WHIOCE PUBLISHING PTE. LTD.
PROVIDING
FIRST-CLASS SCIENTIFIC INFORMATION
FOR TOP SCHOLARS

2025 Volume 3, Issue 9
Contemporary Education Frontiers
ISSN (Online): 3029-1860 ISSN (Print): 3029-1879

Research on Precise Identification and Educational Intervention of College Students' Ideological Trends Driven by Big Data

Wen Hao, Chuang Li
Jiangsu Normal University Kewen College, Xuzhou 221005, Jiangsu, China

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited

Abstract: In the evolution of the digital era, the ideological trends among college students exhibit characteristics of diversification, fragmentation, and dynamism. Traditional educational management models struggle to achieve precise control and effective intervention. Big data technology, leveraging its advantages in massive data collection, accurate analysis and mining, and real-time dynamic supervision, offers a novel approach for the precise identification of students' ideological dynamics and targeted educational intervention. This paper integrates the application features of big data technology, interprets its core value in leading the educational management of students' ideology, constructs a precise identification system of "data collection—analysis and mining—early warning response", explores targeted educational management intervention approaches, and proposes safeguard measures from three dimensions—technology, systems, and talent, to enhance the effectiveness of ideological education and management for college students in the new era, thereby supporting their comprehensive development.

Keywords: Big data; College students' ideological trends; Precise identification; Educational management intervention; Digital transformation

Online publication: October 26, 2025

1. Introduction

University students are the core driving force for national future development, as their ideological state directly impacts the quality of talent cultivation and the harmony and stability of society. With the widespread adoption of mobile networks and social platforms, students now access information through increasingly diverse channels, making their ideological perspectives more susceptible to external influences. This has given rise to new characteristics such as diversified value orientations, frequent ideological fluctuations, and varied forms of expression. Traditional ideological education and management for university students primarily rely on methods like questionnaires and interviews, which suffer from issues such as delayed data collection, singular analytical perspectives, and crude intervention measures. These approaches struggle to keep pace with the evolving dynamics of students' ideologies in the new era. Big data technology can integrate multi-source data resources, enabling real-time monitoring, precise analysis, and scientific regulation of students' ideological trends. This provides technical support for addressing the challenges of traditional educational management

and enhancing the effectiveness of ideological education. A comprehensive exploration of accurate identification methods and educational management interventions for students' ideological trends driven by big data plays a crucial practical role in modernizing ideological education and achieving the fundamental goal of fostering virtue through education.

2. The core value of big data-driven precision identification and educational management of college students' ideological trends

The deep integration of big data technology with ideological education and management for college students has broken through the constraints of traditional models, demonstrating distinct core values. Firstly, it achieves precise characterization of ideological dynamics. Big data technology can aggregate vast amounts of data across multiple domains such as academic research, social interactions, daily routines, and online activities. Through data modeling and analysis, it accurately depicts the ideological traits, value orientations, and behavioral preferences of both individuals and groups, overcoming the subjectivity and one-sidedness of traditional identification methods. Secondly, it enhances the scientific nature of educational management decisions. The ideological dynamics assessment results derived from big data analysis provide objective and precise data support for educational management departments, enabling them to formulate more targeted educational policies and management measures, thereby preventing decision-making blindness and experience-driven approaches. Thirdly, it improves the timeliness of educational interventions. Big data technology enables real-time monitoring of changes in students' ideological dynamics, swiftly identifying early signs of fluctuations and potential hidden crises, achieving "early detection, early intervention, and early guidance". This strengthens the predictive capability and autonomy of educational management. Lastly, it facilitates personalized transformation in educational management. By accurately identifying differences in ideological characteristics and demands among diverse student groups, it offers tailored ideological guidance and support services, aligning with the diverse and individualized growth needs of college students in the new era, thereby enhancing the humanistic care in educational management [1].

3. Construction of a precision identification system for college students' ideological trends driven by big data

Building a scientifically sound and robust precision identification system is the cornerstone of leveraging big data to advance ideological and educational management for college students. It primarily encompasses three core components: data collection, data processing and analytical mining, and early warning response.

3.1. Multi-source data collection: Expanding data acquisition dimensions

Data collection is a prerequisite for accurate identification. A multi-source data integration system should be established to comprehensively gather various types of data reflecting the ideological status of college students. This includes:

(1) On-campus educational management-related data, such as student basic information, academic achievements, attendance records, disciplinary actions, training materials for Party membership candidates, participation records in student organizations, psychological counseling records, etc. This type of data directly reflects students' learning and living conditions as well as their ideological performance during their time on campus.

(2) Online behavioral data, encompassing relevant behaviors on campus networks, social media platforms (WeChat, Weibo, TikTok, etc.), and learning platforms (MOOCs, Learning Tong, etc.), such as browsed information, posted comments, interaction frequency, followed topics, etc. These can directly reflect students' ideological tendencies and value orientations.

(3) Off-campus related data, including family background information, social practice records, volunteer service records, employment intentions, etc., to help comprehensively grasp external factors influencing students'

ideological dynamics.

During the data collection process, strict compliance with legal and ethical standards must be ensured, defining data collection boundaries, obtaining students' informed consent, strengthening data security protection, and preventing unauthorized data collection and misuse.

3.2. Data processing and analytical mining: Achieving precise judgment of ideological trends

A large amount of raw data exhibits fragmentation and disorder, requiring systematic processing and in-depth analysis to extract valuable information. During the data preprocessing stage, multi-source collected data undergoes purification, duplicate removal, merging, and standardization operations to eliminate invalid data and interference factors, thereby constructing a structured dataset that lays the foundation for subsequent analytical work.

By establishing an ideological dynamics analysis model and integrating technologies such as machine learning and natural language processing, an analytical framework is developed, encompassing models like value orientation analysis, ideological fluctuation early warning, and group characteristic clustering. This model conducts in-depth exploration of processed data to accurately identify core characteristics of students' ideological dynamics:

(1) Individual ideological traits, including political inclinations, aspirations, moral concepts, and psychological states.
(2) Group ideological trends, summarizing similarities and differences in thought among students of varying grades, majors, and regional backgrounds.
(3) Patterns of ideological dynamics, analyzing fluctuations and influencing factors in students' thoughts over time and in different contexts.

Finally, ideological dynamics analysis reports are compiled, presenting findings through data visualization to provide clear and intuitive decision-making evidence for educational management interventions [2].

3.3. Warning response mechanism: Timely capture of ideological risks and hidden dangers

Building a scientific early warning feedback mechanism is the key to achieving precise regulation of ideological dynamics. Based on the analysis of ideological dynamics, warning levels are defined, such as general warning, severe warning, and severe warning. Corresponding processing procedures are formulated for different warning levels. For students with mild psychological anxiety and excessive academic burden, general warnings are activated, and one-on-one communication and heart to heart talks are conducted by counselors; A serious warning will be issued for students who express extreme thoughts and have significant emotional fluctuations, and special assistance will be provided by the college's collaborative psychological counseling center; To issue serious warnings to students with extreme ideological tendencies and potential behavioral hazards, activate joint intervention mechanisms between schools, families, and society, establish a warning response tracking feedback system, dynamically monitor and evaluate the implementation results of intervention measures, quickly adjust intervention plans, and ensure the actual effectiveness of warning response.

4. The intervention path of ideological education management for college students driven by big data

By accurately identifying the effectiveness, we aim to establish diverse, distinctive, and precise educational management intervention pathways, achieving efficient guidance and control over the ideological dynamics of college students.

4.1. Personalized thinking guidance: Adapting to students' differentiated needs

With the help of big data to accurately outline, personalized ideological guidance is carried out for student groups with different ideological characteristics. For students with stable political beliefs and enterprising spirit, a role model guidance platform is built to encourage them to participate in activities such as student backbone training and volunteer service, playing a leading and driving role; Implement special ideological and political courses, red education practices, and

other activities to strengthen the cultivation of ideals and beliefs for students with ideological confusion and vague ideals and beliefs; For students facing psychological confusion and academic burden, we integrate psychological counseling resources and academic support to provide customized psychological guidance and learning counseling; Targeting students with employment anxiety, push suitable employment news and career planning courses, provide one-on-one employment assistance, and enhance the targeted and practical effectiveness of ideological education through customized guidance.

4.2. Precision education content supply: Enhancing the attractiveness of ideological education

By utilizing big data analysis to obtain student attention hotspots and confusion, we aim to improve the supply of educational content, focusing on social hotspots, industry trends, and growth confusion that students are concerned about. We plan targeted ideological and political education themes, such as “Responsibility in the Digital Age” and “Youth and National Development”, to enhance the temporal characteristics and relevance of educational content; Innovate the presentation format of educational content, leverage big data technology to gather high-quality educational resources, create various types of educational materials such as micro videos, animations, and interactive courseware, and push them through online learning platforms, social media, and other channels to fit the fragmented learning habits of college students and enhance the attractiveness and infectiousness of ideological education.

4.3. Intelligent education management services: Optimizing the education management experience

Using big data technology to improve the education management service process, enhance management effectiveness and service standards, create an intelligent education management architecture, integrate student management, academic counseling, psychological counseling, employment support and other functional modules, and achieve online processing and full process tracking of service matters; Using big data to analyze students’ service needs, accurately push award and loan information, campus activity notifications, mental health knowledge and other service content, and improve the accuracy level of services; Build an intelligent public opinion monitoring and processing mechanism to monitor the real-time status of campus network public opinion, quickly detect and handle negative information, and create a fresh campus network environment.

4.4. Construction of collaborative intervention mechanism: Consolidating the joint force of education management

Build a collaborative intervention system of “school family society”, gather the power of ideological education management, use big data platforms to achieve information exchange between schools and families, quickly inform parents of students’ ideological trends and learning and living situations in school, and lead parents to intervene in students’ ideological education; Intensify cooperation with relevant social institutions, enterprises, and communities, gather social educational resources, and build platforms for students to engage in social practice, volunteer service, career experience, etc., so that students can strengthen their ideological cognition and enhance their sense of social responsibility through practice; Establish an inter school collaborative system, share experiences and resources in big data education management, and jointly enhance the quality of ideological education management for college students.

5. Measures to ensure the management of ideological education for college students driven by big data

To ensure the effective application of big data technology in the ideological education and management of college students, a comprehensive guarantee system should be established from three levels: technology, system, and talent.

5.1. Strengthening technical support: Building a solid foundation for data application

Enhance the level of technology research and investment, create a secure and efficient big data application platform, and

improve the technical hierarchy of data collection, analysis, and storage; Build a data security protection system, use encryption methods, access control, security review and other measures to increase the protection of students' personal information, and resist hidden dangers such as data leakage and tampering; Promote the deep integration of big data technology and education management systems, achieve interconnectivity of data resources, and enhance the synergy and efficiency of technology application.

5.2. Improve institutional safeguards: Standardize data application processes

Establish and improve relevant regulations for big data-driven ideological education management, define standard requirements for data collection, utilization, sharing, confidentiality, and other aspects, and ensure that data applications are legal and compliant; Establish a workflow for big data analysis and early warning response, define implementation standards for educational management interventions, and enhance the standardization and scientificity of work; Establish a data application ethics review system, increase ethical supervision of big data application processes, and prevent data misuse and infringement of student rights [3].

5.3. Strengthening talent guarantee: Enhancing the professional competence of the team

Build a comprehensive talent team that combines professional competence in ideological education with the ability to apply big data technology, increase training on big data technology for existing ideological education workers, and improve their data collection, analysis, and application skills; Introduce professional talents in fields such as big data technology and computer science, and expand the team of ideological education management; Build a talent incentive system to inspire staff to conduct research and practical creation in big data-driven ideological education and management, and improve the overall professional competence of the team.

6. Conclusion

The drive of big data has created a new opportunity for accurately identifying the ideological dynamics of college students and implementing educational management interventions. It is an inevitable measure to promote the modernization of college students' ideological education in the new era. By building a precise identification system that aggregates multiple sources of data, conducts in-depth analysis and judgment, and provides scientific warning and response, personalized ideological guidance, precise content delivery, intelligent management guarantee, and collaborative intervention can be implemented. This can effectively enhance the accuracy and effectiveness of college students' ideological education management. We should consolidate the technology, system, and talent guarantee system for a long time, continuously improve the strategy of big data application, promote the full integration of big data technology and college students' ideological education management, and provide stable support for the creation of new era people who shoulder the great responsibility of national rejuvenation.

Funding

1. 2022 Jiangsu Province Philosophy and Social Sciences Research Special Project: Research on the Factors Influencing College Students' Professional Values and Their Leading Path (Project No.: 2022SJSZ0547);
2. Key Project of Jiangsu Provincial Education Science Planning 2024: Research on the Cultivation Mode of "Single Subject, Multi-dimensional Collaboration" Professional Values for College Students in the New Era, (Project No.: B-b/2024/01/95).

Disclosure statement

The authors declare no conflict of interest.

References

[1] Feng Y, 2020, Research on the Innovation of Ideological and Political Education for College Students under the Background of "Internet +". Beijing Education (Higher Education), 2020(01): 74–76.

[2] Liu X, 2021, Exploration of Cultivating the Identification of Socialist Core Values among College Students in the New Era. School Party Building and Ideological Education, 2021(03): 53–55.

[3] Hu Z, Yu J, 2019, Research on the Transformation and Countermeasures of Ideological and Political Education Carriers in the Era of Big Data. Ideological Education Research, 2019(02): 74–77.

Publisher's note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.