Research on Innovative Methods for Ideological and Political Education in Higher Education Institutions in the Big Data Era

Liu Lian

Zibo Vocational Institute, Zibo, Shandong, China
739279465@qq.com

Abstract: In the new era, ideological and political education in universities must keep pace with the progress of the times by extending to the internet, expanding to the cloud, and deepening through data. Big data has three notable features: emphasis on correlations, value exploration, and trend prediction. Big data provides new opportunities, means, and avenues for innovative methods in ideological and political education at universities. However, the application of big data to innovate methods for ideological and political education in universities must address weak technological foundations, strict data barriers, and a shortage of specialized talent.

With the rapid development of information technology, the trends of digitization, mediaization, and popularization on the Internet are becoming increasingly influential and profound in the field of ideological and political education in universities. The emergence of big data has made it more convenient and efficient to gain knowledge and solve problems through data analysis, leading to a significant transformation in work, life, and thinking, and ushering in a new era of big data. In the new era, in order to keep pace with the progress of the times, ideological and political education in universities must extend to the internet, expand to the cloud, and deepen through data, continuously endowing ideological and political education with new connotations.

1. Notable Features of Big Data

1.1 Emphasis on correlations

Big data focuses on the correlations between things rather than their causality. It is a significant characteristic of big data to only ask "what" instead of "why." When people use search engines, make card payments, or shop online, these actions generate data information. If certain correlations can be discovered among these massive amounts of data, they can be effectively utilized in work and life. In the 1990s, managers at Walmart, a supermarket chain in the United States, analyzed sales data and discovered a puzzling phenomenon: beer and diapers, two seemingly unrelated items, often appeared together in the same shopping cart. This peculiar sales phenomenon caught the attention of the managers. Further investigation revealed that in households with infants, it is

usually the mothers who take care of the baby at home, while the fathers go to the supermarket to purchase diapers. When fathers buy diapers, they often also grab some beer for themselves, resulting in the occurrence of beer and diapers being frequently found in the same shopping cart. After discovering this phenomenon, Walmart began placing beer and diapers in the same area of the store, allowing young fathers to easily find both items. As a result, Walmart experienced a boost in sales revenue. In the context of big data technology, replacing causality with correlations opens up new perspectives for ideological and political education in universities. In-depth exploration of the correlations among the massive amounts of data generated by social media platforms such as WeChat and Weibo can facilitate targeted and effective ideological and political education in universities.[1]

1.2 Emphasis on value exploration

Raw data is usually not directly applicable. To derive value from massive amounts of data, analysis, mining, and processing are necessary to uncover relationships, patterns, and development trends. Data mining is the process of revealing hidden, previously unknown, and potentially valuable information from vast amounts of data. Descriptive analysis in data mining focuses on the past, revealing patterns, while predictive analysis focuses on the future, forecasting trends. Through the analysis of daily data in universities, the regularities of students' thoughts, psychology, and physiology can be accurately grasped. This enables the timely identification of signs of problems and the elimination of potential issues, providing an objective basis for ideological and political education in universities. In the past, when analyzing data, different individuals were often treated as relatively independent entities, seemingly unaffected by their friends. However, there is a Chinese saying that states, "Birds of a feather flock together, and people of the same kind gather together." Knowing whether a person's friends are good or bad is valuable in understanding that person. Previously, such relationships did not exist in the data due to technological limitations, and it was impossible to record who was friends with whom. Today, with the emergence of mobile communication and the popularity of social networks, these relationships are increasingly recognized. For example, we can see who is friends with whom on our phones, and we can observe many closely connected relationships on platforms like Weibo and WeChat. This provides an opportunity to enhance data analysis by connecting relatively independent individuals through the analysis of network structures andsocial relationships, allowing us to gain a deeper understanding of a person through their social circle.[2]

1.3 Emphasis on trend prediction

Traditional scientific research often relied on sampling surveys, which were considered the cornerstone of establishing civilized societies. However, sampling surveys were merely a reluctant choice under the constraints of technological development, and their reliability was based on the survey subjects providing truthful thoughts and information. The advent of the big data era provides people with the opportunity and means to extensively and profoundly access and utilize complete data, exploring the laws of the material world and the spiritual world and obtaining information that was previously inaccessible. Big data allows for the use of complete data instead of samples. It has changed the traditional data collection methods by enabling the real-time collection of data without the knowledge of the objects, avoiding deliberate and concealed responses that may occur when using traditional methods such as questionnaire surveys. Therefore, conclusions drawn from big data analysis are much more accurate than those from sampling surveys. The core function of big data is prediction. Applying the predictive capabilities of big data to ideological and political education in universities involves analyzing and mining vast amounts of data related to college

students obtained from platforms like Weibo, social networks, and search engines. This enables a comprehensive understanding of students' ideological status, behavioral dynamics, and influencing factors, as well as the prediction of the occurrence of certain phenomena. Thus, big data can discover patterns and predict the future from massive amounts of data, making decision-making more scientific, work more effective, and life more manageable.

2. The significance and value of using big data to innovate methods for ideological and political education in universities

2.1 Big data provides new opportunities for innovative methods in ideological and political education in universities

In the past, ideological and political education in universities lacked data support, which to some extent affected the effectiveness and persuasiveness of education. Nowadays, smartphones have become the "digital organs" of college students. The focus of ideological and political education in universities must shift to the internet and digital platforms to meet the needs of societal development. At the macro level, big data enables the informatization of decision-making in ideological and political education. By obtaining, tracking, analyzing, and predicting the ideological and behavioral data of college student groups, it becomes possible to accurately grasp the development trends of their ideological behaviors and formulate scientific countermeasures. At the micro level, by analyzing real-time data on individual ideological behaviors of college students, it is possible to understand the influencing factors, value orientations, and behavioral patterns of individual students and seek scientific methods to meet the needs of ideological and political education. In the era of big data, it is important to use data to gain insights, combining qualitative and quantitative analysis. By accurately revealing the ideological characteristics of college student groups and understanding their behavioral patterns through big data, as well as gaining insights into the individual ideologies and behavioral characteristics of college students, it becomes possible to combine group analysis with personalized customization. Practice has shown that by obtaining authentic data from various sources and analyzing and mining the data, it is possible to accurately grasp the underlying reasons behind college students' ideological behaviors and develop effective individualized approaches to problem-solving.[3]

2.2 Big data provides new means for innovative methods in ideological and political education in universities

Nowadays, university students have grown up alongside information technology and the internet. Social media platforms such as Weibo, WeChat, and TikTok have become important ways of survival for college students. The vast amount of data generated from social networks objectively reflects the thoughts, behaviors, and emotions of college students, containing many regularities and patterns. Big data provides methods to develop and utilize this information, enabling us to get closer to the realities of college students and make ideological and political education more personalized. By analyzing, judging, filtering, and refining the information, it becomes possible to comprehensively understand and accurately grasp the educational targets, providing a data basis for targeted work. By classifying, organizing, filtering, and analyzing the data on college students' ideological behaviors, understanding their inner world needs from the hot issues they are concerned about, and predicting potential tendencies, timely educational content can be provided and guided accordingly. This can allow college students to be nurtured and inspired unconsciously, leading to a transformation of ideological and political education from a general approach to a more refined and personalized approach. Through short walks, brief conversations, enlightening dialogues, and

comforting words, many ideological problems can be solved, avoiding the approach of "prescribing the same medicine to all patients" and enhancing the effectiveness and targeted nature of ideological and political education.

2.3 Big data provides new avenues for innovative methods in ideological and political education in universities

Timely discovery, accurate understanding, and proper handling of various tendency-related issues are essential in conducting ideological and political education. This places high demands on the real-time acquisition of information. Big data embodies the ability to rapidly obtain information from massive amounts of data and serves as a source of new knowledge and value creation. Traditional information systems and architectures lack the corresponding analytical tools and means to handle large amounts of data, especially unstructured data such as images and videos, which no longer meet the needs of societal development. However, with the application of big data technologies, these issues can be addressed, enabling universities to seize the advantage of data and enhance their ability to respond quickly in ideological and political education. In the era of big data, information dissemination and communication have become more convenient and rapid. College students' communication, online activities, and learning generate a large amount of data, and each individual becomes a data producer, disseminator, sharer, and analysis subject. For example, when some college students experience exam failures, romantic setbacks, family changes, or interpersonal tension, they often express their emotions, reflections, and seek help through WeChat groups, social media, and other platforms [4]. By using big data technology to analyze and mine this data, it is possible to accurately predict which students may experience significant fluctuations in their thoughts and emotions, requiring attention, communication, and guidance. Thus, ideological and political education can be conducted in a targeted manner. Furthermore, by utilizing the data and information on students' activities, family backgrounds, and social relationships available on big data platforms, a more comprehensive and accurate understanding of college students can be obtained. By coordinating and collaborating among universities, society, and families, a complete educational environment can be created to promote the internalization and externalization of ideological and political education, thereby optimizing and maximizing the educational function.

3. Problems and Countermeasures in the Application of Big Data for Innovative Ideological and Political Education in Universities

3.1 Weak Technological Foundation

The application of big data for innovative ideological and political education in universities is a new field. Universities have lacked previous experience in data-driven education, and the concept of using big data for ideological and political education has not been fully established. Therefore, the technological foundation for applying big data in innovative ideological and political education methods is weak. To address this issue, it is necessary to promote the informationization and networking of ideological and political education, leveraging the development of big data. By integrating various elements, domains, and levels through comprehensive integration, universities can establish a well-structured and orderly whole, enabling the effective implementation of the systemic and holistic functions of ideological and political education.

3.2 Stringent Data Barriers

Data is a valuable resource for ideological and political education. However, within universities,

data sharing among departments may be hindered by competing interests, and data sharing between universities requires well-defined mechanisms and standards. Some departments and institutions possess large amounts of data but are reluctant to share with external parties. This leads to significant barriers in data collection, making it challenging to accumulate data for ideological and political education. To overcome these barriers, it is essential to establish data management institutions, strengthen data resource integration, and create an ideological and political education network that enables comprehensive sharing, coverage, and connectivity across different levels and domains.[5]

3.3 Shortage of Specialized Talents

Proficiency in big data technologies requires expertise in data storage, merging, compression, filtering, format conversion, statistical analysis, knowledge discovery, visualization, association rules, classification, clustering, sequence paths, and decision support. However, specialized talents proficient in big data techniques are scarce. They need to possess skills in mathematics, statistics, data analysis, and natural language processing, along with extensive knowledge and the ability to independently acquire knowledge. Accelerating the training of specialized talents is crucial for applying big data in innovative ideological and political education methods. However, it's important to recognize that the essence of ideological and political education is a science of exemplary behavior. Regardless of the methods used, the ultimate goal is to communicate effectively with the target audience and gain their trust and understanding. As organizers and implementers of ideological and political education, educators should be role models in both knowledge acquisition and moral conduct.

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