Sanderman
Publishing House

Research on education risk avoidance strategies under the background of artificial intelligence

Huan Yang, Shi-qing Liu

Faculty of Teacher Education, Huzhou University, Huzhou, China

Abstract. The rapid development of artificial intelligence (AI) is the research hotspot of researchers and educators at present. Especially in recent years, the combination of AI and education has brought a new round of reform. There is widespread public concern to the opportunity AI brings to education, but little attention is paid to the education risks behind it. This paper analyzes the hidden education risks under AI background and puts forth some strategies for avoiding, hoping that AI can better serve education teaching. This is of great significance to the development of AI and education informatization.

Artificial intelligence (AI) formally proposed by McCarthy in the Dartmouth Society in 1956 is one of the important branches of computer discipline [1]. AI is actually an extension of human organs, helping humans walk faster, see further, and do work that only human could do in the past, which, to a certain extent, has emancipated the productive forces. Artificial Intelligence in Education (AIED), also known as "AI plus Education", integrates education with AI to create an adaptive learning environment and develop intelligent tools to promote the development of education [2].

1. Education application of AI

The application of AI in education is mainly reflected in two aspects. On the one hand, AI education is carried out so that students can learn AI. Nowadays, AI courses, such as programming courses and robot education courses, are provided in many colleges and universities to teach students to learn and develop intelligent robots; groups, such as AI learning groups, are also established. On the other hand, requirements are made to learn to use AI technology to educate students under "AI plus" background and promote the reform of education teaching. The development of "AI plus Education", for example, is promoted based on the new teaching model, personalized teaching evaluation and other aspects under AI background, that is, how to organically integrate AI with education. The application in this aspect is discussed below.

1.1. Pre-class preparation based on AI

Pre-class preparation is directed at both teachers and students. Before class, teachers can collect and analyze previous situations in class using AI technology, and generate a teaching guide; teachers can also obtain the learning report of each student, so that they can provide more targeted teaching; meanwhile, teachers can use such technologies as flipped classroom and Microlecture to push some short videos and other contents for students to learn before class, and then students can receive proper content to be previewed, which helps course guide, saving the teaching time and making the teaching task more clear; in addition, on the improvement of the teaching effect, AI can provide teachers with virtual classroom pre-class drills, where there are virtual classrooms and students for teachers to give pre-class trial lectures and improve their teaching.

1.2. Teaching process based on AI

With the deep integration of AI and education, there have emerged a number of online classes, such as "MOOC" and "classroom in the air". Different from the traditional teaching process, many online courses are available for teaching, truly realizing the "4W" model of education, that is, what time, where, how and what people learn. In the information age, people can choose and learn all sorts of resources and truly realize fragmented learning anytime and anywhere. AI technology, in education, can also track students' learning trajectory, record their learning processes, and generate learning files for them. Teachers can choose appropriate personalized curriculum resources for students based on this; the new teaching model of "real teacher plus AI assistant" can also be used, where the AI assistant is responsible for teaching students general knowledge, while the real teacher is responsible for giving specific tutoring and emotional care to make up the deficiencies of AI; besides, many new teaching forms under AI background, such as "synchronous classroom", "Internet plus Education" and "online education", have sprung up, further broadening the channels for students to obtain knowledge and, to a certain extent, alleviating the imbalance of education.

1.3. After-class tutoring based on AI

AI technology truly changes the form of "teaching and learning", and, to a large extent, liberates teachers, parents and students. AI plus education can provide students with accurate after-class tutoring services. Students can take online courses after class, and obtain learning resources or seek help from teachers online; they can also download software for searching and solving problems, such as "Zuoyebang" and "Xiaoyuan Souti". Opportunities brought by AI can provide solutions and tutoring for students anytime and anywhere. Besides, there are also intelligent learning robots that can

provide students with intelligent tutoring, together with the process, thinking, video explanation and others for problem solving; AI technology can also analyze learning conditions for students, and push a series of learning contents for students according to their personalized needs, so as to check problems in their study; during students' learning, AI can supervise students in real time, correct errors intelligently, generate personalized analysis reports and so on, so as to truly promote students' deep learning.

1.4. Information evaluation system based on AI

Teaching evaluation in the past was mainly based on the teacher's classroom observation, homework grade, test score and other aspects, with little attention paid to students' learning process. Relying on the evaluation system under AI background, teaching can achieve personalized test paper generation, namely generating test papers suitable for students of different classes and levels, according to the actual teaching situation and different needs of students; after students complete the test papers, the system can automatically count data and generate personalized evaluation reports to help accurate teaching. For the supervision mode in the evaluation process, besides the teacher invigilation as usual, auxiliary devices such as electronic shield instruments and examination room monitors can also be used to ensure the authenticity of the test to a greater extent. Through accurate information evaluation on students' academic performance, teachers suitable for students' learning conditions can also be provided based on students' differences. The evaluation under AI background is not only more efficient and accurate, but also more comprehensive.

1.5. Education management system based on AI

Education management is an important part of education teaching, and AI technology is also widely used in education management. For example, the intelligent course selection system provides convenience for education, and students can enter the system and choose courses according to their interests and academic needs. In addition, for the class attendance of students, the sign-in software saves teachers' time in roll call and improves the utilization of class; teaching software, such as "Duifene" and "Yuketang", is also springing up, which can be used to easily manage class members, release news and upload homework; the extensive use of the campus security monitoring system, such as monitoring records and door control systems inside and outside classrooms, canteens and campus, greatly facilitates the management work of education managers, and help them supervise the teaching and living conditions in real time, and such visualization of students' learning and life processes can help teachers know students more comprehensively and promote the improvement of the education quality and efficiency.

2. Hidden education risks under AI background

2.1. Invasion of privacy causes data leakage

AI ethics in education is a practical topic that cannot be ignored in the development of education AI [3]. In the era of AI, information can be transferred conveniently and rapidly via the network, and people also take risks while enjoying the convenience. Education big data are required for AI in education, but the acquisition, storage and processing of these data pose a great threat to people, especially the leakage of private information [4]. People's personal, locational and other information are likely to be used by others with ulterior motives, and privacy theft, data leakage and frequent nuisance calls, as well as tailored sales promotion all indicate that privacy leakage has occurred. In the era of big data, students' activities inside and outside school and their personal information, such as family background and social interaction, are completely transparent to teachers and education managers, while students are at the end of the education management chain. Therefore, it is of particular importance to protect students' private information [5]. The use of AI in education may, while improving the quality and efficiency of education, also pose a threat to people's information security.

2.2. Bad information misleads students

With the deep integration of AI and education, abundant learning resources are available on the Internet to students for independent learning and fragmented learning. However, good and bad information is intermingled, and students facing massive information resources are easy to be misled by bad information. Students are young and lack social experience; with limited ability to perceive things, they can hardly distinguish between good and bad information, and are unable to resist bad information. In the face of open learning resources, students may not obtain information that they really need and that are suitable for them, but will be misled and harmed by bad information.

2.3. Emotions, attitudes and values are ignored

In the era of AI, revolution has occurred in the forms of teaching organizations, but problems such as the failure in timely interaction between teachers and students, the failure in timely problem solving, and teachers' failing to pay attention to students' emotions will occur in the long run. In the traditional classroom, students patted on the shoulder by teachers in class can be greatly encouraged, while under AI background, the efficient and convenient classroom helps students obtain knowledge, but ignores the cultivation of students' emotions, attitudes and values. In addition, some

intelligent learning robots, problem-solving Apps and others can hardly take into account students' personalized emotions, attitudes and other aspects while transferring teaching resources.

2.4. Lack of supervision makes students slack off in study

Now we have entered a new era of open learning, independent learning and lifelong learning, when students in the face with abundant information resources can independently learn many things with the aid of the network. However, for this reason, students are not supervised by teachers and depend greatly on independent learning, which may cause themselves to slack off in study to some extent, especially those who have low self-control or even lack consciousness. For example, students in the past must think carefully to complete their homework, while now they only need to take photos using "Baidu" or Apps such as "Zuoyebang" and search for the answers, which easily causes them to copy answers without thinking carefully to complete the assignments from teachers.

2.5. Students develop entertainer personality

After AI enters the school, teachers and students are almost monitored everywhere. Some classrooms are equipped with face recognition systems to record students' class attendance more easily, which also avoids the bad behaviors of answering the roll call for others and urges students to study. However, this also means that to implement data acquisition, every movement of students will be exposed to the face recognition system, from movement analysis to expression, emotion and body analysis, eyeball tracking and other processes [6]. Nevertheless, such evaluation cannot truly judge whether the teaching is "acting" and whether subtle changes in students' expressions can truly reflect students' understanding of what they have learned. How can we judge an expressionless student [1]? Students perform differently in a monitored environment and an unmonitored environment, and those monitored by the system for a long time may easily develop the entertain personality, which may make students hide their nature and influence the development of their personality in the long run.

3. Avoidance strategies of education risks under AI background

3.1. Information technology is used to build a security barrier

With the application of AI in education, many education big data have been generated. Big data are made of various codes, which are easily hacked by hackers and cause information to be stolen. "For instance, in terms of information leakage, the maintenance of the confidentiality, authenticity and integrity of education data by the intelligent system depends on the access and immunity against attack of education data" [4]. Based on the network openness and resource sharing, to further strengthen the network information security, measures can be taken from the following aspects. The first is to strengthen data protection; for example, a more advanced and complex unlocking mechanism can be used to strictly encrypt data to effectively block hackers. The second is to use user security separation mechanism; if a network user is attacked by viruses, they will not spread as before and cause others to be attacked, which can reduce losses in a timely manner. The third is to enhance the improvement of technology by developing more powerful antivirus software, so as to protect network information against viruses and hackers and avoid privacy leakage.

3.2. A green environment is created to support students' study

We can strengthen the purification of the Internet, and control the Internet information more strictly to ensure the Internet environment is safe and healthy. We can monitor the Internet in real time, and set automatic recognition and filtering for false news and rumors; set an online tracking system, and punish those bad information publishers and transmitters once tracked down. In addition, platforms can adopt the real-name authentication and provide a teenager mode for minor students to ensure that they are exposed to content suitable for their age; meanwhile, schools should also strengthen the cultivation of students' information quality, arrange information courses, guide students how to search, identify, screen and use information and enhance their information consciousness.

3.3. Emotions of machines are enriched and teachers provide assistance

Compared with humans, AI is, after all, a machine. Although it has been particularly advanced in many aspects, it is still incomparable to humans in emotions. If the exchanges between teachers and students are blocked by the virtual world and only involve abstract symbols and programmed activities, there will be an emotional lack of humanistic care [7]. Under AI background, attention should also be paid to the cultivation of students' emotions. For instance, we can teach robots to subtly recognize students' facial expressions and the emotions behind these expressions, such as smile and depression; we can also teach robots to recognize students' languages, sounds, actions and other aspects, so that we can encourage or comfort them in time and awaken their feelings. Thus, students can be trained in an all-round way. In addition, machines and networks in the era of "AI plus Education" play an important part in study, but the role of traditional teachers should not be weakened. Teachers and parents should pay more attention to students' emotional development, and help them develop perfect personality and correct values while promoting them make academic progress.

3.4. Resources are controlled strictly, and supervision is strengthened at home and in school

In the era of "AI plus Education", due to the easy access of resources, students may complete their homework without thinking carefully. To avoid this situation, software such as "Zuoyebang" should strengthen its control over resources. Students are required to have related basic knowledge during problem solving, and think about questions according to guidance and complete the solution with the machine; or they need to complete small tasks close to the target resources, and obtain the target answers and problem-solving guidance after completing these tasks. In this way, students can be avoided from completing their homework without thinking. Guiding students to search for answers by steps is more conductive to students than providing the complete answers directly to them; in this process, students can be avoided from slacking off to a great extent while consolidating their knowledge. Moreover, parents and teachers should work together to strengthen their supervision and assistance of students' study and help them develop a good study habit.

4. Conclusion

The advent of the era of "AI plus Education" brings both opportunities and challenges to education. People should master the connotation of "education AI" correctly and look at it from a developmental perspective. With the rapid advance of education informatization, researchers and educators should be rational and alert to the possible risks of AI in education, and take active actions to avoid them, so as to promote the deeper integration of AI and education.

References

[1] MENG Chong, WANG Yi-ning. Artificial Intelligence in Education: Concept Discrimination, Application Worries and Solution[J]. Modern Distance Education, 2021(2):62-69.
[2] WANG Lan, WANG Kai. Artificial Intelligence in Education: Application, Risk and Governance[J]. Heilongjiang Researches on Higher Education, 2020, 38(6):45-49.
[3] ZHAO Lei-lei, JIANG Bei-jia, LI Kai. The Dilemma and Governance Path of Educational Artificial Intelligence Ethics[J]. Contemporary Education Sciences, 2020(5):3-7.
[4] XUE Qing-shui, LI Feng-ying. Security Risk and Solution of Education Applications of Artificial Intelligence[J]. Journal of Distance Education, 2018, 36(4):88-94.
[5] HU Bi-cheng, DENG Jie. Education Reform in the Era of Big Data: Challenges, Trends and Risk Avoidance[J]. Educational Science Research, 2015(6):29-34.
[6] LIU Si-wen. What are the Risks of Artificial Intelligence on Campus[N]. Beijing Business Today, 2019-09-10(16).
[7] FENG Rui, SUN Jia-jing, SUN Fa-qin. Ethical Risk and Rational Choice of Artificial Intelligence in the Application of Education[J]. Journal of Distance Education, 2020, 38(3):47-54.