

## Teaching and Innovation Reform of College Ideological and Political Theory Course Based on Big Data

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**Abstract:** The advent of the era of big data will have a huge impact on the teaching mode of ideological and political theory courses in colleges and universities in China. With the promotion of China's "Internet +" policy and the development of big data technology, combining the development trend of digital technology and teaching mode to reform the political theory course of colleges and universities has become an important aspect of the development and improvement of university teaching mode, based on data integration and analysis. An important attempt to improve the current level of integration of ideological and political theory courses with cutting-edge technology. This paper expounds the connotation of big data and the characteristics of the era of big data. By studying the application of big data in the course of ideological and political theory in colleges and universities, this paper analyzes the current situation of the application of big data in the course of ideological and political theory and the challenges brought to the teaching of theoretical courses. Relevant problems that need to be solved, and corresponding improvement strategies, enable college teachers to make better use of the advantages of big data in teaching, and at the same time promote the better development of college education.

### 1. Introduction

With the rapid development of a series of new information technologies such as mobile Internet, cloud computing, and trusted computing, a big data era of mass production, storage, sharing, and application of data has gradually opened [1]. The arrival of the era of big data will undoubtedly have a huge impact on the future teaching mode and education mode of Chinese universities. Today's high correction is at the forefront of the conflicts between various ideological and cultural circles. Especially with the advent of the era of big data, the world's various cultures are deeply intertwined, the value orientation of college students is increasingly diversified, and ideological and political education in colleges and universities faces certain difficulties and challenges. However, the traditional ideological and political education in China pays attention to moral education, and it is more persuasive by emotional people and theory, and there is relatively little data scientific analysis. The established teaching mode of ideological and political teaching in domestic colleges and universities is theoretical instillation, the teaching content and teaching form are relatively rigid, and it is seriously separated from social practice, which hampers the development of college students' learning initiative [2]. Faced with the impact of the growing world multiculturalism, college ideological and political education in the context of big data must actively adapt to the development of the times, update educational concepts, boldly apply new ideas and methods brought about by big data, and change the rigidities of traditional dogma. The theory instills the teaching form. The ideological and political education in colleges and universities must truly enter the students' minds and internalize into practical actions. Students must be guided to improve their interest and initiative in learning social sciences, so that college students can fully understand the society and enhance their sense of identity with the state and society.

## 2. Overview of big data theory

### 2.1 The connotation and characteristics of big data

The term big data comes from English big data and is used to refer to: “Those sizes are beyond the traditional scale, and general software tools are difficult to capture, store, manage, and analyze. IBM first summarized the characteristics of big data as Four levels, referred to as 4V: First, Volume (large), that is, the amount of data is huge and comprehensive; Second, Variety (various), that is, a large variety of data; Third, Velocity (high speed), that is, processing speed, always online Synchronous and timely feedback; Fourth, Value (value), that is, high value in various fields. Big data is the source of people's new cognition and creation of new values. In essence, the so-called big data, "its important meaning There are two: (1) refers to the large or complex data size from which data sets that conform to the regularity of the development of things can be mined. (2) Refers to the capture, storage, management, analysis and application of these data requires a new technical system involving data storage, knowledge discovery, visual presentation, association rules, classification clustering and decision support [3]. At the heart of the data is the discovery of value, and the core of the data is analysis. "From the era of no data to the era of small data, to the era of big data, the growth of data capacity is the trajectory of the era. The level of data usage also reflects the development of the information network era to some extent.

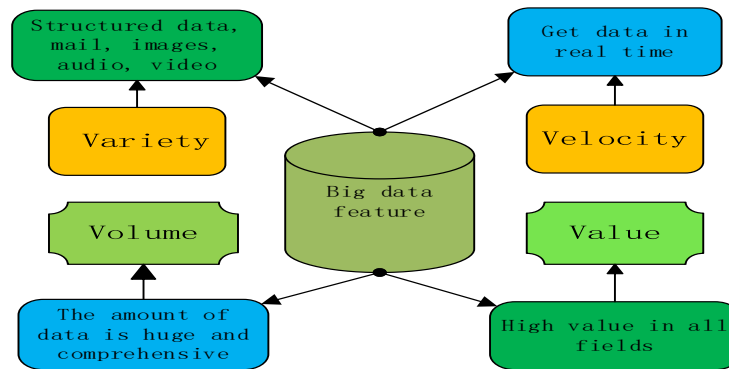


Figure 1. 4V data characteristics

### 2.2 Big data characteristics

1) The integrity of the data sample. The basic feature of the era of big data is the large amount of data. People in the digital age, from the food and clothing to the education, medical care, entertainment and other links, are recorded in words and deeds. Especially with the advent of the media era, the widespread use of social platforms has made the public not afraid of self-disclosure, and even used the self-media platform to actively display their own living conditions, forming a huge data resource. At the same time, in addition to the presentation of explicit content such as personal information that is publicly disclosed by the public, the data age also records countless hidden information resources that the public itself cannot perceive. These conscious explicit data are shared with unconscious hidden information. It has created a huge sample of data in the era of big data, which can be recorded and analyzed by humans.

2) The diversity of data content. The content of information presented by big data is not only large in volume, but also in a variety of information, and the information is embodied in rich forms of text, images, audio, video, etc., so that the data content can be continuously extended. Therefore, the diversity of data content is yet another feature of big data. The diversity of data content challenges data acquisition and analysis techniques. Not all data content can be “used by me“ directly through data collection technology. Although data collection technology enables people to access rich data resources, it does not help people identify useful data and useless data or even harmful data.

3) Correlation of data results. Before big data, people's understanding of things is based on empirical judgment, relying on logical argumentation to determine the causal relationship between things. In the big data environment, the relationship between data is getting people's attention, rich

data. After the information is integrated, analyzed and processed, the original appearance of the event can be more realistic and comprehensive. The correlation between the data also enables people to discover the potential laws and values between things, and then scientifically predict the future.

Table 1 characteristics of big data

Characteristics of the data	The integrity of the data sample	Diversity of data content	Correlation of data results
	Clothing, food, housing and transportation	Audio,Social network, mobile data Text, image	Information is integrated, analyzed, and processed
	education	News website,multimedia	Discover potential laws and values
	Medical, entertainment, etc.	Video website ,etc.	Ability to scientifically predict the future

### 2.3 Big data technology features

In terms of the types of big data technologies, it obviously has the characteristics of fast data processing speed and high data storage quality. As long as the corresponding software conforms to the nature of the work, users can process huge amounts of data information anytime and anywhere through electronic mobile devices. From the perspective of popularization, media information such as pictures, videos, documents, and data Tables can be summarized in the range that big data technology can handle. For example, pictures and video teaching materials in college ideological and political theory courses can also use big data technology to achieve efficient teaching.

### 2.4 The application of big data technology to college ideological and theoretical courses

The practice of applying big data technology to the ideological and political theory courses in colleges and universities has been developed to some extent, and the popularity and development of campus wireless networks and cable networks [4]. In the general teaching, colleges and universities comprehensively promote the digital teaching mode, and combine the different situations to make a new exploration in digital teaching. Campus network, teacher and student information management system, smart card recharge system, etc. are all examples of the application of digital technology to university management. Specific to the ideological and political theory class, with the development of the campus network and the advancement of big data technology, the ideological and political education in colleges and universities has gradually opened the microblogging platform and the WeChat public number, and the political frontier and theoretical system construction content of the frontier of the country can be timely. Sharing, on the one hand, can improve the level of interaction between teachers and students, on the other hand, it can improve the efficiency of the popularization of ideological and political theory. In the era of big data, the data collection range is wide and the sample is huge [5]. On the one hand, the Internet platform can collect current hotspots of current domestic and international portal websites, and combine the hot content of new websites such as video websites and WeChat public numbers to carry out the teaching content innovation of ideological and political theory courses. The collection of illustrations enriches the content of the theoretical lesson and is closely integrated with current current events. As a specific channel for the use and function of big data technology, the university Internet platform combines its own data processing and integration capabilities in the development process to timely share and integrate the relevant content of the ideological and political theory course.

## 3. The status quo of teaching methods of ideological and political theory courses in colleges and universities from the perspective of big data

### 3.1 Insufficient content of teaching content

Under the background of big data, educators and educatees can easily access rich and diverse teaching resources through online channels. In this way, the education and teaching activities of

educators are easily in a passive situation. In the past ideological and political teaching, students' access to knowledge information mainly relied on the teacher's "indoctrination" education, that is, the educators mostly sent their ideas to students in the form of classroom teaching and academic lectures. The students were mostly passive. However, with the arrival of big data, because of the large amount of information, the way to obtain information is wide and fast, educators can often use the network channels to find the resources they need, and then process and analyze them, eventually forming their own cognition and challenging education [6]. The authority of the person. With the advent of the "micro-era", the dissemination of all kinds of news information is no longer limited by time and space. This provides a more convenient and fast carrier for the dissemination of some bad information, once this situation cannot be effectively controlled. It is very easy to cause unpredictable consequences. In this regard, ideological and political educators are expected to be able to carry out thorough reasoning education, and also put forward higher requirements for network supervision tasks. In the context of big data, "sense-like" teaching is still favored by some ideological and political teachers. They apply the "soul chicken soup" that students are familiar with in teaching activities, which greatly reduces the mystery and freshness of classroom teaching, and sometimes even it will cause students' dislike. Therefore, compared with the big data fusion teaching model, the teaching disadvantages of the traditional theoretical curriculum have become prominent, and the implementation of reform is an inevitable behavior.

### **3.2 The teaching form is not adaptable**

In recent years, new forms of teaching such as "Mu Class" and flipping classes are quietly entering the classroom of ideological and political classes in colleges and universities [7]. However, as far as the actual situation is concerned, this form of teaching that seems to inject new energy and new motivation into the classroom has not only received strong response from students, but also brought about disharmony between teaching and learning.

The teaching effect is not good. It is undeniable that the "Mu Class" and the reference to the flipping classroom add to the diversity and interest of teaching, which enhances the sense of sight and the sense of presence of the teaching, but it is difficult to understand the emotion of the live teaching when compared with the cold machine. Resonance, and then the teaching content is also difficult to penetrate the hearts of people, enlighten the brain. As far as the flipping classroom is concerned, it is generally more suitable for primary and secondary school students with less information requirements, but it cannot meet the learning requirements of the college students.

Teaching requirements are improved. In the context of big data, "the gradual disappearance of classroom boundaries has also put new demands on teachers' ability to control the curriculum. This requires teachers not only to update the curriculum concept, but also to have good data and information analysis skills and multi-channel courses. Implementation ability. However, in the actual teaching process, the effectiveness of multimedia teaching has not been fully exerted. Although many teachers use multimedia courseware for teaching, most of the courseware content is text excerpts, which have not been digitally processed and sorted; The teacher even adopted a rejection attitude towards the network teaching and digital teaching required by the era of big data, and refused to introduce multimedia teaching forms. These are not in line with the teaching requirements of the new era, and their adaptability needs to be strengthened.

## **4. Innovative reform strategy of teaching methods of ideological and political theory courses in colleges and universities under the background of big data**

### **4.1 Improve the teaching effect of ideological and political theory courses for the teaching objects of the course**

The teaching of ideological and political theory is a dynamic process. Precisely grasping the teaching object is a prerequisite for high-quality teaching [8]. Big data analyzes the data of the daily behavior of educational objects, conducts correlation research, objectively and accurately grasps the differences in individual behaviors of educational objects, and implements education. Big data

collects a huge amount of data for each person. Through the analysis and mining of the data, it reveals all the activities of people and everything in the inner world. With the help of big data, the analysis of the behavior of the educated can lead to deep analysis of cognition, thought, emotion, and will, and objectively and accurately grasp the object of education. Through the frequency analysis of keyword occurrence on social tools, electronic emoji, daily praise, the application status of the map library, and the language habits of network communication, it is possible to accurately grasp whether the emotion of the educational object is negative or positive, and emotional confusion. Accurately grasp the real needs and characteristics of the educated in terms of "love". Therefore, in the era of big data, after accurately and objectively grasping the object of education, the opportunity to push the teaching service of ideological and political theory courses is further revealed.

#### **4.2 Improve the teaching quality of ideological and political theory courses, and implement the feedback teaching process of “double loop”**

Grasping the dynamic and real-time changes in teaching conditions is necessary to improve the quality of theoretical teaching. Feedback from previous education was referred to by Aguirre as “single loop” [9]. The data collection cost is too large and difficult. It is impossible to teach at the same time, and according to the big data feedback chart, the education strategy can be adjusted at any time and simultaneously. When an exam or a lesson is too difficult or too high, the school will identify the problem and overcome it in the next or next semester. This is the “single loop” learning – making a mistake, grabbing it, and correcting it in the next education cycle, and then moving on. This is a one-way feedback and correction for educational outcomes, and the adjustment of educational strategies has obvious delays. On the basis of “single loop”, big data adds real-time feedback and forms a “double loop” course teaching process. Big data can reflect every detail of the teaching process comprehensively and objectively, and adjust the teaching anytime and anywhere to make the education process more effective. There is no delay in adjustment and correction in the education process. Big data real-time “double loop” feedback information, teachers can adjust to the best education strategy at any time, teaching can be more effective. In the classroom discussion teaching reform, the ideological and political theory class teachers conduct real-time analysis of teaching big data. While teaching, the projection screen displays the student's learning data analysis results. The teacher dynamically adjusts the teaching plan according to the objective data of the student's learning situation. The quality has improved significantly.

#### **4.3 Personalized teaching methods to improve the effectiveness of ideological and political theory teaching**

After fully grasping the real-time feedback of the teaching objects, the individualized teaching methods can better improve the teaching effectiveness [10]. The individualized characteristics of the teaching of ideological and political theory courses are reflected in the following three points: First, in the course of theoretical course learning, one person and one sequence--the student-made ideological and political theory course online or offline learning order, that is, the self-made course group's "play" The second is the one-person-one scale--the student-made ideological and political theory course compulsory and elective course group, that is, the self-made "learning bag"; the third is the one-person-one way--the student chooses different ways of learning online or offline, and Through the corresponding evaluation, the self-made "learning method". In the future, ideological and political theory courses may not be unified and standardized in the same order and pace, but will be a combination of compulsory courses and individual electives under the premise of guaranteeing five compulsory courses. Combination, online and offline teaching. With big data, every student has a learning plan that suits him. A standard fits a student, breaks the homogenization of teaching, breaks the greatest “equalizer” of education, and avoids the ideological and political theory of colleges and universities. The teaching of the lesson is "one size fits all" and "one spoonful", and realizes the individualized teaching of ideological and political theory courses.

#### **4.4 Carry out a comprehensive evaluation of the course teaching and improve the scientific evaluation of the teaching evaluation of ideological and political theory courses**

After the completion of the complete teaching process, scientific evaluation teaching is an indispensable part of teaching reform. Traditional teaching evaluation is based on limited data statistics, and the subjective factors of educators often affect the evaluation results. Big data has turned the evaluation of ideological and political theory courses into an objective, accurate, comprehensive and open system, which has improved the scientific nature of evaluation. The traditional ideological and political theory teaching evaluation focuses on students' academic performance, attaches importance to cognition evaluation, and "emphasizes internalization effect, while light teaching content" is externalized as the evaluation of students' ideological and moral quality and behavior, which leads to mutual evaluation and practice. Separation, no correlation, easy to form an assessment of the separation of knowledge and behavior. The evaluation of the teaching level of traditional ideological and political theory teachers is often filled out, scored, held symposiums, experts provide opinions, supervise and evaluate, etc., often evaluates contingency, subjectivity, and ambiguity, and cannot objectively and accurately evaluate teacher teaching. The actual effect. Big data turns the evaluation of theoretical teaching into an open social system. The main body of evaluation includes education administrators, educators, learners, employers, etc. Different subjects have multiple aspects and multiple perspectives to evaluate and coordinate with each other. Complementing the advantages and improving the quality of the evaluation.

#### **4.5 Establish a new platform for curriculum teaching based on big data, and improve the influence of ideological and political theory teaching**

Vigorously strengthen the construction of ideological and political education courses and teaching platforms, and actively explore the construction of new forms of ideological and political theory education in colleges and universities. At present, the "Mu Class" platform for the teaching of ideological and political theory based on big data has been put on the line, and the teaching method of "Mu class" is integrated into the teaching of traditional ideological and political theory courses, or the video of "Mu class" is used as part of classroom teaching. The locality attracts the attention of the educational objects, gradually changes the prejudice of the educational objects on the curriculum, and improves the effectiveness of the teaching of ideological and political theory courses. Big data using cloud computing will provide the three new cloud platforms for the teaching of ideological and political theory courses, and improve the use of the platform. These three cloud platforms are an interconnected and complete system that is indispensable. First of all, the cloud platform for teaching service management of ideological and political theory courses was built. Existing information systems cannot keep up with the current pace of education reform in the era of big data. Often caused by the lack of scientific science of teaching management. The cloud platform will comprehensively promote the reconstruction of teacher management methods and the re-engineering of teacher management processes; realize the refinement of teacher management process and the precision of governance; optimize the teaching management work most effectively, and continuously improve the level of teaching management services. Secondly, the cloud platform for teaching, research and social practice of college ideological and political theory courses is established. The training and training of teachers of ideological and political theory courses will be cultivated according to the actual needs and knowledge structure of each teacher. According to the feedback of big data, the teaching rectification and rectification will be carried out in a timely and accurate manner. Finally, the student's complete growth into a talent cloud platform will be built. The data on student growth not only refers to the electronic files of the students in the school, the analysis of the test situation, but also contains more comprehensive data. In the process of growth, social activities such as volunteer activities, public welfare labor, visits to museums and patriotic education bases are indispensable for the construction of cloud platforms. Only a high-quality resource platform can enhance the use of the platform and improve the effectiveness of the teaching of ideological and political theory.

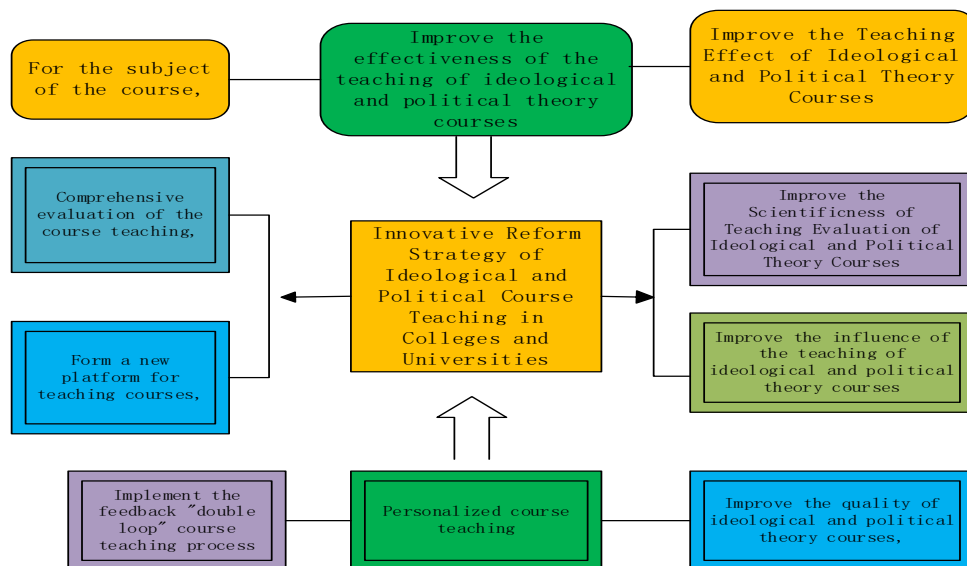


Figure 2 Innovative reform strategies for teaching methods of ideological and political theory courses in colleges and universities

## 5. Conclusion

With the continuous development of computers and the Internet, both social industries and educational groups should look for nodes associated with the times in the above two technology categories. Big data technology is a kind of technology that is very useful in the current era. From the perspective of big data, this paper makes an in-depth study on the reform of teaching methods of ideological and political theory courses in colleges and universities. It is hoped that the analysis in the text can provide useful reference for the reform of teaching methods of ideological and political theory courses in colleges and universities, so as to improve the teaching of ideological and political courses in colleges and universities. Quality, the fundamental purpose of realizing education reform. The advent of the era of big data has brought unprecedented challenges to the teaching reform of ideological and political theory courses in colleges and universities. At the same time, it has also given a fleeting development opportunity for the teaching of ideological and political theory courses in colleges and universities. Only by taking a proactive attitude to meet the challenges of big data, overcoming difficulties, and constantly improving themselves, developing ourselves, and perfecting themselves in a rapidly changing environment can we seize the historical opportunity and realize the ideological and political theory course in colleges and universities in the new era. Develop innovation.

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