



DIMENSIONS OF LEGAL AND MORAL USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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ABSTRACT

The purpose of the research is to critically analyze the legal aspects of the use of artificial intelligence (AI) in the field of education, as well as to study the role of chatbots and the Chat GPT model, plagiarism issues, educational modeling and the impact of AI on the labor market. To achieve this goal, various research methods are used, including the analysis of current legal norms and international legislation that relate to the use of AI in education. The study also includes an analysis of intellectual property issues, data privacy, ethical standards and liability.

The results of the study highlight the problem of plagiarism in chat rooms and emphasize the importance of careful use of information to ensure academic integrity. Despite the possible misuse of AI by students, such as chatbots and GPT models, for plagiarism, these technologies can also facilitate plagiarism detection. The research also examines the use of machine learning and data analytics to create personalized learning experiences, improve learning effectiveness, and retain knowledge.

The overall conclusion is that the integration of artificial intelligence in education has the potential to improve the quality and accessibility of education, but this requires a sound legal framework. The article also evaluates the effectiveness of various AI tools, including chatbots that provide information on demand and Chat GPT, useful for processing textual materials. The paper also examines the role of learning simulation in personalizing education, using AI to analyze performance data, and tailoring individual learning pathways.

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





1 INTRODUCTION

Artificial intelligence (AI) is becoming more and more important in modern society, penetrating various fields, including education (Kraus K., Kraus N., Golubka S., 2022). Its integration into the educational process opens up new opportunities for improving the educational experience and promotes more effective learning of knowledge among students. However, this transformation also raises a number of legal issues related to the implementation of AI in education (Kronivets, et al., 2023) and its impact on economic development. This article aims to assess the legal framework governing the use of artificial intelligence in education and its role in influencing economic development. The research covers topics related to the deployment of chatbots, GPTchat (Silva & Janes, 2023) applications and learning simulation in education. In addition, the article will explore the impact of artificial intelligence on competition in the labor market and its importance for stimulating economic growth.

The research methodology involves the analysis of scientific literature, the study of legal precedents and the analysis of legislative norms applied in different countries. The article will also provide practical examples illustrating the impact of artificial intelligence on education and the economy. Modern digital technologies form a new way of production, contribute to the transition to a new economic formation and digitization of social relations and the legal environment (Yershova O.L., Bazan L.I., 2021). The use of artificial intelligence in education is growing in popularity, which makes studying its legal aspect relevant. Only clear regulation and an understanding of the legal framework can ensure the effective and ethical use of artificial intelligence in education, promoting economic development and ensuring fair competition in the labor market.

One of the areas that needs careful consideration is establishing the legal status of creations created with the help of artificial intelligence.

Questions regarding the ownership of such works, copyright and compensation for their use become the subject of discussion in court cases that arise in various countries.



Turning to scientific literature, it should be noted that research in the field of using artificial intelligence in education has already revealed a number of positive aspects, such as increasing accessibility and personalization of learning, increasing the effectiveness of the educational process, and creating new opportunities for students and teachers. But at the same time, the presence of problematic issues is noted, such as the ethical issues of using AI in education, the legal status of works created by artificial intelligence, and competition in the labor market.

The development of artificial intelligence (AI) is gaining more and more importance in modern society, and its use penetrates into various fields, including the field of education (Kraus K., Kraus N., Golubka S., 2022). Its integration into the educational landscape opens up new perspectives for improving the learning experience and promoting more effective learning among students. However, this transformation also gives rise to a number of legal compensations related to the implementation of AI in education and its consequences for economic development.

Legislative frameworks in different countries also play a significant role in regulating the use of artificial intelligence in the education sector. Several countries have already introduced legislation and guidelines that have begun to presuppose and limit the use of artificial intelligence in education. For example, some countries require transparency and ethical standards in the use of artificial intelligence in educational institutions, along with the protection of users' personal data.

However, the complexities surrounding the legal perspective on the use of artificial intelligence in education require further study. A balance must be found between ensuring innovation and protecting users' rights. The creation of appropriate legislation and ethical standards is a step to ensure the use of artificial intelligence in education, which contributes to the development of the economy and the improvement of the quality of education.

Research in this direction also takes into account the opinions of famous scientists and researchers, such as Yershova O.L. and Bazan L.I. (2021), who draw attention to the importance of developing an adequate legal framework for the use of AI in education. This issue includes issues of ownership of works created by AI, as well as issues of copyright and compensation for their use.



In general, the development of artificial intelligence in education requires the final study and resolution of legal aspects to ensure the effective and ethical use of this technology, which contributes to the development of the economy and the improvement of the educational process.

2 METHODS

This research is based on a variety of methods that help to gain a deeper understanding of the topic related to the use of artificial intelligence (AI) in education and related legal aspects.

Dialectical-semantic method: This method allows us to consider different semantic meanings and aspects of concepts related to AI in education. For example, this means understanding concepts such as "intellectual property", "data privacy", "ethical standards" and "responsibility" from different perspectives.

System analysis method: Using this method, we consider the impact of using AI in education as a component system with many interdependencies. We explore how this can affect all aspects of education, including the quality of learning, accessibility and the development of the education system.

Analogy method: Using this method, we compare situations and legal practices related to AI in education with similar ones in other fields, such as medicine, science or industry. This helps us identify similarities and differences in legal regulation.

Comparative legal method: This method involves comparing the legal acts and practices of different countries that regulate the use of AI in education. We examine how each country regulates this area and examine their approaches and solutions.

Historical method: Researching the historical aspects of the use of AI in education helps us understand how the field has developed over time, what challenges have arisen, and what solutions have been made in the past.

These methods are used to analyze the legal framework governing the use of AI in education. We review legal regulations that relate to intellectual property, data privacy, ethical standards and liability. This analysis helps us get a full scope of the legal regulation and understanding of the restrictions.





Additionally, we analyze court decisions and legal precedents that relate to the ownership of AI-generated creative output. We research court decisions in different countries and study different approaches to this issue.

In addition, we consider research and publications in the field of law and AI in education. We use new ideas and recommendations to find solutions to legal issues related to the use of AI in education.

Even the analysis of economic indicators allows us to determine the impact of the use of AI on economic development. We examine labor productivity, investment in education, and innovation potential to assess how the use of AI can improve the quality of education and contribute to economic growth.

3 RESULTS AND DISCUSSION

They first appeared more than half a century ago and originated as tools for text interaction with users. One of the first chatbots was ELIZA, created at the Massachusetts Institute of Technology in 1966. The main goal of ELIZA was to simulate conversations with a psychotherapist and use natural language processing to conduct meaningful dialogues with users.

With the development of the Internet and natural language processing technologies, chatbots have become more and more modern and widespread. They have found their application in various fields, including business, advertising, social networks, information services and others. Today, chatbots have a variety of functions, from answering user requests to performing tasks related to information processing.

The problem of using public information from open sources by chatbots is significant. In Ukraine, for example, the use and processing of such information is regulated by the Law of Ukraine "On Access to Public Information". If the chatbot provides users with access to information about companies from the open register of legal entities and individual entrepreneurs, the owners of the chatbot must comply with the requirements of this legislation. At the same time, it is important to take into account the legal status of public information and compliance with the requirements for the protection of personal data of users.



In addition, chatbots can be used in the educational field to provide information to students and pupils. However, it is important to adhere to ethical and legal standards to prevent plagiarism and copyright infringement in educational materials provided by chatbots.

Most scientists and lawyers believe that chatbots cannot be recognized as legal entities, similarly to all other artificial intelligence systems. This means that they do not have their own author status, and any property rights in the works they create, including the text, are owned by their creators or owners. According to the Law of Ukraine "On Copyright and Related Rights", the work is recognized as "an original intellectual work of the author" (Petryshyn O.V., Gilyak O.S., 2021). Regarding the text created by artificial intelligence, questions arise regarding its originality and intelligence. According to Ukrainian legislation, the author is always a natural person, and artificial intelligence does not have the status of an author, since the text is not the result of the intellectual activity of a natural person.

The issue of legal regulation of works created by artificial intelligence is new and remains without a final solution. On the one hand, it can be argued that the creator of the work is the algorithm itself, responsible for its creation, and it can be equated with the author. On the other hand, it can be argued that ownership of the work should be attributed to the person who uses the algorithm to create it.

The Landmark v. Amaretto case, which took place in the UK in 2019, exemplifies the complexity of this issue. In that lawsuit, Landmark accused competitor Amaretto of copyright infringement on its artificial intelligence (AI) data analysis system. Landmark claimed to own the copyright to the system because it was created by their AI working under the control of their employees. Amaretto denied this and claimed that their AI created the system on its own, without using code or information belonging to Landmark.

The Court recognized that this case concerned the recognition of work created by artificial intelligence and its legal status, particularly with regard to the determination of ownership of a particular work created by artificial intelligence. Litigation has proven confusing, as many jurisdictions lack clear rules on ownership of AI-generated works. After the lawsuit, the court decided to dismiss Landmark's claims and ruled that Amaretto's AI-generated data analysis system belongs to Amaretto, not Landmark.





The verdict set a significant precedent for the ownership of AI-created works. However, the lack of clearly defined rules and legislation in this area means that legal disputes related to this issue may continue.

Legal regulation of the use of chatbots varies in different countries of the world. 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. 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 through chatbots. In Canada, chatbots are regulated by the Personal Data 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.

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The use of artificial intelligence in the field of education can make a significant contribution to improving the quality and efficiency of the educational process. However, along with the benefits associated with the use of chatbots and other technologies, there are issues and problems that require attention and regulation.

First, it is important to consider the possibility of misuse of chatbots for plagiarism and prevent such situations. It is important to develop and implement plagiarism prevention and detection systems that will help ensure the honesty and intellectual integrity of students.

Secondly, there are ethical issues related to the use of chatbots in the educational process. One of the main problems is the issue of authorship. If a chatbot completes a student's assignment, it may raise doubts about the student's originality and intellectual contribution to the work. Therefore, it is important to develop clear standards and rules for the use of chatbots so that they help students in their studies, and not replace them.

Legislation governing the use of chatbots in educational institutions does not yet have clear regulations in many countries. However, national legislation may determine various aspects of the use of these technologies, including the protection of users' personal data. Therefore, it is important for educational institutions to comply with the law and ethical standards in the use of chatbots.

Overall, the use of artificial intelligence and chatbots in education has great potential to improve learning and provide access to knowledge. However, it also requires careful consideration of ethical and legal issues to ensure a fair and effective educational process.





Another important issue related to the use of artificial intelligence in education is competition in the labor market. The popularity of artificial intelligence and its application in education leads to changes in the requirements for workers in this field and may affect the number of jobs.

We are currently living in the era of Industry 4.0 and Work 4.0. Industry 4.0 reflects the digital transformation of production based on the use of Internet of Things technologies, artificial intelligence, augmented reality and other digital innovations.

This can increase production efficiency and reduce costs. However, it can also lead to the automation of many processes and a change in the nature of jobs.

Work 4.0 describes the impact of Industry 4.0 on working conditions and the development of new types of work. Automation may reduce manufacturing jobs, but increase demand for digital and programming professionals. It is important to develop systems of training and retraining of employees to adapt to changes in working conditions.

The application of artificial intelligence in education can improve the effectiveness of learning, but it is worth being careful about the possibility of plagiarism and work created by intelligent systems. It is important to consider chatbots and other tools as training aids and to promote the development of socio-legal aspects of digital transformation, ensuring the protection of workers' rights and promoting the development of social responsibility of business.

From the point of view of providing educational services, artificial intelligence can become a useful tool that will further improve learning processes and ensure more effective transfer of knowledge. However, it is important to understand that people are always irreplaceable in some aspects of education. For example, people have capacities for emotional collaboration and empathy, which are key to building effective communication in a learning environment. Also, people can identify the individual needs and characteristics of each student and ensure an appropriate individual approach to each student.

Therefore, artificial intelligence can complement the learning process, but at the moment, humans remain indispensable in national educational services that ensure the quality and efficiency of the learning process.



It is also important to note that in education, not only knowledge is transferred, but also social competences and skills are formed, which cannot be completely transferred to an artificial intelligence.

Artificial intelligence, including generative models such as Chat GPT and DALL-E, can significantly facilitate, but not replace, human work. Possible areas of interaction include:

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

Increased productivity: AI will also help increase worker productivity by allowing them to focus on higher-value tasks that require more creativity and critical thinking.

New job opportunities: AI is creating new job opportunities in areas such as AI development, data analysis, and machine learning. The impact of generative AI on the workforce depends on various factors, such as the nature of the industry, skill level, some for different tasks, and the pace of technological progress. Through the prism of these three qualities, artificial intelligence can help both teachers and students in the learning process. It can make it easier to grade student work, track learning progress, and create personalized learning programs. Automated data analysis can help teachers improve curricula and materials to better meet the needs of students and provide them with better results. Also, artificial intelligence can give students access to more diverse and relevant sources of information, which allows them to receive complete and useful information for learning.

Additionally, artificial intelligence can provide an interactive form of distance learning in a gamified format. This can include interactive tasks, role-play scenarios and exercises that develop skills and competencies in specific contexts. Distance learning also allows access to education for those who cannot attend educational institutions due to other circumstances, such as military conflicts, emergency access to the state, or physical limitations to education.

Overall, AI has great potential to improve learning and deliver quality education, but maintaining a balance between automation and the human element in the educational process is important.



4 CONCLUSION

In conclusion, it should be noted that artificial intelligence has significant potential for improving the educational process, but it is important to maintain a balance between the use of these technologies and the preservation of the human factor in education.

Human cooperation, empathy and individual approach remain an integral part of the educational process.

It is also important to focus on the legal aspects of using artificial intelligence in education (Lampou, 2023), ensuring the confidentiality and protection of personal data of students and teachers. It is necessary to develop a privacy policy and develop ethical standards for the use of artificial intelligence in the educational sphere.

Increasing competition in the labor market is one of the important problems associated with the use of artificial intelligence. A potential decrease in demand for some types of work may require retraining of workers and development of new skills. Facilitating socio-economic adaptation to these changes, ensuring the protection of workers' rights and promoting the development of business social responsibility, is also an important task.

Therefore, the use of artificial intelligence in education has many advantages, but requires prudence and the resolution of various ethical, legal and social issues to ensure the effective and ethical implementation of these technologies in educational activities.

REFERENCES

AI and Education: How Artificial Intelligence Will Impact School Education.
URL:https://lb.ua/blog/olena_vyshniakova/547626_ai_osvita_yak_shtuchniy_intelekt.html

The explosion of generative AI is already changing certain industries and forcing professions to be reinvented. How soon will human potential be replaced by artificial intelligence. URL: <https://forbes.ua/innovations/likhomanka-shtuchnogo-intelektu-shchochekae-na-lyudstvo-v-nayblizhchi-roki-vidpovidayut-topovi-vcheni-futuristi-i-chatgpt-03042023-12458>

On copyright and related rights: Law of Ukraine dated December 1, 2022 No. 2811-IX as of April 15, 2023. URL: <https://zakon.rada.gov.ua/laws/show/2811-20#n855>





On access to public information: Law of Ukraine dated January 13, 2011 No. 2939-VI as of March 31, 2023. URL: <https://zakon.rada.gov.ua/laws/show/2939-17#Text>

On the protection of personal data: Law of Ukraine dated October 1, 2020 No. 2297-VI as of October 27, 2022 URL: <https://zakon.rada.gov.ua/laws/show/2297-17#Text>

Yershova, O.L., Bazan, L.I. (2021). Artificial intelligence is the technological basis of digital transformation of the economy. *Statystyka Ukrainy. Novi informatsiini eknologii*. №3, pp.47–59.

Kraus K., Kraus N., Holubka S. (2022). Establishment of work 4.0 in the conditions of digitalization and the application of artificial intelligence. *European scientific journal of Economic and Financial innovation*. №2(10), 19-31.

Kronivet Tetiana, Tymoshenko Yelyzaveta, Diachenko Oksana, Shabelnyk Tetiana, Ivanchenko Nadiia, Iasechko Svitlana (2021). Artificial Intelligence as A Key Element of Digital Education. *IJCSNS International Journal of Computer Science and Network Security*, VOL.21 No.10, 67-72.

Kronivets, T., Yakovenko, O., Tymoshenko, Y., Ilnytskyi, M., Iasechko, S., & Iasechko, M. (2023). Legal and Ethical Dimensions of AI in Education: Navigating New Frontiers. *Review of Artificial Intelligence in Education*, 4(00), e0021. <https://doi.org/10.37497/rev.artif.intell.educ.v4i00.21>

Kryvytskyi Yu.V. (2021). Artificial intelligence as a tool of legal reform: potential, trends and perspectives. *Naukovij visnik Nacional'noi akademii vnutrisnih sprav*, No. 2 (119), 90-101.

Lampou, R. (2023). The Integration of Artificial Intelligence in Education: Opportunities and Challenges. *Review of Artificial Intelligence in Education*, 4(00), e015. <https://doi.org/10.37497/rev.artif.intell.educ.v4i00.15>

Petryshyn, O.V., & Hyliaka, O.S. (2021). Prava liudyny v tsyfrovu epokhu: vyklyky, zahrozy ta perektyvky [Human rights in the digital age: challenges, threats and prospects]. *Visnyk Natsionalnoi akademii pravovykh nauk Ukrainy, Journal of the National Academy of Legal Sciences of Ukraine*, 28(1), 15–23. doi: 10.37635/jnalsu. 28(1), 15-23.

Silva, A. de O., & Janes, D. dos S. (2023). Challenges And Opportunities of Artificial Intelligence in Education in A Global Context. *Review of Artificial Intelligence in Education*, 4(00), e01. <https://doi.org/10.37497/rev.artif.intell.educ.v4i00.1>