Research on Vocational Education Reform and Innovation Based on Information Technology Practice

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Abstract: Based on the perspective of information technology reform, higher requirements have been put forward for student management and course teaching in vocational colleges. Therefore, teachers should actively explore suitable opportunities and practical paths to introduce information technology and rely on advanced technology, equipment, and software to promote the reform and development of virtualization, datafication, and intelligence in course teaching. Due to the limitations and influences of various practical factors, teachers face many problems in the application of information technology, which to some extent hinder classroom teaching reform and innovation. Given this, this article discusses the application of information technology, which plays an important role in classroom teaching reform and student ability improvement. This study will briefly explain the concept and characteristics of information technology, analyze the existing problems in current information technology teaching, and finally propose specific reform and innovation practice paths.

Keywords: Information technology; Vocational education; Classroom reform and innovation; Practical Path

1. Introduction

In the context of informatization, networking, and intelligence, information technology has penetrated various fields of society, and vocational education is no exception. As an important base for cultivating skilled talents, vocational education classrooms must keep pace with the times, fully utilize the advantages of information technology, and promote classroom reform and innovation [1]. This not only helps to improve the quality and efficiency of teaching but also better meets the demand of society for high-quality and highly skilled talents [2]. Currently, vocational education classrooms face many challenges, such as outdated teaching content, single teaching methods, and a lack of teaching resources.

2. Explanation of the connotation and learning characteristics of information technology

Connotation explanation: With the progress and development of society, information technology has emerged. It is a general term related to technology, mainly applied to the processing and management of information. People gradually understand and transform nature through production and scientific experiments. Over the long course of history, people have gradually accumulated knowledge in collecting, transmitting, and storing information, experience, and skills related to operations, and integrating these experiential knowledge and skills [3].

Learning characteristics: Generally speaking, the characteristics of information technology mainly include networking, digitization, multimedia, and intelligence. Since these aspects are not covered, it is necessary to analyze the characteristics of information technology from multiple perspectives and levels and conduct a deeper analysis and understanding. Firstly, information technology has characteristics associated with ordinary technology and has a high level of technological content [4]. This is a more scientific, advanced, and experienced technology. At the same time, information technology also has the characteristics of being fast, practical, and efficient. Secondly, compared to other technologies, information technology has its unique characteristics. The main service object of information technology is information, and its main function is to provide users with information processing and improve usage efficiency. Correspondingly, its universality, objectivity, dynamism, and shareability have an extremely important impact on the development of human society.

3. The practical significance of classroom reform and innovation in vocational education

Firstly, from the perspective of student development, the application of information technology in vocational education classrooms greatly promotes the comprehensive development of students. In traditional teaching models, students are often in a passive state of receiving knowledge, while the introduction of information technology enables students to participate more actively and proactively in learning [5]. Through information technology such as multimedia and the internet, students can access richer and more vivid learning resources, thereby enhancing the fun and effectiveness of learning. In addition, the application of information technology can help students better understand and master professional knowledge and improve learning efficiency and grades. More importantly, information technology can also cultivate students' information literacy and innovation ability, laying a solid foundation for their future career development.

Secondly, from the perspective of the development of vocational colleges, the reform and innovation of vocational education classrooms under information technology is also an important way to enhance the competitiveness of schools. With the support of information technology, vocational colleges can build more advanced and complete teaching systems and improve teaching quality and efficiency [6].

Thirdly, from the perspective of social and industry development, the reform and innovation of vocational education classrooms under information technology is also an important driving force for promoting economic and social development. With the continuous development and popularization of information technology, the demand for high-quality and highly skilled talents in society is also increasing [7]. As an important base for cultivating such talents, vocational education's classroom reform and innovation are of great significance in meeting social needs and promoting economic and social development. Through the application of information technology, vocational education can more accurately align with industry demands and talent standards, improving the pertinence and effectiveness of talent cultivation. At the same time, the application of information

technology can also promote the deep integration of vocational education with industries and sectors, and promote the formation of a good pattern of coordinated development between industry and education.

4. The shortcomings of classroom construction in vocational education under information technology

4.1. Insufficient application of information technology

Although educational informatization has become the core driving force of educational modernization, information technology has greatly improved the efficiency of professional course teaching with its efficient information storage and dissemination characteristics. In the process of vocational education teaching, the teaching goal is generally to cultivate applied talents [8]. To meet this demand, it is necessary to continuously upgrade and update teaching technology and equipment.

4.2. Deviation in the application orientation of information technology

Although information technology teaching resources are abundant, the core of teaching always revolves around students and real-life situations. In the construction of vocational education information technology classrooms, the principles of practicality, operability, and applicability should be closely integrated. However, the application of information technology in education often focuses on the theoretical level, posing special challenges to vocational education [9]. How to seamlessly integrate theory with practice depends on the selection of educational resources, teachers' proficient use of technology, and students' active learning enthusiasm. Improving the teaching quality of vocational education in the new era is an urgent issue that needs to be addressed.

4.3. The application of information technology is not scientific enough

The information industry is advancing rapidly, and the traditional teaching mode of vocational education lags in the face of the rapid development of information technology. The construction of traditional information technology platforms focuses more on short-term tasks rather than long-term development, lacking continuity and scalability [10]. Therefore, the design of teaching platforms in the past has limitations in supporting the sustainable development of vocational education informatization. To promote the deep integration of vocational education and information technology, vocational college teachers should actively explore more scientific development models to meet the needs of future education reform.

5. The practical path of classroom reform and innovation in vocational education under information technology

5.1. Transforming classroom teaching philosophy

Teachers should adhere to the teaching philosophy of "putting students first." Traditional vocational education classrooms often center around teachers, with students passively receiving knowledge. In the context of information technology, a student-centered teaching philosophy should be established, emphasizing students' subjectivity and participation. Teachers should become guides and facilitators of students' learning, using information technology to stimulate students' interest and initiative in learning, and making students the masters of the classroom [11]. Secondly, promote the concept of "personalized" teaching. Information technology provides strong support for personalized and differentiated teaching. Through big data analysis and

intelligent recommendation systems, teachers can more accurately understand students' learning needs and characteristics, and provide customized learning plans for each student. Thirdly, emphasis should be placed on the teaching philosophy of "integrating theory and practice", and vocational education should focus on cultivating students' practical and innovative abilities. With the support of information technology, classrooms can be more closely aligned with actual work environments, allowing students to learn and master professional skills through simulated training, virtual experiments, and other methods. Meanwhile, teachers can use information technology to encourage students to participate in innovative projects and practical research, cultivating their innovative thinking and practical abilities [12].

5.2. Optimize classroom teaching design

Classroom teaching innovation is a crucial driving force for the innovation of vocational education classrooms driven by information technology. Teaching design, as an important foundation and prerequisite for educational practice, will directly affect teaching outcomes and effectiveness. Under the background of information technology reform in education, the optimization and upgrading of teaching design can be carried out from the following aspects. Firstly, by optimizing the design of teaching objectives and relying on information technology, teachers can accurately identify the personalized needs and potential advantages of each student, and based on this, formulate differentiated teaching objectives, achieve personalized teaching, and strengthen targeted education. Secondly, teachers need to integrate the dynamic interactive mode driven by artificial intelligence. With the assistance of technology, the diversity of teaching strategies has been enhanced, such as self-adaptive learning based on learning paths, the application of gamified learning strategies, and experimental teaching using virtual reality and augmented reality technologies. Then, real-time application of intelligent data analysis is crucial. Through information technology, teachers can collect and analyze real-time data on students' learning behavior, effectiveness, and attitudes, thereby identifying bottlenecks in learning and providing strong support for teachers' teaching decisions. Finally, teachers cannot ignore the importance of comprehensive learning assessment. In the design of information and digital teaching, the evaluation system should comprehensively consider the overall learning process of students, not just their grades.

5.3. Innovative classroom teaching methods

The optimized utilization of information technology plays a decisive role in the innovation of vocational education classrooms, with a variety of innovative teaching practices that are flexible and diverse. The construction of teaching modes and innovation of teaching forms should try to meet the multiple needs of students, adapt to their ability levels, achieve deep integration of teaching resources, and provide high-quality teaching services for students. Specifically, first, teachers can use Internet teaching platforms, such as intelligent classroom platforms and online learning platforms, to break traditional teaching barriers, through real-time data-driven, and information-based teaching. At the same time, teachers can also dynamically adjust course content and implement personalized teaching, human-computer interaction teaching, and other teaching modes. Secondly, teachers can also use media platforms and teaching apps in knowledge graph resources to construct a systematic knowledge structure, encouraging students to participate in diversified self-directed learning, such as introducing teaching modes such as knowledge point exploration, task-driven learning, and online testing interaction [13]. Thirdly, teachers can apply virtual reality technology to create simulated scenarios for students by utilizing technologies such as AR/VR/MR/XR, making abstract and obscure knowledge vivid and concrete in the simulated environment, which helps students understand and

comprehend. Fourthly, in addition to the above modes, teachers can also rely on natural language processing technology to build a human-computer interaction environment, which can create a real environment for students and promote personalized learning. At the same time, students themselves can also utilize the tools of pattern recognition technology to analyze learning behavior and feedback, achieve self-diagnosis and optimization, and obtain customized learning resources and support. In other words, teachers' flexible use of information technology in the classroom can effectively stimulate students' interest in active learning, improve teaching effectiveness, and also promote innovation and upgrading of vocational education classrooms [14].

5.4. Refactoring classroom teaching evaluation

Information technology plays a crucial role in promoting the innovation of vocational education classrooms, and can deeply intervene and optimize the teaching evaluation process. It is mainly applied in data collection, processing, and analysis, which can assist teachers in comprehensively, objectively, and scientifically evaluating students' learning status, understanding their learning interests, analyzing their learning difficulties, and providing a reference for targeted teaching in the future [15]. The key to implementing classroom evaluation reform based on information technology lies in updating concepts and innovating methods. On the one hand, the evaluation concept has been updated. On the other hand, teachers should emphasize a student-centered approach, not only focusing on their final academic performance but also on the learning process and emotional experience. At the same time, a large amount of data should be integrated, which can be combined with multi-dimensional information such as students' exam scores, behavioral performance, learning process data, and emotional feedback. The second is for teachers to create a detailed portrait of students, which means that teachers can form a comprehensive portrait of students through in-depth mining and integration of massive data. On the other hand, innovative evaluation methods and information technology can capture real-time classroom activity data, including learning dynamics, interaction modes, teaching processes, and emotional factors. Through complex data analysis and integration, a dynamic evaluation model that reflects the current teaching situation in real-time can be constructed. With the help of intelligent technology platforms, these data will be distributed for processing, personalized profiling, and dynamic evaluation, continuously optimizing evaluation models, and ultimately achieving full process, multi-angle, and customized teaching evaluation. In practice, teachers implement teaching evaluation from the following aspects. First is data-driven evaluation, which evaluates learning effectiveness by analyzing learning behavior, process, and emotional data. The second is dynamic evaluation, which uses dynamic profiling technology to track students' progress in real time and flexibly adjust teaching strategies. The third is personalized evaluation, which implements differentiated evaluation based on the unique learning characteristics and needs of each student to ensure the pertinence and effectiveness of the evaluation.

6. Conclusion

Overall, to fully utilize the application effectiveness of information technology in vocational education teaching, teachers should propose practical paths for introducing information technology based on an in-depth exploration of its connotation and characteristics. Measures such as transforming classroom teaching concepts, optimizing classroom teaching design, innovating classroom teaching forms, and reconstructing classroom teaching evaluation can be taken to promote the deep integration of information technology and classroom teaching. This can effectively improve the quality of vocational education teaching and talent cultivation and ultimately promote the high-quality development of vocational colleges.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Lei JX, 2019, Exploration of the Reform Path of Innovation and Entrepreneurship Education in Higher Vocational Colleges under the New Normal: Taking Hunan Automotive Engineering Vocational College as an Example. Hebei Vocational Education, 3(1): 5–8.

[2] Zhu JJ, Wang Y, 2013, Exploration of how to Use Information Technology to Promote Teaching Reform in Vocational Colleges in the Era of MOOCs. Information and Computers: Theoretical Edition, 2013(11): 2.

[3] Yang H, 2013, Research on Innovative Teaching Models in Vocational Colleges Using Modern Information Technology. Hebei Vocational Education, 9(11): 27–28.

[4] Yi K, 2017, Analysis of Utilizing Modern Information Technology to Promote Teaching Reform in Higher Vocational Colleges. Digital Communication World, 2017(5): 252–253.

[5] Yang ZY, Zhang C, Lv CX, 2022, Research on the Standards for Information Technology Application Ability of Teachers in Health Vocational Colleges. China Health Industry, 2022(5): 15.

[6] Jiang S, 2023, Research on the Optimization of Physical Education Curriculum System in Vocational Colleges under the Background of Vocational Education Reform, thesis, Tianjin Sport University.

[7] Zhou SQ, 2023, Research on the Transformation and Development of Private Universities under the Background of Vocational Education Reform, thesis, Jiangxi University of Finance and Economics.

[8] Han CY, 2019, Exploration of Vocational Education Teaching Reform under the Background of Modern Information Technology. New Curriculum Research, 2019(5): 10–11.

[9] Jiang QL, Wu HJ, Nie YT, 2018, Research and Exploration on Vocational Education Teaching Reform Based on Information Technology. Modern Rural Technology, 2018(07): 88–90.

[10] Yang Y, 2018, Research on Curriculum Construction and Teaching Reform of Vocational Education under Modern Information Technology Conditions. Vocational Education Forum, 2018(07): 52–56.

[11] Yan L, 2017, Research on the Reform of Vocational Education Teaching Mode Based on Modern Information Technology. Journal of Liuzhou Vocational and Technical College, 17(03): 49–52.

[12] Ji RJ, 2017, A Brief Discussion on the Reform and Innovation of Information Technology Classroom Teaching in Vocational Education. Study Weekly, 2017(4): 15–16.

[13] Yuan Q, Min P, 2016, Information Technology Promotes Vocational Education Reform and Innovation. Guangdong Vocational and Technical Education and Research, 2016(2): 115–117.

[14] Shu DQ, 2015, New Exploration of Teaching Reform with Deep Integration of Information Technology and Vocational Education. Hunan Social Sciences, 2015(5): 195–198.

[15] Liu Y, 2015, Exploration of Vocational Education Teaching Reform Based on the Deep Integration of Information Technology and Curriculum. Journal of Nanjing Industrial Vocational and Technical College, 15(3): 46–49.