

Research on the Construction of Teachers' Team in Higher Vocational Colleges from the Perspective of Digital Empowerment

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Abstract: This study focuses on the importance and impact of the construction of vocational college faculty under the background of digital empowerment. It points out that the quality of faculty construction in vocational colleges is directly related to the cultivation of technical and skilled talents. With the rapid development of information technology, especially the widespread application of digital technologies such as big data, artificial intelligence, and cloud computing in the field of education, the modernization transformation of educational models has been strongly supported by technical means. The study delves into the application of digital technology in vocational education, including the digital presentation of teaching content, innovation and transformation of teaching methods, digitalization and intelligence of teaching evaluation, as well as the challenges and opportunities faced by vocational education. At the same time, it explores how digital technology can enhance the management capabilities of vocational college teachers, especially in the areas of educational data management and analysis, remote education and international exchange cooperation, and innovation in teacher evaluation and incentive mechanisms. The results show that the in-depth application of digital technology has not only improved teaching quality and enhanced the professional capabilities of teachers but also promoted the comprehensive development of students. The study emphasizes that the construction of vocational college faculty under digital empowerment is of great strategic significance and practical value for promoting the high-quality development of vocational education and cultivating high-quality skilled talents to meet the needs of future society.

Keywords: Digital Empowerment; Vocational Colleges; Faculty Construction; Educational Informatization.

1. Introduction

Vocational colleges are an important component of higher education in China, and the quality of their teacher team construction directly affects the quality of training technical and skilled talents in China.[1] In the context of the rapid development of information technology today, educational informatization has become a key driving force for educational reform and innovation. Especially with the booming rise of digital technologies such as big data, artificial intelligence, and cloud computing, they are penetrating into every corner of the education field with unprecedented depth and breadth. These technologies not only reshape the way knowledge is acquired and disseminated, but also provide strong technical support for the modernization transformation of educational models. Vocational colleges, as important bases for cultivating high skilled talents, rely on the deep empowerment of digital technology to improve their teaching quality, teacher team capabilities, and students' overall development level. The widespread application of big data technology has made the collection, processing, and analysis of educational data efficient and accurate, providing solid data support for implementing personalized teaching and optimizing teaching strategies. At the same time, the integration of artificial intelligence technology has not only spurred innovative applications such as intelligent teaching systems and virtual teaching assistants, but also greatly enriched teaching methods and improved teaching efficiency and effectiveness. The construction of cloud computing platforms breaks down the boundaries between regions and resources, realizing cloud storage and on-demand sharing of educational resources, and effectively promoting the balanced

allocation and efficient utilization of educational resources. In this context, it is particularly urgent and important to explore the profound impact of digital empowerment on the construction of the teaching staff in vocational colleges. The comprehensive penetration of digital technology can not only significantly improve the quality of teaching, but also achieve precise teaching and personalized learning through intelligent teaching tools; It can also effectively enhance teachers' professional abilities, encourage them to keep up with the forefront of technology, constantly update their knowledge structure, and improve their teaching and research levels; It can better promote the comprehensive development of students, utilize rich online resources and personalized learning paths, stimulate students' interest in learning, and cultivate their innovative thinking and practical abilities. Therefore, the research on the construction of the teaching staff in vocational colleges from the perspective of digital empowerment has profound strategic significance and important practical value for promoting the high-quality development of vocational education and cultivating high-quality skilled talents that meet the needs of future society.

2. Literature Review

In recent years, research on digital empowerment education and teacher team building has become increasingly abundant both domestically and internationally, resulting in many valuable achievements. In foreign countries, researchers generally focus on the impact of the application of digital technology in the field of education on teachers' professional development. For example, American scholars have shown through empirical research that the application of big data and artificial intelligence technology can significantly enhance

teachers' teaching decision-making ability and promote the implementation of personalized teaching strategies (Smith&Jones, 2021). Meanwhile, research from multiple European countries has also shown that the establishment of cloud computing platforms provides a new path for sharing and optimizing the allocation of educational resources, which helps to improve the overall quality of the teaching staff (Brown&Lee, 2022). In China, with the deepening of educational informatization, significant progress has also been made in research on digital empowerment education and teacher team building. Scholars have not only explored the role of digital technology in improving teaching quality and optimizing teaching models, but also deeply analyzed its impact on teachers' ability structure and professional development path. For example, research has shown that the application of big data technology can help teachers accurately analyze learning situations, achieve personalized teaching, and thus improve teaching effectiveness (Zhang Hua, 2020). At the same time, the integration of artificial intelligence technology has brought new opportunities for the construction of the teaching staff, such as the development and application of intelligent teaching systems, which not only reduce the workload of teachers, but also promote innovation in teaching methods (Li Lei, 2021). In summary, both domestic and international research on digital empowerment education and teacher team building emphasizes the important role of digital technology in promoting educational modernization and improving the quality of the teacher team. However, existing research still has shortcomings in theoretical construction, empirical analysis, and other aspects, especially in how to effectively integrate digital technology, optimize the structure of the teaching staff, and promote the professional development of teachers. Further in-depth exploration is needed.

3. Analysis of the Characteristics of Higher Vocational Education from the Perspective of Digital Empowerment

3.1. Overview of Educational Applications of Digital Technology

In today's digital age, digital technology is penetrating into the field of education at an unprecedented speed and breadth, especially playing a crucial role in higher vocational education. The educational application of digital technology not only enriches teaching content and innovates teaching methods, but also optimizes teaching evaluation, bringing a new revolution to higher vocational education.

3.2. Digital presentation of teaching content

The widespread application of digital technology has greatly enriched the teaching content of higher vocational education. Firstly, through virtual reality (VR) and augmented reality (AR) technologies, complex, abstract, or difficult to operate teaching content can be presented intuitively and vividly. For example, in the field of mechanical manufacturing, students can enter the interior of machines through VR devices to observe their internal structure and working principles. This immersive experience greatly enhances learning efficiency and interest. Secondly, the construction of digital teaching resource libraries, such as online courses, electronic textbooks, multimedia courseware,

etc., makes teaching content more diverse and flexible. These resources not only cover the content of traditional textbooks, but also incorporate the latest industry trends and technological frontiers, enabling students to access the necessary knowledge anytime and anywhere, expanding the breadth and depth of learning.

3.3. Innovation and Transformation of Teaching Methods

The introduction of digital technology has brought profound changes to the teaching methods of higher vocational education. On the one hand, blended learning models are gradually emerging, combining online learning with offline teaching. Students can preview knowledge through online courses before class, engage in face-to-face interactive discussions with teachers during class, and consolidate and expand their learning through online platforms after class. This teaching mode not only improves the flexibility and interactivity of teaching, but also cultivates students' self-learning ability and critical thinking. On the other hand, the application of intelligent teaching systems, such as intelligent teaching assistants and online assessment tools, makes the teaching process more personalized and precise. Intelligent teaching assistants can provide personalized learning advice and guidance based on students' learning progress and ability level, while online assessment tools can provide real-time feedback on students' learning effectiveness, helping teachers adjust teaching strategies in a timely manner.

3.4. Digitization and Intelligence of Teaching Evaluation

Driven by digital technology, the teaching evaluation of higher vocational education has gradually achieved digitization and intelligence. The traditional paper-based exams and manual grading of homework are gradually being replaced by online assessments and big data analysis. Through the online assessment system, teachers can easily generate test papers, publish exams, and obtain real-time information on students' answer situations. Meanwhile, big data analysis technology can deeply mine and analyze students' learning data, providing teachers with comprehensive learning feedback and personalized learning suggestions. In addition, digital teaching evaluation also emphasizes the combination of process evaluation and diversified evaluation. Process evaluation focuses on students' learning process and attitude, while diversified evaluation includes various methods such as self-evaluation, peer evaluation, and teacher evaluation to comprehensively reflect students' learning outcomes and ability levels.

3.5. Challenges and Opportunities Faced by Higher Vocational Education

Driven by digital technology, vocational education is facing unprecedented demands for change, while also welcoming new opportunities for development. The widespread application of digital technology has not only brought many conveniences and innovations to vocational education, but also posed new challenges to the construction and development of the teaching staff.

3.5.1. Change Demand

Firstly, with the rapid development of industry technology and the continuous promotion of industrial upgrading,

vocational education needs to constantly update teaching content and introduce the latest technology and knowledge. However, traditional teaching methods and resources often struggle to meet this demand. The introduction of digital technology provides an effective way to solve this problem for higher vocational education. Through the construction of a digital teaching resource library and the development of online courses, vocational education can update teaching content in real time, introduce the latest industry trends and technological frontiers, and enable students to access the knowledge they need anytime and anywhere.

Secondly, the widespread application of digital technology has also prompted a transformation in the teaching mode of higher vocational education. The traditional teacher centered and lecture-based teaching model is no longer able to meet the learning needs of modern students. New teaching models such as blended learning, project-based learning, and flipped classroom are gradually emerging, emphasizing students' subjectivity and practicality, and focusing on cultivating students' self-learning ability and critical thinking. However, the implementation of these teaching models requires teachers to possess high levels of information technology literacy and instructional design skills. Therefore, vocational college teachers need to constantly update their educational concepts, enhance their information technology literacy and teaching design abilities to adapt to new teaching models.

3.5.2. Opportunities and Challenges

Driven by digital technology, the construction and development of vocational college teachers have also encountered new opportunities and challenges. On the one hand, the widespread application of digital technology provides vocational college teachers with abundant teaching resources and convenient teaching tools, such as online courses, electronic textbooks, multimedia courseware, etc. These resources and tools not only enrich teaching methods, but also improve teaching efficiency and quality. At the same time, the introduction of digital technology has provided more professional development opportunities and learning platforms for vocational college teachers, such as online training, academic forums, virtual laboratories, etc. These platforms and opportunities help vocational college teachers continuously update their knowledge structure and enhance their professional competence.

On the other hand, the widespread application of digital technology has also posed new challenges to the construction and development of vocational college teacher teams. Firstly, teachers need to constantly update their educational concepts, establish a student-centered teaching philosophy, and focus on cultivating students' self-learning ability and critical thinking. Secondly, teachers need to enhance their information technology literacy and teaching design abilities to adapt to new teaching models and methods. However, currently many vocational college teachers still have shortcomings in information technology literacy and teaching design ability, and need to strengthen training and learning. In addition, the widespread application of digital technology has also put forward new requirements for the career development of vocational college teachers. With the rapid development of industry technology and the continuous promotion of industrial upgrading, vocational college teachers need to constantly update their knowledge structure and enhance their professional competence to adapt to new career demands and development trends.

4. Digital Empowerment and Enhancing the Management Ability of Vocational College Teachers

In 2020, the Ministry of Education issued the "Digital Campus Standards for Vocational Colleges", which proposed five aspects of teacher information literacy: awareness and attitude, knowledge and skills, application and innovation, research and development, and social responsibility.[2] In the wave of globalization and informatization, digital technology has become an inevitable choice for vocational education reform and development. As an important component of vocational education, the management ability of teachers in vocational colleges is directly related to the quality of education and student development. This article will explore how to utilize digital technology, especially big data technology, to enhance the management capabilities of vocational college teachers, particularly in the areas of educational data management and analysis, distance education and international exchange and cooperation, and innovative teacher evaluation and incentive mechanisms.

4.1. Educational Data Management and Analysis: Utilizing Big Data Technology for Educational Data Mining

In the digital age, educational data has become an important basis for educational decision-making. By collecting and analyzing educational data, vocational colleges can better understand the current teaching situation, optimize teaching decisions, and improve teaching quality.

4.2. Collection and Integration of Educational Data

The collection and integration of educational data is the foundation of educational data management and analysis. The data that vocational colleges need to collect includes but is not limited to student basic information, learning process information, teaching resource information, teacher information, school information, etc. These data can be obtained through multiple channels such as academic management systems, online learning platforms, student profiles, and teacher evaluation systems. By using data interfaces, data extraction, and data merging methods, these data are integrated into a unified data platform for subsequent data analysis and decision support.

4.3. Educational Data Analysis and Decision Support

Big data analysis technology can deeply mine integrated educational data, revealing the patterns and problems behind the data. For example, by analyzing the learning process of students, it can be discovered which teaching methods are effective and which ones need improvement; By analyzing teacher performance data, the teaching level and effectiveness of teachers can be evaluated, providing a basis for teacher training and career development. Vocational colleges can establish data analysis platforms, using descriptive analysis, exploratory analysis, predictive analysis, and recommendation analysis techniques to conduct multidimensional and in-depth mining of educational data, providing scientific basis for teaching decision-making and student management.

4.4. Personalized Teaching and Learning Path Optimization

Based on big data analysis, vocational colleges can achieve personalized teaching and learning path optimization. By analyzing students' learning progress, interest preferences, ability levels, and other data, teachers can customize personalized learning plans and teaching strategies for students to improve teaching effectiveness. Meanwhile, students can also independently choose learning resources and paths based on their own learning needs and ability levels, achieving self-improvement. This personalized teaching and learning path optimization not only enhances students' interest and participation in learning, but also promotes the improvement of teaching quality.

4.5. Distance Education and International Exchange and Cooperation: Digital Technology Expands Teachers' International Perspective

The development of digital technology has provided vocational college teachers with a broader international perspective and opportunities for cooperation. Through distance education and international exchange and cooperation, teachers can learn about advanced international educational concepts and teaching methods, and improve their teaching level and professional competence.

4.6. Virtual Learning Environment and Cross-Border Education Platform

Technology platforms such as Virtual Learning Environment (VLE) and Learning Management System (LMS) facilitate cross-border learning, enabling teachers to access educational resources and training opportunities in different countries and institutions. Online courses and degree programs provide flexibility, allowing teachers to learn according to their own time and location, breaking geographical limitations. Meanwhile, virtual communication tools such as video conferencing, online chat, and collaboration tools enable teachers to interact in real-time with peers from around the world, sharing teaching experiences and research results.

4.7. International Sharing and Cooperation of Educational Resources

By utilizing digital technology, vocational colleges can establish a cross-border education resource library, integrating educational resources from around the world, including courses, teaching materials, research results, etc. Through standardization and interoperability, seamless integration between resource repositories is achieved, promoting resource sharing and communication. In addition, vocational colleges can collaborate with international educational institutions to jointly develop high-quality online courses and degree programs that meet the diverse needs of learners worldwide. This international sharing and cooperation of educational resources not only enhances the professional competence of teachers, but also promotes international educational cooperation and exchange.

4.8. Cultural Exchange and International Understanding

Digital technology promotes cross-cultural communication

and cooperation, enabling teachers to understand educational concepts and teaching methods from different cultures and enhance international understanding. By participating in cross-border projects, online forums, and virtual conferences, teachers can broaden their worldview and cultivate international awareness. At the same time, this cross-cultural communication also helps to enhance teachers' language and cross-cultural communication skills, laying a solid foundation for international exchange and cooperation.

4.9. Innovation of Teacher Evaluation and Incentive Mechanism: Data based Evaluation System and Digital Incentive Methods

In the digital age, vocational colleges need to establish a data-driven teacher evaluation system to incentivize teachers' continuous development and innovation through digital means.

4.10. Data based Teacher Evaluation System

The traditional teacher evaluation system often relies on subjective experience and impressions, lacking objectivity and scientificity. The teacher evaluation system based on big data can comprehensively and objectively evaluate the teaching level and performance of teachers by collecting and analyzing multidimensional data such as teaching behavior data, student evaluation data, and research achievement data. This evaluation system not only improves the accuracy and fairness of evaluations, but also provides a scientific basis for teachers' professional development and training.

4.11. Digital Incentive Measures

Vocational colleges can incentivize teachers' continuous development and innovation through digital means. For example, establishing a teacher performance points system, rewarding teachers with points based on their teaching achievements, scientific research achievements, social services, and other aspects of performance, and linking points to teachers' promotion, salary, and other aspects. In addition, online learning platforms, virtual seminars, and other forms can be utilized to provide teachers with opportunities and resources for continuous learning and development. Through digital incentives, teachers' work enthusiasm and initiative can be stimulated, promoting their professional growth and innovative development.

4.12. Personalized Career Development Plan

Based on big data analysis, vocational colleges can develop personalized career development plans for teachers. By analyzing data such as teachers' professional background, interest preferences, and ability levels, targeted training and development recommendations are provided for teachers. At the same time, intelligent analysis tools can be used to create personalized learning paths and development plans for teachers, helping them achieve self-improvement and career development.

5. Conclusion

Digital technology has spread throughout all aspects of campus life and daily teaching. We must continue to promote the digital upgrading of vocational colleges and deepen the integration of artificial intelligence, big data, "Internet plus" and teachers' professional development. In the broad context

of digital empowerment, the construction of the teaching staff in vocational colleges has shown unprecedented vitality and potential. By widely applying digital technology, not only have teaching methods been enriched and innovative teaching models been promoted, but also the scientific, refined, and intelligent management of the teaching staff has been achieved. At the same time, digital technology greatly promotes international exchange and cooperation, broadens teachers' international perspectives, and requires teachers to continuously improve their information technology application and innovation abilities. This series of changes has built a high-quality teaching team for vocational colleges that adapts to the needs of the digital age and has international competitiveness, laying a solid foundation for the high-quality development of vocational education and foreshadowing broader future prospects.

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