Research on the path and application of intelligent technology into classroom teaching

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Abstract: In the 21st century, artificial intelligence + classroom teaching will eventually become the latest model of education reform and development. The introduction of advanced artificial intelligence technology in the field of education, on the one hand, is conducive to improving the overall level of classroom teaching, on the other hand, it also helps to improve the comprehensive ability of students, and lays a good foundation for the all-round development of students. Taking computer major as an example, this paper explores the feasibility path of integrating intelligent technology into classroom teaching in detail, in order to make artificial intelligence technology better serve students and modern education, and help the overall construction and formation of computer intelligent classroom.

Key words: intelligent technology; Classroom teaching; Path; Application

Introduction

With the rapid development of information technology in the new era, the application of intelligent technology in the field of education is more and more extensive. As an important part of education, classroom teaching also needs to improve the teaching effect and teaching quality with the help of intelligent technology. However, at this stage, the integration of intelligent technology and classroom teaching is not deep enough, and the technical means are not mature, which requires relevant educators to continue to explore on the road of reform and innovation. Through in-depth research on the path and application of intelligent technology into classroom teaching, the role of intelligent technology in improving teaching effect, promoting teaching reform and promoting education modernization is discussed. In order to further promote the modernization of education and promote the sharing and development of high-quality educational resources.

1. Brief introduction of the concept and characteristics of intelligent technology

Intelligent technology refers to the simulation of human intelligence or the realization of methods and algorithms similar to human thinking and decision-making process, so that computer systems with perception, understanding, reasoning and learning cognitive capabilities, such as artificial intelligence, big data, cloud computing and so on. In today's information-based society, intelligent technology has been widely used in various fields, including education.

First, smart technology can tailor personalized learning paths and content according to students' different characteristics and needs. By analyzing students' learning data and behavior patterns, smart technology can accurately assess students' mastery of knowledge and provide targeted textbooks and exercises that suit their level and interests. This personalized teaching method can better meet the needs of each student and promote their active participation and in-depth understanding of knowledge.

Secondly, smart technology can also help teachers achieve self-management of classroom teaching. Traditional classroom teaching often requires teachers to spend a lot of time and energy on a series of tedious work such as making teaching plans, preparing textbooks and correcting homework. Intelligent technology can assist teachers to complete these tasks in an automated and intelligent way, so that they can focus more on teaching itself. For example, intelligent technology can automatically generate personalized homework and evaluation reports based on students' learning and feedback information, which can greatly reduce the burden of teachers and help improve teaching efficiency.

Finally, smart technology can also promote the interactivity of classroom teaching. The traditional classroom teaching model is usually teacher-centered, and students are mainly passive receivers of knowledge. However, intelligent technology can create more real and vivid learning scenes through interactive technologies such as virtual reality and augmented reality, and provide rich and diverse interaction mechanisms for teachers and students. For example, in the experimental courses of computer majors, the virtual experiment platform can allow students to conduct safe and convenient experimental operations, and provide instant feedback and analysis, which can greatly improve the learning quality and efficiency.

2. The feasible path of integrating intelligent technology into classroom teaching

(1) Establish a scientific and intelligent teaching concept

The prevalence and development of smart education in the country and even the world means that China's education is gradually developing and moving towards the direction of modernization, intelligence and sharing, and gradually upgrading from traditional classroom teaching to cloud teaching, teachers can provide students with normal and comprehensive online teaching service guarantee. At the same time, the advanced AI technology can also get through the data and process of every link before, during and after class, truly running smart education through every detail of intelligent lesson preparation before class, intelligent explanation during class and hierarchical assignment after class. From this point of view, the establishment of scientific and intelligent teaching concepts by teachers is the foundation and key to realizing the goal of building smart classrooms, which affects the overall quality of classroom teaching and is also related to whether students can grow into smart and good students in the new era.

Teachers should fully realize that intelligent technology has broad application prospects in the field of education. By introducing intelligent AIDS and platforms, students' learning effect and interest will be greatly improved. For example, a personalized recommendation system based on artificial intelligence algorithms can provide students with tailored learning resources and activity suggestions based on their characteristics and needs, thus achieving precision education. In addition, technologies such as virtual reality and augmented reality can also create an immersive and interactive learning environment for students based on the teaching content, which can go a long way in stimulating students' enthusiasm for active participation. For example, intelligent agent technology can truly simulate human activities with the strong assistance of intelligent knowledge base. As far as computer professional teaching is concerned, it is mainly reflected in the aspects of classroom question-answering, publishing homework and examination. On this basis, the system can store the collected data in real time, and realize the effective connection between the data and the database with the aid of intelligent technology, and finally achieve the purpose of resource sharing.

However, the integration of intelligent technology into education and teaching is not a simple thing, and many problems need to be considered. First, smart technology must be closely integrated with curriculum content and learning objectives, and cannot simply be introduced for the sake of novelty. Secondly, the use of smart technology also requires teachers to have corresponding technical knowledge and teaching ability, otherwise it may backfire. Finally, the use of smart technology also needs to give full consideration to issues such as information security and privacy protection, and put the protection of students' rights and interests in the first place.

(2) Building an intelligent sharing teaching platform

The steady operation of the computer integrated teaching platform has effectively broken the time and space restrictions of traditional course teaching, and teachers and students can freely log in to the platform for practice according to time arrangements. Taking the bilingual courses "Java Enterprise Application" and "Introduction to Computer" as an example, in order to further realize the sharing of teaching resources and carry out Web management of the learning environment, teachers can upload courseware, lesson plans, test papers and other teaching resources to the platform, and students can access and learn anytime and anywhere through the network. At the same time, the platform has intelligent recommendation and evaluation functions, according to students' learning behavior and performance, teachers can provide students with personalized learning suggestions and evaluation, which can better meet the teaching needs of computer programming or algorithm training courses, and create a good online learning environment for students.

On this basis, a university jointly with Mingming Cloud Computing Technology Co., Ltd. to further expand the online experimental environment that can support C/C++, Java, Python, machine learning and other courses, integrating the server CPU and GPU resources, to achieve the platform upgrade and optimization. It provides technical and platform support for teachers and students to develop and practice large-scale programs, and lays a solid guarantee for the improvement of the teaching quality and effect of computer majors.

Through the realization of the above functions, the intelligent sharing teaching platform can provide personalized and efficient learning experience for students, and provide better teaching and management support for teachers. In practical education, several intelligent learning platforms have been applied in the teaching process of computer majors in colleges and universities. For example, Lanzhou University is applying a cloud-edge integrated online computer experiment teaching platform, which can design a personalized learning plan for each student according to their learning needs and pace. A professor in a university uses an intelligent teaching management platform to conduct remote teaching while managing students' learning process, greatly improving the flexibility and efficiency of teaching.

(3) The introduction of novel and intelligent teaching tools

1. Virtual experiment platform. It can provide a richer and more practical learning experience for computer science students. Traditional experimental courses are often limited by factors such as time, equipment and resources, and it is difficult to meet students' needs for practical operation and experimental environment. The virtual experiment platform, on the other hand, can simulate the real experiment scene and allow students to carry out various computer-related operations and experiments in the virtual environment, which can not only enhance students' understanding and mastery of knowledge points, but also cultivate their ability to solve problems and innovative thinking. For example, when students are learning "system debugging and installation" related content, teachers can apply VMware to create virtual machines including virtual CUP, hard disk, memory and other devices, so that students can operate on the virtual machine, can well prevent the impact of bad operations on the real computer, which is one of the effective ways to improve learning efficiency.

2. Smart classroom system. By combining sensors, cameras, projectors and other devices with network technology, the smart classroom system realizes the automatic monitoring and data collection of the whole process of classroom teaching. Teachers can obtain students' performance and feedback information in class in real time through the system, and then adjust teaching strategies and methods in time. At the same time, the smart classroom system can also record and analyze classroom data to provide teachers with scientific basis and reference to optimize the classroom teaching effect.

Epilogue

To sum up, as far as computer majors are concerned, the integration of intelligent technology has become an inevitable trend of professional teaching reform. Because of the urgency and necessity of the digital transformation of education, teachers should correctly understand the nature of intelligent technology enabling the teaching and learning of computer majors, take modern teaching concepts as guidance, effectively reform the teaching mode, innovate teaching methods, truly build a new ecological development of smart education, and help students develop in an all-round way.

References:

[1] Hui Yan. Application of artificial Intelligence visual Analysis Technology in classroom teaching evaluation [J]. Computer Knowledge and Technology,2023,19(4):29-32.

[2] Shihong Xu,Junmin Liu,Shizhou Wang, etal. Wisdom evaluation of Classroom Teaching from the perspective of Artificial Intelligence: Theoretical construction, Model support and technology implementation [J]. Educational Measurement and Evaluation,2022(2):56-65.

[3] Yaoxia Pan. Research on Smart Classroom Teaching Practice Based on Intelligent Technology -- A case study of Clothing Computer Design Course [J]. Liaoning Silk,2023(2):76-77,24.

[4] Huan Zhou,Peiying Zhang. Practical Path and Challenge of Smart Classroom Teaching Mode enabled by digital intelligent technology [J]. China Modern Educational Equipment,2023(5):14-16.

[5] Shaochun Zhong,Zhuo Zhong,Jiarong Fan, etal. How Intelligent Technology Supports the Construction of New Classroom Teaching Model [J]. China Audio-Visual Education,2022(2):21-29,46.

[6] Yuanyuan Lu,Zengzhao Chen,Rong Chen, etal. Research on Application framework of Intelligent Technology to boost teachers' Classroom Teaching Behavior Evaluation [J]. Modern Educational Technology,202,32(12):76-84.

[7] Libao Wu,Yanan Cao,Yiming Cao. Framework Construction of AI-enabled Classroom Teaching Evaluation Reform and technology Realization [J]. China Audio-Visual Education,2021(5):94-101.

[8] Xiufeng Wu. Practical research on Multivariate Analysis of AI-enabled project-based Classroom Teaching -- A case study of information technology "Acousto-optic Detection" teaching in high school [J]. Information Technology Education in primary and secondary Schools,2022(9):56-58.

[9] Meilian Pan,Hexiang Li. Research on the effectiveness of Artificial Intelligence Technology to improve classroom Teaching quality [J]. Office Automation,202,27(23):36-38,42.

[10] Shanfu Yin. Application of artificial intelligence technology in college classroom teaching management in the We-media era [J]. Modern Vocational Education,2021(9):222-223.

[11] Lan Bi. Exploration on the reform of Higher Vocational Classroom Teaching Management based on Cloud Teaching Intelligent Teaching Assistance Technology [J]. Industry and Technology Forum, 2019,19(9):235-236.

[12] Jiarong Fan,Shaochun Zhong. The essential understanding, practical dilemma and breakthrough path of digital transformation of classroom teaching under the guidance of artificial intelligence technology [J]. Research in Educational Sciences,2023(4):11-18.

[13] Hui Peng,Qunhui Zhang. Research on Flipped classroom Teaching of "Database Technology" course for Artificial Intelligence majors [J]. Wireless Internet Technology,2020,17(14):118-119.

[14] Jiangtao Huangfu,Duo Yang,Qian Wu, etal. Research on Intelligent Technology-assisted classroom Teaching -- A case study of Zhejiang University [J]. Industrial and Information Education,2020(3):79-83.

[15] Zhiping Dong. Research on Middle School Classroom Teaching Model based on Artificial Intelligence technology [J]. Wen Yuan (Primary School Edition),2021(11):1880-1881.

[16] Jing Liu. Research on the Application of Artificial Intelligence Technology in the Wisdom Classroom of Computer Majors in Higher Vocational Colleges [J]. Science and Information Technology,2022(16):133-136.

[17] Yong Shao. Research on Application of Artificial Intelligence Technology in the Wisdom Classroom of Computer courses [J]. Computer Campus,2023(3):64-66.