

# Opportunities and Challenges Brought by Artificial Intelligence To Education

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## Abstract

**The research based on strong artificial intelligence or super artificial intelligence partly deviates from the actual development of current artificial intelligence technology. Some of the challenges that artificial intelligence brings to education come from itself, some from being abused, and some from the fear of abuse. The big data and machine learning, which are the basic technologies of the third wave of artificial intelligence, are inherently flawed.**

## Keywords

**Artificial intelligence; The digital divide; The quality of education.**

## 1. Introduction

Many current researches on education and artificial intelligence are based on the assumption of strong artificial intelligence or super artificial intelligence. Some scholars believe that there will be "human-machine integration" or "human-machine integration", which will lead to changes in the way and nature of education. Under the condition of the integration of man and machine, the boundary between machine and man will become more and more blurred. Artificial intelligence will replace the human brain and break through the existing relationship between subject and object. As long as a chip containing all knowledge is implanted into the human brain, an encyclopedia-like person will be produced. This kind of person can be called a "data man" or a "superman".

The research based on strong artificial intelligence or super artificial intelligence partly deviates from the actual development of current artificial intelligence technology. The current e-commerce, autonomous driving, voice recognition, machine translation, AI medical and legal services cannot be separated from the set scenes. They all belong to weak artificial intelligence and show common characteristics: (1) No consciousness, do to yourself the matter is not understood in any form. Taking visual imaging as an example, the machine can only detect a bunch of pixels that have changed colors, but cannot understand its cultural background. American philosopher John Sayer proved that the intelligence shown by the Turing Test, no matter how complicated the program design, is only 0 and 1 in the computer memory, not real human intelligence. (2) There is no transfer ability, that is, the ability to accumulate experience, acquire knowledge, and then apply this knowledge to new tasks. There is no ability similar to that of human beings to condense experience into common sense, nor can they independently learn things that have not been programmed. (3) There is no independent will, only serving the goals set by human beings. All algorithms are composed of three parts: representation method, evaluation and optimization. The representation method limits what it can learn, and evaluation determines that it cannot continue to exist if it does not work according to the pre-set goals. (4) Unable to engage in work that requires social intelligence, creativity, perception, and operational abilities. Unable to engage in on-site work, unpredictable work, work that

requires imagination, and work that no one has thought of yet. (5) It is not a body of flesh and blood, and cannot form a "cognition of involvement". Although computers have developed rapidly in the three technologies of vision, natural language processing, and speech recognition, they have not made any progress in understanding human emotions [1]. Even if it can react, it is just a "zombie" without feeling.

As far as learners are concerned, artificial intelligence is conducive to individual learning, ubiquitous learning and full-staff learning. The artificial intelligence-based adaptive learning platform can collect and analyze student learning data and provide personalized learning programs. Ubiquitous learning mode refers to an online learning mode that breaks through the limitations of time, space and region [2]. The advent of the Internet era has not only broken through the time limit of the school curriculum, but also broke through the campus wall and even the space and geographical restrictions of the national border. You can use portable terminals to learn courses in any corner of the world at any time. Online education realizes full learning for all learners. The only possible obstacle is the knowledge base and learning ability. If you do not pursue academic certificates, both entrance exams and course exams can be exempted, which is conducive to lifelong learning and also removes the barriers between general education and vocational education. As long as you are interested and understand, you may be exposed to the most cutting-edge academic dynamics in the world.

## 2. Opportunities Brought By Artificial Intelligence

As far as teachers are concerned, artificial intelligence is conducive to accurately tracking students' learning dynamics, strengthening cooperation among teachers, and freeing teachers from simple and repetitive manual labor. Traditionally, teachers use homework corrections, mid-term or final exams to understand the status of students' knowledge. It is difficult to grasp the progress of each student and there is a lag. The use of artificial intelligence technology is conducive to accurate actual measurement, predictive scheduling, and targeted guidance for teachers. The use of remote technology can achieve "dual-teacher" teaching, that is, cooperation between excellent teachers in remote cities and teachers in rural schools, which will help improve the quality of education. Teachers have long working hours, high labor intensity, and low professional attractiveness. One of the reasons is that there are a lot of simple and repetitive manual labor [3]. Exploiting the advantages of artificial intelligence in knowledge transfer and using intelligent systems to correct assignments (including subjective and objective questions) will help liberate teachers to focus more on creative activities such as knowledge construction, and engage in more spiritual activities such as communicating with students. Really shifting the focus from teaching to educating people will also help alleviate job burnout.

As far as schools are concerned, artificial intelligence is conducive to student management, campus management, and asset management. Using artificial intelligence, schools can allocate dormitories to students, issue reminders of absence, assess mental health, issue student loans, warn campus safety risks, and realize the digitalization of school asset management. As far as the government is concerned, the use of artificial intelligence is conducive to planning school layout and resource allocation, monitoring, evaluation and performance management of schools and educational institutions, promoting home-school cooperation, and reforming teacher evaluation methods [4].

In short, the application of artificial intelligence in the field of education is of inestimable significance for expanding high-quality educational resources, improving the quality of education, and ultimately achieving educational equity. But like every new technology when it first appeared, the general public always did not see the benefits, and suffered first, and it was inevitable to be vigilant and fearful.

### 3. Challenges Brought By Artificial Intelligence

The challenges that artificial intelligence brings to education include at least privacy leakage, digital divide and education alienation. In 2018, the Pennsylvania Department of Education leaked 36,000 education records within 30 minutes, causing great panic in the society.

The digital divide. The intelligent age has brought two types of digital divides to education: insufficient and excessive screen exposure. The former refers to the inability to obtain educational resources due to the lack of smart devices; the latter refers to the excessive indulgence of having smart devices. Some scholars predict that the promotion of artificial intelligence technology in the education field will vary depending on the financial resources of different regions, and that remote or backward areas will be marginalized and reduced to artificial intelligence bystanders. However, the screen exposure time is not as long as possible. Watching the screen for too long can cause children's developmental delay, and the early thinning of the cerebral cortex, which is more likely to cause depression or suicide [5]. In the United States, public schools are still promoting screen devices into classrooms, but private schools have begun to ban such devices. The vision loss and obesity caused by too long screen exposure can also not be ignored [6].

Educational alienation. Education is an activity in which the educated heart inspires the educated mind to form a spiritual bridge and a consensus of values. Its goal is to guide a person into the public world composed of language and promote the transformation from a natural person to a social civilized person. On the contrary, Artificial intelligence is good at storing, retrieving, and executing. It can complete knowledge teaching, but it has neither consciousness nor touch, nor can it recognize or generate value. What can be digitized in educational activities is always superficial and related to specific situations. The infinite, non-linear, emotional nature of student growth, as well as breakthroughs and innovations in the existing knowledge system, cannot be accomplished by machines. Online education has to "lightweight, hotspot, and entertaining knowledge transfer" to compete for the attention of students, which once again highlights this danger.

### 4. Conclusion

Some of the challenges that artificial intelligence brings to education come from itself, some from being abused, and some from the fear of abuse. The big data and machine learning, which are the basic technologies of the third wave of artificial intelligence, are inherently flawed. The output of machine learning depends on the interaction between the basic training data set and the environment. Whether the basic data set is biased or the interactive object shows evil, the algorithm will be "taught" to make it output unacceptable results. But the algorithm is completely open, neither feasible nor desirable. The former is because there is a hidden layer in deep learning, and the latter is because it may infringe on trade secrets or be used by speculators.

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