Research on the Application of Artificial Intelligence in Teaching

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Abstract: Human beings are entering the era of artificial intelligence. The impact of artificial intelligence on education has become increasingly prominent, and more and more schools have applied artificial intelligence to education and teaching. From the three aspects of teachers, students and teaching content, this paper explores the changes brought by artificial intelligence technology to teaching and the problems and reflections in application.

1. Introduction

Since the beginning of the 21st century, global scientific and technological innovation has entered an era of unprecedented and active activity. A new round of scientific and technological revolution and industrial transformation is reshaping the global innovation map and reshaping the global economic structure. In March 2016 [1], Alpha Go and Li Shishi performed a go-to-man war between the nine segments. Finally, the Alpha dog won, and artificial intelligence once again won the attention of the world. In recent years, with the development of artificial intelligence, terms such as "artificial intelligence + education" and "smart classroom" have gradually appeared in the public view. The impact of artificial intelligence on education has become increasingly prominent, and more and more schools have applied artificial intelligence to teaching. Based on how artificial intelligence applies this hot topic in teaching, express its own views [2].

2. Analysis and Problem Exploration

The teaching methods of artificial intelligence technology bring changes to teaching. According to the three-element theory, teachers, students, and teaching content constitute the unit of teaching activities. Now explore the changes that artificial intelligence technology brings to teaching from three aspects: teachers, students and teaching content. The application of artificial intelligence in teaching has been welcomed by most educators and researchers to become the new favorite in education and teaching [3]. But calm down, you will find that there are still many problems in artificial intelligence in our country, and we express our opinions on the immature technology, the lack of attention to artificial intelligence and the lack of artificial intelligence teachers.

2.1. The changes that artificial intelligence brings to teachers' teaching.

Artificial intelligence has become a teacher's assistant to help teach. In the future, artificial intelligence will play a more important role in teaching as a personal assistant to teachers, providing personalized and accurate teaching. Teachers can use artificial intelligence technology and big data to more accurately grasp the overall situation of teaching, obtain teaching feedback, analyze student performance, predict student performance, find students with problems [4], implement teaching intervention in a timely manner; reflect on teaching methods and discover teaching rules; Artificial intelligence is used to analyze student's academic situation. Teaching is a two-way interactive process, so the analysis of academic conditions cannot be ignored. Use artificial intelligence to understand the class atmosphere, as well as each student's mastery of subject knowledge, study habits, learning attitudes, and ways of thinking. Teachers apply emotion recognition technology to identify students' micro-expressions, comprehensive data analysis from points of interest, attention and other aspects to understand the cognitive focus of different students, thereby further designing

teaching activities, optimizing teaching programs, and designing individualized teaching programs in line with students. .According to their own teaching experience and the subjective and objective understanding of students, they truly realize the teaching of individuality and individualized teaching.

Artificial intelligence helps to improve the educational wisdom of teachers. Artificial intelligence makes the classroom more efficient, grasps the situation of students in real time, and conducts targeted counseling in a timely manner. The use of intelligent means for preparing lessons, job corrections, job quality analysis and timely formation of reports, etc., greatly reducing the workload of teachers, teachers have time to think about teaching design, teaching reflection, sharing educational experience. Realize the improvement of teachers' education wisdom.

Artificial intelligence changes the role of the teacher. The development of the teaching subject has experienced the only subject of the teacher, the only subject of the student, the dual subject theory, the dominant subject, etc. However, no matter how it changes, the core elements of the teaching process are still teachers, students, and advanced teaching methods to promote optimal teaching. The deep integration of artificial intelligence and education has given the teacher a new era connotation. The requirements for the ability of teachers in the intelligent age have also undergone tremendous changes. The requirements for teacher information literacy have escalated to an unprecedented importance. The teacher's competency standards will be redefined and the teacher's professional requirements will be fully updated. The role of the teacher shifts from the authority of traditional education to the designer of the student learning process.

2.2. Artificial intelligence changes students' learning objectives, resources, methods, and partner structures.

In terms of learning objectives, the first is a general goal. Its focus is no longer on the unique knowledge, skills and methods needed to succeed in the future, but on having reasonable values, strong creative thinking and abilities, and the ability to learn independently and for lifelong learning. The second is a special goal, which is related to the individual needs of the students. Learn to meet your own interests and needs, and form a personalized knowledge system, not just a standardized knowledge system. In the era of artificial intelligence, the teaching goal shifts from the knowledge target standard to the ability target standard, with the core goal of cultivating students' comprehensive ability.

Aspects of changes in learning resources, methods, and partner structures. In terms of teaching resources, the sources and pathways for students to acquire knowledge and methods are no longer limited to teachers and classrooms. Students use artificial intelligence, such as SIRI, Watson, and Alexa, to find learning resources. They are no longer constrained by institutionalization and fixed "classroom time," and are related to changes in learning styles. Mobile portable devices have made learning less confined to fixed and encountered locations, changing the nature and source of modern social knowledge and changing the way knowledge is learned. Among the learning partners, members of almost the same age in the grade will undergo qualitative changes. The age difference of students will increase, and "mixed age education" will gradually spread and extend to different areas of education.

2.3. Artificial intelligence further enriches the content of intensive education.

The "New Generation Artificial Intelligence Development Plan" clearly requires: "Set up artificial intelligence related courses in primary and secondary schools, and gradually promote programming education", and soon artificial intelligence technology will directly become the general teaching content of the basic education stage. At the same time, artificial intelligence is forcing the reconstruction of the teaching content system, strengthening the curriculum content of innovative thinking and collaboration ability, and the integration of interdisciplinary content will become an inevitable trend. The establishment of artificial intelligence-related courses and the use of intelligent preparation systems to automatically search for teaching resources will further enrich the teaching content.

Artificial intelligence strengthens the teaching content of education. In teaching, the application

of artificial intelligence to the teaching process of basic subjects is also increasing.For example, Scratch is used in geography courses to create map games, and task-oriented games are used to deepen the understanding of maps. In the English course, the artificial intelligence speech recognition system and semantic analysis technology are used to simulate the English context recognition pronunciation errors, correct the students' pronunciation, and enhance the interest and students' interest in learning. In the teaching content, there are inevitably some Abstract.and incomprehensible contents, such as the molecular structure diagram in chemistry and the magnetic field distribution in physics. These Abstract.knowledge points are very confusing for students, and the teachers are also very laborious to speak. In order to understand the Abstract.knowledge, the 3D model and the AR are introduced, and the Abstract.knowledge is presented in front of the students, so as to achieve the effect of strengthening the teaching content of the education.

The use of artificial intelligence should be closely combined with the characteristics of teaching content. Artificial intelligence must fully exploit the characteristics of artificial intelligence and teaching content in the application process of teaching. The successful application of artificial intelligence should be reflected in two aspects. One is reflected in the deep penetration of artificial intelligence technology in the teaching content, and the other is that the content of teaching content is deepened by the application of artificial intelligence. Due to the different characteristics of the discipline, the application of artificial intelligence should be fully considered

The actual situation of teaching objects, teaching content and environmental equipment can further enrich the content of educational teaching.

2.4. Problems in application

The application of artificial intelligence in teaching has been welcomed by most educators and researchers to become the new favorite in education and teaching. But calm down and you will find that artificial intelligence still has many problems in our country.

Many technologies are not yet mature. The core of artificial intelligence technology--the deep learning algorithm has defects [5].The founding managing partner of Safran Asia Investment Fund believes that the three basic elements of artificial intelligence are big data, algorithms and chips. The manufacturing capacity of China's smart chips is still weak. In terms of technology, artificial intelligence needs to be improved.

The application of artificial intelligence is too optimistic and lacks attention to artificial intelligence. The machine has no feelings and morality. Artificial intelligence has no perceptual thinking, and when it encounters an unknown situation, they cannot make judgments. It can only perform tasks, not the quality of the tasks being performed. Unlike humans, artificial intelligence does not improve itself as experience grows. It wears out over time. Artificial intelligence has no feelings, just a cold machine, and there is no sense of belonging, teamwork and collaboration in the work. Artificial intelligence is not imaginative and creative. Humans have sensitive perceptions and thinking skills, and these abilities are led by emotions, but this ability is not available in artificial intelligence.

The lack of an artificial intelligence teacher team. The emergence of artificial intelligence has brought challenges and convenience to teachers. Artificial intelligence can do most of the repetitive work in place of teachers. Teachers change from the transfer of knowledge to the designer of the student learning process. At the same time, teachers are required to have "love business", "number business" and "letter"." Love business" is related to values and emotional practice."Number of businesses" is related to big data."Letters of Business" is related to the information age. In the era of artificial intelligence, teachers need to be skilled in integrating artificial intelligence into their teaching content. This undoubtedly brings great challenges to teachers. The average educator does not understand artificial intelligence, and even educational software that cannot learn artificial intelligence in a short period of time. Due to the lack of such high-quality teachers, the application and promotion of artificial intelligence in teaching has been greatly hindered.

3. Conclusion

Artificial intelligence is both good and bad for the double-edged sword. The key is how we use it. The deep integration of artificial intelligence technology and education in the future can realize the sharing of educational resources. Through the development of new tools and teaching resources in line with education and teaching, it will inject new vitality into education and teaching, and help teaching innovation. At the same time, breaking the uneven development of education and breaking the geographical restrictions of outstanding talents, so that students from different regions can enjoy the best quality educational resources and realize the desire to satisfy the people's education. Let every child have the opportunity to receive quality teaching resources so that every student becomes a dream catcher.

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