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Research on Information Technology Teaching under the Background of Artificial Intelligence

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Abstract: Modern science network technology and artificial intelligence have achieved rapid development in a short period of time, and have become the most critical scientific and technological elements of the contemporary era. With the continuous development of artificial intelligence technology, information technology teaching has also ushered in new opportunities and challenges. How to carry out effective information technology teaching research under the background of artificial intelligence is one of the topics that need to be deeply discussed in the current education field. On the one hand, the development of artificial intelligence technology provides more possibilities and means for information technology teaching. On the other hand, the development of artificial intelligence technology has also brought new challenges to information technology teaching. This paper takes artificial intelligence as the background, analyzes the influence of artificial intelligence on information technology education, and expounds the teaching application of information technology under the background of artificial intelligence.

Keywords: Artificial intelligence; Information technology; Teaching research

1. Introduction

The rapid development of science and technology has made remarkable progress in the field of artificial intelligence in a relatively short period of time. Faced with the vigorous development and diversification of modern information technology, as well as the rapid upgrading and replacement of a new round of information technology revolution, information technology education, especially information technology education based on artificial intelligence, once again stands at the key node of reform. Under the background of artificial intelligence, information technology teaching is undergoing unprecedented changes, ushering in unprecedented opportunities. It also faces severe challenges (Yang Xiaofeng, 2024). The traditional teaching mode of information technology often focuses on the teaching of theoretical knowledge and the training of technical operation, but with the promotion of artificial intelligence, information technology teaching pays more attention to cultivating students' innovative thinking and problem-solving ability. Based on the background of artificial intelligence, this paper first expounds the teaching of artificial intelligence, information technology and their integration, then analyzes the influence of artificial intelligence on information technology education, and finally expounds the teaching application of information technology under the background of artificial intelligence from four aspects.

2. Influence on information technology education in the context of artificial intelligence

2.1 High sharing of teaching resources

With the increasingly advanced information technology, the current information technology curriculum makes the way for students to acquire knowledge extremely simple and efficient. At the same time, with the help of artificial intelligence, it also effectively promotes the innovation and sharing of educational resources, so that all students can equal access to high-quality educational resources. Through intelligent algorithms, suitable learning resources can be intelligently recommended according to students' learning progress, interests and individual needs, thus improving students' learning efficiency and interest (Zhao Xiangqing, 2023).

2.2 Coexistence of multiple education models

In the traditional information technology curriculum, the teacher's education mode is mainly to teach knowledge, and can not show the benefits brought by information technology in multiple ways. However, the educational atmosphere of artificial intelligence will create a unique learning experience for students and promote the development of education models to diversify. For example, through virtual real-

ity (VR) and augmented reality (AR) technologies, students can learn in simulated real environments and understand abstract concepts more intuitively. In addition, AI can also provide an adaptive learning model that adjusts teaching content according to students' learning progress and abilities to achieve personalized education. This diversified education model not only improves students' interest in learning, but also improves the teaching effect.

2.3 Help teachers change their roles

With the help of artificial intelligence, the role of teachers is also changing. The traditional role of teachers is mainly the transmitter of knowledge, while in the context of artificial intelligence, teachers become more of a guide and instructor of students' learning. Artificial intelligence can help teachers analyze students' learning data, provide teachers with targeted teaching suggestions, and enable teachers to grasp students' learning needs more accurately. At the same time, artificial intelligence can also provide teachers with rich teaching resources and tools to help teachers better design teaching activities and improve teaching effects (Gao Baolian, 2023).

2.4 New challenges in information technology education

Although AI has brought many positive effects to information technology education, it has also brought new challenges. First of all, with the continuous development of artificial intelligence technology, the content of information technology education also needs to be constantly updated to adapt to new technological changes. Secondly, the application of artificial intelligence also requires teachers to have certain technical literacy, which puts forward new requirements for the professional development of teachers. Finally, the widespread application of AI may also bring some ethical and privacy issues that need to be brought to the attention of educators. Therefore, in the context of artificial intelligence, information technology education needs constant exploration and innovation to meet new challenges and opportunities.

3. Teaching application of information technology in the context of artificial intelligence

3.1 Innovation in educational thinking

The rapid development of artificial intelligence has brought new opportunities for information technology teaching. It breaks the shackles of traditional teaching mode and promotes educators to set up new concepts of teaching, learning and knowledge. In the context of artificial intelligence, the application of information technology in teaching not only innovates teaching methods, but also brings about profound changes in educational thinking (Lin Ronghui, 2023). The traditional education model is teacher-centered and focuses on one-way knowledge transfer, while with the help of artificial intelligence, information technology teaching has become more flexible and personalized. The introduction of AI has also prompted educators to rethink the nature and goals of education, shifting from knowledge transfer to fostering students' innovative, critical thinking and problem-solving skills. Therefore, educators should actively explore the information teaching mode based on artificial intelligence, and improve their information literacy and technical ability to adapt to the teaching requirements of the new era.

3.2 Change of course content

Information technology is a complex science that covers a wide range of fields, including parts that have not been deeply studied by human beings. In the context of artificial intelligence, the content of information technology teaching has undergone a significant shift. Traditionally, information technology courses may focus more on specific skills and technologies such as programming languages, operating systems, and networking fundamentals. However, with the rapid development of artificial intelligence technology, information technology teaching has begun to pay more attention to cultivating students' innovative thinking, problem-solving ability and interdisciplinary integration ability. The course content is no longer limited to a single technical operation, but integrates the knowledge of artificial intelligence theory, algorithm, data analysis and other aspects. Students not only need to master basic programming skills, but also understand the principles and applications of artificial intelligence, and cultivate the ability to innovate and research and development in the field of artificial intelligence.

3.3 Innovation of teaching methods

In the age of artificial intelligence, the teaching methods of information technology have been innovated. The traditional way of teaching is mainly taught by teachers, and students are in a passive state of acceptance. But now, IT teaching is more practical and interactive, encouraging students to actively learn through project-driven, teamwork, problem solving, etc. Teachers adopt project-driven, problem-oriented teaching methods to guide students to actively explore, practice and innovate. Students can solve problems together through group cooperation, discussion and communication, and cultivate cooperation spirit and teamwork ability. With the continuous development of artificial intelligence technology, some computer programs have been able to correct errors based on English meaning and context, providing students with a personalized and accurate learning experience. For example, natural language processing technology can analyze students' study habits and grades to provide personalized learning recommendations and resource recommendations. In addition, artificial intelligence can also assist remote teaching and management, achieve real-time interaction, answer questions, share experience and other functions, and provide teachers with student learning data and analysis reports to optimize teaching strategies and improve teaching results.

3.4 Construction of smart classroom

With the rise of artificial intelligence, the reform of information technology teaching has become an inevitable trend. In order for information technology education to keep pace with The Times, we need to build a wisdom classroom. Smart classroom refers to a new teaching mode that integrates advanced technologies such as information technology and artificial intelligence into classroom teaching by using modern scientific and technological means to improve teaching quality and efficiency and promote students' learning outcomes. In the smart classroom, teachers can use artificial intelligence technology to accurately identify students' problems and needs through natural language processing and other technical means, and provide targeted guidance and help. At the same time, smart classroom can also use big data and cloud computing and other technologies to achieve comprehensive monitoring and evaluation of student learning and provide data support for personalized teaching.

In addition, smart classroom can also introduce advanced technologies such as virtual reality and augmented reality to provide students with a more vivid and intuitive learning experience. This teaching method can not only stimulate students' interest in learning, but also help them better understand and master knowledge and improve learning results. We should actively explore and practice, and constantly improve the teaching mode and technical means of smart classroom, so as to contribute to cultivating more outstanding talents.

3.5 Creation of situational teaching model

The mastery of information technology requires students to have a rational way of thinking and intelligence, need to improve students' information cognition, the most important thing is to develop their self-thinking. In the teaching of information technology, problem-based situational teaching model can be skillfully used to cultivate students' problem-solving ability and innovative thinking. Problem-based situation teaching model is a student-centered teaching method, which guides students to think, explore and solve problems actively by creating problem situations with practical significance. In this mode, students are no longer passive recipients of knowledge, but become active participants in problem solving. In information technology teaching, teachers can stimulate students' learning interest and thirst for knowledge by designing challenging problem situations. These problems can involve various aspects of the information technology field, such as programming, data analysis, network security, etc. By guiding students to analyze problems, design schemes, implement solutions and other processes, students can exercise their logical thinking, innovative thinking and teamwork skills. At the same time, the problem-based situational teaching model can also help students apply what they have learned to the actual situation, improve their practical ability and problem-solving ability.

4. Summarize

Under the background of artificial intelligence era, information technology teaching is facing unprecedented opportunities and challenges. In order to adapt to this change, we need to re-examine the nature and objectives of education, and actively explore the information teaching model based on artificial intelligence. Through course content transformation, teaching method innovation and smart classroom construction, we can provide students with a more personalized, accurate and efficient learning experience. At the same time, we also need to pay attention to the all-round development of students and cultivate their innovative thinking, critical thinking and problem-solving skills. Only in this way can we cultivate more high-quality talents to meet the needs of future social development. In the future of information technology teaching, we will continue to explore and practice, constantly improve and optimize the teaching mode and technical means, and make greater contributions to training more excellent talents.

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