

## THE IMPACT OF AI ON TEACHERS: SUPPORT OR REPLACEMENT?

**Iryna Nikitina**

Senior Lecturer, Dnipro State University of Internal Affairs, Ukraine  
e-mail: N.I.P@i.ua, orcid.org/0000-0003-3767-7034

**Tetyana Ishchenko**

Senior Lecturer, Dnipro State University of Internal Affairs, Ukraine  
e-mail: ishchenkotatiana76@gmail.com, orcid.org/0000-0002-3103-978X

### Summary

The article explores the growing role of AI in education, analyzing whether it serves as a supportive tool for teachers or poses a threat to their jobs. AI can automate routine tasks such as grading and administrative work, freeing up teachers' time for more meaningful activities like personalized student interaction and lesson planning. Additionally, AI-powered tools enhance data-driven teaching, providing teachers with valuable insights to improve student performance and offer individualized support.

While AI offers significant advantages, the article emphasizes that it cannot replace the human qualities essential to teaching, such as emotional intelligence, empathy, and creativity. These are areas where AI falls short, making it unlikely to fully replace teachers. Instead, AI allows teachers to evolve their roles from traditional instruction to mentorship and guidance, focusing on fostering critical thinking and creativity in students.

However, there are concerns that AI could reduce teaching jobs or fundamentally change the role of educators. Teachers may also resist AI due to fears of job displacement or lack of sufficient training to use these technologies effectively.

The article concludes that AI, when used responsibly, acts as a valuable partner rather than a replacement. By taking over repetitive tasks, AI enables teachers to concentrate on more impactful educational activities, ensuring that the human element remains at the heart of learning.

**Key words:** AI, AI-powered tools, personalized learning, intelligent tutoring systems, automated grading.

DOI <https://doi.org/10.23856/6511>

### 1. Introduction

In our contemporary interconnected world, the necessity and importance of globalization in education cannot be overestimated. As borders blur and cultures converge, it is imperative that education evolves to prepare students for a globalized society. Embracing globalization in education is a necessity in today's world. It prepares students to thrive in an interconnected, rapidly changing global society.

Before we talk about the use of AI in education, let's define the technology in general terms. Artificial intelligence enables machines to perform tasks that traditionally required human cognition. AI-powered programs and devices can make decisions, solve problems, understand and imitate natural language, and learn from unstructured data.

The breakthrough of OpenAI ChatGPT, a natural language processing chatbot, first drew many people's attention to AI in the fall of 2022. However, we've been using AI tools for a long time now. If you've ever ordered goods online, typed with a voice assistant, navigated a car, or even scrolled through a social media feed, you've already interacted with artificial intelligence.

Neural networks have been showing rapid growth and incredibly active development in the last two years. They are being introduced into all spheres of human life everywhere, and education is no exception. AI technologies are becoming increasingly integrated into classrooms, from personalized learning platforms to automated grading systems. While the promise of AI is to enhance educational outcomes and support teachers in their daily tasks, it also raises a crucial question: Will AI serve as a tool to empower educators, or could it eventually replace them? This article delves into the evolving role of AI in education, examining its potential to both assist and disrupt traditional teaching roles. By exploring AI's capabilities and limitations, we aim to understand whether this technology complements teachers' efforts or poses a threat to their professional future.

Despite the technological revolution that has affected our work and everyday life in recent decades, the learning process has not changed radically even with new technologies. We have tablets, smartphones, laptops, and digital boards in schools. However, they do not change education significantly: we used to read from paper media, now they have been replaced by electronic ones. The emergence of specialized services for online education like Coursera and Udemy did not become a revolution either: access to education became widespread, but the key change was that we moved from a single electronic medium to many electronic media.

The pandemic could have become the next impetus for shifts. However, after the boom of lessons and classes on Zoom, educational institutions willingly returned to offline again. The education sector remains surprisingly constant. So will the spread of artificial intelligence change the way we learn?

## 2. AI as a Teaching Assistant

Artificial Intelligence (AI) is rapidly transforming various industries, and education is no exception. One of its most promising applications is as a teaching assistant, enhancing the learning experience for students and supporting teachers in their roles:

**Personalized Learning:** AI can analyze student data to identify individual learning styles, strengths, and weaknesses. With the help of AI, individual educational programs are already being created that best suit the interests, needs and knowledge base of a particular student. This allows for tailored instruction and resources, ensuring that each student receives the support they need. Education technology leaders such as Carnegie Learning (*Carnegie Learning, 2024*) and Knewton (*Knewton Alta, 2024*) offer adaptive platforms that customize learning activities and content in real time. Continuous assessment provides immediate feedback and helps the system adjust its approach. Adaptive learning methodologies range from simple rule-based systems to rich machine learning algorithms. In addition, AI can provide better access to learning for students with special needs. With intelligent learning systems, AI-based devices can identify areas where a learner needs extra support and provide individualized guidance accordingly. This helps students who may need extra time or help in certain subjects to keep up with their peers.

**Intelligent Tutoring Systems:** Intelligent Tutoring Systems (ITS) are computer programs designed to provide personalized instruction to learners. They use artificial intelligence (AI) and adaptive technologies to tailor the learning experience to the individual needs and abilities of

each student. AI-powered tutoring systems can provide students with personalized guidance and feedback on their work. They can adapt to the student's pace and offer additional explanations or practice problems as needed. The system can provide intelligent guidance and explanations, similar to a human tutor, helping students understand complex concepts. ITS can continuously assess the student's progress and adjust the learning materials accordingly, ensuring that the student is challenged but not overwhelmed. Many ITS incorporate natural language processing (NLP) to enable students to interact with the system in a more natural way, using spoken or written language. These systems can provide equal access to education for students with different learning styles or disabilities.

**Automated Grading:** AI can automate the grading of certain types of assignments, such as multiple-choice quizzes or objective assessments. This frees up teachers' time to provide more in-depth feedback and focus on higher-order thinking skills. Another benefit of AI in education is that it allows for real-time problem-solving assessment. Teachers can use this technology to monitor how well their students understand concepts, tracking individual progress throughout a lesson or course. By doing this, they learn about areas that require more attention and thus offer specific solutions (Zilberman, 2024).

**Adaptive Assessments:** Adaptive assessments are a form of testing that adjusts the difficulty of questions based on the test-taker's responses in real time. These assessments leverage algorithms and data analytics to tailor the examination experience to each individual, making the assessment process more efficient and accurate in measuring a student's knowledge, skills, and abilities. AI can create adaptive assessments that adjust in difficulty based on the student's performance. Questioning becomes dynamic. The difficulty level of questions changes depending on whether the student answers correctly or incorrectly. For example, if a student answers a question correctly, the next question becomes more challenging; if the response is incorrect, the next question may be easier. This ensures that students are challenged but not overwhelmed, leading to a more engaging and effective learning experience. Because the assessment adapts to the individual's ability, fewer questions are needed to accurately gauge the student's proficiency, reducing testing time without sacrificing accuracy (Zilberman, 2024).

**Content Creation and Curation:** Content creation and curation are two key practices used to deliver valuable, relevant, and engaging information to target audiences, especially in digital marketing, education, and media industries. Content creation refers to the process of producing original material, whether in written, visual, audio, or multimedia formats. This content can be used for blogs, social media, video platforms, websites, or educational resources. AI can be used to generate educational content, such as quizzes, worksheets, and lesson plans. It can also help teachers curate relevant resources from a variety of sources. Here are some popular platforms used in education for content creation and curation:

**Google Classroom:** A free platform integrated with Google Suite, offering tools for creating assignments, quizzes, and sharing resources (Google Classroom, 2024).

**Moodle** (Modular Object-Oriented Dynamic Learning Environment). A free popular open-source learning management system (LMS) used by many educational institutions. It provides powerful tools for creating and managing online courses, as well as for interaction between teachers and students (Moodle, 2024).

**Edmodo** is a popular learning platform created specifically for educational institutions. It combines elements of a social network and a learning management system (LMS), making it a convenient tool for interaction between teachers and students, as well as for organizing the learning process (Edmodo, 2024).

**Kahoot!** Kahoot! is a popular game-based learning platform that turns learning into a fun competition. It's perfect for quizzes, polls, and other interactive activities in the classroom, at home, or at work. An interactive quiz platform that can be used for game-based learning and assessment (Kahoot!, 2024)

AI as a teaching assistant in STEM (Science, Technology, Engineering, and Mathematics) is revolutionizing education by offering scalable, personalized support for both students and teachers (Nikitina, I., Ishchenko, T., 2023). AI-powered tools and systems are enhancing the learning experience, providing real-time feedback, automating administrative tasks, and enabling more effective student engagement, especially in technical and complex subject areas. One of AI's most immediate impacts is its ability to grade quizzes, assignments, and even complex problems like coding exercises or mathematical equations. AI provides instant feedback, allowing students to correct mistakes and learn more efficiently. This helps instructors focus on more complex educational tasks rather than routine grading. AI-powered teaching assistants can be available at any time, offering continuous support to students. Whether it's answering questions, solving problems, or guiding through difficult concepts, AI can ensure students receive help even outside of regular classroom hours. These systems track individual progress over time, allowing for tailored educational experiences.

AI has the potential to revolutionize the role of teaching assistants by providing personalized support, automating administrative tasks, and offering valuable insights into student learning. As AI technology continues to advance, we can expect to see even more innovative applications in the classroom.

However, it is important to note that AI is not a replacement for human teachers. Rather, it is a tool that can be used to enhance teaching and learning experiences. By working together, teachers and AI can create a more effective and engaging educational environment for all students.

### 3. AI's Potential to Replace Teachers

Despite all its advantages, however, AI will not be able to replace live communication with a teacher for a long time. With the spread of AI, the role of the teacher will change: understanding pedagogy will come to the fore. Teaching is not just about giving students an answer, but also about presenting it in a way that helps students learn. Therefore, teachers will need to focus on motivating students and imparting knowledge about how to best work with AI tools.

Although artificial intelligence can be an invaluable tool for learning, one of its greatest shortcomings is the amount of interaction with real people. Despite the fact that our world is becoming increasingly digital, the need to get along with other people is still important for normal functioning. Using artificial intelligence gives an answer to the question of how to do the job. However, to implement the plan, it is better to involve people.

While ITS can provide excellent support in academic areas, it lacks the emotional intelligence, empathy, and social interaction that human teachers offer (Promethean, 2024).

*Human-to-human interaction.* Traditionally, socialization is associated with the process of an individual learning social norms, values, and skills necessary for successful life in society. But can artificial intelligence, deprived of a biological body and consciousness, undergo this process? In today's society, where information is available to almost anyone, knowledge is no longer the only requirement for success. Soft skills that allow you to effectively use this knowledge, cooperate with others and adapt to new circumstances are becoming more important.

Interaction with the teacher helps children develop communication skills, the ability to work in a team and resolve conflicts.

*Emotional intelligence and empathy.* Empathy is the ability to understand and share the feelings of others. It is considered a uniquely human trait, linked to our complex emotional intelligence and social experience. Human interactions often rely on unspoken cues like tone and body language. Currently, artificial intelligence cannot read and perceive such nuance. Reading one's own emotional state is crucial to effectively communicating and learning. Therefore, AI is best used in conjunction with real human activity, rather than as a sole substitute for a teacher. Despite the limitations, research into empathy in AI continues. The goal is to create systems that can provide more effective support to people, for example in the areas of mental health or education. However, it is important to remember that AI will never completely replace human empathy, which is based on deep social and emotional experience.

*Creativity and critical thinking.* AI chatbots have a bad habit of talking nonsense, or hallucinating (Cambridge Dictionary's word of the year 2023), which is obviously not a useful quality in an educational context. The Cambridge Dictionary even named hallucination the word of the year 2023. It's logical for students to want verified information while learning, and AI sometimes fails to deliver. The ability to think critically helps pupils and students to distinguish reliable sources of information from questionable ones, and emotional intelligence allows them to better understand and manage their own emotions and the emotions of others. A simple way to combat non-thinking is to reintroduce collaboration into the classroom. For example, instead of asking students to write a paper for homework, you could assign an in-class presentation. Students can do research in or out of class, but they must rely on their own thinking skills, not artificial intelligence, to stand in front of the class and make a clear presentation.

*Ethical considerations.* The use of AI in education raises ethical questions about the potential for bias in algorithms and the impact on human interaction. AI algorithms are trained on data that may contain hidden biases. This can lead to discrimination based on race, gender, age, and other characteristics, for example: facial recognition systems may be less accurate for people with dark skin. AI requires huge amounts of data to train, which raises questions about the privacy of personal information. If an AI makes a decision that leads to negative consequences, who is responsible: the developer, the user, or the algorithm itself? Artificial intelligence is a powerful tool that can be both beneficial and harmful. To minimize risks and maximize benefits, serious consideration must be given to the ethical aspects of its development and use.

In fact, because of these shortcomings of AI, researchers do not see artificial intelligence replacing teaching in the future. We regularly see lists of professions of the future at the World Forum in Davos – some disappear, others appear, and the teaching profession remains. But these will be slightly different teachers, not those to whom we are all accustomed.

While AI-enabled technologies have the potential to radically change the educational landscape for the better, we cannot ignore the importance of teacher-student interactions in the classroom. Research shows that positive interactions between students and teachers impact student success (*Cheverdak, 2023*). Artificial intelligence can greatly improve the learning process, but it cannot completely replace a teacher. AI can automate routine tasks, provide personalized information, and create interactive learning materials. However, only a teacher can create an emotionally warm and supportive atmosphere in the classroom, inspire students to self-development, and help them become full-fledged individuals.

Thus, eliminating teachers from schools is not the optimal solution. A combination of traditional teaching methods and modern technologies, under the guidance of an experienced teacher, will create the most effective and comprehensive educational environment.

#### 4. The Future of Teaching: A Hybrid Approach

As the landscape of education continues to evolve, the hybrid approach – a blend of traditional classroom instruction and online learning – has emerged as a promising model for the future of teaching. This approach combines the best of both worlds, offering flexibility, personalization, and access to digital tools while maintaining the benefits of in-person interaction and community building. It is seen as a way to better meet the diverse needs of students in an increasingly digital world.

Hybrid teaching involves integrating face-to-face classroom instruction with online components. Students engage in physical classrooms for hands-on activities, group work, and discussions, while using digital platforms for assignments, quizzes, and supplementary learning materials. They have both, synchronous learning (students participate in real-time classes, discussions, and activities, either in person or via video conferencing) and asynchronous learning (students access course materials, videos, and resources at their own pace, which offers flexibility in managing time and workload).

Digital tools, such as learning management systems (LMS), interactive platforms, and AI-powered tutoring systems, play a key role in hybrid teaching. They allow educators to create interactive, multimedia-rich lessons that can engage students in innovative ways. These tools also provide real-time feedback, tracking progress, and personalizing learning paths based on individual needs.

#### 5. Conclusion

The use of AI in education is the creation of a personalized educational environment: one person perceives information better through text, another through pictures, and someone by ear. AI allows you to adapt information, create such individual spaces. It is also accessibility for people with special educational needs. But at the same time, it is wrong to say that AI can replace a teacher. We all went through the moment when Google came – and in education we retreated from "memorized" in favor of "meaningful". And a teacher is not just a carrier of information, this is a person who will teach, among other things, empathy, cultural norms, critical thinking. The advent of AI will encourage us to rethink the approach to education as much as possible, so as not to simply form a person in school according to a model, but to grow from him a personality who develops his strengths and skills.

While AI has the potential to greatly improve the educational process, it is important to consider its limitations. Technology should be used as a tool to improve the quality of education, not as a replacement for teachers or live teaching. Successful implementation of AI in the educational system requires a balance between the use of technology and preserving the human element in learning, as well as attention to issues of ethics, privacy, and equity of access.

The role of teachers will change too. Teachers will act as facilitators, guiding students through both in-person and online learning experiences. They will provide structure, support, and encouragement to ensure students are engaged and progressing.

By blending the strengths of both traditional and online learning, hybrid models provide an adaptive, student-centered framework that promotes engagement, accessibility, and lifelong learning. However, for the hybrid approach to fully realize its potential, it requires investments in technology infrastructure, teacher training, and equitable access to digital tools. The role of teachers in hybrid learning environments is multifaceted and demanding. By effectively fulfilling these roles, teachers can create engaging, supportive, and successful learning experiences for their students.

## References

1. Carnegie Learning. URL: <https://www.carnegielearning.com>
2. Cheverdak, P. (2023). *Shtuchnyi intelekt & vchytel: khto koho? [Artificial intelligence vs teacher: who is going to win?]* URL: <https://hovorymo.live/at-school/pro-teachers/stuchnii-intelekt-vcitel-xto-kogo/> [in Ukrainian]
3. Knewton Alta. URL: <https://support.knewton.com/s/>
4. Google Classroom. URL: <https://sites.google.com/view/classroom-workspace/>
5. Moodle. URL: <https://moodle.org/course/view.php?id=17228>
6. Edmodo. URL: <https://www.edmodo.com>.
7. Kahoot! URL: <https://kahoot.com/blog/2022/03/18/kahoot-stands-with-ukraine/>
8. Nikitina, I., Ishchenko, T. (2023). *Smart-Systems in STEM Education. In International Conference on Information and Communication Technologies in Education, Research, and Industrial Applications*. Cham: Springer Nature Switzerland.
9. Promethean. (2024). *Zahrozy shtuchnoho intelektu v osviti. [Threats of artificial intelligence in education]* URL: <https://prometheanworld.com.ua/potentsijni-nedoliky-shtuchnogo-intelektu-v-osviti/> [in Ukrainian]
10. Zilberman, A. (2024). *Yak ShI vplyvaie na systemu osvity. [How AI affects the education system]* URL: <https://www.facerua.com/iak-shi-vplyvaie-na-sistiemu-osviti/> [in Ukrainian]