Teaching Reform and Development of College Computer Education under the Background of Artificial Intelligence

Xin Wei

Haojing College of Shaanxi University of Science&technology Xi 'an, Shaanxi 710000

Abstract: With the continuous development of artificial intelligence technology, college computer education has been greatly affected. Under the background of artificial intelligence, the teaching reform and development of college computer education is of great significance. This paper analyzes the influence of artificial intelligence on college computer education from the aspects of influence and application, and introduces the application of artificial intelligence in college computer teaching.

Keywords: Artificial intelligence; College computer education; Teaching reform; Teaching application; Intellectualization of education

Introduction:

The continuous development of artificial intelligence technology has had a profound impact on all walks of life, and the college computer education is no exception. Under the background of artificial intelligence, the teaching reform and development of college computer education is of great significance. By applying artificial intelligence technology to computer teaching, it can improve teaching efficiency, promote the cultivation of innovative thinking and promote the development of intelligent education.

1. The influence of computer education in colleges and universities under the background of artificial Intelligence

1.1 Improve teaching efficiency

With the continuous development and application of artificial intelligence technology, it has gradually penetrated into college computer education. Among them, improving teaching efficiency is one of the important factors affecting college computer education under the background of artificial intelligence. Artificial intelligence technology can bring many new teaching means and tools for computer education, so as to improve teaching efficiency. Artificial intelligence can quickly evaluate and allocate teaching resources through data analysis and mining, so as to make full use of teaching resources. Meanwhile, AI can also intelligently recommend textbooks and learning resources suitable for students according to their learning conditions and habits, so as to better meet students' personalized learning needs. Artificial intelligence technology can provide teachers with a series of teaching AIDS and teaching management systems to help teachers better organize teaching and manage students [1].

1.2 Promote the cultivation of innovative thinking

Driven by artificial intelligence technology, the goal of college computer education has changed from simply imparted knowledge to focus on cultivating students' innovative thinking. Artificial intelligence technology provides students with more abundant practice opportunities, so that students can master knowledge in practice, improve application ability and innovative thinking. At the same time, artificial intelligence technology can expand students' thinking mode, let students know different ways of thinking and skills, so as to cultivate innovative thinking. In addition, artificial intelligence technology can also provide more personalized learning support and feedback, help students learn independently, and stimulate students' learning interest and motivation [2].

1.3 Promote the intelligent development of education

In the context of the continuous development of artificial intelligence technology, the computer teaching in colleges and universities is also constantly carrying out innovation and reform, make full use of artificial intelligence technology, promote the

development of educational intelligence, improve teaching efficiency, and promote the cultivation of students' innovative thinking and ability. By introducing AI-assisted programming learning, virtual experiment technology, AI-based intelligent teaching management system, AI-assisted innovative practice teaching, AI-based intelligent assessment and learning analysis system and other applications, computer teaching in colleges and universities keeps expanding teaching methods and methods to improve teaching effect and learning experience [3].

2. The application of computer teaching in universities under the background of artificial intelligence

2.1 Ai-assisted programming learning

Programming learning is an essential part of computer teaching in colleges and universities. However, for many students, programming learning is a challenging task that requires a lot of practice and exploration. In this case, the application of artificial intelligence technology provides a brand new idea and method for programming learning. By assisting programming learning with artificial intelligence, students can master programming knowledge and skills more easily and improve learning efficiency. Taking Python language teaching as an example, by combining artificial intelligence technology, intelligent programming learning environment can be provided. For example, artificial intelligence-based automatic code error correction, automatic code evaluation, automatic learning route recommendation and other functions can be used to help students quickly find and solve problems in code, and personalized learning path recommendation can be provided at the same time. Tailor programming learning experience for students.

2.2 Application of virtual experiment technology in computer experiment teaching

Virtual experiment technology is a teaching method that simulates real experiment process with computer technology. It can greatly improve the efficiency and quality of computer experiment teaching in colleges and universities. In the context of artificial intelligence, virtual experiment technology has been more widely used, which can help students better master the computer experiment skills, and cultivate the innovation ability in practice. Virtual experiment technology can be widely used in various experimental courses in college computer teaching. For example, operating system experiment is a very important experimental course in computer major, but the traditional operating system experiment requires the use of physical equipment, including computers, networks, etc., which is not only expensive, but also cumbersome to operate, and may cause data loss and other problems. The operating system experiment based on virtual experiment technology can be realized by using virtual machines and other tools, which can not only guarantee the experimental effect, but also greatly reduce the cost and risk of the experiment. Students can experience the whole process of the installation, configuration and management of the operating system in the virtual experiment environment, and master the practical operation skills.

Traditional computer network experiments need to use a lot of physical equipment and network resources, and need to spend a lot of time to build the experimental environment. By using virtual experiment technology, virtual network experiment environment can be built on the computer, which can not only save experiment cost, but also save time. Students can simulate network attack, packet capture and other actual scenes in the virtual network experiment environment, and exercise the computer network practical operation ability and problem solving ability. Virtual experiment technology can also be applied to other computer professional experiment courses, such as database experiment, graphics and image processing experiment, digital signal processing experiment, etc. These experimental courses require a lot of data processing and graphic calculation, and the use of virtual experiment technology can simulate a variety of complex scenes, to help students better understand the experimental principles and master experimental skills. In teaching practice, the application of virtual experiment technology can also provide students with learning opportunities anytime and anywhere through the development of online virtual experiment platform, and promote the development of intelligent education.

2.3 Artificial Intelligence-assisted innovative practice teaching

With the continuous development of artificial intelligence technology, its application in college computer teaching is more and more extensive. Virtual practice environment is one of the representative applications, it can provide more real and rich practice scenes for computer students, so as to better promote students' learning and growth. First of all, database experiment is an important part of computer teaching, it can help students better grasp the database related knowledge and skills. However, the traditional database experiment can only provide some simple scenes and operations, often difficult to meet the practical needs of students. To solve this problem, teachers can use artificial intelligence technology to create a virtual practice environment and provide more real and rich

database practice scenes. Specifically, this virtual practice environment can be built with the help of artificial intelligence technology, through data mining and machine learning technology, to simulate real database application scenarios, providing more complex and diverse practice tasks. For example, teachers can build a virtual e-commerce website based on artificial intelligence technology, allowing students to learn and master database-related knowledge and skills through data management and operation of the website. This virtual e-commerce website can include user management, commodity management, order management and other functional modules, in which students need to complete the operation of adding, deleting, modifying and checking data, so as to understand and master all aspects of database application. In order to better create this virtual practice environment, teachers need to adopt a variety of artificial intelligence technologies to support.

2.4 Intelligent assessment and learning analysis system based on artificial intelligence

Artificial intelligence can provide powerful support and help for the learning analysis system of computer majors in universities. In the traditional teaching mode, teachers mainly rely on students' classroom performance and homework results to evaluate students' learning status, but this way has certain subjectivity and limitations. Through artificial intelligence technology, a new set of learning analysis system can be established to evaluate students' learning status more comprehensively, objectively and scientifically, and provide strong support for students' personalized learning. First of all, the learning analysis system based on artificial intelligence can carry out real-time monitoring and analysis of students' learning data, including learning content, progress, understanding degree, answer situation and so on, so as to have a more comprehensive understanding of students' learning situation. At the same time, the system can make use of machine learning and data mining technology to analyze and mine students' learning situation, find their weaknesses and bottlenecks in learning, and put forward the corresponding improvement plan to help students learn more effectively. Secondly, the learning analysis system based on artificial intelligence can provide personalized learning support for students. In the traditional teaching mode, the progress and effect of students' learning are often restricted by many factors, such as teaching quality, curriculum arrangement, students' own differences and so on. The learning analysis system based on artificial intelligence can provide students with customized learning plans and learning resources according to their learning conditions and personalized needs, so as to meet students' learning needs more effectively. Finally, the learning analysis system based on artificial intelligence can provide strong support for teachers' teaching work. Through the analysis and mining of students' learning data, teachers can have a more comprehensive understanding of students' learning situation, timely discover students' problems and difficulties, and adjust their own teaching content and methods according to students' actual needs and problems, so as to improve the teaching effect. Through this system, we can evaluate students' learning situation more comprehensively, objectively and scientifically, provide personalized learning support for students, and provide strong support for teachers' teaching, so as to promote the continuous development of computer teaching in colleges and universities.

3. Concluding Remarks:

The application of artificial intelligence technology has deeply influenced the teaching mode and method of computer education in colleges and universities. In the future, with the continuous development and application of artificial intelligence technology, college computer education will continue to face new challenges and opportunities. Teachers should actively explore the application of artificial intelligence in computer teaching, promote the development of education intelligence, and make contributions to cultivating more excellent computer talents.

References:

[1] Wang Hui, Li Shuai. Research on Teaching Model and Method of University Computer Education under the background of Artificial Intelligence [J]. Science and Technology Vision, 2021, (5): 98-99.

[2] Luo Wei, Zhang Feng. Research on Computer Programming Teaching based on Artificial Intelligence Technology [J]. Modern Educational Technology, 2022, (1): 61-65.

[3] Ding Xiaohui, Zhang Li. Research on Computer Experiment Teaching Based on Virtual Experiment Technology [J]. Experimental Technology and Management, 2020, (3): 78-81.