

# Impact of Artificial Intelligence on Education

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**ABSTRACT:** While no one knows how AI will shape the future, we can all agree on one thing: AI is one of the most important technologies in the world today that is already at work in our everyday lives, influencing everything from online dating to our shopping habits. But how will this technology affect work in the future? What will be the result? A permanent class of people who can not find work because their jobs have been automated? An economy where super-intelligent computers compete to one day take over the planet? What is happening to people, how do we transform and adapt our education systems to be consistent with the digital age? According to research, by the mid-2030s, one third of all employees will be exposed to the risk of being automated, and the labor force segment most likely to be affected is people with a low level of education (Vimal 2022). Education can change everything in the sense that human reasoning will continue to be necessary, at least at every level and in all industries. Instead of “humans or computers,” the challenge for all-round education should be summed up as “humans and computers engaged in sophisticated systems that promote industry and wealth.”

**KEYWORDS:** Artificial Intelligence, Modern Education, Computers, New Skills, Future Occupations  
Introduction

## Introduction

Education plays a key role in the development of human civilization. Since ancient times, the method of learning is constantly evolving and undergoing numerous changes due to new technologies. We are all familiar with traditional ways of learning where education is imparted within the walls of classrooms to a group of students. With the intervention of the internet and digital technology, the online platform is trending slowly and surely taking the place of classrooms. Thus, the modern education system has completely eradicated the space limitation of a classroom by encouraging the participation of more students from every corner of the world. By providing knowledge through online platforms or websites, the modern education system has been able to attract a variety of students and teachers to participate in technology-based learning. Freed from any kind of limitations of time, space or number of students, the popularity of online learning is increasing day by day. Still constantly changing to ensure the quality of education, online learning has a number of benefits – flexibility, lower costs, and wide range of content.

In recent decades, Artificial Intelligence (AI) has become increasingly present in our lives, having a significant impact in various fields, including education. Education has undergone a series of changes and under the impact of artificial intelligence that brings with it the opportunity to transform, to adapt the way the teaching/learning process is carried out. There is a need to research the impact that artificial intelligence is having on education as we know it, and how we can use this discovery to improve the experiences of students and teachers. Therefore, we start this study with the definition and characteristics of artificial intelligence. Thus, artificial intelligence refers to the development of systems and machines that can simulate intelligent human behavior, such as learning, reasoning, and problem-solving. It involves the use of algorithms and complex mathematical models to enable machines to learn and improve their performance autonomously and the fundamental purpose of AI is to enable machines to exhibit traits specific to human intelligence.

One of the key elements of Artificial Intelligence is the ability to learn. Intelligent systems are designed to learn from data and experiences, identify patterns and trends, and improve their performance over time. This is achieved through the use of machine learning algorithms and

artificial neural networks, which allow machines to process information, identify patterns and make predictions or decisions based on them.

Reasoning is another crucial aspect of Artificial Intelligence. Intelligent systems are able to use available information to make logical decisions and solve complex problems. They can use rules and algorithms to analyze data, extract relevant information and generate desired results or solutions.

Problem solving is the essential skill of artificial intelligence that uses intelligent systems to approach and solve various problems, be they mathematical, logical or related to information processing. They can use specific algorithms and methods to find optimal solutions or make decisions based on the objectives and constraints involved.

It is important to note that Artificial Intelligence can be classified into two main categories: weak artificial intelligence, which refers to specialized systems designed to perform specific tasks, such as speech recognition or machine translation, and strong artificial intelligence, which involves the development of systems that they have general cognitive skills and can understand and solve problems in a wide range of domains.

In conclusion, artificial intelligence refers to the development of systems and machines that can simulate intelligent human behavior and through the use of algorithms and complex mathematical models enable machines to learn, adapt and improve their performance in an autonomous way.

### **The use of artificial intelligence in education**

The use of Artificial Intelligence continues to grow in the education sector. It is becoming increasingly clear to all that it offers many exciting possibilities for the learning outcomes of pupils/students and already promises important help in achieving modern educational goals. We will briefly examine some potential benefits that AI offers to students and teachers.

AI brings benefits and opportunities to education by facilitating personalization of learning, providing instant feedback and improving efficiency in the assessment process. Thus, artificial intelligence can be integrated into online learning platforms, allowing content and activities to be customized according to the needs and knowledge level of each student. Learning management systems can use artificial intelligence to provide personalized recommendations, automatic feedback and monitor student progress. Thus, pupils and students can access relevant materials and resources according to their individual needs. Virtual reality can also help students encourage collaboration and teamwork, and tools like social media can be used to connect students with their peers and instructors.

Furthermore, AI can be used to create tutorials and interactive virtual assistants, systems that can answer students' questions, provide additional explanations, and guide students in real-time through the learning process. Thus, through tutorials and virtual assistance students can benefit from additional support and learn at an individualized pace receiving real-time guidance to support the learning process (Mahendra 2023).

If we talk about *the verification part of learning*, AI can automate many time-consuming administrative tasks in teaching and learning. It could be grading assignments, providing feedback on student work, or even detecting plagiarism. Artificial intelligence algorithms can be trained to recognize patterns and evaluate student responses in various subjects. This allows teachers to receive quick and detailed feedback on student performance, provide personalized interventions based on each student's individual needs, and even save time and resources.

One of the key aspects of the influence of artificial intelligence in education is the ability *to adapt the learning process to the individual needs of pupils/students*. By collecting and analyzing data about student/student progress and performance, AI can identify weaknesses and automatically adapt content and teaching methods to support individual performance improvement. Thus, a personalized and more effective learning experience can be ensured.

A highly effective use of AI is to *forecast performance through data analysis, identifying patterns and trends*. By collecting and analyzing data about student performance and behavior, AI can provide valuable insights into individual performance and make predictions about a student's success or failure. This can help teachers and schools make informed decisions and provide early intervention to support pupils/students.

I am adding here some benefits for *eliminating manual administrative work in schools, colleges and universities*, such as scheduling, rescheduling classes, marking attendance, marking papers, finance and accounting and record keeping. The same can be said for tasks ranging from managing large data sets to processing student requests and coordinating extracurricular activities, large time-consuming activities that can now be outsourced to AI. Also, the administration of the premises often consumes a lot of time. With AI capabilities, these repetitive tasks can be automated - monitoring water and energy consumption, controlling heating or air conditioning. Student transportation falls into the same category, an area where AI can have a major impact.

But while artificial intelligence brings many benefits to education, there are also challenges and concerns associated with its widespread use. These include privacy and security of personal data, lack of human interaction, which can affect the development of pupils/students' social and emotional skills, trust in the system which requires these systems to be transparent and provide clear explanations of how they arrive at conclusions and recommendations.

I believe that the use of artificial intelligence in education brings with it a number of significant opportunities and advantages even if limitations are also identified. From personalizing learning to instant feedback and automated assessment, AI can improve the teaching and learning process, providing a more efficient and effective experience for students and teachers. However, it is important to strike a balance between technology and the human aspects of education.

### **To the Occupations of the future**

The impact of artificial intelligence on future occupations is inevitable and complex. Automation, decision assistance, creation of new jobs, transformation of existing occupations and the need for professional adaptation are some important aspects to consider. It is essential that we anticipate these changes and prepare properly to face the challenges and opportunities that AI brings to the future of our occupations. Through continuous learning, reskilling and personal development, we can take advantage of the advantages that AI brings and successfully adapt to the evolving labor market. We will examine the major directions for the transformation of work in the society of the future and, above all, the need to adapt education to these impending changes.

Thus, one of the most obvious consequences of the introduction of artificial intelligence into the work process is automation, which involves reducing the demand for human labor. AI systems can be trained to take over repetitive tasks and manual work, thereby eliminating the need for human intervention in those areas. For example, in the manufacturing industry, robots and collaborative robot systems have taken over many of the tasks that were previously performed by human workers. Nowadays, more and more companies around the world are using robots to automate their manufacturing processes. In fact, two years ago it was estimated that, by 2025, investments in this field will increase more than 20 times – from 373 million to 12.3 billion dollars. And the pandemic has made the need for producers to adapt to the new challenges much more pressing. So, the segment of these robots is growing (Coşman 2021).

Decision support and performance optimization is the second big area where massive influence will be achieved. Artificial intelligence can support human professionals by providing real-time analytics and insights. AI systems can process and analyze large amounts of data in a fast and accurate way. Thus, they can provide personalized recommendations and solutions, thus supporting the decision-making process in areas such as health, finance or marketing, and human professionals can benefit from strong support in optimizing their performance and providing more efficient and accurate services.

As AI advances, there are occupations that are no longer as necessary, but at the same time, new employment opportunities are emerging. Developing and implementing AI systems requires subject matter experts, data engineers, programmers, and data analysts. These professionals are essential to the design, implementation and maintenance of AI systems. Therefore, technological growth can bring employment opportunities in the field of this and related technologies.

It is already well known that the use of artificial intelligence can completely eliminate some existing occupations, but it can also transform them. For example, in the field of medical services, AI can take over certain tasks, such as analyzing medical images or interpreting patient data. This allows human healthcare professionals to focus more on clinical aspects and patient interaction, thus adding value to their occupation. Therefore, occupations may undergo a transformation where some tasks will be taken over by AI systems and human professionals will focus on more complex and value-added aspects.

In this evolutionary context, adaptation and professional retraining are required every day. Certain occupations may become obsolete or be replaced by technology. Therefore, it is very important that workers engage in continuous learning and develop their digital skills so that they can adapt to technological changes and find new employment opportunities in the digitized economy. Adapting education to changing occupations is essential to prepare the future workforce to face the demands and challenges brought by technological development and Artificial Intelligence. Why is it important to adapt education to the transformations of current occupations? We will make some arguments.

*The relevance of skills:* The occupational transformations involved by AI require a new set of skills and knowledge, different from what has been developed so far. Thus, it is important that education in the workforce find and provide a relevant and up-to-date curriculum that prepares students for the future demands of work. Skills such as programming, data analysis, critical and creative thinking, problem solving and collaboration are becoming increasingly important in the digital age and they need to be created and developed through new programs to meet these demands.

*Encouraging critical thinking and innovation:* AI brings with it opportunities and challenges that require critical and innovative thinking. It is essential that education encourages pupils and students to develop these skills through teaching and assessment methods. By stimulating critical and innovative thinking, individuals capable of adapting to change and generating innovative solutions in the context of new occupations can be formed.

*Flexibility and continuous learning:* Career transformations don't stop with a degree or qualification. In the age of AI, continuous learning becomes essential to stay current and competitive in the job market. Education must promote the idea of lifelong learning and provide opportunities for professional development and retraining for workers in various fields.

*Multidisciplinary approach:* Changes in occupations often bring with them an increased need for a multidisciplinary approach. For example, technology professionals must have a thorough understanding of the social, ethical, and legal issues associated with AI. Therefore, education must promote collaboration between different disciplines and encourage interdisciplinary understanding of complex issues.

*Developing unique human skills:* As automation and AI take over certain tasks, it is important that education focuses on developing unique human skills that cannot be easily replicated by technology. These include communication skills, empathy, creativity, critical thinking and complex problem solving. Education must provide opportunities for the development of these skills and promote holistic education.

In conclusion, adapting education to changing occupations is vital to ensure that the future workforce is prepared for the challenges and opportunities brought by technological development and the widespread use of AI. By promoting the relevance of skills, critical

thinking and innovation, flexibility and continuous learning, multidisciplinary approach and the development of unique human skills, education can play a significant role in preparing individuals for their professional future.

## Conclusions

I believe that there is a reasonable chance that artificial intelligence can and will become part of the workplace of the future in many ways and the future of education is closely related to it. By making learning more accessible and personalized, AI has the potential to revolutionize education for the better. And while the education industry is not yet ready to accept humanoid robots in the classroom, it is clear that Artificial Intelligence has a future in transforming education.

Artificial Intelligence can play a crucial role in personalizing learning, enabling content, pace and teaching style to be tailored to individual students' needs and preferences. Through AI systems, personalized learning programs can be created that foster the development of unique human skills by focusing on each student's specific strengths and interests. AI-based technologies can also facilitate communication and collaboration between students and between students and teachers. These tools can promote the development of unique human skills, such as communication, negotiation or teamwork skills.

AI can be used to give students access to innovative resources and tools, such as design software or creative virtual assistants. These technologies can stimulate creativity and critical thinking, giving students opportunities to explore new ideas, develop their imaginations, and find innovative solutions to complex problems. By personalizing learning, continuous and formative assessment, fostering collaboration and communication, encouraging creativity and critical thinking, and developing complex problem-solving skills, AI can help create a new educational environment that holistically develops the skills essential for success in a world of continuous digitization.

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