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The Development Path and Innovative Measures of Vocational Education under the Big Data Environment

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ABSTRACT. *With the advent of the era of big data, people's thinking, living habits, and working environment have undergone tremendous changes. The development of all walks of life in society has ushered in new reforms and challenges. This article uses literature research methods and logical analysis research methods, through the integration of big data and vocational education, will open a new door for the future development of vocational education. By discussing the influence of big data on the current development of vocational education, the innovative measures to promote the future development of vocational education under the environment of big data are further elaborated, hoping to provide new ideas for the deepening of teaching reform, information construction and improvement of teaching quality in vocational education reference.*

KEYWORDS: *big data, vocational education, teaching reform*

1. Introduction

China is moving from a big education country to a strong education country. The scale of China's vocational education system ranks among the best in the world, but there is still a big gap in overall strength compared with developed vocational education countries. There are still many problems in the development of vocational education in China, such as uneven distribution of educational resources, insufficient management system, and the quality of teaching to be improved, etc. [1]. With the development of modern advanced technologies such as the Internet of Things and cloud computing, the era of big data has emerged, opening up new ways for people to explore and perceive the world, and at the same time open new doors for the development of Chinese vocational education. Only by using big data as a resource and fully realizing its perfect integration with vocational education can the value of big data in vocational education reform be fully realized. Because vocational colleges pay more attention to cultivating technical and practical talents, under the background of big data, vocational colleges must actively change their teaching concepts and innovate in teaching models, teaching evaluation systems and

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management mechanisms to continuously adapt to the times, the pace and rhythm of reform [2]. Only in this way can vocational education be promoted towards the comprehensive development of informatization, intelligence and individualization, so as to better serve the country and society.

2. The basic characteristics of vocational education big data

2.1 The amount of data is huge and the types are diversified

From the perspective of "data", the scale of data involved is extremely large, from the terabyte level to the PB level, ZB level and even larger data volumes. Moreover, the amount of data is abundant, making it impossible for traditional database software or conventional servers to collect, store, analyze and manage it. The process of education is inseparable from teaching activities. With the development of education informatization, each teaching activity will generate huge educational data, including audio, video, web pages, documents, pictures and other types of data, creating a variety of forms, various types of virtual education spaces.

2.2 High data value and low utilization rate

With the emergence of intelligent teaching models such as MOOCs, micro-classes, and flipped classrooms, a large number of high-value raw data information resources are recorded in big data in educational activities, such as student learning behaviors, learning habits, and rich teaching resources and so on [3]. But in the daily education process, these data can easily be ignored or discarded, and only a small part of it may be used. A huge amount of high-speed changing education data is generated all the time in the education process. Therefore, the processing of these big data must be very flexible and time-sensitive. The emergence of cloud computing makes it possible to quickly process complex and dynamic education big data become possible.

In summary, the vocational education process contains a large number of data resources of various types, but these time-effective data resources are easily overlooked in the daily teaching process, lack of sharing, and low utilization. Therefore, it is necessary to use modern advanced information technology and teaching methods to dig out valuable information from the massive and disorderly education data, actively promote the reform and innovation of vocational colleges, and gradually shift the traditional teaching mode to digital, informatized, and intelligent in order to promote the overall development of vocational education.

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3. The impact of big data on the development of vocational education

3.1 Impact on educational philosophy and learning environment

The advent of the era of big data has brought a huge impact to the teaching philosophy and learning environment of vocational education. The rapid development of Internet technology in the field of education has made micro-classes, MOOCs, and distance learning methods widely popular and sought after in recent years, breaking the traditional teacher-oriented teaching concept [4]. Students' learning environment can no longer be restricted by time and space, and the form of acquiring knowledge is broader, more free, and more personalized, making the communication and communication between students and teachers, and between students and students more convenient, efficient and deeper interaction. In the big data environment, it will be more able to stimulate students' enthusiasm for learning. Teachers will no longer be the leaders of the classroom, but will gradually develop into equal interlocutors or assistant scholars with students.

3.2 Impact on education data

Traditional teaching strategies are mainly based on the teaching experience accumulated by teachers for many years, but these experiences often lack science and versatility. The emergence of big data can "digitize" students' behavior and make students' thinking "transparent". By using the big data platform, teachers can realize the data analysis of massive teaching cases, thereby formulating more scientific and rational teaching plans and teaching strategies. Mining and analyzing the data of students' learning habits and learning methods in an environment where students do not know, to find the connections and laws among them, so as to provide students with more targeted learning guidance and more personalized learning courses. In the true sense, we can teach students in accordance with their aptitude. At the same time, an early warning system can be established by collecting, sorting and analyzing students' classroom behaviors, which is conducive to predicting students' early behaviors and thoughts, improving teaching effects, and conducive to the development of students' individualization.

3.3 Impact on teaching mode

With the advent of the era of big data, the teaching mode of vocational colleges is facing huge challenges. Smart teaching and ubiquitous learning have gradually become the mainstream of teaching reform. Especially in recent years, the emergence of diversified network resource platforms such as the popular micro-classes, MOOCs, and flipped classrooms has broken the time and space constraints of traditional classroom teaching, and has made the teaching reform model of vocational education more intelligent and diverse. The development of personalized and personalized directions. Advanced informatization and digital equipment and technology have created a good intelligent teaching environment for

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teachers, which is convenient for teachers to carry out more efficient and diversified teaching activities. Teaching is moving from digital to smart, and learning is moving from digital to ubiquitous learning. Teaching activities are more efficient and students are more independent and active in learning. Therefore, the emergence of big data has greatly changed the traditional instillation teaching mode of vocational colleges, lowered the cost of education, and shared high-quality teaching resources.

3.4 Impact on teaching evaluation methods

Most traditional teaching evaluations still use scores as the basis for judgment. But the drawback of this teaching evaluation method is that problems in the teaching process can only be discovered after the fact, and the deviations in the teaching process cannot be corrected in time. Under the big data platform, both education managers and teachers can monitor and analyze the teaching process of teachers and students in real time conveniently and quickly, and organize and analyze the teaching content, teaching methods, and students' classroom performance and after-school behavior. So as to continuously optimize and improve the teaching process and effectively improve the quality of teaching.

3.5 Impact on teaching management

With the advent of the big data era, data-based service management has become the mainstream of education management, and education management will undergo tremendous changes in concepts, methods, and functions. Through the use of big data information platform and intelligent equipment, data mining and analysis of teaching activities, teacher information and instrument assets, etc., fully realize the intelligent management of vocational colleges. At the same time, schools are also facing huge challenges in their decision-making model. Different from the traditional model of relying on experience, schools will gradually shift to a data-centric approach. The school management department is no longer a simple administrative management in the traditional sense, but gradually transformed into a service provider for teachers and students.

4. Innovative measures for vocational education under the big data environment

4.1 Innovation in teaching thinking

The field of vocational education should plan ahead, make arrangements early, and actively respond to the challenges brought by big data. To this end, vocational education decision makers, managers and teachers should emancipate their minds, keep pace with the times, actively change their ideological concepts, and establish big data thinking. First of all, vocational education managers should eliminate their resistance to big data, actively participate in educational reform, accept and actively integrate into the era of big data with a conscious attitude, and continuously improve

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their data analysis and decision-making capabilities. Secondly, vocational education should establish an open big data thinking, actively build an information resource sharing platform, and comprehensively improve the utilization and sharing rate of data information. The education administration department should establish a perfect guarantee mechanism to do a good job in data resource allocation, coordination and resource integration for the development and innovation of vocational education [5]. At the same time, vocational colleges themselves should seize the opportunity of reform, actively communicate and learn with the government, enterprises and similar colleges and universities, and jointly build and share vocational teaching data resources. Finally, teachers in vocational colleges should gradually abandon the traditional indoctrination concepts and teaching methods, establish big data concepts and awareness that are compatible with the development of the information age, and actively learn advanced information technology and intelligent equipment, and use them apply to daily educational activities. Schools can also encourage teachers to use big data technology to carry out teaching reforms and other activities by improving the incentive system and conducting training exchanges.

4.2 Innovation of teaching mode

In order to adapt to the pace of reform in the era of big data, vocational colleges must first optimize the teaching mechanism and improve the traditional teaching mode of vocational colleges. It is necessary to reposition the roles of teachers and students. Teachers should transform from the leader of the classroom to the assistant scholar of the students, from the owner and transmitter of knowledge to the collector and organizer of knowledge. Students should also use diversified and digital learning platforms such as micro-classes and MOOCs to transform from the traditional passive to autonomous, diversified and personalized learning models. Second, we must create diversified teaching methods. In view of the characteristics of practical and skilled talent training in vocational education, schools and teachers should be brave enough to try personalized and diversified teaching methods such as flipped classrooms, MOOCs, and micro-classes, so as to achieve a perfect combination of personalized talent training models and vocational education.

4.3 Innovation of the teaching team

Foreign vocational colleges require teachers not only to have high academic qualifications, but also to have certain corporate work experience. However, there is still a big gap between the qualification requirements of Chinese vocational colleges and foreign countries [6]. Because Chinese vocational colleges do not pay much attention to the construction and training of teachers, the phenomenon of irrational knowledge structure of teachers, and low skill and cultural literacy of a small number of teachers have existed for a long time, which has seriously hindered the development of vocational education. Teachers play a pivotal role in the education and teaching reform of vocational colleges. Therefore, in order to keep up with the pace of the big data era, vocational colleges should guide teachers to keep pace with

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the times, vigorously strengthen the training of teachers' scientific and cultural literacy, and comprehensively promote higher vocational education Teachers' knowledge, skills and cultural connotation. Strengthen school-enterprise cooperation and jointly build a "dual-teacher" teaching team, so as to effectively promote the improvement of teaching quality and better cultivate students' innovative ability and practical ability.

4.4 Innovation of education evaluation system

In order to conform to the trend of the big data era, vocational colleges must change their concepts and establish a sound teaching quality evaluation system by creating multiple subjects and building intelligent information platforms. The traditional teaching evaluation system mostly relies on students' test scores as the basis for judgment, and there are many drawbacks. By using big data, this limitation can be broken. It can not only realize real-time control of students' learning quality, but also correct the deviation of teachers in the teaching process in time. At the same time, it can strengthen the relationship between students, vocational colleges and enterprises link. By building a teaching quality evaluation system and decision-making standards based on big data, it provides educators with an open and comprehensive evaluation method, and comprehensively improves the quality of talent training and innovative management models.

4.5 Innovation of management mechanism

As a resource, big data is the product of the development of the times. Vocational colleges should increase investment in big data technology, comprehensively improve the level of data management, and make big data management the core competitiveness of vocational education. In addition, vocational colleges must increase awareness, formulate strategies, innovate mechanisms, reform organizational structures, and comprehensively improve school management capabilities. By integrating big data technology with vocational education, the digital, visual and intelligent management of vocational education is gradually realized. First, we must establish an open big data thinking, formulate a scientific development strategy, reconstruct the educational responsibility mechanism, data guarantee mechanism and innovative operation mechanism, improve the construction of the information environment, and comprehensively improve the quality and service level of information construction. Secondly, in order to improve the sharing rate and utilization of vocational education information resources, vocational schools should increase investment, actively build resource sharing platforms, change the traditional teaching environment and equipment, and gradually realize digital and smart campuses. Use big data as a resource to continuously optimize the school work process and continuously improve work efficiency and management quality. At the same time, vocational college managers should also continue to strengthen their learning, improve their own data analysis and decision-making capabilities, and avoid the risks of privacy leakage and data

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monopoly in the development of big data. Finally, we must innovate thinking, continuously update the level of information technology, strengthen data analysis and processing capabilities, so as to comprehensively improve the school's management capabilities, comprehensive strength and competitiveness.

5. Conclusion

In summary, the advent of the era of big data has brought unprecedented opportunities and challenges to the development of vocational education. Therefore, in the era of big data, vocational education should conform to the trend of the times in terms of training model, teaching philosophy, evaluation system and management mechanism, make full use of the development advantages of big data in vocational education, and comprehensively promote the deepening of vocational education. Education reform and informatization construction, so as to continuously improve the teaching quality of vocational education, and better cultivate professional, technical and practical talents for the country.

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