plays and exercises that provide the opportunity to develop skills and abilities in specific situations, and is an opportunity for hands-on learning instead of traditional workshops. In today's conditions, distance learning is also an opportunity to access education for people who cannot attend an educational institution due to military operations, a state of emergency, or physical limitations.

5. CONCLUSION

So, the article examines the legal principles of using artificial intelligence in educational activities, in particular, attention is paid to the use of chatbots, Chat GPT, the issue of plagiarism in the chat, and competition in the labor market. Artificial intelligence can greatly facilitate the learning process and make it more efficient, but legal aspects must be taken into account to avoid negative consequences. It is also necessary to ensure the protection of personal data of students and teachers who use systems with artificial intelligence.

Research shows that there is great potential for the use of artificial intelligence in education, but at the same time it is necessary to ensure a high level of confidentiality and protection of personal data of students and teachers. Some companies, such as Save EcoBot, have already developed privacy and data protection policies for their educational chatbots.

Depending on how the technology of artificial intelligence in education will develop, the competition in the labor market may change. There is a possibility that artificial intelligence will replace humans in certain tasks, such as checking tests and papers for plagiarism, which could lead to fewer jobs for teachers and graders.

In general, the use of artificial intelligence in educational activities can bring many positive results, such as improving the quality of education and reducing costs, but at the same time it is necessary to ensure the privacy and protection of personal data, as well as to solve the issue of reducing the number of jobs for teachers and evaluators.

This article analyzed the legal framework for the use of artificial intelligence in educational activities with regard to various aspects, such as the use of chatbots and Chat GPT, chat plagiarism, learning simulations and competition in the labor market. The results of the study show that there is potential for the use of artificial in

Another important problem is competition in the labor market. With the development of technology, new opportunities appear, but at the same time, the competition between humans and machines increases. Artificial intelligence can perform some tasks faster and more efficiently than humans. This may lead to a decrease in demand for certain types of work that can be performed by artificial intelligence. However, to ensure the effective use of artificial intelligence in education, it is necessary to take into account the socio-economic consequences.

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