

Current Situation and Countermeasures of Teaching Classroom in the Context of Artificial Intelligence

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Abstract: The purpose of this paper is to discuss the status quo of the teaching classroom under the background of artificial intelligence as well as the existing problems, and put forward corresponding countermeasures and suggestions. First of all, this paper outlines the application of artificial intelligence in education, including intelligent teaching system, personalized recommended learning resources, etc., and introduces the changes in teaching mode, such as flipped classroom and online education. Meanwhile, the change of teachers' roles and the change of students' learning styles are also important features of the teaching classroom in the context of artificial intelligence. However, there are some problems in the teaching classroom in the context of artificial intelligence. Technical problems are one of them, including the stability of the system and the accuracy of data. The issue of educational equity is also not to be ignored, as the gap in technological resources leads to inequity in learning opportunities among students. In addition, teacher training issues and student privacy protection issues are also important issues that need to be addressed. In order to address these issues, this paper presents some countermeasures and recommendations. Technological improvements are necessary, including improving the reliability of the system and protecting the security of data. Policy support is also key, and the government should increase investment in AI education and promote the balanced distribution of educational resources. In addition, teacher training and development is also important. Teachers should improve their educational technology skills and adapt to the needs of teaching in the context of AI. At the same time, the protection of students' rights and interests is also necessary, and relevant laws and regulations should be formulated to protect students' privacy and rights and interests.

Keywords: Artificial Intelligence; Teaching Classroom; Status Quo; Countermeasures; Educational Equity.

1. Introduction

With the continuous development of science and technology, artificial intelligence has gradually entered the field of education and has had a profound impact on the traditional teaching mode. The study on the status quo and countermeasures of teaching classroom under the background of artificial intelligence aims to explore the status quo of the application of artificial intelligence in education, analyze the existing problems, and put forward corresponding countermeasures and suggestions to promote the reform and development of education under the background of artificial intelligence.

2. Status Quo of Teaching Classroom under the Background of Artificial Intelligence

2.1. Overview of the Application of Artificial Intelligence in the Field of Education

Artificial intelligence is a hot topic that has attracted much attention in recent years, and its application in the field of education has gradually shown great potential. The development of artificial intelligence technology has had a profound impact on the teaching mode, the role of teachers, and the way students learn.

First of all, artificial intelligence technology provides the possibility of innovation in teaching mode. Through the intelligent education system, personalized teaching can be carried out according to the characteristics and needs of each student, realizing differentiated teaching and personalized tutoring. The intelligent education platform is able to provide

students with learning resources and suggestions that are suitable for their development according to their learning progress and abilities, thus improving learning results. Secondly, AI technology has brought about a shift in the role of teachers. The traditional teacher's role is mainly a knowledge transmitter and instructor, while in the context of artificial intelligence, the teacher's role is transformed into a learning guide, an educational innovator and a user of intelligent educational tools. Teachers can save time and energy and better focus on students' learning needs and development by using smart educational tools for classroom management and student assessment [1]. In addition, AI technology has positively impacted the way students learn. Students can obtain richer learning resources and personalized learning recommendations through intelligent education platforms to improve learning interest and effectiveness. At the same time, AI technology can also realize intelligent assessment and feedback, helping students better understand their learning situation and adjust their learning strategies. However, the application of AI in education also faces some challenges. First, there is an imbalance in the popularization and application of the technology, leading to the problem of educational equity. Second, teachers need to adapt to the educational changes in the context of AI by training and developing accordingly. In addition, the protection of students' privacy and rights and interests is also an important issue that needs to be paid attention to in the process of AI application.

2.2. Changes in Teaching Mode

In the context of artificial intelligence, the teaching mode has experienced profound changes. First of all, the traditional teacher-centered teaching mode has gradually changed to a

student-centered teaching mode. The application of artificial intelligence technology makes personalized teaching possible, and teachers can provide customized teaching resources and services according to the learning needs and progress of each student, thus improving the teaching effect [2]. Second, classroom teaching becomes more interactive and lively. Artificial intelligence-assisted teaching tools, such as virtual reality and augmented reality, can provide rich teaching resources and interactive experiences, make abstract knowledge concrete and intuitive, and stimulate students' learning interest and enthusiasm. In addition, the application of artificial intelligence technology has changed the way of teaching evaluation. The traditional evaluation method based on test scores is gradually changing to process evaluation. Artificial intelligence can collect and analyze students' learning data to help teachers find students' learning problems in a timely manner and provide targeted guidance, thus improving the learning effect.

In general, the application of artificial intelligence technology makes the teaching mode more flexible, personalized and efficient, which helps to improve the quality of teaching and learning effects. However, at the same time, we should also pay attention to the problems and challenges that may be brought about by the application of AI technology in teaching, such as technological dependence, educational equity, etc., which need to be fully considered and solved while promoting the application of AI [3].

2.3. Transformation of Teachers' Roles

Firstly, the development of AI frees teachers from heavy teaching tasks and gives them more time and energy to pay attention to the individual needs of students. AI technology can handle a large amount of data analysis and provide students with personalized learning suggestions and resources, while teachers can focus on guiding students to deep learning and critical thinking. Second, the role of the teacher changes from a transmitter of knowledge to a facilitator of the learning process. With the application of AI in education, students can access knowledge through online platforms and smart educational software, while teachers need to guide students on how to apply this knowledge and develop their innovation and problem-solving skills. In addition, teachers need to constantly update their knowledge and skills to adapt to the changes brought about by AI. In the age of AI, teachers are no longer the only source of knowledge; they need to cooperate with AI technology and utilize the advantages of AI to improve teaching and learning [4].

2.4. Changes in Students' Learning Styles

In the context of AI, the way students learn is undergoing a profound change. While the traditional learning mode usually involves passive acceptance of knowledge, today, students can achieve more active and personalized learning through intelligent educational platforms and tools. Artificial intelligence technology provides students with a wealth of learning resources, making learning no longer limited by time and place. Through online platforms, students can access the learning materials they need anytime, anywhere, and communicate and collaborate with learners around the world. In addition, AI is able to provide personalized learning advice and tutoring based on students' learning habits and abilities. By analyzing a student's learning data, the AI system can recommend learning content that is appropriate for the student's level and provide targeted practice and guidance.

Such a personalized learning approach can better meet the individual differences of students and improve the learning effect and learning interest [5]. At the same time, AI also brings more interactive and participatory learning experiences. Students can learn immersively through virtual reality technology and smart devices to experience and explore knowledge firsthand. In addition, AI-assisted classroom discussions and problem-solving sessions can stimulate students' thinking and creativity and develop problem-solving skills. However, changes in the way students learn also pose some challenges. For example, students may rely too much on technology and neglect the development of basic knowledge and interpersonal skills. At the same time, students need to have a certain degree of information literacy to be able to properly evaluate and filter information resources on the Internet. Therefore, educators need to guide students to use artificial intelligence technology reasonably and cultivate their critical thinking and independent learning ability.

3. Problems in the Teaching Classroom in the Context of Artificial Intelligence

3.1. Technical Problems

In the context of artificial intelligence, the technical problems of the teaching classroom are becoming more and more prominent. First of all, the application of artificial intelligence technology requires strong hardware support, and not all schools and classrooms are equipped with high-performance computers and network equipment, which leads to limitations in the application of artificial intelligence technology. Second, AI technology is rapidly updated, and schools and teachers need to constantly update their knowledge and skills to keep pace with the technology. In addition, the use of technology has brought about new educational problems. For example, students' over-reliance on technology may reduce their ability to learn independently; teachers' over-reliance on technology may reduce their ability to teach. Therefore, while promoting AI technology, it is necessary to pay attention to these problems and find solutions [6]. On the one hand, the government and schools should invest more in improving the performance and quantity of teaching equipment to ensure that all teachers and students can enjoy the convenience of AI technology. On the other hand, schools and teachers should also improve their own educational technology and master the use of new technologies in order to better serve students. At the same time, we also need to guide students to use technology correctly, avoid over-dependence, and cultivate their independent learning ability and innovative spirit. In addition, we need to pay attention to the ethical issues in the use of technology. For example, how AI systems handle students' personal information and how to ensure that students' privacy rights are protected. These issues need to attract the attention of education management departments and schools to formulate appropriate policies and norms to ensure that the use of technology in education will not have a negative impact on students.

In conclusion, in the context of artificial intelligence, the technological problems in the teaching classroom are both a challenge and an opportunity. Only by properly solving these problems can we give full play to the potential of AI technology in the field of education and create better

conditions for the growth and development of students [7].

3.2. Problems of Educational Equity

First of all, the application of AI technology may lead to the unbalanced distribution of educational resources. Due to the differences in the level of economic development, talent reserves and technical conditions between regions, there is a large gap between the degree and quality of AI education. Developed regions and advantaged schools are able to make full use of AI technology to improve the level of education and teaching, while less developed regions and weak schools may be difficult to enjoy the fruits of education reform brought about by AI due to the lack of necessary technical support and financial investment. Second, the use of AI in the teaching process may exacerbate the digital divide among students. Not all students have equal access to and use of smart devices; students from better-off families can be more skillful in using AI tools and thus gain an advantage in learning and application, while students from less well-off families may be at a disadvantage in this regard. In addition, the challenges of educational equity are exacerbated by the demands of AI on teacher quality. Teachers in the context of AI need to possess not only professional knowledge and teaching ability, but also the ability to master the application of appropriate technology. This undoubtedly puts forward higher requirements on the overall quality of teachers, and such requirements may be an insurmountable obstacle for teachers in some remote and rural areas [8].

3.3. Problems of Teacher Training

First of all, the content of teacher training is out of touch with the actual needs. Traditional teacher training courses are mainly centered on pedagogy, psychology and other educational theories, while the teaching classroom in the context of artificial intelligence requires teachers to master certain technical knowledge and application capabilities. However, the existing training courses often neglect this aspect, resulting in teachers' difficulty in using AI technology for effective teaching in actual teaching [9]. Secondly, the teacher training method is single. Traditional teacher training mainly adopts centralized lectures, seminars and other forms, while the teaching classroom under the background of artificial intelligence requires teachers to have innovative thinking and practical ability. Therefore, a single training method is difficult to meet the diverse learning needs of teachers, which affects the training effect. In addition, teacher training resources are unevenly distributed. In China, high-quality teacher training resources are mainly concentrated in urban areas, while teachers in rural and less developed areas are often difficult to enjoy these resources. This leads to a large gap between the teaching ability of urban and rural teachers in the context of artificial intelligence, further aggravating the phenomenon of educational inequality.

In conclusion, the problem of teacher training in the context of artificial intelligence needs to be solved urgently. By reforming the training system, enriching the training content, innovating the training method, optimizing the allocation of resources and other measures, it is expected to improve the teaching ability of teachers in the context of artificial intelligence, and contribute to the development of China's education [10].

3.4. Student Privacy Protection Issues

In the teaching classroom under the background of artificial

intelligence, the problem of student privacy protection is becoming more and more prominent. First, the application of AI technology in teaching makes students' personal information and learning data widely collected and analyzed. The collection and utilization of these data may violate students' privacy and even be abused or leaked. Second, AI teaching systems may monitor and assess students' behavior, which may result in students' behavior being monitored inside and outside of school, thus violating students' privacy. In addition, due to the popularization of AI technology, students may inadvertently disclose personal information, such as home address and contact information, when using intelligent educational products, which may be used by unscrupulous elements and pose security risks to the students themselves and their families.

4. Countermeasures and Recommendations

4.1. Technical Improvement

Technological improvement is the key to solving the problem of teaching classroom in the context of AI. First, schools and educational institutions should invest in more advanced AI educational tools to improve teaching effectiveness and students' interest in learning. These tools can include intelligent teaching platforms, virtual reality devices, and intelligent homework correction systems [11]. Second, the education sector should encourage and support the research and development and innovation of AI educational technologies. This includes developing AI algorithms that are more suitable for educational scenarios, improving the level of intelligence of smart educational tools, and adding more practical functions to meet the needs of teachers and students. In addition, in order to enable more schools to use AI education technologies, the government and relevant organizations can provide financial support to help schools purchase and install these devices. At the same time, publicity and promotion of AI educational technology should be strengthened to increase teachers' and students' awareness and acceptance of AI educational technology. Finally, in order to ensure the effective application of AI educational technology, schools and educational institutions should establish a perfect management and maintenance system to ensure the normal operation and safety of the equipment. At the same time, teachers should also receive relevant training to improve their proficiency and ability to use AI education technology.

In conclusion, technological improvement is the key to solving the problems of teaching classrooms in the context of AI. By investing in the purchase of advanced AI educational tools, encouraging R&D and innovation, providing financial support, strengthening publicity and promotion as well as establishing a sound management and maintenance system, the application level of AI educational technology can be effectively improved, thus enhancing the quality of teaching and the learning effect of students [12].

4.2. Policy Support

Policy support plays a crucial role in the improvement of teaching classroom in the context of artificial intelligence. First, the government should formulate appropriate policies to promote the development and application of AI educational technology. This includes providing financial support, encouraging R&D and innovation, and promoting

cooperation between educational institutions and enterprises to jointly develop AI tools that are more suitable for teaching. Second, policies should also aim to address the equity issues that exist in AI education. This means ensuring that all schools, teachers and students have equal access to advanced AI education technologies. The government can provide hardware and software resources, especially for schools and teachers and students in less economically developed areas, in order to narrow the education gap between urban and rural areas and regions. In addition, policymakers need to consider how to protect students' privacy and data security. In AI teaching, students' personal information may be collected and used, so there must be strict data protection measures and policies to ensure that students' privacy is not violated. The government should formulate relevant laws and regulations to regulate the use and protection of educational data, as well as strengthen supervision to ensure the implementation of policies [13]. Finally, policies should also focus on the role and training of teachers in teaching AI. The government can provide professional development opportunities, such as training courses and workshops, to help teachers master the use of AI educational tools and improve their teaching skills and confidence. At the same time, policymakers should also encourage teachers to participate in the research and development of AI education so that they can become active participants in educational innovation.

In summary, policy support is the key to promoting the improvement of teaching classrooms in the context of AI. By formulating a reasonable AI education policy, we can ensure the fair popularization of the technology, protect the privacy rights of students, and enhance the teaching ability of teachers, thus creating a better prospect for the future of education.

4.3. Teacher Training and Development

In the context of AI, the role of teachers is facing a major shift. The traditional way of transferring knowledge is gradually replaced by intelligent educational tools, which requires teachers not only to have professional educational skills, but also to be proficient in AI-related technologies. Therefore, teacher training and development has become a top priority.

First of all, teacher training should focus on the updating of educational concepts. In the era of artificial intelligence, the goal of education is not only to impart knowledge, but also to cultivate students' innovative ability, critical thinking and collaborative ability. Teachers need to change their educational concepts, pay attention to students' individualized needs, and stimulate students' potential [14]. Second, teacher training should strengthen the teaching application of AI technology. Teachers need to understand the current situation and development trend of the application of AI in the field of education, master the use of intelligent educational tools, integrate them into daily teaching, and improve the teaching effect. In addition, teacher training should also focus on mutual assistance and cooperation among teachers. Teachers can share their experiences and insights of AI teaching by participating in seminars and workshops, discussing the problems encountered in teaching together, and promoting the common growth of the teacher group. Meanwhile, teacher training should focus on the improvement of practical operation ability. Through practical operation, teachers can better understand the application of AI technology in teaching and improve their problem-solving ability. In addition, teachers should pay attention to the learning process of

students, learn to use AI technology to analyze students' learning data, and provide personalized guidance for students [15]. Finally, teacher training and development should also include the reform of the evaluation system. Traditional test scores can no longer fully evaluate students' abilities, and teachers need to learn to use artificial intelligence technology to build a diversified evaluation system to comprehensively and objectively evaluate students' comprehensive quality.

In short, in the context of artificial intelligence, teacher training and development is crucial. By continuously improving teachers' educational concepts, technical application ability, collaborative spirit and evaluation system, we can better cope with the challenges of education in the era of artificial intelligence and create a better future for students.

4.4. Student Rights and Interests Protection

First of all, student privacy protection is an important aspect. With the application of AI technology, teachers and schools can access more student data, including learning habits, grades, and even personalized feedback. While the collection and analysis of these data undoubtedly provides students with a more personalized educational experience, it may also violate students' privacy. Therefore, schools and teachers need to strictly comply with relevant laws and regulations to ensure that students' personal information is properly protected from being accessed and used by unauthorized third parties. Secondly, students may also face some unfair treatment in the process of receiving AI-assisted teaching. For example, if schools fail to be fair and reasonable in introducing AI technology, it may lead to uneven distribution of resources, making some students unable to enjoy advanced educational resources and teaching modes. Therefore, the education sector should formulate appropriate policies to ensure that the introduction and application of AI technologies will not exacerbate educational inequality but will promote educational equity. In addition, students need to be fully informed and engaged about the use of AI technologies. Students should be informed about how AI is used in teaching and learning, how data is collected and processed, and the possible risks and implications. Students' parents and educators should also strengthen the cultivation of students' awareness of their rights and interests, and educate them on how to properly use AI tools to protect their rights and interests.

In conclusion, the protection of students' rights and interests in the teaching classroom under the background of artificial intelligence is an important issue that cannot be ignored. By strengthening compliance with laws and regulations, policy support, and the active participation of students and parents, we can ensure that the application of AI technology in education can better serve students and promote their overall development and growth.

5. Conclusion

In the study of the status quo and countermeasures of the teaching classroom in the context of artificial intelligence, we have explored in depth the application of artificial intelligence in the field of education and the changes it has brought about in the mode of teaching, the role of teachers and the way of student learning. At the same time, we also identified problems in the AI teaching classroom, such as technical problems, educational equity problems, teacher training problems and student privacy protection problems. In response to these problems, we propose a series of

countermeasures and recommendations. First, the technology needs to be improved to enhance the stability and reliability of the AI teaching system, and the network security protection should also be strengthened to protect students' private information. Second, the government should introduce relevant policies to support the application of AI in education and promote the development of education informatization. It is also necessary to strengthen the training and development of teachers and improve their IT literacy so that they can skillfully use AI teaching tools. Finally, it is necessary to protect the rights and interests of students, establish a perfect student information management system, and strengthen the protection of students' personal information.

In general, artificial intelligence brings many new opportunities and challenges to the teaching classroom. Only through in-depth study of the current situation of AI teaching classroom, finding out the existing problems, and putting forward effective countermeasures and suggestions can we better promote the application of AI in the field of education, and achieve the development goal of modernization of education and personalized education.

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