

Application of Artificial Intelligence Technology in Computer Network Teaching

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Abstract: With the development of modern times, the content and mode of education are constantly evolving. To better meet the needs of social development, secondary vocational schools should actively explore advanced computer network education models to meet the ever-changing educational environment and promote the improvement of teaching quality. To achieve the goal of computer network education, it is necessary to give full play to the effectiveness of artificial intelligence, use the latest science and technology, and the most cutting-edge teaching methods to help students better understand, cope with, and integrate into the real world, to achieve efficient computer network teaching. Through innovation and change, the level of computer network teaching in secondary vocational schools can be greatly improved.

Keywords: Artificial intelligence technology; Secondary vocational school; Computer network teaching

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1. Introduction

Due to the rapid development of Internet technology, the concept of subject education has undergone great changes. Therefore, teachers should abandon the traditional one-to-one infusing teaching method, and adopt various methods to meet the learning needs of students according to their actual situation. Through the application of advanced computer technology, existing online courses can be greatly expanded, together with the use of artificial intelligence, a more personalized, sustainable, and diverse online learning environment can be built. In addition, teachers can also closely monitor students' learning and give necessary guidance and help in time. In this way, teachers can better deal with the challenges of network classrooms and use artificial intelligence to improve education.

2. Overview of the characteristics of artificial intelligence technology and the basis of assisted computer teaching

2.1. Characteristics of artificial intelligence technology

Intelligent technology can be divided into human intelligence and computer intelligence, and the relationship between them is complementary, can develop cooperatively, or can operate independently. The core goal of artificial intelligence technology is to convert human intelligence into computer intelligence, thereby achieving a higher level of self-regulation and self-service. However, computer intelligence can also use artificial intelligence to improve the quality of teaching, thus achieving the intelligent transformation from technology to people ^[1-3].

Firstly, the technical characteristics of artificial intelligence. Artificial intelligence has a powerful search ability, it can quickly extract the most needed information from the vast information base and can be customized according to individual needs. It also has a wealth of knowledge and can translate complex concepts into simple and understandable expressions. It has a strong voice recognition ability, and can accurately identify important information. Additionally, it also can apply abstract thinking, according to user needs, to provide precise descriptions and explanations, to better understand user intentions. Artificial intelligence uses its powerful computing power to quickly search and analyze human knowledge, to provide more accurate information for humans. Moreover, it also has a high degree of abstraction, greatly improving human work efficiency ^[4].

Secondly, intelligent multimedia technology. With the development of science and technology, intelligent multimedia has become an effective communication tool, which can help people to make calls more conveniently, but also bring more rich interaction for various types of users, so that students of all levels have the opportunity to participate in the classroom, thus greatly enhancing the effect of computer network education. With the development of science and technology, intelligent multimedia technology has been successfully applied to the classroom of secondary vocational schools, providing a flexible, hierarchical, comprehensive, and efficient education mode, so that teachers can easily impart knowledge to students without relying on traditional teaching methods. This efficient classroom mode is the unique advantage of intelligent multimedia technology, with good innovative thinking and timely feedback function. Through the introduction of advanced intelligent multimedia technology, it can help teachers, students, parents, and society to complete more accurate classroom teaching. The excellent performance of these technologies makes it easier for teachers to master knowledge points and judge which areas need to be focused on, to better guide students' learning, and also encourage them to explore new knowledge points, to better promote the progress of the classroom ^[5-7].

2.2. Basic overview of artificial intelligence and computer-aided instruction

Artificial intelligence, an important branch of computer science, is a highly comprehensive subject established through computer simulation and the extension of human brain function. The computer system has human thinking and behavior, can make effective judgments on many problems, and analyze human natural language ability. Artificial intelligence generation is the stimulus-response to problems and different things, the process of solving different tasks is divided into different steps, based on programming to ensure that all kinds of problems can present formulaic development, through the optimization of computer structure design to solve various problems. At this stage, artificial intelligence needs to solve the following key

problems in the long-term development process, which are intelligent information processing, intelligent problem-solving processing, and intelligent symbol processing^[8].

With the rapid development of information technology in our country, computer-aided teaching is an important direction in the development of modern education. More teaching content can be completed through computers to ensure that the teaching content and teaching form can develop towards diversification. Through computer-aided instruction, students can complete learning activities in combination with their actual situation. Teaching applicability is strong, but also promotes the effective sharing of resources, to achieve interactive learning^[9]. To ensure that teaching resources meet the diverse learning needs of students, while also addressing the limitations of traditional teaching methods and improving teaching effectiveness, computer-based intelligent systems can play a key role. These systems can better monitor student learning and development, facilitate the transfer of information, optimize and adjust teaching content, and ultimately contribute to the advancement of teaching. However, current computer-aided instruction faces numerous challenges that need to be addressed in future educational practices^[10].

3. The application value of artificial intelligence technology in computer-aided instruction

In the new era, various kinds of education and teaching activities are closely related to the application of computer technology, which can strengthen the understanding of different knowledge structures based on knowledge imparting. In the process of knowledge acquisition, it can promote the effective connection of old and new knowledge and guide the teaching work. Teachers should guide students' learning activities, explore gradually from the practice process, and perfect the shortcomings of the traditional teaching mode. By integrating artificial intelligence technology into computer-aided instruction, different modules can be established, and each module has different teaching functions. For example, the expert module can help students answer more professional learning problems, solve the limitations of time and space in teaching, improve the quality of teaching communication, and better improve the learning efficiency of students. The student module in artificial intelligence technology can carry out accurate statistics and analysis of each student's actual learning performance, and save different scores into the corresponding database, which can provide more reference data for the efficient development of teaching activities. Teachers can adjust the teaching content and objectives based on data, highlighting the concept of individualized instruction. This allows for a better application of artificial intelligence technology.

4. Challenges in the application of artificial intelligence technology in computer network teaching

4.1. Computer network education cannot provide continuous and effective intelligent service

Currently, computer network education is generally made by specialized teachers in the early stage of classroom teaching videos or teaching activities, after simplifying the broadcast of relevant professional knowledge to students, and once students have doubts and questions, they can only be answered by teachers on the spot. However, due to the limitation of teaching time, teachers cannot provide answers around the clock, which can negatively impact student engagement and motivation.

4.2. Occupies network resources and is inefficient

In computer network education, information retrieval for basic knowledge often requires students to search through catalogs or keywords. However, much of this knowledge exists in a cross-disciplinary context, with many topics listed without clear structure, leading to disorganized information resources that fail to form a coherent subject system. This search process is both time-consuming and inefficient. Furthermore, while teachers provide a substantial amount of basic knowledge and reference materials, these resources are often underutilized. As a result, students find it difficult to efficiently access and apply professional knowledge through the network, hindering their learning progress ^[11].

4.3. The function of the teaching system is inadequate

Currently, there are two primary methods for implementing network-based education using computers. The first involves using Authorware and PowerPoint to create text and video-based knowledge teaching materials, which aim to enrich students' learning content. The second method utilizes the Internet and simple human-computer interaction technology to deliver classroom instruction. However, neither of these approaches improves the teaching environment significantly. As a result, students lack motivation, and the teaching methods are not tailored to the individual needs of students, hindering personalized learning.

5. Effective measures of applying artificial intelligence technology in computer network education

5.1. Effective integration of educational resources

In the new situation, more and more students can access the necessary knowledge and services through the Internet, mobile phones and other tools, about 80% of graduates can use these tools independently, and 35% of graduates can use specialized tools to complete self-management. Therefore, teachers should join hands with AI to promote innovation and reform in education according to their reading preferences and students' learning ability. In order to meet the learning needs of students of all ages, teachers provide a new method: using the educational administration website, teacher score system and advanced artificial intelligence technology, to build a complete professional education database covering all majors to collect the latest information in various fields. By searching various available secondary vocational school curriculum content, as well as the recent social development trend, teachers collect a large number of the latest and most influential knowledge, and these knowledge through systematic analysis, screening, synthesis, to build a complete set of electronic education materials with practical value. Teachers need to give the AI system maximum freedom to use, retrieve, distribute, and publish so that it can process data accurately and provide effective information and materials to students. ^[12-13]

5.2. Effective integration of educational resources

Teachers should draw on their previous experience with computer network education to actively design and implement an intelligent learning guidance system. It is essential to learn from previous information technology teaching materials to develop new, more suitable resources for current students. By developing an intelligent guidance system, teachers can leverage artificial intelligence technology to provide more accurate, efficient, and personalized guidance to students. Through the use of AI, teachers can monitor students' learning progress in real-time and create customized cognitive, emotional, and knowledge modules tailored

to students' professional backgrounds and curriculum requirements. Additionally, teachers can also introduce real scenarios and data to support these modules and make them have real-time and dynamic functions. In this way, teachers can allow students to improve themselves through self-learning, exploration, collaboration, actual combat, and common growth in the Internet classroom.

Teachers should use the most advanced technology to develop a sound, highly flexible intelligent teaching system, which not only includes traditional teaching modes but also includes modern teaching methods, such as MOOCs platform, flipped classrooms, online textbooks, video teaching, group cooperative learning, inquiry teaching and practical teaching. By introducing advanced technology, teachers are not only able to better understand the latest growth of students but also to precisely adjust and optimize their academic performance. Moreover, teaching assessment and evaluation guidelines will be incorporated into the software experience to make the teaching software more flexible and efficient. To help students solve psychological and emotional problems that may arise during the learning process, teachers use artificial intelligence systems to monitor their mental health status and help students identify their problems and deficiencies through intellectual assessment, physical health detection, and developmental assessment. These evaluation results will provide teachers with valuable information to help them take effective measures in time. With the support of artificial intelligence technology, we constantly improve ourselves, make up for our shortcomings, and formulate scientific and reasonable learning and development plans together with career development plans according to the actual situation ^[14].

5.3. Application of agent management technology

The key performance of artificial intelligence in computer network teaching lies in agent control, and the content of agent communication, knowledge base, and database management provides the necessary technical support and foundation for agent control programs. Artificial intelligence can also collect, sort, and classify information in the relevant contents of the database and knowledge base according to the specific needs of students, to put forward comprehensive suggestions for system science. Therefore, when students conduct custom searches for data, the corresponding agent control can be realized through the artificial intelligence system, so that the searched data that is consistent with the actual use requirements can be sent to a specific place so that students can get more personalized information. Thus, the search and screening time of information can be reduced, so that the operation and application efficiency of students can be unprecedentedly improved, and the fundamental needs of students can be met to a greater extent. Compared with the manual screening mode, it can be found that the agent mode of artificial intelligence has a better use effect, improves the efficiency and quality of data processing, and reduces the teaching input ^[15]. Artificial intelligence agent management can comprehensively enhance the data processing capabilities of computer teaching systems. Additionally, it enables more efficient management of forgotten data and large data resources, further improving the system's functionality.

6. Conclusion

In conclusion, artificial intelligence technology holds significant application value in computer-assisted teaching and plays a key role in improving teaching efficiency. As AI technology continues to advance rapidly, it will play an increasingly important role in enhancing computer-assisted teaching. In education, AI enables the development of new learning and reasoning tools, underscoring its application value. Currently, computer-aided instruction occupies an essential place in the education field. By integrating various technologies, different

teaching modules are established within teaching systems, meeting students' learning needs and teachers' instructional requirements, and fostering the comprehensive advancement of modern education.

Disclosure statement

The author declares no conflict of interest.

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