
Research on teaching system based on digital intelligence technology

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Abstract: This paper conducts in-depth research on the teaching system based on digital intelligence technology. It analyzes the background and significance of the application of digital intelligence technology in education, explores the characteristics and advantages of digital intelligence technology in teaching, and constructs a comprehensive teaching system framework. Through case studies and empirical research, the effectiveness and challenges of the teaching system based on digital intelligence technology are evaluated. The aim is to provide valuable references and suggestions for the innovation and development of education in the digital age.

Keywords: digital intelligence technology; teaching system; education innovation; effectiveness evaluation

I. Introduction

In the era of rapid development of digital technology, digital intelligence technology has brought new opportunities and challenges to education. The application of digital intelligence technology in teaching can improve teaching efficiency, enhance learning experience, and promote personalized learning. Therefore, it is of great significance to study the teaching system based on digital intelligence technology.

II. Background and Significance of Applying Digital Intelligence Technology in Education

A. Background

Rapid development of digital technology With the continuous progress of information technology, digital intelligence technology such as artificial intelligence, big data, and the Internet of Things has developed rapidly and is gradually being applied in various fields. Education is also facing the impact and transformation of digital intelligence technology.

Demand for educational reform In the context of globalization and the knowledge economy, traditional teaching models are facing challenges. There is an urgent need for educational reform to cultivate innovative talents with digital literacy and comprehensive capabilities. The application of digital intelligence technology can provide new ideas and methods

for educational reform.

B. Significance

Improving teaching efficiency. Digital intelligence technology can automate some teaching tasks, such as grading and feedback, saving teachers' time and energy. At the same time, it can also provide personalized learning paths and resources for students, improving learning efficiency.

Enhancing learning experience. Through the application of virtual reality, augmented reality, and other technologies, digital intelligence technology can create immersive learning environments, enhancing students' learning experience and interest.

Promoting personalized learning Digital intelligence technology can analyze students' learning behaviors and characteristics, and provide personalized learning plans and recommendations. This can meet the individual needs of students and promote their all-round development.

III. Characteristics and Advantages of Digital Intelligence Technology in Teaching

A. Characteristics

Data-driven. Digital intelligence technology can collect and analyze a large amount of teaching data, providing a basis for personalized teaching and accurate evaluation.

Intelligent interaction. Through artificial intelligence technology, digital intelligence technology can realize intelligent interaction between teachers and students, providing timely

feedback and guidance.

Multimedia integration. Digital intelligence technology can integrate various multimedia resources, such as text, images, videos, and animations, enriching teaching content and forms.

B. Advantages

Flexibility and convenience. Digital intelligence technology can break through time and space limitations, allowing students to learn at any time and anywhere. At the same time, it can also provide flexible learning paths and methods, meeting the diverse needs of students.

Rich resources and diversity. Digital intelligence technology can access a large amount of educational resources from the Internet, providing students with rich learning materials and references. At the same time, it can also support various teaching methods and activities, such as online courses, flipped classrooms, and project-based learning.

High efficiency and accuracy. Digital intelligence technology can process and analyze teaching data quickly and accurately, providing teachers with timely feedback and evaluation results. At the same time, it can also optimize teaching strategies and methods based on data analysis, improving teaching efficiency and quality.

IV. Construction of Teaching System Framework Based on Digital Intelligence Technology

A. Teaching Objectives and Contents

Determine teaching objectives. Based on the characteristics and needs of digital intelligence technology, determine the teaching objectives of cultivating students' digital literacy, innovation ability, and comprehensive qualities.

Design teaching contents. According to the teaching objectives, design teaching contents that integrate digital intelligence technology, including basic knowledge of digital intelligence technology, application cases in education, and practical skills training.

B. Teaching Methods and Strategies

Adopt diversified teaching methods
Combine traditional teaching methods with

digital intelligence technology, such as online courses, flipped classrooms, and project-based learning. At the same time, use virtual reality, augmented reality, and other technologies to create immersive learning environments.

Implement personalized teaching strategies
Based on students' learning behaviors and characteristics, use digital intelligence technology to provide personalized learning plans and recommendations. At the same time, establish feedback mechanisms to adjust teaching strategies in time according to students' learning progress and needs.

C. Teaching Evaluation and Feedback

Establish comprehensive evaluation indicators. Establish a comprehensive evaluation system that combines formative evaluation and summative evaluation, including students' learning attitudes, learning processes, and learning results. At the same time, consider the application of digital intelligence technology in evaluation, such as using automated grading systems and learning analytics.

Provide timely feedback and guidance
Based on evaluation results, provide timely feedback and guidance to students and teachers. For students, provide personalized learning suggestions and improvement directions. For teachers, provide teaching optimization suggestions and professional development guidance.

D. Technical Support and Infrastructure

Build technical support platforms
Build technical support platforms such as learning management systems, educational data platforms, and intelligent tutoring systems to provide technical support for teaching activities based on digital intelligence technology.

Improve infrastructure construction
Improve infrastructure construction such as network bandwidth, computer equipment, and software systems to ensure the stable operation of digital intelligence technology in teaching.

V. Case Studies and Empirical Research on

Teaching System Based on Digital Intelligence Technology

A. Case Studies

Case one: Online learning platform. Introduce an online learning platform that integrates digital intelligence technology, such as artificial intelligence tutoring and learning analytics. Analyze the application effects and challenges of this platform in teaching.

Case two: Virtual reality classroom. Build a virtual reality classroom that uses digital intelligence technology to create immersive learning environments. Evaluate the impact of this classroom on students' learning experience and achievement.

B. Empirical Research

Research design. Design empirical research plans to verify the effectiveness and challenges of the teaching system based on digital intelligence technology. Select appropriate research methods and indicators, such as questionnaires, tests, and interviews.

Data collection and analysis. Collect and analyze research data to evaluate the impact of digital intelligence technology on teaching efficiency, learning experience, and learning achievement. At the same time, identify challenges and problems in the application process and propose corresponding solutions.

VI. Effectiveness Evaluation of Teaching System Based on Digital Intelligence Technology

A. Evaluation Indicators

Teaching efficiency. Evaluate teaching efficiency from aspects such as teaching time, task completion rate, and student participation.

Learning experience. Evaluate learning experience from aspects such as students' interest, satisfaction, and immersion.

Learning achievement. Evaluate learning achievement from aspects such as test scores, project completion quality, and innovation ability.

B. Evaluation Methods

Quantitative evaluation. Use quantitative evaluation methods such as statistical analysis and data comparison to evaluate the effectiveness of

the teaching system based on digital intelligence technology.

Qualitative evaluation. Use qualitative evaluation methods such as interviews and case studies to understand students' and teachers' subjective feelings and experiences.

C. Evaluation Results and Analysis

Positive effects. Analyze the positive effects of the teaching system based on digital intelligence technology, such as improving teaching efficiency, enhancing learning experience, and promoting personalized learning.

Challenges and problems. Identify challenges and problems in the application process of digital intelligence technology, such as technical limitations, teacher training, and student adaptability.

Countermeasures and suggestions. Propose corresponding countermeasures and suggestions to address challenges and problems, promoting the continuous improvement and innovation of the teaching system based on digital intelligence technology.

VII. Challenges and Countermeasures in the Application of Digital Intelligence Technology in Teaching

A. Challenges

Technical limitations. Digital intelligence technology is still in the stage of development and application, and there are some technical limitations, such as data security, algorithm accuracy, and system stability.

Teacher training. Teachers need to master digital intelligence technology and teaching methods, which requires a certain amount of training and time. At the same time, teachers also need to adapt to the changes brought about by digital intelligence technology and adjust their teaching concepts and methods.

Student adaptability. Students need to adapt to the new learning environment and methods brought by digital intelligence technology, which requires a certain period of time and guidance. At the same time, students also need to develop digital literacy and self-learning ability to better use digital intelligence technology for learning.

B. Countermeasures

Strengthen technical research and development. Increase investment in technical research and development, improve the performance and stability of digital intelligence technology, and ensure data security and algorithm accuracy.

Provide teacher training and support. Organize teacher training activities to help teachers master digital intelligence technology and teaching methods. At the same time, provide technical support and resources to help teachers better apply digital intelligence technology in teaching.

Cultivate student digital literacy and self-learning ability. Incorporate digital literacy education into the curriculum, help students understand and master digital intelligence technology, and develop their self-learning ability. At the same time, provide guidance and support to help students adapt to the new learning environment and methods.

VIII. Conclusion

The teaching system based on digital intelligence technology is an important direction for the innovation and development of education in the digital age. Through the research and application of digital intelligence technology, we can improve teaching efficiency, enhance learning experience, and promote personalized learning. However, in the application process, we also need to face challenges and problems such as technical limitations, teacher training, and student adaptability. By strengthening technical research and development, providing teacher training and support, and cultivating student digital literacy and self-learning ability, we can continuously improve and innovate the teaching system based on digital intelligence technology, providing better educational services for students and society.

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