

# *The challenges and countermeasures of college students' ideological and political course education under the background of big data*

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**Abstract:** With the continuous development and application of big data technology, the field of education is facing new challenges and opportunities. This paper takes the education of college students' ideological and political courses under the background of big data as the research object, explores the challenges faced by ideological and political course education in the context of information explosion and increasing personalized learning demands, and proposes corresponding strategies. Through literature review and challenge analysis, the paper finds the impact of the big data era on ideological and political course education, including challenges such as information overload and the diversity of students' personalized needs. In the section discussing strategies, the paper proposes specific measures such as optimizing course settings and content using big data technology, implementing personalized teaching, etc., to address these challenges. Finally, through the summary and outlook of the research, the paper emphasizes the theoretical and practical significance of solving the problems of college students' ideological and political course education in the era of big data.

## 1. Introduction

With the rapid development of information technology and the advent of the big data era, the field of education is gradually facing unprecedented challenges and opportunities. The application of big data technology not only profoundly affects various sectors of society but also poses new requirements for educational methods, content, and management. In this context, the education of college students' ideological and political courses, as an important way to cultivate students' ideological and moral qualities and political consciousness, also faces many new challenges and problems. Traditional ideological and political course education often revolves around teachers and has relatively fixed content, making it difficult to meet the personalized and diversified learning needs of students. However, the emergence of big data technology provides more possibilities for education, but at the same time, it also brings new challenges such as information overload and the diversity of students' personalized needs. How to better conduct ideological and political course

education in the era of big data and better adapt to students' learning characteristics and needs has become an urgent problem in the current field of education. Therefore, this paper aims to explore the challenges faced by college students' ideological and political course education in the context of big data and propose corresponding strategies. Through literature review and analysis of the current situation, this paper aims to provide theoretical and practical references for solving this problem and promote the innovation and development of college students' ideological and political course education.

## **2. Research Findings and Current Situation**

### **2.1. The Impact of Big Data on the Education Field and Relevant Research Results**

With the rapid development of information technology and the advent of the big data era, the application of big data technology in the education field has attracted widespread attention. Big data technology, with its powerful data processing and analytical capabilities, provides new tools and methods for educational research and practice. In the field of education, big data can not only be used to track and analyze students' learning behaviors but also assist educational managers and decision-makers in making data-driven decisions and policy formulation. On one hand, the application of big data technology in educational research has brought about new research methods and perspectives to the field of education. By collecting, organizing, and analyzing large-scale learning data, researchers can gain a more comprehensive understanding of students' learning behaviors, learning paths, and learning outcomes, thereby revealing the patterns and characteristics of student learning. For instance, by analyzing students' learning trajectories and behavioral patterns, learning difficulties and bottlenecks can be identified, enabling targeted instructional design and guidance. On the other hand, big data technology plays an important role in educational management and policy-making. Educational managers and policymakers can utilize big data technology to analyze and predict data on the allocation of educational resources, evaluation of educational quality, and promotion of educational reform, thereby scientifically formulating educational policies and guidelines. For example, through analyzing students' learning performance and classroom behavior, issues in teaching quality can be identified promptly, optimizing the allocation of teaching resources and improving the efficiency and quality of education and teaching. The application of big data technology in the education field has already achieved some preliminary results. Many research institutions and scholars at home and abroad have conducted extensive research, exploring the application and impact of big data technology in the education field. For example, research indicates that analyzing students' learning behaviors and academic performance using big data technology can help teachers better understand students' learning needs and provide personalized instructional design and guidance. Additionally, research also suggests that optimizing the allocation and utilization of educational resources using big data technology can improve the efficiency of resource utilization, promote educational equity, and achieve balanced development. In summary, the impact of big data technology on the education field has gradually become evident, and some positive results have been achieved. However, at the same time, the application of big data technology also faces some challenges and issues, which require further research and exploration[1].

### **2.2. The Importance and Current Situation of Ideological and Political Course Education**

Ideological and political course education, as an important component of higher education, holds significant significance and roles. It aims to cultivate students' correct worldview, outlook on life, and values, enhance their ideological and moral qualities and political literacy, and is one of the

important pathways to achieve comprehensive development and overall quality improvement. Firstly, ideological and political course education is beneficial for strengthening students' ideological and moral education. Through studying ideological and political courses, students can understand the policies and guidelines of the Party and the state, historical culture, social reality, and other aspects of knowledge, establish correct worldviews, outlooks on life, and values, enhance patriotism, collectivism, and socialist concepts, and cultivate good moral qualities and behaviors. Secondly, ideological and political course education is beneficial for improving students' political literacy and sense of social responsibility. Through studying ideological and political courses, students can understand knowledge about national political systems, laws and regulations, citizen rights and obligations, etc., enhance political awareness, legal awareness, and social responsibility, establish correct political beliefs, and improve political participation abilities and social engagement abilities. Furthermore, ideological and political course education is beneficial for promoting students' comprehensive development and overall quality improvement. Through studying ideological and political courses, students can enhance their comprehensive qualities, including cultural quality, scientific quality, humanistic quality, moral quality, etc., achieving comprehensive development and self-improvement. However, current ideological and political course education also faces some challenges and problems. On one hand, traditional ideological and political course education often focuses on imparting knowledge, with relatively monotonous content and teaching methods, making it difficult to stimulate students' learning interests and enthusiasm. On the other hand, with the changes and developments in society, students' ideological concepts and learning needs are constantly changing, and traditional ideological and political course education often struggles to adapt to the diverse and personalized needs of students. Therefore, current ideological and political course education needs further reform and innovation, exploring teaching models and methods that meet the characteristics of the times and the needs of students. It is necessary to focus on cultivating students' subject consciousness and innovation spirit, stimulating students' learning interests and enthusiasm, and improving the pertinence and effectiveness of ideological and political course education. At the same time, attention should be paid to updating and improving teaching content, focusing on practical and experiential teaching, cultivating students' practical abilities and innovation abilities, and promoting students' comprehensive development and overall quality improvement[2].

### **2.3. Analysis of Existing Studies on the Attention and Views of Ideological and Political Course Education in the Big Data Era**

In recent years, with the rapid development of big data technology, more and more research has begun to focus on the issues of ideological and political course education in the big data era, proposing various viewpoints and suggestions. Firstly, some studies focus on the application of big data technology in ideological and political course education. These studies mainly explore how to use big data technology to analyze students' learning behaviors and learning data, providing personalized teaching guidance and student counseling for teachers. For example, some studies have pointed out that using big data technology can analyze students' learning paths and preferences, helping teachers better understand students' learning needs, adjust teaching strategies, and improve teaching effectiveness. Secondly, some studies focus on the innovation of content and methods in ideological and political course education in the big data era. These studies mainly explore how to combine big data technology to carry out innovative content and methods in ideological and political course education, improving the attractiveness and interestingness of teaching. For example, some studies propose using big data technology to conduct virtual simulation experiments and online interactive classrooms in ideological and political course

education, stimulating students' learning interests and enthusiasm. Additionally, some studies focus on the quality evaluation and effectiveness assessment of ideological and political course education in the big data era. These studies mainly explore how to use big data technology to evaluate and monitor the quality and effectiveness of ideological and political course education, identifying problems in a timely manner, optimizing the teaching process, and improving teaching effectiveness. For example, some studies propose using big data technology to analyze students' learning behaviors and academic performance, discovering students' learning difficulties and bottlenecks, and providing personalized learning support and guidance. In conclusion, existing research on ideological and political course education in the big data era mainly focuses on the application of big data technology in teaching assistance, innovation of teaching content, and evaluation of teaching effectiveness. These studies provide theoretical and practical references for the development of ideological and political course education in the big data era and also pose new challenges and opportunities for future research and practice[3].

### **3. Challenges in College Students' Ideological and Political Course Education in the Big Data Context**

In the era of big data, while big data technology brings new opportunities to the field of education, it also presents a series of challenges, particularly posing new tests for college students' ideological and political course education. Firstly, information overload becomes a prominent issue. In the era of big data, there is an explosive growth of information, and students are exposed to a vast amount of information from various channels such as the internet and social media, leading to information overload. This overload not only affects students' attention to and understanding of ideological and political courses but may also result in the dilution or distortion of the course content among students. Secondly, there is an increase in students' personalized learning needs. With social development, students' learning needs are becoming more diverse and personalized. Traditional ideological and political course education often adopts uniform teaching content and methods, making it challenging to meet students' personalized learning needs. In the era of big data, addressing students' personalized learning needs and conducting flexible and diverse teaching activities have become urgent issues. Additionally, the challenge brought by the diversity of ideological concepts cannot be ignored. In the era of big data, the speed and scope of information dissemination have greatly increased, and students are exposed to a wide range of ideological and value concepts. While this diversity provides broader space for students' ideological development, it may also lead to fragmentation and fuzziness of students' ideological concepts, posing new challenges to traditional ideological and political course education. Moreover, teachers' educational levels and teaching abilities are also being tested. In the era of big data, teachers need to possess rich professional knowledge and skills, be able to flexibly apply big data technology, and conduct personalized teaching according to students' learning characteristics and needs. However, currently, there is a certain gap between many teachers' educational levels and teaching abilities and the requirements of the big data era, necessitating strengthening related teacher training and improving teachers' digital literacy. In summary, college students' ideological and political course education in the context of big data faces numerous challenges, including information overload, the increase in students' personalized learning needs, the diversity of ideological concepts, and the enhancement of teachers' educational levels and teaching abilities. How to address these challenges and improve the quality and effectiveness of ideological and political course education has become an urgent issue in the current field of education[4].

## **4. Strategies Discussion**

### **4.1. Utilizing Big Data Technology to Optimize the Setting and Content of Ideological and Political Courses, Enhancing Attractiveness and Relevance**

With the development and application of big data technology, it is possible to optimize the setting and content of ideological and political courses using this technology to enhance their attractiveness and relevance. Firstly, big data technology can be used to analyze students' learning needs and interests to optimize course settings. By collecting and analyzing a large amount of data generated by students during the learning process, their learning preferences, interests, and abilities can be understood. Subsequently, based on students' personalized learning needs, adjustments can be made to the settings of ideological and political courses, designing course content and teaching activities that better meet students' needs, thereby increasing their learning enthusiasm and participation. Secondly, big data technology can be utilized to provide personalized recommendations and optimization of course content. Analyzing students' learning behaviors and data enables an understanding of their learning interests and levels, facilitating the recommendation of course content and learning resources tailored to their personalized needs[5]. For instance, relevant ideological and political course content and learning materials can be recommended based on students' learning interests and levels, providing personalized learning support and guidance. Additionally, monitoring and evaluating the teaching process of courses using big data technology can help identify issues promptly and optimize teaching effectiveness. Analyzing a large amount of data generated by students during the course learning process allows understanding of their learning situations and outcomes, identifying learning difficulties and bottlenecks, and adjusting teaching strategies accordingly to provide personalized learning support and guidance, thereby enhancing the relevance and effectiveness of the course. In conclusion, utilizing big data technology to optimize the setting and content of ideological and political courses can enhance their attractiveness and relevance, meet students' personalized learning needs, and improve their learning outcomes and satisfaction. This requires educational administrators and teachers to strengthen the application and understanding of big data technology, continuously exploring and innovating models and methods of ideological and political course education to provide students with higher-quality educational services[6].

### **4.2. Analyzing Student Learning Behaviors and Psychological Characteristics Using Big Data for Personalized Teaching and Guidance**

The application of big data technology allows the education sector to better understand students' learning behaviors and psychological characteristics, enabling personalized teaching and guidance to improve teaching effectiveness and student satisfaction. Firstly, leveraging big data to analyze student learning behaviors provides insights into their learning habits and processes. By collecting and analyzing a vast amount of data generated by students during the learning process, such as study duration, frequency, and paths, teachers can gain a deeper understanding of students' learning preferences and difficulties. Based on this data, teachers can adjust teaching strategies and content to provide personalized learning experiences tailored to students' actual needs. Secondly, analyzing students' psychological characteristics using big data provides a comprehensive student profile for teachers. By analyzing psychological data generated by students during the learning process, such as emotional states, motivations, and stress levels, teachers can understand students' psychological states and characteristics. Teachers can then adopt corresponding teaching strategies and guidance measures to help students address psychological issues, stimulate learning motivation, and improve learning effectiveness. Furthermore, utilizing big data technology to achieve personalized teaching



and guidance involves constructing models of student learning and psychological profiles. This enables the provision of personalized learning paths and resource recommendations tailored to students' learning characteristics and psychological features[7]. Additionally, teachers can provide timely personalized guidance and support based on students' learning situations and psychological states, addressing learning difficulties and psychological issues to enhance learning outcomes and experiences. In summary, analyzing student learning behaviors and psychological characteristics using big data enables personalized teaching and guidance, leading to improved teaching effectiveness and student satisfaction. This requires educational administrators and teachers to enhance the application and understanding of big data technology, continuously exploring and innovating personalized education models and methods to provide students with higher-quality educational services.

#### **4.3. Establishing Diverse Teaching Methods and Evaluation Systems to Promote Comprehensive Enhancement of Students' Ideological and Political Literacy**

To address the challenges facing college students' ideological and political course education in the era of big data, it is crucial to establish diverse teaching methods and evaluation systems. This can better promote comprehensive enhancement of students' ideological and political literacy. Here are several possible methods: Teachers can utilize various teaching methods, such as lectures, case studies, group discussions, and role-playing, tailored to different types of students based on big data analysis results. Employing multiple teaching methods can better meet students' learning needs, stimulate their learning interests, and improve teaching effectiveness. The emergence of interdisciplinary research fields in the era of big data allows teachers to integrate interdisciplinary knowledge resources and design interdisciplinary ideological and political courses. Through interdisciplinary teaching, students' thinking abilities and comprehensive qualities can be promoted. Developing diverse evaluation methods to comprehensively assess students' ideological and political literacy from multiple perspectives. In addition to traditional written exams and oral defenses, various evaluation methods such as class participation, assignment quality, extracurricular reading reports, and social practice can be employed to comprehensively evaluate students' ideological and political literacy levels. Developing new evaluation tools using big data technology, such as intelligent assessment systems based on learning analytics and virtual simulation experiments. These tools can objectively and accurately assess students' learning levels and abilities, providing personalized learning guidance and support. Encouraging students to engage in autonomous learning and innovative practices during course teaching. Through activities such as group research, extracurricular work exhibitions, and social practices, students can apply learned knowledge to solve practical problems, cultivating their innovative spirit and practical abilities. In conclusion, establishing diverse teaching methods and evaluation systems is an important approach to enhancing college students' ideological and political literacy. Teachers and educational administrators should actively explore innovations, utilize big data technology and interdisciplinary thinking, and provide students with more diverse and personalized educational services, promoting comprehensive enhancement of students' ideological and political literacy[8].

#### **5. Conclusion**

In the era of big data, college students' ideological and political course education faces both new challenges and opportunities. This paper discusses the issues surrounding college students' ideological and political course education under the background of big data, analyzing the impact of big data applications in the field of education on ideological and political course education, as well as the challenges it faces. Based on this analysis, strategies such as optimizing the setting and

content of ideological and political courses using big data technology, utilizing big data analysis to achieve personalized teaching and guidance based on student learning behaviors and psychological characteristics, and establishing diverse teaching methods and evaluation systems are proposed to promote comprehensive enhancement of students' ideological and political literacy. In the current educational context, educators and decision-makers need to fully recognize the importance of big data technology in the field of education, actively promote the construction of educational informatization, and strengthen the application and research of big data technology. Meanwhile, teachers should continuously improve their own educational level and teaching abilities, flexibly utilize big data technology to provide higher-quality educational services to students. Students should also actively engage in the learning process, make good use of the resources and platforms provided by big data technology, actively explore and learn, and enhance their own ideological and political literacy. In future research and practice, further exploration of the application and development of big data technology in ideological and political course education is needed, along with the refinement of relevant policies and systems to promote innovation and development in ideological and political course education. It is believed that through joint efforts, big data technology will bring new opportunities and development to ideological and political course education, making greater contributions to the cultivation of comprehensive socialist constructors and successors with moral, intellectual, physical, and aesthetic development.

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