Research on Enhancing the Modernization of Ideological and Political Education in Chinese Universities by Big Data

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Abstract: *Big data serves as a crucial engine to boost the modernization of ideological and political education in Chinese colleges and universities. It drives the key elements of the concept, mode, and mechanism of ideological and political education towards governance, precision, and a networked format. Based on the analysis of the 'cognitive-operation-guarantee' process within the framework of data structure imbalance, data distortion, and data function failure, ideological and political education in Chinese universities should focus on efficiency and quality, technology and talent, and systems and security. To eliminate cognitive deviations, enhance the operational system, and improve the guarantee mechanism, we must systematically promote the modernization of ideological and political education.*

Keywords: *Ideological and political education; Modernization; Big data*

1. Introduction

The digital transformation of education has become an important strategic theme in China's education reform and development. The modernization of ideological and political education is the only way to realize the connotative development and high-quality development of ideological and political education in the new era. With the continuous innovation and widespread application of data technology, digital education is being reassessed and recognized in the field of ideological and political education, and has become an "important engine driving the modernization of ideological and political education."[1] In the new era, exploring the significance, challenges, and path of big data in promoting the modernization of ideological and political education holds theoretical and practical guiding significance for achieving the high-quality development of ideological and political education.

2. The importance of big data to drive the modernization of ideological and political education in colleges and universities

The modernization of ideological and political education is to realize the modernization of concepts, contents, mechanisms, means, and other elements in order to adapt to social modernization.[2] In the process of modernization of ideological and political education, educators can optimize the educational environment, expand the implementation space and institutional framework, and promote the transformation of management concepts, educational methods and educational mechanisms in the elements of ideological and political education to governance, precision and network format by virtue of the driving force of big data.

The management concept has changed to "governance". Ideological and political education management is a creative activity process in which management departments and managers use management means to effectively integrate resources in order to achieve the educational goals and complete educational tasks.[3] With the rise of the concept of "service education" and the drive of big data technology, the management concept of ideological and political education in colleges and universities has also undergone a profound change, that is, from the top-down "management" to the "governance" with the characteristics of co-governance, interaction and consultation.

The education method is transformed to "precision". Theoretically, big data can provide an approximate "full sample" data basis for educational decision-making,[4] ensuring that every educated person can be "seen" completely, three-dimensionally, and clearly by educators in the form of "digital portraits". While ensuring its objectivity and neutrality, big data plays its specific descriptive function of the analysis object, so as to provide important value in the scientific decision-making of ideological

and political education, so that the accurate, micro and comprehensive education method has a basis for realization.

Transition of the educational mechanism to the "grid format". Due to the departmental setup and division of functions in colleges and universities, the cooperation mechanism between various departments of ideological and political education often presents a "linear" vertical interaction and parallel exchange, and the ideological and political education functions undertaken by each of them may overlap and overlap and have blank gaps, so that in the process of implementing ideological and political education policies, the problems of low efficiency and high implementation cost sometimes appear. With the continuous development of big data technology, the traditional fragmented, separated and linear organization methods and structures will be integrated and reshaped. The relevant departments of ideological and political education in colleges and universities shall establish a seamless and efficient network cooperation mechanism to promote the comprehensive sharing and integrated processing of digital information on ideological and political education, and build a digital foundation for the further implementation of the concept of "three comprehensive education".

3. Challenges in the process of modernizing ideological and political education driven by big data

At present, it is difficult to adapt to the rapid changes of information technology in the cognition, operation and guarantee of the modernization of ideological and political education in colleges and universities driven by big data, resulting in a certain gap between its efficiency and expectations.

3.1 Cognitive bias and imbalance in data structure

As the driving force for the modernization of ideological and political education, big data technology should ultimately be based on practical application. However, "due to the limitations of digital technology itself, people still examine the relationship between the two with a dichotomy thinking, so that the effective integration of digital technology and ideological and political education has not achieved the desired effect."[5] From a practical point of view, there are three biases in our current cognition of the modernization of digital-driven ideological and political education. First, the preconceived cognitive bias leads to the characteristics of "emphasizing efficiency and ignoring quality" in the data structure. The main reason is the inertia of thinking of managers and educators of ideological and political education, and the verticality of the management model from top to bottom. Second, the cognitive bias of partial generalization leads to the characteristics of "heavy division of labor and light cooperation" in the data structure. Departments of universities are often limited by the main functions of the department, only pay attention to their own functions and efficiency, and ignore the cooperation with other departments, resulting in the data is often difficult to present an overall picture, with the characteristics of one-sidedness and fragmentation. Third, the cognitive bias of the mindset leads to the characteristics of "emphasizing learning and ignoring life" in the data structure. Because the school assessment standards often stay in the aspect of students' academic performance, and ignore the significance of the subjectivity of students' life practice.

3.2 Single operation system and distortion of data portrait

The operation process of data-driven ideological and political education modernization mainly includes data collection and storage, analysis and mining, application and evaluation. Among them, the collection, analysis and mining process involves issues that affect the actual effect, such as the newness, authenticity and coarseness of the data. At present, due to the lag in the upgrading of technology and equipment in colleges and universities, and the shortage of professional talents, the collection structure is single, and the analysis and mining ability is insufficient, which makes it difficult to restore the real appearance of students in multiple dimensions, and there are distortion problems such as data portrait ghosting and blurring.

On the one hand, technical barriers and weak infrastructure lead to a single data collection structure. Data is an important element to drive the modernization of ideological and political education in colleges and universities. It's all about quality and ultimately all aspects of the application. Although most schools attach great importance to the collection of ideological and political education data, due to the single structure of data collection, the data are biased, thin and old. On the other hand, the lack of professionals in "digital ideology and politics" leads to insufficient data analysis and mining capabilities. At present, the team of "digital ideology and politics" is composed of data research talents

and ideological and political education teachers, and the integration of the advantages of both sides needs to be improved. Judging from the current actual situation, the awareness and ability of various departments to discover the needs of ideological and political education based on the data have been initially established, but the ability to analyze the needs through classification, aggregation, regression and association is insufficient, and then the needs of ideological and political education have not been effectively transformed. In the end, a situation is formed in which fuzzy analysis is more important than accurate analysis, and causal inference is more important than correlation analysis, resulting in the appearance of double image and distortion of data portraits.

3.3 Missence of guarantee mechanism and failure of data function

The guarantee mechanism is the basis for the operation of data-driven ideological and political education modernization. As the development of data-driven modernization in universities is still in its infancy, and the guarantee system has not yet been established, the standardization, legitimacy, applicability and accuracy of data samples are affected, and the integrity of their functions is limited or even invalid. The first is the legal and security mechanism. Issues related to the right to use, ownership and sharing limits of ideological and political education data need to be further deepened and studied. Without clear operational guidelines, target planning, and usage boundaries, security issues such as data misuse, abuse, and generalization may occur. The second is the standard system. From an internal point of view, there is a lack of institutional guarantees such as authoritative standards and regulations for the conversion of data between internal data in the ideological and political education system of colleges and universities, measurement standards and application specifications, and the delay in data transmission, data definition errors and data update lags are inevitable. The third is the connectivity mechanism. From a horizontal point of view, it is difficult for secondary colleges, communities, academic affairs offices, student offices, admissions offices, employment offices, organization departments and security offices and other university departments to form student-centered data collection systems and communication platforms due to the different business contents involved. From a longitudinal point of view, compared with personal electronic files, traditional paper archives have the characteristics of high space storage requirements and difficult query and sharing, which makes it difficult to form an accurate portrait of the whole process of students' growth. The functionality of a data sample is reduced by its applicability, consistency, and richness.

4. Big data drives the path of ideological and political education modernization in colleges and universities

4.1 Coordinate efficiency and quality, and eliminate cognitive biases

Ideological and political education in colleges and universities should build a data resource platform system centered on student portraits, balance efficiency and quality, realize the balanced development of horizontal collaboration and vertical empowerment of data, and realize the structural correction of data collection, research and application. Integrate the ideological and political education forces of colleges and universities from the overall level, promote the joint construction of data service toolboxes by multiple subjects, realize the timely and complete collection and sharing of public data, and drive the innovation and development of ideological and political education concepts.

First, promote quality with efficiency and get rid of "preconceived ideas". [6] The efficiency of ideological and political education is mainly embodied in grasping the "key minority" and making great efforts to give guidance to a small number of students in need of key education, while the temperature of ideological and political education is reflected in taking into account every "overwhelming majority." Second, it is necessary to clarify the division of labor, strengthen cooperation, and eliminate the principle of "generalizing from one side to the other." Colleges and universities should actively optimize and improve the intelligence of service hall facilities and equipment, and break the barriers to cross-departmental and cross-system application of students' ideological dynamic data. Third, pay attention to the growth of students throughout the process and break the "mindset". Through the construction of a comprehensive data governance center in colleges and universities and the improvement of the data development and utilization platform, we will build a more resilient critical information infrastructure. Strengthen the supply of basic data for various scenarios such as students' learning, life, and activities.

4.2 Develop technology and talents, and enrich the operation system

Build and improve the platform for the development and utilization of data in colleges and universities, coordinate technology and development, enrich the digital system, realize data sharing internally, open secure interfaces to the outside world and provide targeted services, and drive the personalized development of ideological and political education.

First, the extensive use of emerging technologies to enrich the level of data collection. Connect to multiple data sources to achieve multi-channel data collection. Set up an all-round data collector to achieve multi-type data collection. It is to comprehensively use the advantages of the platform to achieve multi-technology data collection. Second, improve the team's data literacy and deepen the research and application of data. Build an ideological and political education work force with data capabilities, and strengthen the autonomous use of data. Using the comprehensive data operation platform, unified classification, coding and scheduling, and multi-level network data collection to establish a complete accurate portrait database of students, through three-dimensional display of students' development status, innovative ideological and political education training mode, and comprehensively promote the development of scientific and effective education quality management methods.

4.3 Focus on system and safety, and improve the safeguard mechanism

Colleges and universities should focus on students' behavior and ideological dynamics, timely aggregate and integrate data, do a good job in the standardization and standardization of data management, and use system construction to smooth the communication mechanism, realize the systematic construction of data management and application, and drive the scientific development of ideological and political education mechanisms. First, establish data standards and security management norms, and strengthen the security monitoring of the entire process of student data source flow. On the one hand, it is necessary to establish a set of standard systems including coding standards, organization and system specifications, process specifications, exchange standards, format specifications, source system access specifications, and application and evaluation management to ensure the efficient flow and application of ideological and political education data in various departments.[7] On the other hand, through blockchain encryption technology, the authority is protected step by step. Improve the security, stability and convenience of data circulation, and enhance the ability to predict, analyze and warn students' dangerous behaviors. Second, strengthen the system construction of data collection, analysis and application to ensure continuous and effective data supply. First of all, from the technical level, a complete technical system of management, organization data mining and intelligent analysis should be established, and data classification and unified data coding standards should be established. The second is to intelligently analyze the collected ideological and political education data, and provide data analysis results with stable characteristics, unique identification, long-term effectiveness and dynamics, so as to provide personalized evaluation for different learners and push targeted learning resources, so that students can adjust their learning methods according to the analysis results, so as to improve the effectiveness of learning. Third, strengthen the sense of cooperation and improve the cross-platform and multi-field exchange mechanism. Within the legal framework, China Unicom has a teaching affairs system, a student work system, a graduate student system and a personnel system, improves the extraction process of public data and business data, provides convenient, all-factor, and open digital services to various departments, realizes information sharing and business linkage of various departments, and uses the in-depth mining and visual presentation capabilities of the data center to grasp students' learning situation, living status and ideological dynamics in real time, so as to take effective means to provide students with resources, activities, Paths and tools to meet the individual needs of students, improve the temperature of ideological and political education, so that cold data and living individuals can achieve unity in the generation, exchange and application of information, and ensure the standardized application of data-driven ideological and political education.

5. Conclusion

Big data holds significant value and potential in promoting the modernization of ideological and political education in Chinese universities. By overcoming challenges, improving mechanisms, and optimizing the environment, we can expect big data technology to play a more active role in the field of ideological and political education in the future, contributing to the cultivation of young people with

both moral integrity and talent in the new era.

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