

# Application Path of Artificial Intelligence in Distance Education

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**Abstract:** With the advent of Internet big data era, artificial intelligence system has gradually entered people's vision, bringing unprecedented impact on the development of human civilization and education. As a widely used teaching method, distance education has brought certain advantages for people's learning, but there are still some problems. The introduction of artificial intelligence into distance education has brought new opportunities for distance education. This paper introduces artificial intelligence and distance education in detail, so that readers can understand the influence of artificial intelligence on distance education, and on this basis, this paper discusses the application path of artificial intelligence in the field of distance education.

## 1. Introduction

With the national attention to education and the recognition of adult education, distance education has been gradually recognized by the public and entered a new stage of development. However, the development of distance education has also encountered many problems. This paper discusses how to use artificial intelligence to improve the teaching level of distance education. Artificial intelligence has been closely linked with education since it came into being. In fact, artificial intelligence enables computers to improve the level of science and technology through learning, which can also be applied to education and form a new teaching mode. Under the background of emphasizing the progress of science and technology and the importance of knowledge, the integration of artificial intelligence and distance education has far-reaching influence on the improvement of education level.

## 2. Overview of Artificial Intelligence and Distance Education

With the rapid development of new technology in the new era, artificial intelligence has also developed rapidly. Artificial intelligence has been widely concerned in various countries and included in the national development strategy. In the development strategy of our country, it is pointed out that the development of artificial intelligence is a new means of scientific and technological innovation. Artificial intelligence is a new science and technology according to the theoretical method that simulates and expands human intelligence. In fact, it is to make computers be able to replace manual work. In China's development plan, it has been proposed to use artificial intelligence technology to improve the teaching efficiency and build an intelligent education system. At present, China has initially realized the application of the intelligent learning technology, intelligent perception technology and many other new technologies in the field of education. The application of artificial intelligence in the field of education will become an inevitable trend.

Distance education is a new way of talent training, using computer information technology to provide distance learning and training for students. The main characteristics of distance education are the distance of time and space. However, with the continuous improvement of science and technology, the distance of time and space may gradually disappear. Because the distance learning students are scattered in the position, and there is no concentration in the time, distance education has the characteristics of "individual learning" <sup>[1]</sup>. In addition, distance education also has the characteristics of low admission threshold, large enrollment scale, and homogeneity of learning objectives and contents. Therefore, distance education must use new science and technology to

develop stronger, which shows that another characteristic of distance education is that the development of distance education depends on the development of science and technology.

Because distance education has the characteristics of individualized teaching, the purpose of distance education as a new teaching form has the following three points: firstly, to provide learning opportunities for people with learning needs from all walks of life, so as to meet the needs of all-round development of the public; secondly, strive to improve the quality of the working people with the purpose of serving the society, so as to promote the development of society; thirdly, to enrich teaching forms, changing the teaching activities from offline to online to ensure that different people in different situations can learn anytime and anywhere.

### **3. Influence of Artificial Intelligence in the Field of Distance Education**

Distance education, as a new means of training talents, is a supplement to higher education and one of the important ways to continuously provide talents with high academic qualifications for the society. Taking the most influential university, The Open University of China, as an example, the number of students enrolled each year is as high as 1 million, and the number of students receiving education in campus has reached more than 3.6 million. The proportion of junior college and undergraduate students is uneven, and the educational background and knowledge levels of students are also not uniform. Even if the university adopts part-time teachers to help teach and counsel, it still can't change the situation of lacking teachers, which can't meet the needs of different students for learning, and it is impossible to know the learning dynamics of each student, which can't bring timely and effective recommendation and guidance to students, affecting the smooth development of education and teaching. Because the learners of distance education belong to different regions, and there are differences in learning time, the implementation of distance education is decided by the subjective initiative of learners' autonomous learning to a greater extent, but there is still a certain gap from the traditional education in the cultivation and guidance of students' autonomous learning due to the serious shortage of teachers.

In distance education, although the introduction of artificial intelligence has not changed the essence of the education process, it has a decisive impact on the thinking of education and teaching, and provided a basis for improving the efficiency of personnel training in the field of education<sup>[2]</sup>. With the wide application of artificial intelligence, Baidu, Xiaodu, Xiaomi, Xiaoi, unmanned aerial vehicle, Microsoft translation software and so on have been put into the market. Microsoft translation software is embedded in the browser as an insertion software, and is widely used in research and conference, especially the voice recognition system of iFLYTEK, which takes the special advantage of accurately converting speech into words, bringing unprecedented impact on meeting minutes and memoranda, convenient for the majority of users. Artificial intelligence has a strong advantage in speed, accuracy and repetition consistency. In the field of education, artificial intelligence can complete the construction of question bank, mark homework, carry out examinations, solve the problem of insufficient teachers, so that teachers can take more time to guide and train students, improve the efficiency and quality of talent training. Learners can also improve their comprehensive quality and ability under the guidance and help of teachers.

Under the background of intelligent era, there is no obvious boundary line between teachers and students. Teachers are both teachers and students. In future education, learners should be the center. Artificial intelligence technology is introduced into distance education to build personalized teaching platform, fully play the advantages of artificial intelligence and the role of teachers, so as to provide accurate services for students. The application of artificial intelligence in distance education has pushed teaching to the development direction of precision education and lifelong learning, and promoted the reform of teaching content and teaching method in distance education.

### **4. Application Path of Artificial Intelligence in Distance Education**

#### **4.1 Construction of Intelligent Network Platform for Distance Education**

As artificial intelligence is the research and development of intelligent agent theory and technology, and intelligent agent has the characteristics of autonomy, openness, mobility and cooperation, which can automatically collect actions according to the perception function to complete the tasks and goals set in advance, so intelligent agent can play a positive role in the construction of distance education network platform, mainly manifested in the behavior analysis of teaching and learning, coordinated learning and intelligent reasoning, dynamic tracking and real-time monitoring, information search, etc.<sup>[3]</sup> Therefore, using the function of intelligent agent in distance education platform can supervise the teaching of teachers and the learning of students, and teachers can also give correct guidance according to the actual situation of learners. It can be seen that intelligent agent technology can effectively solve the practical problems in distance education. Therefore, the application of artificial intelligence technology in the construction of distance education network platform provides important technical support and quality assurance for distance education.

## **4.2 Intelligent Evaluation System for Distance Education**

In distance education, the fairness and justice of examination is one of the most concerned problems. Due to the stage and space of examination time, it is difficult to solve the problem of fairness, scientific nature and openness in distance education. The automatic evaluation function of artificial intelligence is to study the paperless examination. The operation process is basically to push the test content to the students through the computer terminal, and then the students transmit the answers to the terminal equipment through the computer input device, and then the computer automatically and semi-automatically conduct the evaluation. The automatic evaluation system of artificial intelligence is an intelligent system which combines the question bank and test paper, test environment and automatic marking, and statistical analysis of evaluation data. This feature of artificial intelligence fully improves the efficiency and achievements of automatic teaching evaluation, and fully ensures the fair, open and scientific examination results of distance education examination.

## **4.3 Design of Intelligent Learning Process in Distance Education**

With the continuous development of artificial intelligence technology, to apply more and more related technologies in the practice of distance education, it is necessary to have mature artificial intelligence technology, and the application of artificial intelligence in the field of distance education can effectively solve the main problems in practice. Firstly, in distance education, the learning method adopted by students is still the traditional face-to-face teaching method, which fails to reflect the characteristics of distance education. Secondly, students can't adapt to the distance teaching mode, because there is no classroom atmosphere in distance teaching, and the questions and answers are not timely enough. These problems affect the enthusiasm of students and reduce the learning efficiency, and distance education has been committed to solve these problems. With the emergence of artificial intelligence, we can introduce it into distance education to optimize the learning process<sup>[4]</sup>. First, we can use learning analysis technology, intelligent agent technology, data mining technology and intelligent evaluation technology of artificial intelligence to help students solve the problems of learning methods, help students adapt to the teaching methods of distance education, and improve their learning enthusiasm. Second, the virtual learning technology and intelligent question answering technology of artificial intelligence can solve the problems that there is no classroom atmosphere in distance education and questions can't be answered timely. The application of these technologies in distance education can improve students' learning enthusiasm, eliminate learning obstacles and improve learning efficiency.

## **4.4 Construction of Intelligent Teacher Team in Distance Education**

To better apply artificial intelligence in distance education, first of all, there must be experts in

artificial intelligence. However, although experts in artificial intelligence are familiar with the related technologies of artificial intelligence, they know little about other industries and professions. Therefore, if we want to develop the application of artificial intelligence technology in various fields, we need experts in various fields. Similarly, if artificial intelligence wants to develop in the field of distance education, it is necessary for distance education experts and education and teaching experts to work together to form a perfect team of teachers, so as to realize the reform and development of artificial intelligence technology in distance education.

## **5. Conclusion**

As the development of distance education still has the problems that artificial intelligence can't complete, so the application of artificial intelligence technology in distance education conforms to the strategy of promoting balanced development of education in China, and makes the technology of artificial intelligence run through the whole teaching process of education, such as teaching, practice, evaluation and management to realize the mobility, digitization and intellectualization of distance education, so as to promote the development of whole field of distance education.

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