

The Reform and Innovation of Ideological and Political Teaching Methods in Higher Vocational Colleges under the Big Data Environment

Chen Liang^{1,a}

¹ Tianjin Light Industry Vocational Technical College, Tianjin, 300350, China

^aEmail: chenliang913913@126.com

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Abstract: With the rapid development of computer digital and network technology, the application of big data technology in the course of Ideological and political theory teaching is more and more extensive. Represented by cloud platform and data mining and analysis, the big data technology provides not only the rich teaching resources for various teaching components, but also the advanced teaching methods for teachers, which challenges the traditional education concepts and teaching methods. This paper studies how to use the new technology, resources and platform provided by big data environment to better serve the ideological and political theory teaching in higher vocational colleges, using the new media technology, computer network technology and cloud platform under the big data environment to promote the teaching innovation of Ideological and political education in higher vocational colleges, exploring the formation of the ideological and political teaching mode that combines classroom teaching and big data technology to form complementary advantages, which provides useful reference for the teaching reform of ideological and political theory course.

1. Introduction

Digital technology has gradually changed education, which can affect the skills students need for college and career preparation, and how educators integrate digital technology teaching strategies for teaching [1]. In the context of the current data-driven decision-making paradigm, it is important to play the potential of big data for higher education [2]. Big data and analysis are not the panacea to solve all the problems and decisions faced by higher education managers, but they can be part of the solution integrated into management and Teaching [3]. Learning analysis is a research area that includes collecting, analyzing, and reporting data related to learners and their environments to optimize the learning experience. How to transform the traditional analysis into learner centered analysis, how to use data sets in various environments, how to solve technical problems and how to solve moral problems are the problems that need to be solved by the current learning stakeholders [4]. McKnight [5] identified five roles of technology in promoting teaching and learning, and discussed how these strategies benefit teachers and learners.

With its characteristics of mass, diversity, speed and value, big data contributes to the focus of ideological and political education and opens up a new world for the field of Ideological and political education. Ideological and political education in the big data environment is facing new and greater challenges [6]. In the current environment, making full use of information technology to carry out ideological and political education is an effective strategy to adapt to the big data environment [7]. Combining the advantages of big data with the needs of Ideological and political education is conducive to enriching the resources of Ideological and political education, enhancing the effectiveness of Ideological and political education, and developing the discipline of Ideological and Political Education [8]. Zheng [9] believes that in the era of big data, the ideological and political education in Colleges and universities should complete the following tasks: to establish a large database of college students, to establish a comprehensive education early warning mechanism; to improve the information literacy of college teachers, to create a digital teaching team,

to innovate teaching practice, to realize the subject of personalized learning, and to improve the effectiveness of Ideological and political education. Starting from the characteristics of ideological and political education of college students in the era of self-media and big data, Di [10] expounds the role of self-media and big data in Ideological and political education of college students, and studies the ideological and political education of college students in the era of self-media and big data from the aspects of interdisciplinary research. Finally, from the aspects of strengthening data awareness and identifying key points, this paper discusses self-media and big data era to strengthen the ideological and political education of innovative measures.

In order to better promote the teaching innovation of ideological and political education in higher vocational colleges under the big data environment, this paper introduces the characteristics of Ideological and political education based on the big data environment and several key problems to be solved, this paper studies how to use the new media technology, cloud platform technology, data analysis and data mining technology in the big data environment to reform and innovate teaching methods in combination with the teaching characteristics of ideological and political education in higher vocational colleges, in order to provide useful support and reference for ideological and political teaching innovation.

2. Method

2.1 Characteristics and Problems of Ideological and Political Education in Higher Vocational Colleges under Big Data Environment

With the emergence of new technologies such as Internet of things and cloud computing in recent years, the application of big data is expanding. Big data is a new processing method, which can produce strong decision-making power, insight and process optimization ability. The great transformation of the times and social changes brought by big data environment have made it go deep into all fields of social life and provided more accurate data background and rich and reliable education methods and technical means for the ideological and political education of university network. It is possible to develop and apply big data technology in the ideological and political education of higher vocational colleges. At the same time, the new changes of network environment, the new requirements and rules of Ideological and political education brought by big data also put new pressure on the ideological and political education of network in colleges and universities. The ideological and political education based on big data environment has distinct characteristics in the aspects of information mastery, education mode, education subject and object, education media, education methods, etc., which will bring about revolutionary changes in many aspects of ideological and political education.

An important method of ideological and political education in higher vocational colleges based on big data environment is to combine qualitative and quantitative research based on data itself. This new quantitative research method will change the existing research paradigm of ideological and political education in higher vocational colleges to a large extent. In order to improve the pertinence and scientificity of ideological and political education in higher vocational colleges, the following three key problems need to be solved in the ideological and political education based on big data environment.

- 1) Digital management of the effectiveness of Ideological and political education.
- 2) Optimize the existing ideological and political culture, system platform and personnel allocation.
- 3) Various technical bottlenecks need to be overcome. Combine the significance, current situation and trend of ideological and political education in higher vocational colleges with the connotation and attribute of big data environment to break through its research paradigm and method.

2.2 Application Status of the Combination of Ideological and Political Theory Courses and Related Technologies

Big data technology has been widely used in the teaching process of various courses in various colleges and universities, and the teaching of ideological and political theory course also belongs to one part, which also needs to use big data technology to improve its teaching process and teaching methods. Network technology, network resources and cloud platform are widely used in teaching field to carry out various teaching activities. Big data technology makes the ideological and political education in Colleges and universities have an updated carrier. New carriers in the era of big data include new media such as mobile terminals, Internet of things, etc., which are characterized by high speed, large capacity, strong correlation and high value.

Through the comprehensive use of various elements in multimedia courseware, teachers can help solve some key and difficult problems in classroom teaching. Such as clear charts, intuitive pictures, lifelike animations and videos, these technologies can make the abstract ideological and political theory content have a vivid expression, help to improve the classroom atmosphere and improve the teaching effect. However, this way has not broken through the traditional “teacher as the main body” unilateral teaching, and the students' subjectivity has not been fully highlighted. The digital teaching method of network teaching on the basis of new media technology and Internet, is to create an independent inquiry and interactive learning environment for students through a series of teaching activities on the network platform, so that the whole learning process becomes vivid and efficient. Some higher vocational colleges have also begun to try to build the ideological and political theory courses into excellent course websites, share resources through computer networks, and strengthen the interaction between teachers and students after class. This way strengthens the students' subjectivity and improves the teaching effect of the ideological and political theory course to a certain extent. However, there are some shortcomings in this way, that is, the communication between teachers and students based on computer network is more to use the time after class, so the improvement of the effect of Ideological and political theory classroom teaching is still very limited.

At present, the cloud platform under the background of big data has gradually integrated into the field of education. The cloud platform makes full use of the massive resources in the network, breaks through the limitations of the traditional ideological and political theory class in space and time, and is a great innovation for the ideological and political theory class. In recent two years, some ideological and Political Theory Teachers in some colleges and universities have been effectively integrating curriculum resources and information technology, trying to create a new “digital” learning environment.

2.3 Principles and Ideas of Innovation in Teaching Methods of Ideological and Political Courses in Higher Vocational Colleges under the Environment of Big Data

The advent of big data environment provides a new paradigm of “Internet +” thinking for ideological and political education. Therefore, we need to rely on the big data environment as the platform in the teaching process of Ideological and political theory course, and realize the reform of teaching, curriculum, learning and teacher evaluation in an all-round way. Under the big data environment, the innovation of Ideological and political teaching methods in higher vocational colleges must follow the following principles and ideas:

- 1) The architecture of data platform based on big data should have high security and expansibility. Besides, it can also provide a wealth of docking data interfaces, and effectively support the storage and application of unstructured and structured data.

- 2) In the original basic data platform related hardware configuration, strengthen the construction of big data business platform to achieve the optimization and upgrading of the original data platform, reflecting the effective support for ideological and political education in higher vocational colleges. Basic problems such as data access and data consolidation should be effectively solved and properly handled.

- 3) Based on the hierarchical features of big data functions, strengthen the construction of

matching big data intelligent platform. The gap between different business systems is reduced to enhance the cooperation of data through business integration and data aggregation, and the corresponding specifications are established to improve the utilization rate of data scientific decision-making.

3. Teaching Reform and Innovation Methods of Ideological and Political Education in Higher Vocational Colleges under the Big Data Environment

There are a large number of data and information are gathered in vocational colleges, including not only the basic data of students' native place and home address, but also the daily life data of campus consumption, sports and exercise, as well as a series of classroom learning data closely related to learning, and even the network state generated in the use of campus network and social media. At the same time, it also contains all teaching courseware, handout and other teaching information as well as research data of decision-making. big data business platform is needed in order to improve the quality and efficiency of ideological and political education in vocational colleges. Based on this, the construction of big data business platform in higher vocational colleges should first meet the requirements of big data processing, and the main teaching reform methods are as follows:

1) Building a big data platform for ideological and political education in Higher Vocational Colleges

Ideological and political education data in higher vocational colleges come from a wide range of sources, diverse types and structural alienation, which lead to many obstacles such as difficult integration of Ideological and political data and low value of data mining. To build a big data platform to combine the ideological and political education of higher vocational colleges with the thinking of the Internet, to stimulate the deep integration of ideological and political network reform and innovation in colleges and universities

2) Combining big data technology with new media of Ideological and Political Education

New media, as the carrier of Ideological and political education, is inevitable. New media concentrates on digital technology, information technology and network technology, which changes the way of information communication from single communication to two-way communication, and realizes a wider and deeper communication of information. Big data is the core node to connect new media, which creates the basic conditions for the construction of "Ideological and political education implementation system".

3) Ideological and political teaching model based on cloud platform

By relying on big data information technology to build the cloud platform of ideological and political teaching, we can achieve the innovation of teaching methods, strengthen the construction of Ideological and political mechanism in higher vocational colleges, achieve the accuracy of Ideological and political education in higher vocational colleges, and improve its efficiency. The ideological and political teaching based on cloud platform can include all elements of the traditional ideological and political theory class, such as curriculum planning, curriculum content setting, MOOC class explanation, Q & A guidance, homework and examination system, and personalized display of teachers.

4) Constructing the feedback mechanism of Ideological and political education based on big data platform

The use of big data can achieve a more efficient teaching method to carry out ideological and political theory teaching in higher vocational colleges. The purpose of using big data to carry out the dynamic evaluation of Ideological and political education in colleges and universities is to form a good feedback. We should further improve the ideological and political education in higher vocational colleges and establish a virtuous feedback mechanism of "evaluation feedback evaluation" on the basis of the feedback. In order to achieve effective feedback, the evaluation results are the basis for the next step of construction, so that the feedback mechanism can truly reflect the dynamic presentation. The overall structure of Ideological and political teaching method reform based on big data environment is shown in Table 1.

Tab.1 the overall framework of Ideological and political teaching method reform based on big data environment

Name	Technology involved	Function
Perceptive Layer	perceptive technology	Perception of students' learning and life, collection of massive data
Communication layer	Wired and wireless network technology	Data transmission and network interconnection
Big data layer	Data transmission and network interconnection	Data storage, data analysis, data base
application layer	Ideological and political application system in Higher Vocational Colleges	The platform of Ideological and political education in Higher Vocational Colleges
Adaptive interaction layer	Intelligent terminal technology	Provide interaction mode for teachers and students in Higher Vocational Education

4. The Implementation Effect of Ideological and Political Courses in Higher Vocational Colleges under the Big Data Environment

Big data mining analysis and quantitative research methods are used in this paper to analyze the implementation effect of ideological and political education in higher vocational colleges objectively under the big data environment, as an important reference index to evaluate the combination of Ideological and political education and big data technology in higher vocational colleges.

The main body of learning activities of ideological and political courses in higher vocational colleges is students in higher vocational schools. How to mobilize students' enthusiasm, make students actively participate in the learning activities of Ideological and political theory courses and think deeply is the purpose of teaching ideological and political theory courses in higher vocational colleges. In order to investigate and understand the situation that college students use the network platform to assist the ideological and political theory in and out of class learning activities, it can be seen from Figure 1 that they usually participate in the ideological and political theory class through the following four forms, 53.4% of the students often participate in the discussion of the big data platform, 71.7% of the students submit their homework using the big data platform, 65.2% of the students often participate in the platform test, 56.4% of the students often participate in the platform test Student representation is mostly used in platform learning teaching video.

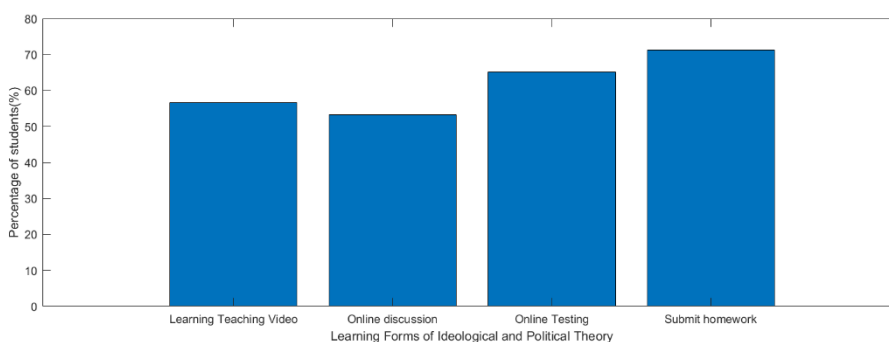


Fig.1 The Learning Forms of Ideological and Political Theory

5. Conclusion

The development and application of big data technology plays an important role in promoting the ideological and political education. The ideological and political theory education in higher vocational colleges can combine the new characteristics of current computer network technology and big data technology under the background of big data, and actively change the education mode, content and thinking in the process of Ideological and political education, so as to make ideological and political education meet the requirements of the new era. At the same time, higher vocational colleges actively use all kinds of big data analysis and data mining technology to carry out the education analysis of Ideological and political courses in order to improve the quality of teaching,

cultivate more high-quality talents for social development, and finally achieve the improvement of students' personal quality and promote the development of students.

References

- [1] Delgado, A. J., Wardlow, L., McKnight, K., & O'Malley, K. (2015). Educational technology: A review of the integration, resources, and effectiveness of technology in k-12 classrooms. *Journal of Information Technology Education*, 14.
- [2] Prinsloo, P., Archer, E., Barnes, G., Chetty, Y., & Van Zyl, D. (2015). Big (ger) data as better data in open distance learning. *International Review of Research in Open and Distributed Learning*, 16(1), 284-306.
- [3] Picciano, A. G. (2012). The evolution of big data and learning analytics in American higher education. *Journal of asynchronous learning networks*, 16(3), 9-20.
- [4] Reyes, J. A. (2015). The skinny on big data in education: Learning analytics simplified. *TechTrends*, 59(2), 75-80.
- [5] McKnight, K., O'Malley, K., Ruzic, R., Horsley, M. K., Franey, J. J., & Bassett, K. (2016). Teaching in a digital age: How educators use technology to improve student learning. *Journal of research on technology in education*, 48(3), 194-211.
- [6] WANG, R., & MENG, W. (2014). Big Data and ideological and political education. *Journal of Naval University of Engineering (Comprehensive Edition)*, (3), 19.
- [7] Wang, Y. (2016, March). Big data era influence on college students' ideological and political education and innovation strategy. In *2016 Eighth International Conference on Measuring Technology and Mechatronics Automation (ICMTMA)* (pp. 126-128). IEEE.
- [8] DAI, H. (2015). Exploration and innovation on ideological and political education from the perspective of big data. *Canadian Social Science*, 11(1), 206-210.
- [9] Zheng, Z. (2015). The Inspiration of College Ideological and Political Education in the Age of Big Data. *Teaching of Forestry Region*, 6, 031.
- [10] Di, W., Yun, L., & Jia, C. (2017). Research on the innovation and development model of ideological and political education in we-media environment based on big data. *Revista De La Facultad De Ingenieria*, 32(16), 351-357.