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Study on the Role and Influence of Artificial Intelligence in the Field of Education

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Abstract: With the development of artificial intelligence, AI intelligence education is a hot issue of concern to the whole society today, and it is also one of the key research topics today. Some researchers have found that the penetration of AI into education is rapidly increasing, but there is still a lack of a unified explanation for its impact. This paper analyzes the penetration and impact of artificial intelligence in the field of education. Found to analysis, artificial intelligence has a great role in promoting the development of education. But at the same time, the combination and popularization of artificial intelligence and education will also bring corresponding problems. Therefore, this paper suggests the rational use of AI, letting AI become the auxiliary tool rather than allowing AI to replace the work. At the same time, attention should also be paid to achieving true educational equity to promote a real balance between AI and education.

Keywords: AI, Educational Equality, Intelligent Education.

1. Introduction

With the development of science and technology, artificial intelligence technology has made great progress in recent years. Artificial intelligence has now been able to be applied to many fields, bringing great and profound impact on people's production and life. Moreover, with the continuous deepening of artificial intelligence technology in the education industry, the combination of artificial intelligence technology and education has become a hot topic of discussion at present, and it is also a big change in the education industry itself [1]. Since 2016, the state has issued several documents to point out the importance of combining AI with teaching and has made many relevant plans for this. Education is vital to the development of countries, not only driving scientific and technological progress and economic growth but also helping to build harmonious societies and reduce poverty and inequality. Education is also an important carrier of cultural inheritance and innovation, which connects the past, present, and future, ensuring the continuity of cultural diversity and social pluralism. In short, education is the ladder of individual growth, the engine of social progress, and the cornerstone of national development. Based on this, this paper will reveal the problems faced by the gradual popularization of AI education by analyzing the role of artificial intelligence in the development of education and then put forward some targeted suggestions to promote the vigorous and long-term development of science and technology education.

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2. The Positive Impact of the Application of AI in Education on Students

2.1. Conductive to Enlightenment Teaching

With the aging of the population, the two-child, three-child policy has opened, and young children will become the majority of the total population in the future. Such a huge market for young children makes many businesses smell potential opportunities. Industries such as children's products, children's animation, and artificial intelligence education have developed rapidly [2]. First of all, the penetration of family education in the era of artificial intelligence is huge. The use's age of electronic products is getting younger and younger, especially with mobile phones and iPads, many children have begun to contact. The use time of electronic products is increasing. In the past, parents always told their children to watch less TV, and they should go outside to exercise more. Now, children's electronic products are mostly used for more than one hour every day. The types of electronic products show an increasing trend of content, people's lives have seen not only computers, mobile phones, and other traditional electronic products, but telephone watches, story machines, and other electronic products have penetrated the daily lives of children. Among them, the early education robot is one of the most advanced early education methods on the market at present, and the usually interesting and cute robot dolls can directly talk to children and make friends with them. Secondly, the combination of artificial intelligence and early childhood education will be more interesting. For example, in some puzzle games, children can complete simple levels with their left and right fingers, but as the levels become more difficult, children need to use more fingers to adapt. In all kinds of parkour games, children need to control the direction with the left thumb, and control the speed and running and jumping with the right hand to play the game. This is more popular with children than those simple puzzle games in kindergarten, and the effect is remarkable. Therefore, the combination of artificial intelligence and enlightenment education can enhance the interest of enlightenment teaching, so that children can easily learn a lot of things at that age [3].

Finally, artificial intelligence increases the ways and contents of knowledge acquisition in early childhood education. The world is vast, and children are full of curiosity about the world, due to time and geographical limitations, a lot of knowledge can not be directly acquired. At this time, through simple electronic products, or VR technology, children can be immersive and gain a wealth of knowledge. It can be seen that artificial intelligence is gradually changing the traditional way of young children's lives, learning, and entertainment.

2.2. Enriched the Way Students Learn

In addition to the penetration of artificial intelligence in early childhood education, artificial intelligence also enriches the way students learn [4]. To ensure the safety of people throughout the country, the online intelligent teaching platform suddenly swept the country during the pandemic. These platforms break down the constraints of time and space, allowing students to participate in classes from their own homes. After the epidemic, intelligent teaching entered a period of rapid development. Firstly, AI technology can provide customized learning solutions based on students' learning habits. The intelligent teaching system will analyze students' learning content and progress, and automatically adjust the teaching difficulty to ensure that each student can get a learning experience suitable for their own. Secondly, AI technology interacts with students through virtual teachers, online classes, intelligent games, and other forms. This can greatly stimulate students' learning interest and enthusiasm, improve students' participation, and make them more actively participate in the learning process. Finally, this is the most important aspect. The application of AI in teaching has changed the traditional teaching model to a certain extent, making teaching more personalized and diversified. At the same time, AI has also promoted the transformation of the role

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of teachers from knowledge disseminators to learning facilitators, requiring teachers to adapt to new technologies and work with machines in a reasonable division of labor and collaboration. Another special example is an education policy called "double reduction". The policy aims to further reduce the homework burden and off-campus training pressure of students in compulsory education, and the policy promotes the development of online intelligent teaching [5]. Since then, a large number of recorded courses have appeared in the public eye, which enables students to choose courses at different points according to their conditions, making students' learning more accurate. Overall, the application of AI in education has profoundly changed teaching methods and learning outcomes, providing students with more personalized, interactive, and autonomous learning opportunities.

2.3. AI Enhances Universal Education

The positive effects of AI can also be seen in enhancing universal education [6]. For example, the application of artificial intelligence technology in museums is already very widespread, from intelligent Tours to digitally enabled exhibitions, providing visitors with a more in-depth, interactive experience. At Zhengzhou Museum, visitors only need a mobile phone to scan the code to enter the museum under the guidance of "AI docents". This makes it easier and more in-depth to understand the information related to cultural relics when visiting historical relics and also increases the knowledge related to history. Not only that, AR guiding glasses can also allow visitors to place themselves in the ancient world and experience the wonderful feeling of "encounter" with the prehistoric giant Nama elephant. At the same time, the cooperation between the Palace Museum and Amap is committed to building digital twin technology for large-scale comprehensive museums and enhancing the leading role of intelligent technology in the museum industry. The application of artificial intelligence in museums has not only greatly improved the visitor experience, but also enhanced education for all through efficient digital management, cultural relics protection, and intelligent services. In addition, more closely related to the lives is the progress of entertainment software, such as TikTok and RED. Now these entertaining software for people seem to be no longer just for entertainment, there used to be a saying "If you do not know something, just go to Baidu", and contemporary young people seem to be more willing to go to the entertainment software like Tiktok or RED to find answers. This software will also analyze search keywords to show some relevant videos. To sum up, with the development of science and technology, there are now more and more learning channels for people to choose apart from the traditional classroom. Not only in school, through AI technology synthesis, there are many places in daily life can learn knowledge.

3. The Problems Faced by the Gradual Popularization of Education

In students' independent study, although the application of AI technology has brought many changes and other positive effects to traditional teaching, it is also accompanied by a series of negative effects.

3.1. The Negative Role of AI in Students' Independent Learning

First and foremost, it will weaken students' ability to think independently. Students may rely too much on AI technology, which will reduce the opportunities for students to solve problems on their own. In the long run, this may weaken students' ability to learn independently. For example, in some question search apps, students will put the problem into these software to get the answer the first time, instead of thinking by themselves or seeking help from teachers. The negative impact on the field of translation is also significant. Machine translation follows algorithmic design and has a solid translation model. However, as a complex inter-linguistic, cross-social, and cross-cultural human communication activity, translation carries the complexity of human language, because the conversion between different language systems inevitably involves language differences, cultural

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differences, differences in ways of thinking, audience expectations, translators' subjectivity, and many other issues. The limitations of machine translation will inevitably bring impact and challenge to the cultivation of students' cross-cultural communication ability and their ability to think independently [7]. Secondly, the popularization of AI education may affect students' knowledge understanding too shallowly, that is, the quick solutions provided by AI may encourage students to learn on the surface, rather than deeply understand and master knowledge.

In addition, it may also cause some potential problems, such as marginalizing the role of teachers and influencing the relationship between teachers and students. The involvement of AI may blur the role of teachers, from traditional knowledge providers to technical operators or monitors. Teachers may also question their professional worth and feel challenged by the widespread use of AI. With the intervention of artificial intelligence in the field of education, teachers have become the constructors of learning situations, the motivators of learning, the promoters of personality education, and the core pursuers of moral cultivation. These changes require teachers not only to have traditional educational teaching capabilities but also to constantly learn and master new technologies to adapt to an increasingly intelligent and digital educational environment.

3.2. Educational Inequity

In addition to the negative impact of self-directed learning, this also raises serious concerns about educational equity. Educational equity is an important issue in the global education field, and the intervention of AI technology may exacerbate existing inequities and even create new inequities [8]. The first is the difference in equipment and infrastructure. Relatively developed areas and some key schools usually have more advanced educational technology and infrastructure, while schools in less developed areas and remote areas cannot afford such high technology costs. From the perspective of the distribution of domestic higher education resources, there is a serious regional imbalance in eastern, central, and western education resources. This difference can lead to the uneven distribution of AI education resources among various regions, which further widens the inequality of educational opportunities. In addition to regional economic differences, family economic conditions also play a role. AI education often requires high costs to purchase hardware equipment, which is not a small cost for some families with poorer economic conditions. Therefore, family economic differences will also lead to unequal educational opportunities to some extent. Secondly, the "algorithmic discrimination" of intelligent educational technology covers up educational justice. Algorithms are computer programs and the core elements of artificial intelligence technology. Algorithmic discrimination refers to the seemingly innocuous design of AI programs, but the designer or data resource itself contains discrimination and bias. The cover-up of "algorithm discrimination" to educational justice is mainly manifested in the fact that many intelligent education products only recognize the algorithm of "test score = education effect", and directly set students' learning performance as the final learning goal. This algorithm covers up the justice and fairness of education so that students have a kind of illusion that everyone can improve learning efficiency through education intelligence. At the same time, the "exam-oriented" of artificial intelligence education also weakens educational justice. This exam-oriented education model makes education in the era of artificial intelligence "score is everything", thus deviating from the direction of educational justice. Many educational applications of AI are also aimed at the huge market of improving test scores.

4. Suggestions for the Development of AI Education

4.1. Suggestions for Students' Independent Learning and Schools

With the rapid development of artificial intelligence technology in the field of education, the ways and strategies for students to learn independently are also evolving. Therefore, to adapt to this change

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and take full advantage of AI, students need to adopt some new approaches and strategies when it comes to self-directed learning [9]. First of all, students should make reasonable use of AI, improve their self-management ability, and use intelligent assistance to improve learning efficiency. Students should actively interact with AI in the learning process and deepen their understanding through exercises and analysis pushed by intelligence. For example, using AI tools to simulate experiments or demonstrate complex problems to enhance hands-on experience. Secondly, students should pay attention to the cultivation of self-critical thinking and problem-solving skills. While AI provides a great deal of convenience, students should maintain critical thinking and think independently of the information provided by AI. In the learning process, students should be encouraged to explore the principles and logic behind the information, rather than blindly accept and follow. As students, actively adapting and optimizing their autonomous learning strategies in an AI education environment is the key to keeping pace with time and realizing their potential. As for the suggestions for schools, first of all, the training of teachers and students' artificial intelligence literacy should be strengthened. Schools should let students and teachers face smart devices and make choices according to the specific learning situation of each class. Secondly, schools should increase capital investment, and build intelligent teaching environments, equipped with advanced intelligent teaching equipment and resources. At the same time, schools should organize technical training to strengthen teachers' applied literacy and operational skills. In the daily teaching practice, teachers should pay attention to encouraging students to embrace intelligent teaching, cultivate students' positive attitudes and intelligent literacy, and lay a foundation for students to transition to advanced learning and adapt to the future intelligent society [10].

4.2. Suggestions for Achieving Equity in Education

In addition to the improvement of students' autonomous learning efficiency, the educational justice of the whole society should also be paid attention to. First of all, the popularization of technology and the construction of infrastructure should be promoted. Governments and educational institutions should increase investment in technical support and infrastructure construction in less developed and remote areas to ensure that students have equal access to AI education resources. For example, through financial subsidies, public projects, and other ways to improve the digitization level of these underdeveloped areas. Secondly, the innovation and improvement of policies and institutions are also important. The government has formulated a clear AI education development strategy and set up a special fund to support the research development and promotion of AI education. At the same time, gradually improve the existing education system and assessment standards, so that it is more in line with the educational needs of the AI era. Finally, eliminating the "algorithm discrimination" of intelligent education is the technical condition to realize educational justice. The first is to adhere to the principle of "people-oriented", and different users should not be automatically screened or graded because of racial differences, rich and poor, and regional differences. The second is to adhere to the principle of openness and transparency and try to avoid some people for commercial interests or self-expression, to embed tendentious program instructions in the design of algorithms. The third is the principle of accountability if the violation of ethics laws and regulations bears the corresponding legal responsibility. To sum up, although the development of AI education brings unprecedented opportunities, it is also accompanied by many challenges and inequities.

5. Conclusion

This study finds that the combination and popularization of artificial intelligence and education play a diversified role. The first is the combination of artificial intelligence and early childhood education products, which enhances the fun of enlightenment teaching so that children can easily learn a lot of

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things in early childhood. The second is the application of artificial intelligence in school teaching, which has profoundly changed the learning style and learning effect of students, and is also an unprecedented revolution in traditional teaching. In addition to classroom teaching, artificial intelligence is becoming more and more common in daily life, not only in students, so that everyone can enjoy the diverse teaching that artificial intelligence brings to people in life. But everything always has two sides, the combination of artificial intelligence and teaching and promotion also brings some negative effects. The first is that students may rely too much on artificial intelligence and are no longer willing to think independently. The second is to exacerbate the unequal distribution of resources because some economic factors will lead to not all students having access to the same resources. To solve these problems, students should have the ability to think independently and make reasonable use of artificial intelligence. At the same time, the education justice of the whole society should also be paid attention to, to realize the real education justice and universal benefit. The main contribution of this paper is to unify the impact of the combination of artificial intelligence and education, which is conducive to the public's more correct understanding and use of artificial intelligence. However, this study is not accurate enough in some points of view, so it can be further refined in the future to facilitate the in-depth study of this topic.

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