Applied Science and Innovative Research
ISSN 2474-4972 (Print) ISSN 2474-4980 (Online)
Vol. 6, No. 3, 2022
www.scholink.org/ojs/index.php/asir

Original Paper

The Implementation Path of Network Ideological and Political Education in the Era of Big Data

Chen Min[1]

[1] Shandong Labor Vocational and Technical College, Jinan City, Shandong Province, China

Received: August 9, 2022 Accepted: August 22, 2022 Online Published: August 31, 2022

doi:10.22158/asir.v6n3p52 URL: http://doi.org/10.22158/asir.v6n3p52

Abstract

With the continuous improvement of the level of information construction, data resources are showing exponential growth, leading us into the era of big data. It provides a platform for ideological education and moral character education for college students on the Internet. Network ideological and political education in the era of big data faces problems such as weak data awareness in schools, lack of data literacy, and lack of unified and effective management of data. It is recommended to use data mining technology to improve the aspects of integrating student behavior data information on each platform, monitoring student behavior data, visualizing student behavior data, and building a big data analysis and early warning management platform for student network behavior, timely monitoring and solving problems, grasping the development trend of network ideological and political education problems in real-time, and improving the level of public opinion guidance.

Keyword

Big data, network ideological and political education, data mining, visualization

1. Introduction

General Secretary Xi Jinping pointed out at the National College Ideological and Political Work Conference that “Ideological and political work in colleges and universities must center on students, care for students, and serve students, continuously improve students’ ideological level, political awareness, moral character, and cultural literacy, and enable students to become talents with both political integrity and ability and all-round development.” Today, students’ network behavior is extensive. School ideological and political education should adhere to students as the center, and conduct positive innovation in network ideological and political education. General Secretary Xi Jinping regards online public opinion as the focus of publicity and ideological work, which is reflecting the high attention of the Party Central Committee for the construction of online positions and online

publicity and ideological work. As early as 2015, the "Opinions on Further Strengthening and Improving the Propaganda and Ideological Work of Colleges and Universities under the New Situation" proposed to promote the construction of campus websites on the basis of ensuring network security, so as to promote innovative research on online ideological and political education. Network ideological and political education refers to the use of communication principles and ideological propaganda theories by schools and teachers on the basis of dialysis of the nature of the network and the impact of the network environment, and the use of communication principles and ideological propaganda theories to carry out purposeful, planned, organized, and hierarchical ideological education and moral character education for college and university students on the Internet platform.

With the continuous improvement of informatization construction, the exponential of data resources has led us into the era of big data. Big data has the characteristics of large quantity, high speed, diversity, and value. People cannot use commonly used tool software for summary, management, and analysis in a limited time. Artificial intelligence algorithms, efficient data processing platforms, and advanced data analysis technologies are needed to explore the correlation between data from a large number of unrelated heterogeneous data, predict future development trends, and provide high-quality decision-making suggestions.

Positive network public opinion guidance is the focus of ideological and political education in colleges and universities, and the application of big data analysis technology can timely grasp the development trend of network ideological and political education problems, timely and effectively monitor problems, solve problems, and lead public opinion guidance.

2. Research Status

Lisha (2017) proposed three principles that need to be followed by using big data to carry out high-efficiency network ideological and political education, namely, scientificity, dynamics, and privacy, in order to promote the effectiveness of online ideological and political education. It is necessary to strengthen awareness, improve the platform and optimize the environment. Li Jie (2018) analyzed the dilemma faced by online ideological and political education, and proposed that in order to give full play to the application value of big data in online ideological and political education, data technology should be optimized, big data should be analyzed accurately and efficiently, and personalized ideological and political education models should be promoted to give full play to the leading value of online ideological and political education. Qi Mingming (2018) proposed the establishment of a team linkage, subject linkage, content linkage, and platform linkage mechanism to promote network ideological and political education. Zhu Hongrun (2019) proposed to build and improve the teaching system, establish the concept of big data, clarify the focus of teaching, increase the intensity of platform construction, strengthen the construction of the teaching team, and build a multi-party coordination mechanism to help network ideological and political research. Jin Tailai (2019) analyzed the advantages of network ideological and political education and proposed measures such as

improving the quality of teachers and building a management platform. Zhao Rong (2020) proposed innovative measures such as cultivating data thinking, scientific analysis of data, and improvement of institutional systems. Yang Wei (2021) proposed measures to carry out network ideological and political education based on the "Yiban" platform in the era of big data. Feng Ao (2021) suggested improving the issue of network ideological and political education from five aspects: grasping the main position of ideological and political education, building a high-quality teaching team, cultivating student leaders, building a theme demonstration website, and improving the evaluation system of ideological and political education. Zhao Yupeng (2021) analyzed the significance of strengthening the construction of the network ideological and political work system and the problems and challenges faced and put forward feasible strategies for the construction of the network ideological and political work system from the aspects of value orientation, theme discourse power, and all-media integration, providing scientific guidance for the development of network ideological and political work.

The development of big data has brought profound changes in school education. In the past, effective measures were not provided from the perspective of giving full play to the value of data. The use of teaching platforms such as learning, smart classrooms, sharing of one-stop service of "E-Class", and the construction of campus networks are always collecting data. With the increase of data volume, ideological and political education analysis from a large number of irrelevant data, and timely tracking of the ideological dynamics and behavioral characteristics of college students promptly has become the mission of education in the new era.

3. Problems Faced by Online Ideological and Political Education in the Era of Big Data

3.1 Weak Data Awareness and Lack of Data Literacy

Data awareness and data literacy (Yu Ling, 2019) are two sides of the same coin. Data awareness is the understanding of data, on the one hand, it is recognizing that data can show great value after processing, on the other hand, it is ethical awareness, if privacy is leaked, it will have a negative impact on individuals and even society. Data literacy refers to the ability to pay attention to the ability to obtain, analyze, store, criticize and share data, as well as the ethical code of conduct involved in the data utilization process, to be able to understand the problems of data in the field and the meaning of data, to communicate with data analysis experts, to tap the maximum value of data, and to provide timely and effective decision-making suggestions for decision-making managers.

School network ideological and political education work generally adopts the traditional data analysis model, ignores the auxiliary help of big data to education, fails to organically combine big data with network ideological and political education, and is not conducive to the development of ideological and political education, lacks sensitivity to data and development capabilities, and needs to further improve data literacy.

3.2 Lack of Unified and Effective Management of Data

The key to giving full play to big data in school network ideological and political education is to comply with the development trend of dataization in the information age, highlight the role of data on network ideological and political education, reasonably use big data technology, scientifically collect student network behavior data and effectively process analysis, effective Display students' current ideological status, monitor students' personalized characteristics, predict students' ideological dynamic trends, and make full use of big data to promote network ideological and political education.

The current universities actively carry out network ideological and political education, and there are the following problems in unified data management:

The first is that the data is scattered, which is not conducive to analysis. "E-Class", new media, smart classroom, Official Micro-blog, etc. are relatively independent, and the student behavior data cannot be integrated, which seriously reduces the richness and relevance of the student behavior data sample, and cannot fully understand and reasonably use the relevant data mining technology to find the potential information.

The second is the lack of Double-quality Teachers with data analysis and mining ability. The process of collection, storage, cleaning, excavation, and sharing of big data not only requires basic computer knowledge but also deep-level big data technology support. Although some schools have set up big data majors, teachers lack related corporate practical experience, which restricts the role of big data in the work of network ideological and political education.

4. The Implementation Path of Network Ideological and Political Education in the Era of Big Data

The solution to big data acquisition, storage, cleaning, mining, analysis, and visualization problems is an important measure to building a digital resource system. Massive data and data from a variety of database sources have brought great tests to data processing and analysis, to obtain reliable and valuable information, we must choose appropriate processing means and appropriate analysis methods. Based on the data mining process model, this paper analyzes the implementation path of network ideological and political education in the era of big data from a technical point of view.

4.1 Integrate Student Behavior Data Information across Platforms

Business understanding: Closely cooperate with school leaders, select students' behavioral indicators that need to be monitored, set the problems in the data mining stage and mining goals, set up personnel required for each link, select data mining tools, and formulate implementation plans.

Data understanding: Familiar with the attributes of data based on business understanding, initially data characteristics, intuitive understanding of the quality of data, and obtaining datasets that are interested in. The amount of data of student behavior data is very large, and the storage devices on personal computers cannot accommodate data that grow in real-time. The disk arrays can quickly and stably access massive data. At the same time, different addresses, categories, and level data need to be

stored in different disk arrays through distributed storage. Relational databases are limited by design models. Generally, only the data storage method of stand-alone data is considered, which means that no matter what level of the amount of data reaches, only one machine storage and management all data. The storage equipment that can be carried on each machine is limited and generally does not exceed a few TBs. And once the amount of data and files in a database increases to a certain degree, the retrieval speed of the data will decrease sharply, so the relationship database is not suitable for storing student behavior data.

4.2 Monitor Student Behavior Data

Data pre-processing: This stage contains all behaviors to build business data sets. According to the need to select "E-Class", new media, smart classrooms, Official Micro-blog, and other platform data attributes, and check the integrity of all records, carry out noise removal or correction, cleaning, and missing values. The cleaning data is applied to the feature selection and extraction algorithm to reduce the dimension and generate new attributes according to the characteristics of the characteristic transformation method according to business needs. The final dataset is called a business data set and the business data is stored in the data warehouse. Through the summary and cleaning of various platform database data, eliminate missing values and inconsistencies, and establish a consistent student network behavior data warehouse.

Data mining: According to the mining task, different big data processing methods are used to extract the patterns in the business data set from the big data or use the existing patterns to predict the development trend of the data. School decision-makers often face problems such as information overload, misunderstanding of the meaning of information, and misuse of information, which leads to ineffective decision-making. This is because data from machines and the Internet itself does not provide valuable insights for managers and other decision-makers, and the data needs to be collated, standardized, and further interpreted, then analyzed and understood, to provide valuable information. SPSS Modeler is recommended in data analysis, which is a data mining software, the purpose of which is to excavate relevant results and provide support for management decisions through data collation and modeling. It is mainly used for analysis with large amounts of data, or for connecting to databases and data warehouses for analysis. Student network behavior data can be processed through correlation rule analysis, cluster analysis, decision tree analysis, and other analysis methods.

Mode evaluation: Since different massive data processing methods are used in the data mining stage, the mining results of various methods need to be evaluated at this stage. Select the optimal mining result by judging whether the knowledge found is novel, interesting, and useful, check whether important business problems are fully considered and whether there is a meaningful subset of results, and decide the use of mining results. If the knowledge found is not novel, interesting, or useful, return to the Data Mining phase to re-mining.

In order to achieve the monitoring of student network behavior, the data of student network behavior is tapped:

4.2.1 According to the students' emotional speeches, communication records with others, punch card range information and other data, track and observe the behavior trajectory of students in school, preset the background color of normal activity areas such as teaching buildings, playgrounds, dormitories, canteens, etc. When the background flashes, it is proved that the data is abnormal, then it is necessary to pay attention to the behavior trajectory of the problem students, make emergency plans in advance, and prevent dangerous events.

4.2.2 By identifying the subjective words released by students, master the mental health of students in real-time. Statistics in the background statistics such as "suicide", "depression", and "alive boring", such as serious negative emotions, and marked with obvious visualization types, timely discover students' abnormal psychology and conduct psychological guidance.

4.2.3 Use frequency statistics in text mining to list the main views and attention of students' mainstream politics and mainstream ideology, which will help timely to stop the explosive rough mouth and violate ideological remarks, and purify the students' spiritual world.

4.3 Student Behavior Data Visualization

Knowledge sharing: "Knowledge Sharing" is the ultimate goal of the implementation of visual data mining projects. This link uses knowledge visualization techniques, such as cognitive maps, concept maps, etc. to express rich knowledge, and integrates fragmented pieces of knowledge into a structured knowledge system so that people with different knowledge backgrounds can transform and create knowledge.

Knowledge managers often face three difficulties: First, the information is overloaded, so that the relevant information cannot be identified when making decisions; Second, misunderstanding the meaning of information, that is, not being able to correctly understand, evaluate and interpret information when making decisions; Third, misuse of information, that is, the wrong use of information when making decisions, leads to the failure of decisions. This is because human beings' own ability to process big data is very limited, visualization technology uses human strong pattern recognition capabilities to solve problems in text reading comprehension, providing new insights and ideas for people to gain insight into data and present information. Big data volume is very large, the traditional data visualization methods, such as tables, histograms, scatter charts, line charts, column charts, pie charts, area charts, flow charts, etc. are not suitable for big data environments, and the parallel visualization of massive data has become an urgent problem to be solved.

It is recommended to use Tableau for student behavior big data visualization. Tableau is an excellent representative of lightweight visual BI tools. It has the characteristics of rapid efficiency, easy use, and connection to multiple data sources. The data integration is easy to integrate and the interface is integrated. It has good scalability, which is conducive to improving data analysis ability. Use Tableau to drag and drop a lot of data to the panel, which can efficiently generate various icons. Everyone can use this visual tool to find the trend and abnormal values by dragging and dropping the data.

4.4 Build a Big Data Analysis and Early Warning Management Platform for Student Network Behavior

The mainstream big data framework Hadoop is used to collect, store, clean, process and analyze the student behavior data generated by various platforms, distribute the storage and processing of heterogeneous data, construct a data warehouse for various heterogeneous data sources, and form the overall architecture of the student network behavior data analysis system. To grasp the behavior trajectory of students, predict the behavior trend of key objects, timely and effectively find problems, monitor problems, and solve problems, the platform conducts complete data mining on students' network behavior data and analyzes and visualizes the mining results.

5. Conclusion

With the continuous improvement of the level of information construction, data resources are showing exponential growth, leading us into the era of big data. It provides a platform for ideological education and moral character education for college students on the Internet. Network ideological and political education in the era of big data faces problems such as weak data awareness in schools, lack of data literacy, and lack of unified and effective management of data. It is recommended to use data mining technology to improve the aspects of integrating student behavior data information on each platform, monitoring student behavior data, visualizing student behavior data, and building a big data analysis and early warning management platform for student network behavior, timely monitoring and solving problems, grasping the development trend of network ideological and political education problems in real-time, and improving the level of public opinion guidance. College students' network ideological and political education work has a long way to go, and we should give full play to the advantages of data resources as much as possible to promote the vigorous development of network ideological and political education.

References

Feng Ao, & Wang Jicheng. (2021). Problems and countermeasures faced by college students' network ideological and political education in the new era. *Journal of Bohai University (Philosophy and Social Sciences Edition), 43*(02), 100-103.

Jin Tailai. (2019). Analysis of the advantages of network ideological and political education in the era of big data. *Industry and Technology Forum*, *18*(14), 189-190.

Li Jie, & Wang Jicheng. (2018). Big data helps the research of network ideological and political education in colleges and universities. *Journal of Shenyang Agricultural University (Social Science Edition), 20*(04), 434-438.

Lisha. (2017). Research on the Innovative Path of Network Ideological and Political Education in Higher Vocational Colleges and Universities under the Background of Big Data. Liaoning Economic Management Cadre College. *Journal of Liaoning Economic Vocational and Technical College, 2017*(05), 72-74.

Qi Mingming. (2018). Research on the linkage mechanism of network ideological and political education in colleges and universities based on big data. *Journal of Hubei Correspondence University*, *31*(06), 69-70.

Yang Wei. (2021). How to carry out network ideological and political education in the era of big data. *Modern Communication*, *2021*(01), 215-217.

Yu Ling. (2019). Information literacy and training of primary and secondary school teachers in the context of education informatization. *Teaching and Management*, *2019*(18), 68-71.

Zhao Rong. (2020). Research on network ideological and political education methods in the era of big data. *Journal of Huizhou University*, *40*(02), 30-34.

Zhao Yupeng, Wang Chuanze, & Yu Yang. (2021). The logic and path of the construction of the network ideological and political work system in colleges and universities in the new era. *University*, *2021*(24), 29-31.

Zhu Hongrun. (2019). Research on the innovation of network ideological and political education in the era of big data. *Modernization of Education*, *6*(51), 37-39.