

Research on the Integration of Ideological and Political Education in Big Data Application Courses

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Abstract: Integrating ideological and political education into big data application courses not only enables students to gain a deeper understanding of professional knowledge but also enhances their cultural literacy. This paper explores effective strategies for incorporating ideological and political education into big data application courses, discussing issues related to integration from the perspectives of content, methods, implementation strategies, and continuous improvement.

1 Introduction

In today's rapidly evolving information technology landscape, big data has emerged as a crucial driving force for social progress and economic development. From business decision-making to social governance, the application of big data is ubiquitous. Through data collection and analysis, insights into social development trends can be gained, resource allocation can be optimized, public services can be improved, and industrial upgrading can be promoted. Therefore, cultivating talents capable of utilizing big data for analysis and decision-making is particularly important.

Ideological and political education, as a vital component of higher education, focuses not only on students' knowledge and skills but also emphasizes their ideological and moral qualities as well as social responsibilities. It guides students in establishing correct values, outlooks on life, and worldviews, fostering their sense of social responsibility and mission. At the National Conference on Ideological and Political Work in Colleges and Universities, General Secretary Xi Jinping pointed out, "We must persist in making moral education and capability cultivation the central link and integrate ideological and political work throughout the entire process of education and teaching, achieving comprehensive education for students at all stages and in all aspects."

2 Current Status of Big Data Applications and Talent Cultivation

2.1 Development History and Application of Big Data Technology

The origins of big data technology can be traced back to the 1990s. With the proliferation of the internet and the acceleration of the informationization process, the speed and scale of data generation have grown exponentially. Entering the 21st century, the emergence of open-source technologies such as Hadoop and Spark has enabled enterprises and organizations to more efficiently store and process vast amounts of data. The development of cloud computing has also provided strong infrastructural support for the storage, processing, and analysis of big data. Today, big data technology has evolved from data collection and storage to real-time analysis, predictive modeling, and intelligent decision-making.

Big data plays a significant role across various fields, including business, education, healthcare, and public governance. With the rapid development of big data technology, it profoundly influences the operating models and decision-making processes of different industries. Big data not only enhances the competitiveness of enterprises but also provides new ideas and methods for optimizing social governance and public services.

2.2 Talent Cultivation in Big Data Applications

An increasing number of universities have begun to establish majors in Big Data Management and Applications, gradually improving the curriculum and training systems to better meet societal demands for data professionals. In addition to traditional courses on data processing and analysis, many universities have added related courses such as machine learning, data mining, cloud computing, and data visualization to adapt to the rapidly evolving industry needs. To enhance students' practical abilities, numerous universities collaborate with businesses to provide internship and project practice opportunities, allowing students to gain experience by participating in real projects.

In terms of faculty, universities have recruited or trained many teachers with rich industry backgrounds and research experience, which significantly enhances the quality of education. Graduates from big data-related programs are relatively popular in the job market due to high industry demand and competitive salaries. Graduates can find suitable positions in various sectors, including finance, internet services, healthcare, and manufacturing.

3 The Connotation and Objectives of Ideological and Political Education

3.1 The Connotation of Ideological and Political Education

Ideological and political education refers to a systematic process of education and guidance aimed at helping students establish correct values, outlooks on life, and worldviews. The objective is to cultivate students' moral qualities, sense of social responsibility, legal awareness, and scientific and cultural literacy, enabling them to make rational and responsible judgments and choices when confronted with complex problems. Ideological and political education encompasses not only the study and understanding of Marxist theory but also the recognition and practice of the core socialist values. It emphasizes the integration of theory with practice, fostering the comprehensive development of students.

3.2 The Value of Ideological and Political Education in University Courses

The specific goals of ideological and political education include guiding thought, enhancing moral qualities, raising legal awareness, and improving overall competence. It provides students with a solid ideological foundation, allowing them to maintain clear thinking and firm beliefs in the face of social changes and challenges while strengthening their sense of identity with the nation and ethnicity.

Ideological and political education plays an extremely important role in university curricula. It not only provides guidance for the comprehensive development of students but also cultivates qualified talents for the long-term development of the country. Through effective ideological and political education, students can not only master professional knowledge but also become idealistic, responsible, and capable young individuals in the new era.

4. Integration of Ideological and Political Elements in the Design and Teaching Methods of Big Data Application Courses

4.1 Introducing Real-World Cases in the Curriculum

Incorporating real-world cases related to big data into the classroom, such as "Data Tracking and Analysis During the COVID-19 Pandemic," can guide students in thinking about and understanding how data supports government decision-making and the formulation of public health policies, while also addressing the balance between efficiency and privacy protection. By analyzing specific cases, students can better comprehend the application scenarios of big data and recognize the ethical and social responsibility issues they may face in practical operations. Choosing cases that have social impact and ethical controversies allows students to not only acquire technical skills in big data analysis but also understand the ethical challenges in real-world applications.

4.2 Organizing Discussions and Reflections

After case analysis, organizing group discussions encourages students to express their views on the moral and ethical issues presented in the cases. For example, discussing the necessity and rationality of using personal data for pandemic tracking enhances students' critical thinking skills. Additionally, students can be required to write reflection reports after discussions, sharing their learning insights and understanding of social responsibility. Classroom activities may also include group discussions or debates on topics such as "The Conflict Between Data Privacy and Public Interest" and "Big Data and Social Equity." Through group discussions, students can examine issues from different perspectives, develop critical thinking skills, and learn how to articulate and defend their viewpoints, thereby increasing classroom engagement.

4.3 Setting Up Modules on Big Data Ethics and Social Responsibility

Offering specialized courses or integrating relevant modules within existing courses to discuss the ethical and legal issues of big data technology helps students understand the legal frameworks that govern big data applications. It is also important to discuss ethical norms regarding data usage, such as how to balance data utilization with personal privacy, thereby cultivating students' awareness of social responsibility. To strengthen their sense of social responsibility, practical projects oriented towards social issues can be designed. For instance, students could utilize big data technology to analyze environmental pollution in a specific area and propose data-driven policy recommendations or analyze the needs of a particular social group through data surveys to help the

community better serve its citizens. These practical experiences not only allow students to master big data technology but also enhance their awareness of social issues and problem-solving skills, thereby fostering a sense of social responsibility.

4.4 Establishing Reflection Sessions

At the end of the course, a reflection session can be set up where students are required to write personal summaries to share their understanding of big data ethics and social responsibility issues throughout the learning process. This session not only helps students consolidate their acquired knowledge but also prompts them to consider how to apply these values in their future careers. Through thoughtful course content design, combined with discussions of relevant ideological and political cases and education on the ethics and social responsibilities of big data, students' overall competencies can be effectively enhanced. This approach cultivates not only technical skills but also promotes students' growth in thinking and values, laying a solid foundation for them to become well-rounded talents with social responsibility and moral awareness.

4.5 Analyzing and Solving Social Problems through Project-Based Learning

Instructors can provide open datasets, such as those related to education, healthcare, transportation, or the environment, encouraging students to analyze data to identify potential issues and propose solutions. Students should be encouraged to conduct social research, collecting data related to the social issues they are interested in. Through surveys, interviews, and other methods, students can gain deeper insights into community needs and problems, then utilize big data technology for data analysis to create comprehensive research reports.

Encouraging interdisciplinary teams—comprising students from different majors—can further enhance the exploration of how to use big data technology to tackle complex social issues. For instance, big data majors may handle data collection and analysis, while sociology students may analyze the social implications and ethical considerations.

5 Implementation Strategies and Recommendations

5.1 Implementation Strategies for Teachers

Teachers should actively participate in training and learning related to ideological and political education to enhance their own ideological literacy. In course design, they should integrate big data technology with social issues, guiding students to reflect on the social significance and ethical responsibilities associated with data analysis. Teachers are encouraged to employ a variety of teaching methods, such as project-based learning, case studies, and group discussions, to enhance student engagement and critical thinking skills. Regular exchanges of teaching experiences among teachers should be promoted, allowing them to share successful cases and reflections on ideological and political education. Establishing teacher learning communities can facilitate collaborative exploration of how to optimize teaching methods and improve the effectiveness of implementing ideological and political education.

5.2 Implementation Strategies for Schools

(1) Establish a Comprehensive Evaluation Mechanism

Schools should create a comprehensive curriculum evaluation system to regularly assess the integration of ideological and political education. Utilizing surveys and classroom observations can

help understand students' acceptance and feedback regarding ideological and political education, enabling timely adjustments to teaching strategies. A dedicated ideological and political education committee should be formed to oversee planning and implementation, ensuring cohesive and coordinated integration of ideological and political education across various subjects.

(2) Provide Resource Support

Schools should provide necessary teaching resources and support, including textbooks related to ideological education, case libraries, and professional training courses to assist teachers in effectively conducting ideological and political education. Encouraging student participation in social practice activities can help them apply their knowledge in real-world contexts, thereby enhancing their understanding of social issues and raising their sense of responsibility.

(3) Establish a Feedback Mechanism for Continuous Improvement

An effective feedback mechanism should be established to gather opinions and suggestions from both students and teachers regarding ideological and political education. Based on evaluation results and feedback, teaching methods should be continually adjusted and improved. Long-term tracking studies should be conducted to observe changes in students after integrating ideological and political education, such as their awareness of social issues and the values they hold in career choices. These research findings should be utilized to refine and enhance the strategies for implementing ideological and political education

6. Conclusion

Integrating ideological and political education with the curriculum is not only a requirement of the times but also an effective way to cultivate talents with social responsibility and innovative spirit. By incorporating ideological and political education into big data courses, students can enhance their sense of social responsibility and moral awareness while mastering professional knowledge, thus achieving a better balance between technological application and social values. The use of methods such as introducing ideological and political case studies and projects, organizing discussions and reflections, along with appropriate implementation strategies, can effectively integrate ideological and political education into big data application courses. Through continuous exploration and practice, the deep integration of big data application courses with ideological and political education will provide a solid foundation for the comprehensive growth of students.

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