

# Innovation Path of Ideological and Political Education in Universities from the Perspective of Big Data

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**Abstract:** In the current era of rapid informatization progress, big data stands as the pivotal driver of the next-generation information technology (IT), revolutionizing various aspects of societal life. With its distinctive attributes of vastness, diversity, velocity, and sparsity of value, big data has injected fresh vitality into university ideological and political education (IPE), while simultaneously unveiling novel avenues for its application. This article explores the innovative trajectory of IPE in universities through the lens of big data. The incorporation of big data technology aids in the comprehensive integration and optimal allocation of IPE resources in universities. By excavating and scrutinizing vast educational datasets, we gain a more precise understanding of students' ideological trends and learning aspirations, enabling us to offer more tailored content and services for IPE. Moreover, big data has spurred innovations in IPE methodologies in universities. Leveraging cutting-edge tools such as online education platforms and virtual reality technology, IPE transcends the confines of traditional classrooms, enabling remote teaching and interactive experiences, thus presenting students with a richer and more diverse learning environment. Furthermore, big data facilitates in-depth analysis of students' learning patterns, providing a scientific foundation for the enhancement of teaching methodologies.

## 1. Introduction

In the rapid evolution of IT, big data has emerged as a pivotal force shaping societal transformations [1]. Universities, being the nurseries of talent development, harbor a diverse pool of young learners who embody the future aspirations and promise of a nation, serving as a vital catalyst for societal advancement [2]. In this big data era, the trove of university data, particularly those pertaining to students, has transformed into a precious asset. These data encapsulate personal details such as academic achievements, interests, and social networks, while also mirroring ideological trends, values, and behavioral tendencies, offering a robust foundation for university IPE [3]. Universities, as active participants in the big data revolution, are not only integrating this technology into their teaching and learning processes, but are also advancing its development and implementation [4]. The utilization of big data technology not only enhances the digitization and intelligence of university education management, but also introduces fresh perspectives, methodologies, and safeguards for university IPE. By scrutinizing and exploring these vast data sets, universities can gain a deeper understanding of students' ideological trends and needs, ultimately delivering more customized content and services for IPE.

At the same time, big data can also help universities discover problems and confusions in students' thinking, psychology, behavior, and other aspects, provide timely and effective feedback and guidance for educators, and promote the scientific and standardized development of IPE [5]. In the perspective of big data, IPE in universities is facing new opportunities and challenges. On the one hand, big data provides more abundant and diverse educational resources and means for IPE in universities, making the educational process more vivid, interesting, and effective [6]. On the other hand, big data also requires IPE workers in universities to have higher professional competence and technical ability, be able to proficiently use big data tools for analysis and mining, discover students' problems and needs, and formulate corresponding educational strategies [7]. In order to address these challenges and seize opportunities, universities need to actively explore innovative

paths for IPE from the perspective of big data. Firstly, universities need to strengthen the research and application of big data technology, establish comprehensive big data platforms and analysis systems, and provide strong technical support for IPE [8].

To further enhance university IPE, it is crucial to prioritize the professional development of IPE workers. By intensifying their training and education, we can elevate their expertise and technical proficiency, ensuring they effectively leverage big data tools for educational pursuits. Moreover, universities must foster collaboration with government entities, businesses, and diverse societal sectors to collectively bolster the integration and evolution of big data technology in IPE. Simultaneously, universities must recognize the symbiotic relationship between IPE and IT. In this digital era, IT has become a pivotal force in societal progress. Therefore, universities should harness the benefits of IT, integrating it seamlessly with IPE to create a contemporary IPE brand. This integration can be achieved through various initiatives. For instance, establishing online learning platforms and mobile applications can offer students more convenient and efficient learning modalities and interactive experiences. Additionally, utilizing technologies like virtual reality and augmented reality can create immersive and vivid educational scenarios for students. Furthermore, social media and instant messaging tools can strengthen communication with students, enabling universities to promptly grasp their ideological trends and needs.

## **2. The Significance and Current Situation of IPE in the Era of Big Data**

### **2.1. Significance**

In the work of IPE in universities, the introduction of big data not only brings about innovation in educational methods, but also provides us with the possibility of accurately and efficiently obtaining the ideological dynamics, consumption tendencies, and activity methods of university students [9]. This change has far-reaching impacts on both educators and students. In traditional educational models, educators often rely on students' self-report, classroom performance, and limited observation to obtain information about them [10]. However, this approach often has subjectivity and one-sidedness, making it difficult to fully and accurately reflect the true situation of students. In the era of big data, by collecting and analyzing various types of data from students, we can more accurately understand their ideological dynamics, consumption tendencies, and activity methods. Through in-depth mining of these data, we can discover potential interests, values, psychological states, etc. of students, thereby providing educators with more comprehensive and objective references.

With the support of big data, educators can quickly obtain a large amount of information about students and develop more practical education plans based on this information. This not only shortens the time for educational preparation, but also improves the pertinence and effectiveness of education. Contemporary young students live in an era of information explosion, where they are exposed to more diverse and complex information. This makes their value orientations more diverse and their ideological concepts more active. In this context, traditional IPE methods are no longer able to meet the needs of students. The application of big data provides us with more refined educational methods. By analyzing student data, we can discover differences and commonalities among different students, providing them with more personalized educational plans. This can not only improve the pertinence and effectiveness of education, but also enhance students' sense of identification and belonging to education.

### **2.2. Current Situation**

With the advent of the big data era, various universities have chosen their own online platforms as important channels for external promotion and online IPE. However, this process also exposed some problems and challenges. Firstly, although various universities are actively promoting the construction of online IPE, they generally face the problem of limited manpower investment and insufficient financial support. The operation and maintenance of network platforms require professional talents and technical support, and currently, many universities have relatively weak

resource allocation in this area, which limits the effectiveness of network IPE to a certain extent. Secondly, weak interactive communication is another issue in the current construction of online IPE. One of the characteristics of online education is the ability to achieve rapid dissemination and interaction of information, but many online IPE platforms in universities often lack sufficient interactive links, making it difficult for students to receive timely feedback and answers, reducing their participation and learning effectiveness.

In addition, the popularity of the internet makes university students susceptible to the influence of various online information, and the virtual nature of the online environment can easily lead to a certain degree of self indulgence and detachment from reality in the process of online communication. These phenomena not only affect personal growth and development, but also have a negative impact on social harmony and stability. The application of big data technology has indeed brought many benefits to IPE work, such as being able to more accurately grasp the ideological dynamics of students, improving the pertinence and effectiveness of education, and so on. However, at the same time, the issue of student information security is becoming increasingly prominent. During the collection, storage, analysis, and application of big data, students may face the risk of personal privacy information leakage. This will not only cause psychological and economic losses to students, but also have a negative impact on the reputation and image of universities.

### 3. IPE Innovation Path

#### 3.1. Transforming the Functional Value of University Data into Data Value

With the continuous deepening of information technology in universities, university data, especially student data, has undergone unprecedented accumulation and precipitation. These data are recorded in various forms of data structures, covering not only basic information such as student academic performance, course selection, attendance, but also various aspects of their social interaction, consumption habits, and online behavior on campus (as shown in Figure 1). These data provide a solid data foundation for the integration research of big data and IPE. In traditional university management, data is often seen as a tool or means to support specific management functions or decisions. For example, student performance data is used to evaluate teaching effectiveness and student learning status; Library borrowing data is used to analyze students' reading preferences and needs.

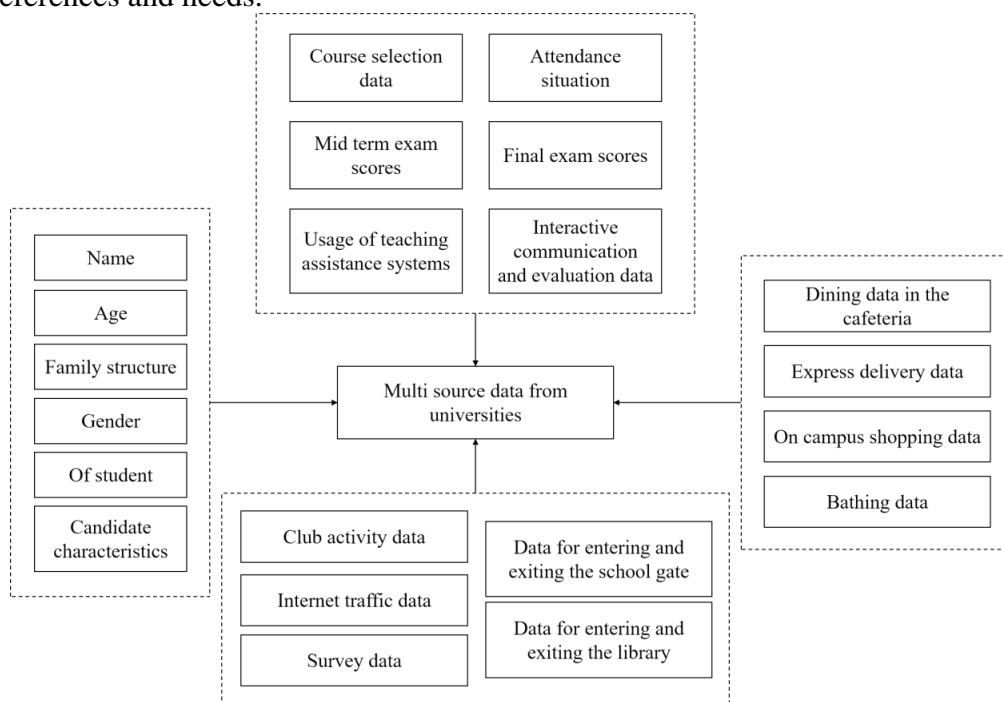


Figure 1 Source of university data

However, in the context of big data, the demand for big data in universities has undergone profound changes, shifting from a simple functional value to a pursuit of the value of data itself. Firstly, universities are beginning to realize the rich information and potential value contained in data. Through in-depth mining and analysis of massive data, the patterns and trends behind student behavior can be discovered, providing scientific basis for educational decision-making. Secondly, universities have begun to focus on the comprehensiveness and relevance of data. Traditional data management often divides data into different parts and processes them separately by different departments or systems. However, in the era of big data, the correlation and comprehensiveness between data have become particularly important. By integrating and analyzing data from different sources and structures, more complex and in-depth information can be discovered, providing more comprehensive support for educational decision-making.

### 3.2. Guide IPE Practices in a Precise Manner

In the context of the big data era, IPE practices are undergoing a transformation from fuzzification to precision. This transformation not only reflects the progress of educational philosophy, but also signifies the innovation of educational technology. Compared with traditional fuzzy thinking, big data provides more precise and scientific methodological support for IPE. The dynamic analysis model of big data is the key to this transformation. This model is based on specific key points for real-time and timely big data analysis, and can capture the dynamic changes in student thinking and behavior (as shown in Figure 2). Through in-depth mining and analysis of these data, teachers can more accurately grasp the universal characteristics of students, and thus carry out targeted warning and analysis.

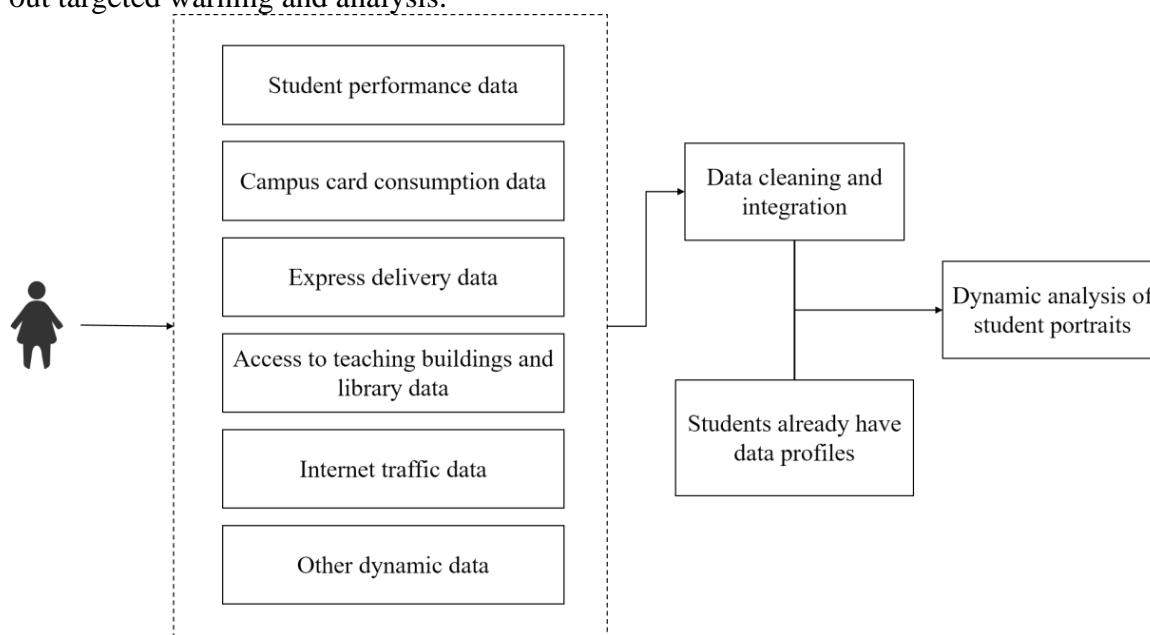


Figure 2 Big data dynamic analysis

In precise IPE practice, teachers no longer rely on traditional experiential teaching, but rely on massive amounts of data to guide teaching practices. This teaching method not only improves the pertinence and effectiveness of IPE, but also can more accurately target students' mental illnesses. Teachers can provide personalized teaching resources and care based on the individual differences of students to meet their diverse learning needs. Precision IPE practice is also reflected in the precise implementation of personalized IPE tasks. By analyzing student data, teachers can have a clearer understanding of each student's growth trajectory and development needs, thereby formulating personalized educational plans for them. This plan not only focuses on the academic performance of students, but also on the development of their mental health, moral qualities, social responsibility, and other aspects.

#### 4. Conclusions

The advent of the big data era undoubtedly brings unprecedented challenges to traditional IPE, but at the same time, it also provides a broad stage and infinite opportunities for IPE workers. In this era, the rise of Internet platforms not only expands the path of education, but also provides an important opportunity to promote the modernization of network IPE. IPE innovation is a complex and systematic project that is influenced by many factors. In the wave of big data, we should fully utilize its advantages, leverage the functions of IPE, continuously optimize the educational environment, and achieve educational goals. Big data technology, with its powerful data collection, analysis, and processing capabilities, provides teachers with more precise and scientific educational methods and means. For teachers, big data technology can help them gain a deeper understanding of their students' ideological dynamics, behavioral patterns, and learning needs, thereby formulating educational plans that are more in line with their actual needs. This not only improves the pertinence and effectiveness of education, but also makes IPE work more closely related to students' real-life situations, enhancing its attractiveness and infectiousness. Meanwhile, big data technology can also meet the personalized and unique learning needs of students. In the era of big data, every student is a unique individual with their own interests, learning methods, and growth paths. By analyzing and mining student data, teachers can provide customized learning resources and personalized learning guidance for each student, enabling each student to fully develop and grow on their own track.

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