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Exploring the Path and Practice of Integrating Information Technology into Classroom Teaching in Vocational Colleges

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Abstract
With the rapid development of information technology, its application in the field of education is becoming increasingly widespread, bringing profound changes to classroom teaching in vocational colleges. The integration of information technology not only innovates teaching methods and enriches teaching resources, but also promotes the updating of educational concepts and the innovation of teaching models. This article aims to explore the path and practical methods of integrating information technology into classroom teaching in vocational colleges, comprehensively analyze the current application status of information technology in teaching, including its specific performance in improving teaching effectiveness, promoting student self-directed learning, and optimizing teacher-student interaction. Meanwhile, this article will propose specific implementation strategies based on the actual needs of vocational colleges, such as strengthening the construction of information technology infrastructure, cultivating teachers' information technology application abilities, and developing information technology teaching resources suitable for vocational education. Finally, this article will also look forward to the future development trend of information technology in classroom teaching in vocational colleges, in order to provide useful reference and inspiration for improving the quality of education and teaching in vocational colleges.

Keywords: Information technology; Vocational colleges; Classroom teaching; route; practice.

1. Introduction

In today's era of booming knowledge economy and rapid technological progress, information technology is like a strong east wind, driving profound changes in various fields of society at an unprecedented speed and breadth, and education is no exception. The sudden rise of Big Data has brought a new direction to technological progress and social development, driving another revolution in information technology. Big data resources will become an important educational resource, and big data decision-making will become a new decision-making method in education. Big data applications will promote educational reform (Feng, 2014). In 2018, the Ministry of Education released the Education Informatization 2.0 Action Plan, which clearly emphasized the promotion of "Internet plus education" and the deep integration of information technology and education, so as to help build a strong country in education and human resources. As a significant symbol of the progress of the times, information technology has not only reshaped people's lifestyles and work patterns, but has also become a key force

in promoting reform and innovation in the field of education. The ten-year development plan for educational informatization (2011-2020) clearly states that it is necessary to promote educational modernization through informatization, continuously promote the integration of modern information technology and teaching, and ultimately innovate educational concepts and teaching methods. Through informatization education, modern information technology can be widely applied in the field of education, promote the development of the education industry, and cultivate more innovative talents (Zhao, 2014). The rapid development of information technology has provided material guarantees for the innovation of higher vocational education. With the proposal of the "Internet plus Education" program, all schools are actively carrying out campus informatization construction. Smart campuses, mobile teaching, flipped classrooms, MOOC, micro classes, etc. are widely used in teaching practice, driving the application of high-tech and the innovation of educational thinking, and promoting the implementation of the strategic goal of education informatization (Shi, 2024). For vocational colleges that shoulder the responsibility of cultivating high-quality skilled talents, deeply integrating information technology into classroom teaching is not only a necessary requirement to follow the trend of the times and grasp the pulse of educational modernization, but also an important way to achieve a leapfrog improvement in teaching quality and cultivate students' innovative spirit and practical ability.

With the rapid development of information technology, its application scenarios in the field of education are becoming increasingly diverse and far-reaching. From the popularization of multimedia teaching methods in the beginning, to the booming rise of online education platforms today, from the immersive experience attempts brought by virtual reality technology to the innovative exploration of artificial intelligence assisted teaching models, information technology is like a key, constantly unlocking new forms and possibilities of education. It not only greatly enriches teaching methods and resources, making knowledge acquisition more convenient and efficient, but also provides strong technical support for new educational models such as personalized teaching and remote interactive learning, expanding the boundaries of education and achieving unprecedented improvement in the depth and breadth of learning. Under the background of big data technology, intelligent teaching in universities has the characteristics of openness, intelligence, and personalization that integrate advanced technological means. It helps to enhance the teaching wisdom of teachers in classroom teaching, meet the all-round rectangular needs of students in morality, intelligence, physical fitness, beauty, and labor in the new era, and enhance the effect of mutual learning and teaching (Tang&Shi, 2024)

Under the interaction between external needs such as economic development and technological progress, as well as internal needs such as changes in education models, processes, and methods, significant changes have occurred in the field of education, and digital transformation of education has become a trend. In this context, as the key to education and teaching, the role that teachers play in teaching has become a focus of attention (Che, 2024). In this era, vocational colleges, as an important battlefield for cultivating talents who meet social needs, possess solid professional skills and good comprehensive qualities, should actively embrace the wave of information technology and deeply integrate it into the entire process of education and teaching. By building an intelligent and digital teaching environment, vocational colleges can provide students with more diverse and practical learning content, enhance their practical operation and problem-solving abilities, and thus improve teaching effectiveness and learning experience. At the same time, the introduction of information technology can also promote the transformation of teacher roles, encourage teachers to become guides and partners in student learning, jointly explore the ocean of knowledge, stimulate innovative thinking, and cultivate the composite

talents needed by future society. Therefore, actively introducing and effectively applying information technology in vocational colleges is not only crucial for improving their own education quality and competitiveness, but also for promoting the modernization process of the entire education system and cultivating high-quality skilled talents that can adapt to future social development, which has extremely profound practical significance.

The integration of information technology into classroom teaching in vocational colleges undoubtedly brings a profound transformation to the field of education. This integration not only greatly enriches teaching resources and makes the presentation of knowledge more diverse, but also breaks through the inherent limitations of traditional teaching in time and space, making learning more flexible and convenient. Through online platforms, students can easily access a vast amount of learning materials, whether it is the latest academic research achievements or practical cases in the industry, all of which can be easily accessed. This not only greatly expands the knowledge horizon of students, allowing them to keep up with the times, grasp the latest professional trends, but also stimulates their learning interest and exploratory spirit. At the same time, the rise of online courses and instructional videos has given students unprecedented autonomy in learning. They can engage in self-directed learning anytime and anywhere based on their own learning progress and needs, no longer limited by traditional classroom time and location. This personalized educational approach not only improves students' learning efficiency, but also cultivates their ability for self-directed learning and lifelong learning habits. The integration of information technology also provides unlimited possibilities for the innovation of teaching methods and models. With the help of advanced tools such as virtual laboratories and simulation software, students can perform various practical operations in a virtual environment. This not only reduces the cost and risk of traditional experiments, but also greatly improves their practical and innovative abilities. Students can practice repeatedly in a virtual environment until they master the skills, which is of great significance for improving their professional literacy and practical operation ability. Based on big data learning analysis technology, it can accurately understand the learning situation and habits of each student. By analyzing students' learning data, teachers can better grasp their learning progress, difficulties, and interests, thereby providing them with personalized guidance and assistance. This differentiated teaching method not only improves teaching effectiveness, but also enhances students' learning motivation and confidence. However, despite the broad application prospects of information technology in classroom teaching in vocational colleges, it still faces many challenges in the actual integration process. On the one hand, some teachers have limited mastery and application abilities of information technology, and they may be accustomed to traditional teaching methods, feeling confused and powerless about how to effectively integrate information technology into teaching. This not only affects the full utilization of information technology in teaching, but may also lead to students developing resistance towards new technologies. Therefore, strengthening the information technology training and ability enhancement of teachers is an urgent issue that needs to be addressed. On the other hand, some universities have obvious shortcomings in the construction of information technology infrastructure, whether it is network speed, equipment updates, or software support, which cannot meet the growing teaching needs. This seriously restricts the application of information technology in teaching, and also affects the learning experience and effectiveness of students. Therefore, increasing investment in information technology infrastructure construction and improving the level of information technology teaching in universities is an important task at present. In addition, the integration of information technology and course content is also an important issue currently faced. In some cases, the

integration of information technology may only be superficial formalism, without truly producing a deep integration with the course content. This shallow integration not only fails to fully leverage the advantages of information technology, but may also lead to wastage of teaching resources and a decrease in student learning outcomes. Therefore, how to achieve deep integration of information technology and course content while ensuring teaching quality is a problem that vocational colleges need to deeply consider and explore.

In order to better promote the effective integration of information technology into classroom teaching in vocational colleges, it is necessary to conduct in-depth exploration of its path and practice. In the context of big data, the smart teaching environment places high demands on the learning ability and information-based teaching ability of teachers. With the continuous introduction of intelligent technology to optimize the physical environment and teaching support environment, modern information technology can be used to build a smart teaching network environment based on the different roles and needs of teachers, such as management and supervision. This provides a large amount of and multiple types of data for optimizing the teaching environment, meets the diverse needs of different courses and types of teaching, and transforms the teaching environment from digital to data-driven (Yang, Lai & Liao, 2022)。 This not only requires attention to the application of technology, but also requires comprehensive consideration from multiple dimensions such as educational philosophy, teaching methods, and teacher training. By studying reasonable paths for integrating information technology, such as optimizing teaching design, strengthening teacher information technology training, and improving teaching evaluation mechanisms, we can promote the deep integration of information technology and teaching processes, and improve teaching quality. Meanwhile, research and analysis of practical cases are also essential. By summarizing successful experiences and reflecting on shortcomings, it can provide useful reference and guidance for other vocational colleges, and jointly promote the widespread application and in-depth development of information technology in vocational education.

In summary, exploring the path and practice of integrating information technology into classroom teaching in vocational colleges has important theoretical value and practical significance. It will provide strong support and guarantee for improving the teaching level of vocational colleges and cultivating high-quality skilled talents that meet social needs. Therefore, this article will delve into the path and practical exploration of integrating information technology into classroom teaching in vocational colleges, in order to provide new ideas for improving teaching quality and promoting the comprehensive development of students.

2. The current situation of integrating information technology into classroom teaching in vocational colleges

2.1 The application of information technology in teaching

In today's digital age, the widespread application of information technology in the field of education is reshaping teaching modes and learning methods, and its impact is particularly significant for vocational colleges that focus on practical skills training.

2.1.1 Information technology

Information technology has injected new vitality into the teaching resources of vocational colleges. Through online course platforms, universities can integrate high-quality teaching resources, including video tutorials for professional courses, simulation experiment software, and the latest case studies in the industry. These resources not only enrich the teaching content, but also enable students to make

independent choices based on their own learning progress and needs, breaking the limitations of time and space. For example, students can repeatedly watch demonstration videos of complex operations after class to deepen their understanding and mastery of the knowledge points.

2.1.2 Multimedia teaching methods

Multimedia teaching methods have been fully utilized in vocational colleges. With the help of multimedia courseware that combines text and images, teachers can present abstract theoretical knowledge to students in a more intuitive and vivid form. In the teaching of engineering and technology majors, using 3D modeling and animation demonstrations can clearly demonstrate the working principle and process flow of mechanical structures; In the teaching of service majors, students can learn about the workplace environment and service requirements in advance by playing videos of actual work scenarios. This intuitive teaching method helps to enhance students' learning interest and enthusiasm, and enhances their ability to absorb and apply knowledge.

2.1.3 Virtual simulation technology

Virtual simulation technology has become a powerful supplement to practical teaching. For some high cost, high-risk, or difficult to operate experimental and training projects in practical environments, such as chemical production, medical care, etc., virtual simulation laboratories provide students with almost real operating experiences. Students can practice repeatedly in a virtual environment, familiarize themselves with operational steps and processes, reduce errors in actual operations, and at the same time reduce experimental costs and safety risks.

2.1.4 Information based teaching management platform

The information technology teaching management platform has improved the efficiency and scientificity of teaching management. Teachers can publish teaching tasks, assign homework, and grade test papers through the platform to timely understand the learning situation of students; Students can submit assignments online, view grades, and provide teacher feedback. In addition, the platform can also analyze student learning data, provide a basis for teachers to adjust teaching strategies and optimize teaching design, and achieve precise teaching.

2.1.5 Distance education and online collaboration tools

Distance education and online collaboration tools have expanded the boundaries of teaching. During the internship in the enterprise, students continue to learn professional courses through remote teaching, achieving seamless integration of theory and practice; In group projects, students can use online collaboration tools for communication and collaboration, work together to complete tasks, and cultivate teamwork spirit and communication skills.

2.2 Existing problems

2.2.1 Insufficient technical equipment and software resources

Some vocational colleges do have insufficient investment in information technology construction, which has led to the development of technical equipment and software resources lagging behind teaching needs, becoming a major bottleneck that restricts the improvement of teaching quality. Although some universities have realized the importance of information-based teaching and have invested in hardware construction, equipped with advanced multimedia teaching equipment and network facilities, they often overlook the development and utilization of software resources. This imbalanced investment model makes it difficult to fully utilize advanced information technology teaching equipment in teaching, resulting in a phenomenon of prioritizing hardware over software.

The lack and lag of software resources are not only reflected in the lack of quantity, but also in the lack of quality and the severity of disconnection with the times. Many vocational colleges have slow updates of software resources, unable to keep up with the pace of teaching content and methods reform in a timely manner, and unable to meet the learning needs of students for new knowledge and skills. The mismatch between software resources and hardware devices not only limits the widespread application of information technology in teaching, but also seriously affects the improvement of teaching effectiveness. In a learning environment lacking rich and practical software resources, students find it difficult to fully experience the learning convenience and fun brought by information technology, nor can they fully cultivate and improve their information literacy and innovation abilities.

2.2.2 Teachers have lower abilities in information-based teaching

Teachers are a key factor in integrating information technology into classroom teaching, and their ability to apply information technology directly affects the effectiveness and role of information technology in teaching. However, the reality is that some teachers have weak abilities in the application of information technology, making it difficult to effectively use information technology methods to improve teaching effectiveness. This problem mainly manifests in the following aspects: Firstly, some teachers do not have timely mastery of new technological skills and equipment. With the rapid development of information technology, new teaching equipment and tools are emerging one after another. However, some teachers, due to various reasons such as time constraints and lack of training opportunities, have not been able to master these new devices and skills in a timely manner. This leads to their inability to fully utilize these advanced information technology tools in teaching, thereby affecting the improvement of teaching effectiveness. Secondly, some teachers lack the ability to use information technology for curriculum design and teaching implementation. Curriculum design is an important part of teaching, and information technology can provide more possibilities and innovative points for curriculum design. However, some teachers, due to a lack of relevant knowledge and skills, are unable to effectively integrate information technology into curriculum design, nor can they flexibly use information technology tools to enhance teaching effectiveness in the teaching implementation process. This leads to their teaching still remaining in traditional teaching methods and means, unable to fully leverage the advantages of information technology in teaching.

2.2.3 Single information technology teaching mode

In the process of integrating information technology into classroom teaching, many vocational colleges still face the problem of a single teaching mode. Although information technology provides abundant resources and means for teaching, in actual teaching, many universities still remain in the traditional mode of information transmission, lacking innovative and diverse information technology teaching methods. The traditional information transmission model often focuses on teachers, emphasizing the imparting and transmission of knowledge, while neglecting the subjectivity and participation of students. In this mode, students often find themselves in a passive position of receiving knowledge, lacking opportunities for active thinking and exploration. Information technology should have provided more possibilities and innovative points for teaching, but in a single teaching mode, the advantages of information technology have not been fully utilized. The singularity of information technology teaching mode not only fails to stimulate students' learning interest and enthusiasm, but also limits the potential of information technology in teaching. The learning interest and enthusiasm of students are one of the important factors for successful teaching, and a single teaching model often cannot meet the diverse learning needs of students, nor can it stimulate their learning interest and exploration desire. At the same

time, the application of information technology in teaching should have brought more innovation and change to teaching, but in a single teaching mode, the potential of information technology has not been fully explored and utilized.

2.2.4 Incomplete evaluation system for information-based teaching

The imperfect evaluation system for information-based teaching is indeed an important issue facing the current education field. Due to the lack of scientific evaluation standards and effective methods in the evaluation of information technology teaching in some vocational colleges, it is difficult to comprehensively and objectively evaluate the actual effectiveness of information technology teaching. This imperfect evaluation system not only makes it difficult to accurately judge the quality of information technology teaching, but also seriously limits the further promotion and application of information technology teaching in vocational colleges. Specifically, due to the lack of scientific evaluation standards for information technology teaching, some universities often rely on subjective impressions and experience to make judgments when evaluating the effectiveness of information technology teaching, and cannot quantitatively analyze based on objective data and indicators. Meanwhile, the single and one-sided evaluation methods also result in a lack of comprehensiveness and objectivity in the evaluation results, which cannot truly reflect the overall effectiveness and value of information technology teaching.

This imperfect evaluation system has brought many adverse effects on the development of information technology teaching. Firstly, it affects the accurate judgment of the quality of information technology teaching, making it difficult for school management and teachers to accurately understand the actual effectiveness and existing problems of information technology teaching, thus making it impossible to make targeted improvements and optimizations. Secondly, the imperfect evaluation system also limits the further promotion and application of information technology teaching in vocational colleges. Due to the lack of effective evaluation mechanisms and basis, school management and teachers often hold a skeptical attitude towards the value and effectiveness of information-based teaching, and are unwilling to invest more resources and energy in promoting and applying it.

3. The path of integrating information technology into classroom teaching in vocational colleges

Through a series of interviews and surveys, this article delves into the key factors that affect teaching quality in the current teaching environment and explores multiple paths to improve teaching quality. From the feedback of the interviewees, the following key paths to improve teaching quality have been extracted.

3.1 Strengthen infrastructure construction

In today's information age, vocational colleges, as important bases for cultivating high-quality skilled talents, must keep up with the pace of the times and increase investment in information technology teaching infrastructure. This is not only the cornerstone of improving teaching quality and innovating teaching models, but also an inevitable requirement to adapt to the future development trend of education. Firstly, improving the configuration of teaching equipment such as networks and multimedia is the top priority. Vocational colleges should ensure that each classroom is equipped with advanced multimedia equipment such as projectors, electronic whiteboards, and sound systems, and establish a stable and high-speed campus network to provide smooth and unobstructed online teaching and learning experiences for teachers and students. In addition, attention should also be paid to optimizing the classroom environment, such as reasonable layout, good lighting and ventilation, to create a comfortable

and pleasant learning environment and further improve teaching effectiveness. Secondly, establishing a unified teaching resource management platform is the key to achieving teaching resource sharing and optimized allocation. Vocational colleges should invest resources in research and development or introduce advanced teaching resource management systems, integrating and managing various digital resources such as teaching materials, courseware, videos, and cases. Through this platform, teachers can easily upload, download, and share teaching resources, and students can also access a variety of learning materials anytime and anywhere. This resource sharing mechanism can not only avoid redundant construction and waste of resources, but also promote cooperation and communication among teachers, and jointly improve teaching quality. At the same time, in order to improve the utilization efficiency of teaching resources, vocational colleges should also pay attention to the updating and maintenance of resources. The teaching resource management platform should regularly update teaching content and cases to ensure they are up-to-date and reflect the latest industry developments and academic research achievements. In addition, a feedback mechanism for resource utilization should be established to collect feedback and suggestions from teachers and students, and continuously optimize and improve the content and form of resources.

3.2 Enhancing Teachers' Informatization Teaching Ability

The deep integration of digital technology and education is triggering a profound transformation of the entire education ecosystem. As an important component of the education ecosystem, teachers also face significant opportunities and challenges. In the context of digital transformation in education, the teaching profession cannot remain unchanged. Therefore, in the context of significant changes in the educational ecosystem, it is necessary to reposition the role of teachers to adapt to social changes (Che, 2024). Teachers are the key to integrating information technology into classroom teaching. Vocational colleges should strengthen the training of teachers in information technology teaching, improve their ability to apply information technology and innovate teaching. Expert lectures can be organized, inviting experts and scholars with profound expertise in the field of educational technology to impart the latest teaching concepts and technological trends to teachers. These lectures can cover modern teaching technologies and methods such as multimedia teaching, online teaching, and blended learning, helping teachers understand and master these advanced teaching methods. Secondly, vocational colleges can also offer workshops to provide teachers with a platform for practical operations. In the workshop, teachers can hands-on operate various teaching equipment and software to learn how to apply them in practical teaching. Through practical operations and interactive communication, teachers can better understand and master these technologies, and transform them into their own teaching abilities.

3.3 Innovative information-based teaching mode

Vocational colleges should actively explore and practice diversified information technology teaching models to meet the teaching needs of the information age. The blended learning mode, micro course teaching mode, MOOC teaching mode, and other new teaching modes are widely concerned and applied in the current education field. They each have their own characteristics and can provide students with a richer and more diverse learning experience. By introducing these new teaching modes and methods, vocational colleges can enrich students' learning experience, enhance their interest and enthusiasm in learning. At the same time, these new teaching models also focus on the deep integration of information technology and subject teaching, using information technology as an important tool and means of

subject teaching. Through the application of information technology, teachers can present teaching content more vividly and intuitively, enabling students to better understand and master knowledge points. At the same time, information technology can also provide more resources and platform support for subject teaching, enabling teachers to design and evaluate teaching more conveniently, and improve the effectiveness and quality of subject teaching.

3.4 Improve the evaluation system for information-based teaching

Teaching evaluation is a regular task that must be completed by various universities. The main purpose of teaching evaluation is to better identify some problems in the teaching process, adjust teaching methods in a timely manner, and ultimately achieve the improvement of teaching quality. Applying big data to university teaching evaluation systems can not only greatly improve the scientificity of university teaching management, but also enhance the practicality of information-based teaching (Zhao, 2014). Establishing a scientific evaluation system for information technology teaching is an important means to ensure the quality of information technology teaching. Vocational colleges should establish evaluation standards and methods that are in line with the characteristics of information technology teaching, and pay attention to the combination of process evaluation and diversified evaluation. Through various evaluation methods such as self-evaluation of pre class guidance plans, real-time peer evaluation during class, and post class achievement evaluation, comprehensively evaluate the learning effectiveness of students and the teaching quality of teachers. At the same time, in addition to formulating scientific evaluation standards and methods, vocational colleges also need to establish feedback mechanisms for information-based teaching. This mechanism can timely collect feedback from students and teachers, understand their views and suggestions on information technology teaching, and continuously improve and optimize information technology teaching plans. By establishing a feedback mechanism, vocational colleges can more accurately grasp the actual situation of information technology teaching, adjust teaching strategies and methods in a timely manner, and improve the quality and effectiveness of information technology teaching.

3.5 School enterprise cooperation and integration of industry and education

Strengthening cooperation with enterprises, jointly developing interactive teaching cloud resources, and promoting the development of practical teaching are key links in the path of school enterprise cooperation and industry education integration. Through the implementation of this path, vocational colleges can better adapt to market demand, enhance student employment competitiveness, and cultivate more high-quality and skilled talents for enterprises and society.

On the basis of school enterprise cooperation, the integration of industry and education has further promoted the deep integration between schools and industries. By jointly developing interactive teaching cloud resources, schools and enterprises can introduce the latest technologies, market trends, and practical experience of enterprises into teaching. These cloud resources not only include course content, teaching cases, experimental and training projects, but also advanced teaching methods such as online simulation and virtual reality, providing students with a more vivid and practical learning environment.

In the process of jointly developing interactive teaching cloud resources, schools and enterprises can fully utilize their respective advantages. Schools have rich teaching experience and educational resources, while enterprises have the latest technology and practical market experience. Through deep cooperation, both parties can organically combine these advantages and jointly create high-quality and

efficient teaching resources. These resources can not only be used for teaching and practical training in schools, but also provide support for enterprise employee training, technology research and development, etc.

4. Conclusion

The integration of information technology into classroom teaching in vocational colleges is an important way to promote educational reform and improve teaching quality. The implementation of measures such as strengthening infrastructure construction, enhancing teachers' information technology teaching ability, innovating information technology teaching models, and improving the evaluation system of information technology teaching can effectively promote the application and development of information technology in classroom teaching in vocational colleges. In the future, with the continuous progress of information technology and the continuous expansion of application fields, classroom teaching in vocational colleges will face more opportunities and challenges. Scolars should continue to maintain a keen insight, actively explore and practice the path and methods of integrating information technology into classroom teaching, and contribute to cultivating more high-quality skilled talents that meet the needs of the times. At the same time, the government and education departments should also increase their support for the informatization construction of vocational colleges, provide policy guidance and financial support, and jointly promote the widespread application and development of information technology in the field of education and teaching.

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