

Research on the Current Situation and Strategies of Intelligence-Based Teaching in Vocational Colleges under the Digital Background

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ABSTRACT

With the advancement of digital transformation in education, vocational colleges are vigorously exploring the reform of intelligence-based vocational education. Through investigation and research, it has been summarized that there are four main problems in the application of intelligence-based teaching in vocational colleges: serious knowledge overload of intelligence-based teaching resources, teachers using technology for the sake of showing off their skills, weak students' ability to integrate knowledge, and insufficient data protection. Exploring attribution analysis, proposing solutions to construct intelligence-based teaching resources, enhance teachers' digital information literacy, develop personalized learning plans for students, and strengthen data protection on intelligence-based teaching platforms, in order to provide vocational college students with better intelligence-based education experiences and jointly promote the healthy development of intelligence-based teaching in vocational colleges.

KEYWORDS

Digital of Education; Vocational colleges; Intelligence-Based Teaching

1 Literature Review

With the rapid development of information technology, the forms of education and teaching have also undergone tremendous changes. The digital transformation of education is the era of digital economy.

The strategic choice of education reform, vocational education is facing the dual challenges of the knowledge economy, shouldering the important task of cultivating great country craftsmen, skilled workers, and high skilled talents with the spirit of innovation of the times for the country.^[1] Therefore, in the context of digital transformation in education, exploring intelligence-based teaching in vocational colleges is of great significance.

2 Intelligence-Based Teaching

2.1 Overview of Intelligence-Based Teaching

Intelligence-based teaching is a method based on educational theory, utilizing advanced information technology to improve teaching efficiency and quality.

The main objective is to develop a modern teaching model. Its fundamental goal is to promote the intellectual development of learners and cultivate intelligent talents. The essence of intelligence-based teaching is the intelligence of teaching, which not only refers to the intelligence of teaching methods and resources, but also emphasizes the intelligence of the teaching process.^[2] Intelligence-based teaching utilizes modern artificial intelligence, big data, cloud computing, and other information technologies and intelligent hardware to integrate teaching and learning before, during, and after class, making it platform based and self-service. It achieves digital, networking, intelligence, and multimedia throughout the entire teaching process, thereby realizing the intelligence of teaching.^[3] At present, common intelligence-based teaching application scenarios in vocational colleges include integrated intelligence-based teaching platforms, intelligence-based classrooms, simulation training rooms, AR/VR teaching tools, as well as various intelligence-based teaching software and resources, which help promote the digital transformation of vocational education. The intelligence of teaching includes the intelligence of teaching content, teaching methods, teaching evaluation, and other aspects. Teachers and students can easily and quickly obtain a large number of high-quality teaching resources, and can also arrange teaching and learning content reasonably according to actual needs, enhance students' learning interest and creativity, improve teachers' teaching efficiency and quality, thereby enhancing the comprehensive quality and innovation ability of vocational college students, and adapting to the demand for high skilled talents in the rapidly developing society.

2.2 The difference between intelligence-based teaching and traditional teaching

There is a huge difference between intelligence-based teaching and traditional teaching methods. Traditional teaching methods focus on teachers as the center of instruction and emphasize teaching content.

The teaching effect is that students lack opportunities for exploration and passively receive knowledge. In addition, there is less interaction between teachers and students, and the classroom atmosphere is relatively dull. Intelligence-based teaching combines large-scale teaching with personalized learning, supporting various learner centered teaching modes such as inquiry based, heuristic, discussion based, and collaborative, to achieve intelligent teaching. Intelligence-based teaching advocates learner contentedness, relying on new generation information technology and intelligent hardware, which can comprehensively and real-time monitor, evaluate, and provide feedback on the teaching process. Teachers can understand students' learning situation in real time based on feedback data, adjust teaching plans in a timely manner, and achieve personalized teaching. In addition, intelligence-based teaching emphasizes the process of teaching implementation, relying on intelligence-based teaching platforms and other teaching resources to achieve interactive learning between teachers and students, stimulate students' interest in learning, create a relaxed and pleasant classroom atmosphere, and effectively improve teaching effectiveness and quality.

3 Research Design

A total of 558 articles were retrieved from the China National Knowledge Infrastructure database using keywords "intelligence-based teaching" and "vocational education" for thematic searches. After sorting and analysis, these literature can be mainly divided into three categories: first, research and exploration of intelligence-based teaching mode in vocational colleges. The second is the application research of intelligence-based teaching in a certain course in vocational colleges. The third is the construction and application research of intelligence-based teaching platforms in vocational colleges.^[4] Although there is currently limited research by scholars on promoting intelligence-based teaching strategies in vocational colleges, these literature materials provide a solid research foundation for future studies on the application status of intelligence-based teaching in vocational colleges.

3.1 The current application status of intelligence-based teaching in vocational colleges

With the rapid development of information technology, vocational college teachers have begun to actively learn new technologies and gradually apply information technology to classroom teaching.

To conduct practical exploration in order to improve the interaction between teachers and students and the fun of the classroom, and to enhance teaching effectiveness and quality. Song Yonglei and others proposed to reshape the new form of information resource services through AIGC, optimize the resource supply structure, and promote the construction of digital teaching scenarios, intelligently generating teaching resources that meet the needs of vocational college teachers and students.^[5] Li Qing and others explored the application research of intelligence-based teaching in connecting nursing majors between secondary and vocational education, and explored the application effect of intelligence-based teaching in community health service courses through the joint video feedback teaching method. Li Bo conducted research on the construction of a flipped classroom teaching model for vocational training in a intelligence-based education environment. He proposed starting from the design of a intelligence-based teaching environment, the construction of a intelligence-based network learning platform, the analysis of the learning needs of intelligence-based learners, the hierarchical setting of intelligence-based teaching goals, the application of intelligence-based teaching methods, and the evaluation feedback of intelligence-based teaching, to improve the classroom teaching system and build a flipped classroom teaching model for vocational training based on intelligence-based education.

To gain a deeper understanding of the current application status of intelligence-based teaching in vocational colleges, the author surveyed 39 teachers from 7 vocational colleges in different regions of Sichuan Province.

Conducted interviews and surveys with 8 staff members responsible for school information technology construction. The survey found that more and more vocational colleges have realized the importance of digital transformation in education and have begun to organize various information technology empowerment training for teachers; Some vocational education teachers are able to apply their newly learned technologies (such as AI, virtual reality, etc.) to teaching activities such as classrooms and virtual training, allowing students to experience and master knowledge firsthand; Some teachers pay attention to the latest science and technology, value teaching innovation, and are able to keep pace with the times.

They enrich the teaching classroom through advanced science and technology, ignite students' thirst for knowledge, and stimulate their interest in learning; In addition, some teachers have just begun to try implementing intelligence-based teaching. They will use some simple technical means to enhance the interaction between teachers and students, as well as students, in their teaching implementation. However, they are not yet able to flexibly implement intelligence-based teaching in the classroom, and there is still room for improvement in optimizing and improving teaching methods and integrating teaching resources.

3.2 Problems in the application of intelligence-based teaching in vocational colleges

Intelligence-based teaching has brought many advantages to education and teaching, but it also faces some serious problems and challenges. Through preliminary investigation, the following four main problems have been identified in the application of intelligence-based teaching in current vocational colleges.

Currently, there is a situation of knowledge overload in the intelligent teaching resources of most vocational colleges. The main manifestation of "knowledge overload" is the repetitive development of knowledge, such as a large number of homogeneous online courses, digital textbooks, etc., with high content repetition. Essentially, it not only fails to broaden students' knowledge, but also adds additional academic tasks to them. The goal of intelligence-based teaching is to promote the intelligent development of learners and the cultivation of intelligent vocational and technical talents. Vocational colleges should maintain consistency with their talent cultivation goals and curriculum objectives. The innovation of knowledge content is the primary prerequisite for vocational colleges to carry out courses around the goal of intelligent teaching. However, in the actual teaching of vocational colleges, many intelligence-based teaching courses simply repeat the meaningless development of knowledge, lacking the cultivation of students' thinking ability, deviating from the concept of intelligence-based teaching to achieve intelligent and personalized learning, and running counter to the original goal of promoting learners' intelligence-based development. These courses that deviate from the goal of intelligent teaching ignore the innovation of knowledge content, resulting in the phenomenon of "knowledge overload". Due to the excessive emphasis on attracting learners' interest in learning in such intelligence-based teaching courses, and the failure to design specific course content based on students' actual learning needs, cognitive development characteristics, and other factors, the vision of using intelligence-based teaching to broaden learners' knowledge breadth has not been achieved.

In the process of digital transformation in education, teaching forms have become more diverse and colorful, and the phenomenon of "showing off skills" is constantly emerging, but the teaching effect is poor.

Strong willed. The root cause is that teachers have improper knowledge processing or only focus on the surface level of knowledge processing. Related scholars point out that in intelligence-based teaching, some teachers use cool technology to teach knowledge, and students' learning is like watching a movie. Learners only stagnate in superficial processing of knowledge and fail to deeply understand and digest it. Over time, they will lose their original curiosity and thirst for knowledge in learning. Attribution analysis shows that teachers have failed to effectively utilize information technology in their teaching. In the implementation of intelligence-based teaching, the excessive abuse of technology leads to people being controlled by technology. For example, frequent use of electronic devices to present course knowledge accelerates teaching progress, but students cannot deeply understand and master the knowledge. In addition, some teachers overly consider how to use information technology to present knowledge content, but neglect the use of information technology to assist learners in establishing connections between knowledge points and deepening their understanding of difficult knowledge points. Due to the overly "colorful" presentation of knowledge in this type of teaching, but the lack of deep thinking on the application of technology, technology and teaching are separated, hindering the deep processing of knowledge and turning the originally high-quality intelligent teaching into low-quality teaching that uses technology for the sake of showcasing it.

Character transformation. In the construction of intelligence-based teaching platforms, not only do we need to invest a lot of manpower, material resources, and financial resources, but maintaining the normal operation of the platform also requires a large amount of manpower, material resources, and financial resources. For vocational colleges with limited resources, it is still difficult to carry out comprehensive digital transformation. They can only rely on existing teaching platforms for optimization and upgrading, or use shared Intelligence-based teaching platforms. Maintaining the data security of intelligence-based teaching resources and intelligence-based teaching platforms is an issue that needs to be taken seriously.

4 The breakthrough path of intelligence-based teaching in the future teaching of vocational colleges

In order to better improve the quality of intelligence-based teaching application in vocational colleges, and to address the problems currently existing in the application of vocational education, we will conduct a comprehensive review. By analyzing and exploring the main reasons for its formation, the following four solutions are proposed.

4.1 Reasonably constructing intelligent teaching resources

The serious problem of "knowledge overload" in intelligence-based teaching resources in vocational colleges is due to the fact that vocational colleges are undergoing digital transformation in education.

Intelligence-based teaching is rapidly advancing, and some online courses and textbooks are taking the lead in the transformation, deviating from the original talent cultivation goals. The goal of intelligence-based teaching is to promote

the development of learners' intelligence and cultivate intelligent vocational and technical talents. When vocational colleges construct intelligence-based learning resources, they should be guided by the goal of intelligence-based teaching, attach importance to the quality of teaching resources, balance the relationship between technology and knowledge, and prioritize knowledge over technology. Before conducting formal classes, teachers must investigate students' learning situation, integrate and filter online intelligent teaching resources, reasonably select or reconstruct intelligent teaching resources that match students' learning situation, avoid excessive teaching and learning, and avoid increasing students' academic burden.

4.2 Enhance teachers' digital information literacy ability

The problem of "teachers showing off their skills" in intelligence-based teaching in vocational colleges is due to teachers' improper processing of knowledge in teaching and insufficient response. Using information technology to assist teaching or not knowing how to use new technologies at all, without understanding, accepting, implementing, and optimizing intelligence-based teaching cognitively. Therefore, vocational colleges need to provide digital information literacy empowerment training for teachers, especially newly hired teachers and teachers who are passionate about traditional teaching. In addition, comprehensive technical support and guidance should be provided to vocational education teachers who implement intelligence-based teaching, and teachers should be encouraged to actively participate in the exploration and practice of intelligence-based teaching models, promote the comprehensive application and promotion of intelligence-based teaching in vocational colleges, comprehensively enhance teachers' digital information literacy and technology application ability, and assist in the digital transformation of vocational education.

4.3 Strengthen the data protection of intelligence-based teaching platforms

In terms of maintaining the intelligence-based teaching platform, in response to the problem of insufficient data protection, it is proposed to strengthen the data protection capability of the intelligence-based teaching platform. The strategy of degree. The insufficient data protection of intelligence-based teaching in vocational colleges is due to the excessive emphasis on the construction of intelligence-based teaching resources and platforms during the digital transformation of education, neglecting the security maintenance of intelligence-based teaching resources and platforms, and neglecting the privacy protection of confidential information.^[6] Therefore, while promoting the application of intelligence-based teaching resources and platforms, vocational colleges should pay more attention to the maintenance of intelligence-based teaching resources and platforms. Colleges that allow conditions may establish separate information centers within their internal teaching support departments to be responsible for the school's information construction and security, ensuring the security of campus data information, properly handling confidential data, and jointly promoting the healthy development of intelligence-based teaching in vocational colleges.

5 Conclusion

In summary, with the digital transformation of education, intelligence-based teaching will become an important direction for future educational reform and development. In the process of promoting intelligence-based teaching in vocational colleges, it is necessary to construct intelligence-based teaching resources reasonably, enhance teachers' digital information literacy ability, develop personalized learning plans for students, and strengthen the data protection of intelligence-based teaching platforms. Only by making joint efforts in policies, schools, teachers, and other aspects can intelligence-based teaching truly unleash its potential and provide students with a better intelligence-based education experience.

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