

Research on the Innovation of University Ideological and Political Education Methods Based on Data Mining in the Big Data Era

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Abstract

Then the era of big data has come. Compared with the previous data processing, the speed and accuracy of big data processing are becoming more and more perfect, and its development has promoted the rapid development of many industries. Generally speaking, big data refers to data sets whose size exceeds the acquisition, storage, management and analysis capabilities of conventional database tools. Education management system can realize the functions of coordinating data information, researching histograms, producing reports, printing conclusions and so on. Big data technology is a comprehensive data analysis technology, which not only improves the accuracy of data analysis, but also provides stronger support for related work. How to realize the transformation of Ideological and political education in the context of big data and its future development path are worthy of our research and thinking. The traditional analysis method is based on the manual calculation of absolute score for comparison. This method has some defects in the objectivity and accuracy of the evaluation results. By combining the characteristics of big data, combined with the existing achievements of Ideological and political education research and practice in Colleges and universities. This paper presents and discusses the basic characteristics of big data, and studies the application of data mining technology in education management system, which has important theoretical significance and practical application value.

Keywords: Big data era, Data mining, Ideological and political education

I . Introduction

With the development of information industry and the progress of industrial technology, the application scope of database management system is getting wider and wider. Moreover, the database management system has to deal with the increasing scale of databases, and people have accumulated more and more data [1]. Then the era of big data has come. Compared with the previous data processing, the speed and accuracy of big data processing are becoming more and more perfect, and its development has promoted the rapid development of many industries [2]. For ideological and political education in colleges and universities, it is necessary to focus on the characteristics of the times in the era of big data. Grasp the new transformation of ideological and political education, promote the development of ideological and political education through reasonable measures, and effectively improve the overall level of higher education [3]. Generally speaking, big data refers to the data set whose size exceeds the ability of conventional database tools to acquire, store, manage and analyze. The value of big data lies in the use value of data, and the realization of this value needs the help of scientific analysis of data. Education management system can realize the functions of data information, histogram research, report generation and conclusion printing [4]. It has the characteristics of simple operation process, convenient use, high efficiency and good analysis effect, which is in line with the research and analysis of teaching information in the University, and at the same time, it makes up for the lack of education management system.

Big data technology is a comprehensive data analysis technology, which not only improves the accuracy of data analysis, but also provides stronger support for related work [5]. Ideological and political education is a process of developing and perfecting people, and its development will certainly be influenced by the era of big data. The arrival of the era of big data poses new challenges to ideological and political education [6]. How to realize the transformation of ideological and political education under the background of big data and its future development path are issues worthy of our study and consideration. Therefore, how to evaluate the quality of ideological and political education managers scientifically, accurately, fairly and justly has been a research topic for educators for

many years [7]. The traditional analysis method is based on the manual calculation of absolute score for comparison. This method has some defects in the objectivity and accuracy of the evaluation results [8]. By combining the characteristics of big data, combined with the existing achievements of Ideological and political education research and practice in Colleges and universities. To explore the development direction and development path of Ideological and political education in Colleges and Universities under the background of big data is a beneficial attempt to actively expand the research scope of Ideological and political education in Colleges and universities, carry out innovative work, and improve the level of Ideological and Political Education [9].

II. Clustering Technology in Data Mining

A. Cluster Analysis

Cluster analysis is to divide physical data objects into data object sets, so as to realize the division of similar data. The object group of data generated by analyzing data is called cluster, and the object data in cluster has high similarity [10]. It is a collection of data objects. The following four types of cluster distance calculation methods are used to measure these two hierarchical clustering methods:

shortest distance:

$$d_{\min}(c_i, c_j) = \min_{p \in c_i, p' \in c_j} |p - p'| \quad (1)$$

Maximum distance:

$$d_{\max}(c_i, c_j) = \max_{p \in c_i, p' \in c_j} |p - p'| \quad (2)$$

Mean distance:

$$d_{\text{mean}}(c_i, c_j) = |m_i - m_j| \quad (3)$$

Average distance:

$$d_{\text{avg}}(c_i, c_j) = \frac{1}{n_i n_j} \sum_{p \in c_i} \sum_{p' \in c_j} |p - p'| \quad (4)$$

$|p - p'|$ represents the distance between two objects p and p' , m_i represents the average number of clusters c_i , n_i and represents the number of data objects in cluster c_i .

Objects in the same cluster have high similarity to each other, while objects in different clusters are different from each other. Cluster analysis process. As shown in Figure 1.

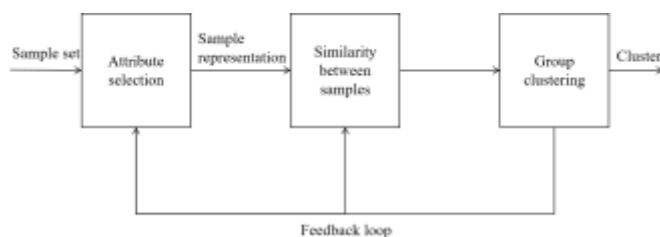


Fig.1 The Process of Cluster Analysis

It is pointed out that ideological and political education itself should update its teaching technology with the development of the times, and big data technology is a relatively mature and suitable technology for education. In the traditional process of ideological and political education, most educators adopt the whole-class instillation theory, and the educated are in a passive acceptance state [11]. Such a teaching mode means that the educator is the subject of education and the educatee is the object of education. Moving to ideological and political education, students are equivalent to a wide range of data, and ideological and political education is equivalent to technology [12]. Therefore, from the perspective of big data, students should be highlighted, and teachers should retreat to the auxiliary position of educational activities.

With the development of big data, the convenience of college students' access to and use of information makes college students become the main body of education, which inevitably leads to the change of the research and practice perspective of ideological and political education in colleges and universities from "subject-object" to "multi-subject" [13]. There is a big gap in the data format when collecting the data forms of students' work. In the field of biological theory, cluster analysis can analyze and calculate different categories of animals and plants. On this basis, their genes are divided into different types, and then new knowledge of the invariant structure in a certain population can be obtained [14]. Therefore, the availability of data analysis results is strong. The development of Ideological and political education management itself needs to investigate the situation of students. Give full play to the advantages of Ideological and political educators, strive to make ideological and political education do meaningful things interesting and interesting, and let students have a sense of satisfaction, achievement and gain. In view of the change of Ideological and political education in the era of big data, ideological and political education teachers must have a clear understanding, then suit the remedy to the case, and innovate ideological and political education through effective methods [15]. Create a new situation of Ideological and political education in the era of big data. In other words, clustering algorithm must be combined with some special application environment or semantics. How to apply the expected results to affect the clustering algorithm is a very meaningful research direction.

B. Data Types in the Clustering Process

The basic process of cluster analysis is as follows: First, as the input of cluster analysis, the application data that need to be processed are input, and they are aggregated into sample sets. These sample sets are preprocessed and selected or extracted by the attributes of sample data objects. The way of using ordinal variables for data conversion is mainly aimed at those ways that are difficult to evaluate objectively, but only through grade scoring to achieve objective evaluation of its attributes. The realization of big data makes this situation turn to master all data at the same time, and then it is to carry out the mining and analysis of data and the use level. Data mining process. As shown in Figure 2.

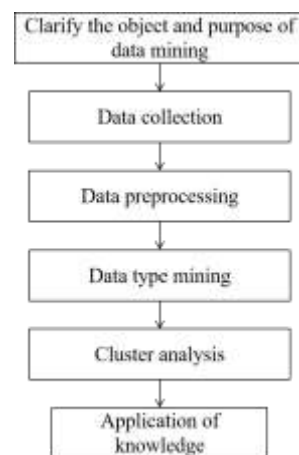


Fig.2 Clustering Data Mining Process

Specifically, in the ideological and political classroom education, teachers should innovate the teaching mode, build a new classroom teaching mode with students as the main body, and make the ideological and political education get new development. Ideological and political education in colleges and universities should make full use of the data in the era of big data and complete its own development. At the same time, learn to quantify some things and give full play to the value brought by the era of big data. Only in this way can ideological and political education develop more scientifically. But the daily ideological and political education and management work are carried out in the classroom, if teachers want to integrate the information in the actual environment online, it will increase the workload of Ideological and political teachers. The establishment of this mode makes the subject and object of Ideological and political education more closely linked and interact with each other.

Educators regard the educated as the same subject in the process of education. Educated people are no longer in a passive state in the process of education, but actively study and explore relevant knowledge, so that they can really play their main role and the effect of ideological and political education will be better reflected. The so-called management ability is the ability to deal with things in specific work. It mainly includes: strong organization and management ability in work, and effective organization of students to actively participate in school activities. We should be fair and selfless in dealing with students' violation of discipline. Actively organize students to do a good job in the evaluation. It is very difficult to classify the clustering algorithm, because the above aspects of data objects may overlap. As a result, a method has many types of characteristics. Even so, it is of great significance to propose an organized description of various clustering algorithms.

III. The Realistic Picture of the Innovation of Ideological and Political Education in Colleges and Universities under the Background of Big Data

A. Ideological and Political Education Management

Big data technology provides accurate services through comprehensive data analysis, which is the fundamental reason for its success and promotes the upgrading of related industries. For ideological and political education in colleges and universities, it is also necessary to recognize the characteristics of big data and realize accurate evaluation of students. Through the evaluation, the problems of students' Ideological and political literacy are clarified. The multi subject of Ideological and political education in Colleges and universities makes the research on the object of Ideological and political education turn to psychological research of acceptance, psychological research of use, discourse expression and psychological appeal. As shown in Figure 3.

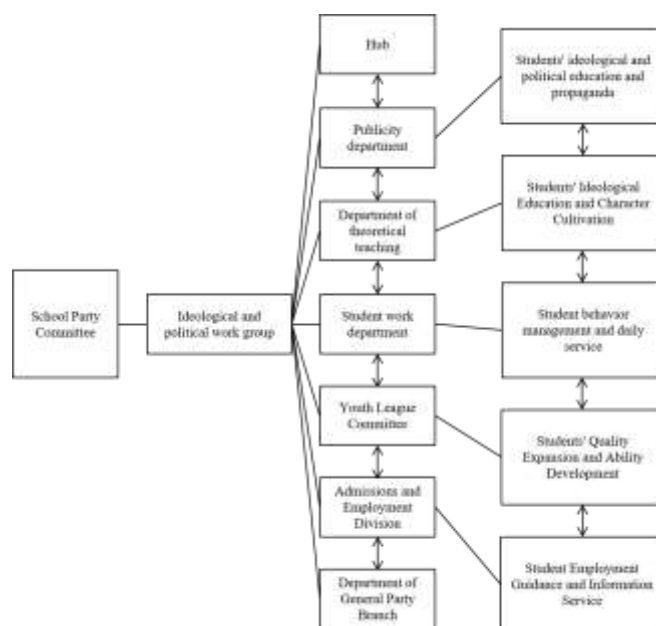


Fig.3 Ideological and Political Education System

The data sources of ideological and political education under big data are more diversified and abundant. In the face of huge data, the sources of ideological and political data in colleges and universities have changed from scattered structured data to structured data. The so-called management method is a specific method used in student management. Mainly includes: go to class or dormitory at least 3 times a week. Insist on checking the hygiene of student dormitory once. Care about students' life, study, etc., and do a good job in ideological guidance to students. Practice is the only standard for testing truth. Some people think that it is not necessary to play the role of practice in the era of big data. This view is wrong. Although the era of big data provides more perfect data support for the development of Ideological and political education in Colleges and universities. But we still need to pay attention to the important role of practice in its development process, in order to really promote the healthy development of Ideological and political education in Colleges and universities.

In the traditional process of ideological and political education, educators often rely on their previous teaching experience and life experience to transfer their education knowledge, and their views and analysis on some problems are often not very thorough. In the scientific guidance of mobile social and ideological and political education in the era of big data, mobile social software is a representative category of new media software. It is suggested that the team of ideological and political teachers should set up a public account to establish contact with students in the new media. Because the study habit has not been formed well, it brings great difficulties to the construction of study atmosphere. The poor learning atmosphere also has a great impact on students' learning interest and motivation. This is often a difficult problem in the education and management of college counselors. How to use these "treasure" data to find out the valuable information is the key problem that school leaders and the majority of student workers are concerned about.

B. Make Full Use of Big Data Resources to Enhance the Accuracy of Ideological and Political Education in Colleges and Universities

In ideological and political education, colleges and universities should put the grasp of public opinion into the guidance of public opinion, analyze the network use of college students through big data, summarize the characteristics of college students' network information use, and then accurately grasp the network public opinion of college students. According to the analysis results, we should set up the agenda function scientifically, embody the socialist values in the topic plan, and take the initiative in the guidance of public opinion. As early as the Agrarian Revolution, Mao Zedong paid attention to the precision of revolutionary work. In Gutian Conference, by accurately analyzing the wrong ideas within the party and taking precise measures to solve them, party members and cadres gradually recognized and supported Marxism. Big data makes this research turn to, and the research is based on the existing data analysis. The scientific nature of data is greatly improved, which is from practice summary to practice. Its scientificity has been optimized by practice. To achieve this effect, it is the most effective means to construct the ideological and Political Education Archives. From the beginning of students entering the school, the ideological and political education files are constructed for each student. With the development of Ideological and political education, the students' files are entered with relevant information.

Under the background of big data, the channels and ways for the educated to receive information are becoming more and more diversified and convenient. To a certain extent, they have mastered the initiative in class and have more ideas of their own. To a certain extent, they become the main body of education. Therefore, with the gradual sending and improvement of letters in the era of big data, the subject and object of Ideological and political education have changed from the previous single subject mode to the current multi-subject mode. By cleaning and preprocessing the data, the specific data mining samples can be obtained. As shown in Table 1.

Table 1 Basic Sample Of Data Mining Machine

Management attitude	Management capacity	Management effect	Management method
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0.70	0.65	0.64	0.62
0.70	0.65	0.64	0.62
0.30	0.30	0.26	0.29
0.71	0.71	0.64	0.68
0.9	0.9	0.91	0.64
...

With the rapid development of Internet, big data and other information technology, and the profound impact on education objects, the campus environment has changed from closed to open. All kinds of complex factors are imperceptibly affecting the operation and development of Ideological and political education in Colleges and universities. Therefore, the innovation of ideological and political education in colleges and universities integrating big data must first and always be based on this in order to demonstrate and maintain the essence of ideological and political education in colleges and universities. At the same time, it has become a powerful weapon to “counter” the “cold data” in the era of big data, in order to prevent the loss of ideological and political education in colleges and universities caused by excessive worship of data.

IV. Conclusions

Under the new situation, with the development of information technology and the change of the times environment, it keeps pace with the times. It is the principle of “advancing with the times” that ideological and political education in colleges and universities should keep innovating according to the needs of the times to better bear the mission and responsibility entrusted by the times. Basic concepts, applications and development prospects of data mining and cluster analysis. At present, the securities customer analysis system developed by data mining technology has been applied in a few securities companies, and good application results have been obtained by analyzing the application situation of related companies. Ideological and political teachers should form an understanding of this, optimize ideological and political education through reasonable strategies, effectively integrate big data ideas, promote ideological and political education to highlight students' dominant position, and realize personalized education. At the same time, realize the whole process accurate evaluation, so that the ideological and political education can achieve better development in the era of big data. But this process is not plain sailing, it needs the efforts and improvement of schools, educators and the educated. Only in this way can ideological and political education constantly adapt to the development of the era of big data, and better complete the role of developing and improving people.

V. Acknowledgment

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