



## LEGAL AND ETHICAL DIMENSIONS OF AI IN EDUCATION: NAVIGATING NEW FRONTIERS

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## ABSTRACT

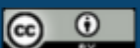
**Objective:** This study critically examines the legal aspects of using artificial intelligence (AI) in education, exploring the roles of chatbots, Chat GPT, chat-based plagiarism issues, educational simulations, and AI's impact on the labor market.

**Methods:** Employing a variety of research methods, the study analyzes current legal norms and international laws relevant to AI in education. This includes considerations of intellectual property, data privacy, ethical standards, and liability.

**Results:** The paper highlights the challenge of chat-based plagiarism, emphasizing the need for careful information use to maintain academic integrity. While students might misuse AI tools like chatbots and GPT models for plagiarism, these technologies also aid in plagiarism detection. The study also explores the use of machine learning and data analysis in developing personalized learning experiences, enhancing learning effectiveness and knowledge retention.

**Conclusion:** AI's integration into education promises to improve quality and accessibility, but necessitates a robust legal framework. The article evaluates the effectiveness of various AI tools, including chatbots, which provide on-demand information, and Chat GPT, useful for textual material handling. It also discusses the role of learning simulations in personalizing education, using AI to analyze performance data and tailor individual learning paths.

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





## 1 INTRODUCTION

Artificial intelligence (AI) has gained a growing significance in contemporary society, spanning across diverse domains, among them, education (Kraus K., Kraus N., Holubka S., 2022). Its integration into the educational landscape presents novel prospects for enhancing the learning experience and fostering more effective knowledge assimilation among students. Yet, this transformation also gives rise to a series of legal considerations pertaining to the deployment of AI in education and its ramifications for economic advancement.

This article seeks to assess the legal framework governing the utilization of artificial intelligence in educational endeavors and its role in influencing economic growth. It will explore topics concerning the deployment of chatbots, GPT chat applications, and learning simulations within the realm of education. Additionally, the article will investigate the influence of artificial intelligence on labor market competition and its significance in driving economic development.

The research methodology involves a comprehensive review of scholarly literature, an examination of legal precedents, and an analysis of the legal regulations applicable in various countries. Real-life examples illustrating the impact of artificial intelligence on both education and the economy will also be incorporated into the article.

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 area that requires consideration pertains to establishing the legal standing of creations generated 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 legal frameworks in various nations also hold a significant role in governing the application of artificial intelligence in the educational sector. Several countries have already implemented legislation and guidelines that define prerequisites and limitations for the utilization of artificial intelligence in education. For instance, some nations mandate transparency and adherence to ethical norms when employing artificial intelligence in educational settings, along with safeguarding the personal data of users.

Nonetheless, the complexities surrounding the legal oversight of artificial intelligence utilization in education necessitate more in-depth examination. 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 problem 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 METHODS

The methodological basis of the research on the indicated topic is a set of used general scientific and special legal methods. These methods complement each other taking into account the research topic, which in turn contributes to objective analysis.



Among the methods of research on the topic of this article, it is worth highlighting dialectical and semantic methods, the method of system analysis, and the method of analogy, comparative legal and historical methods.

In our study "The legal framework for the use of artificial intelligence in educational activities", 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.

We commence with a documentary review to explore the prevailing legal regulations governing the utilization of artificial intelligence within the educational domain. Through an examination of the legislation in various countries, we pinpoint the principal guidelines and limitations associated with intellectual property, data protection, ethical norms, and liability. This process enables us to gain insight into the existing landscape and the predominant developments within this field.

Subsequently, we employ forensic analysis as a methodology to delve into legal disputes related to the ownership of creative outputs generated by artificial intelligence. By scrutinizing court rulings in both the United States and Great Britain, we discern diverse approaches to this matter and gain insights into which legal precedents may shape future jurisprudence.

To supplement our findings and gain further insights, we reference research and publications in the field of law and artificial intelligence in education. Our examination of the works authored by scholars and experts provides fresh ideas and recommendations pertaining to the legal framework for the integration of artificial intelligence in educational activities. This comprehensive approach allows us to attain a more extensive perspective on the subject and assess the potential legal and economic ramifications of artificial intelligence implementation.

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 AND DISCUSSION

Chatbots made their debut over half a century ago, initially crafted to engage with users through text-based interactions. Among the pioneering instances was ELIZA, a software application devised at the Massachusetts Institute of Technology in 1966. ELIZA was conceived to mimic conversations with a psychotherapist and harnessed natural language processing methods to engage in meaningful dialogues with users.

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).



In the present day, the prevailing viewpoint among most researchers is that, akin to all artificial intelligence systems, chatbots are not recognized as legal entities. 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 issue of legally governing works generated by artificial intelligence is relatively recent and remains without a definitive resolution. On one hand, one could contend that the creator of the work is the algorithm itself, responsible for its creation, rather than the individual overseeing its operation.

Conversely, an argument could be made for the ownership of the work to be attributed to the individual who utilized the algorithm to generate it.

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 acknowledged that this case revolves around the acknowledgment of an AI-generated work, specifically addressing the determination of copyright ownership for a particular creation generated by artificial intelligence. The legal proceedings proved to be intricate, given that numerous jurisdictions lack unambiguous regulations regarding the rightful owner of copyrights in AI-generated works.





In the aftermath of 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. This verdict set a significant precedent in the realm of AI-generated work ownership. Nevertheless, the absence of well-defined rules and legislation in this domain means that legal disputes related to this issue may persist in the future.

The legal framework governing the use of chatbots varies across different countries worldwide. Nonetheless, the specific legal regulations pertaining to chatbot usage in each nation can diverge considerably based on a multitude of factors, including technological capabilities, governmental policies, ethical and moral 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.

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 avenue of engagement between students and educators through artificial intelligence encompasses the potential for remote learning in a gamified format. This may involve interactive assignments, role-playing scenarios, and exercises designed to cultivate skills and competencies within specific contexts, presenting a practical learning experience as an alternative to conventional workshops. In the contemporary landscape, remote learning also serves as a means for individuals unable to attend educational institutions due to factors like military conflicts, states of emergency, or physical constraints to access education.



### 4 CONCLUSION

In summary, it's evident that certain legislative provisions are more declarative in nature and necessitate additional legal support. A comprehensive analysis of the existing legislation and other legal directives that govern the use of artificial intelligence in education leads to the following conclusions.

Therefore, this article delves into the legal foundations underpinning the integration of artificial intelligence into educational practices. Specifically, it explores the use of chatbots, Chat GPT, the issue of chat-based plagiarism, and the effects on labor market competition. While artificial intelligence has the potential to significantly enhance the learning process and increase its efficiency, it's imperative to consider legal implications to mitigate adverse outcomes. Additionally, safeguarding the personal data of students and educators using AI-based systems is of paramount importance.

Research indicates that artificial intelligence holds substantial potential in the field of education, provided that a high degree of confidentiality and personal data protection for students and educators is upheld. Some companies, like Save EcoBot, have already formulated privacy and data protection policies for their educational chatbots.

The evolution of artificial intelligence technology in education may lead to shifts in labor market competition. There is the possibility that AI might supplant humans in specific roles, such as assessing tests and detecting plagiarism in papers, potentially resulting in a reduced demand for teaching and grading positions.

On the whole, integrating artificial intelligence into educational practices has the potential to yield numerous benefits, including enhanced educational quality and cost reduction. However, it is imperative to concurrently address issues of privacy and personal data protection while devising solutions for the potential reduction in teaching and grading roles.

This article conducted an examination of the legal framework pertaining to the integration of artificial intelligence in educational practices, encompassing various facets such as the utilization of chatbots, Chat GPT, issues of chat-based plagiarism, learning simulations, and implications for labor market competition. The findings of this investigation reveal the considerable potential for leveraging artificial intelligence in education.



Another crucial concern is the intensification of labor market competition. As technology advances, new opportunities emerge, albeit concurrently raising the competitive dynamics between humans and machines. Artificial intelligence can excel in executing certain tasks with swiftness and efficiency surpassing human capabilities. This dynamic may lead to reduced demand for specific job categories that artificial intelligence can effectively perform. Nevertheless, it is imperative to account for the socio-economic consequences to ensure the judicious and effective incorporation of artificial intelligence in education.

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