

Digital Intelligence-Empowered Targeted Ideological Education in Higher Education: Theoretical Logic, Practical Challenges, and Implementation Pathways

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Abstract

Confronted with an increasingly diverse student population characterized by varied cognitive structures, emotional needs, and developmental trajectories, traditional ideological education in universities often fails to achieve precise educational outcomes. This shortfall is reflected in inadequate personalized mentorship, low levels of collaborative management, and insufficient depth in value guidance, largely due to the inability to accurately assess individual students' ideological states. To address these challenges, higher education institutions must focus on demand-side perspectives, leveraging digital intelligence technologies to construct a new educational ecosystem. This involves establishing an integrated platform for ideological education and advancing a collaborative framework for educational unification, ultimately realizing a targeted educational model characterized by meticulous cultivation and precise guidance.

Keywords

Higher education, digital intelligence technology, precise ideological and political education.

1. Introduction

Education is a major concern for the Party and the country. Colleges and universities are the main battlefield for implementing the fundamental task of fostering virtue and nurturing talent, and they shoulder the important mission of cultivating socialist builders and successors who are well-rounded in morality, intelligence, physical fitness, aesthetics and labor. At present, the "Outline of the Plan for Building an Education Powerhouse (2024-2035)" proposes "promoting artificial intelligence to assist educational transformation", aiming to open up new development tracks and shape new development advantages through educational digitalization [1].

2. The Logical Pathway of Enhancing Ideological Leadership Through Digital Intelligence

2.1. The Essence of Enhancing Ideological Leadership in Universities Under the Fundamental Task of Fostering Virtue and Talent

The essence of digital transformation in higher education lies in reshaping it through the deep integration of digital intelligence technologies and educational elements. This transformation is not only crucial for the high-quality development of higher education but also impacts the enhancement of national core competitiveness and social progress, holding significant practical importance. Universities possess comprehensive advantages in technology as the primary productive force, talent as the primary resource, and innovation as the primary driver. They are actively exploring new practices and approaches to strengthen the integration and

application of digital intelligence technologies, thereby advancing the high-quality development of higher education.

In the field of higher education, the rapid development and deep application of digital intelligence technologies are profoundly reconstructing China's higher education ecosystem, promoting fundamental changes in educational concepts and teaching methods, and providing new momentum for high-quality development. With the development of the digital education strategy, digital intelligence technologies are being integrated into education at an unprecedented speed, depth, and breadth. Higher education urgently requires deep-level reforms in educational philosophy, institutional pathways, teaching models, and learning paradigms to construct a new "digital intelligence + targeted ideological education" ecosystem.

2.2. The Technological Necessity of High-Quality Development in Ideological Education Under Digital Transformation

Currently, digital intelligence technologies are developing rapidly, and ideological education in universities is undergoing profound changes amidst this wave of transformation. The vigorous development of artificial intelligence has injected new vitality into this transformation. The integration of AI and ideological education is not only an important trend in educational technological innovation but also a key measure to enhance the relevance and effectiveness of ideological education.

The fundamental purpose of ideological education is to foster virtue and talent and promote holistic human development. Grounded in this fundamental task, universities are systematically advancing the deep integration of new-generation information technologies such as AI and big data into ideological education. By leveraging the synergistic educational mechanism of "technological empowerment + value guidance," they are breaking the constraints of time and space in ideological education and constructing firenew educational models [2]. Through intelligent teaching management, innovative teaching methods, and expanded educational fields, innovations are being realized under the empowerment of digital intelligence technologies. A comprehensive "digital intelligence +" educational system covering student development, teacher growth, and classroom quality is being built to achieve connotative and high-quality development of targeted ideological education.

2.3. The Integration of Theory and Practice Under the "Comprehensive Ideological Education" Framework in Universities

The Third Plenary Session of the 20th Central Committee emphasized the need to "thoroughly implement the strategies of revitalizing the country through science and education, strengthening the country through talent, and innovation-driven development." Digital intelligence technologies are reshaping the educational landscape, becoming an important driving force for the innovative development of higher education in China and profoundly changing the learning, living, and thinking patterns of teachers and students in higher education [3].

By systematically advancing the deep integration of "digital intelligence +," higher education is transitioning from "extensive irrigation" to "targeted irrigation," constructing a new paradigm of targeted ideological education characterized by holistic and through-type analysis. This aims to build a high-quality talent training system that meets the demands of the intelligent era, explore sustainable development paths for higher education, and provide strong talent support and intellectual guarantees for Chinese modernization. Looking ahead, digital intelligence-driven educational transformation has become a consensus within the higher education system. Its application in talent cultivation, teaching, scientific research, and social services will undoubtedly become a core driving force for high-quality development in higher education.

3. Current Practical Dilemmas in Targeted Ideological Education in Universities

3.1. Ineffective Targeted Education

Outdated Work Concepts: With the rapid changes of the times, the ideological cognition, values, and behavioral patterns of contemporary youth are undergoing profound evolution. However, some university workers have not updated their educational concepts in a timely manner, lacking digital thinking and a superficial understanding of the "targeted" concept. They have failed to absorb and understand the latest theoretical achievements and practical experiences. Currently, digital intelligence practices in some universities remain at a preliminary stage, such as using online channels to release information or multimedia equipment to display teaching content. This one-dimensional application of technology limits the synergistic development of digital intelligence technologies and targeted ideological education, making it difficult to achieve breakthrough progress in high-quality educational development. There is a noticeable gap between the actual educational effectiveness and the expected goals.

Lack of Innovation in Educational Content: While China's social environment is changing rapidly, educational content has failed to keep pace with these changes. Obstacles in data circulation and information integration hinder a deep understanding of youth ideological trends. First, in terms of educational content, existing ideological teaching needs strengthening in reflecting the spirit of the times and anticipating future trends [6]. The reflection of new theories and practices is relatively hysteretic, making it difficult to fully meet students' needs for resolving real-world bewilderment. Second, in terms of implementation conditions, comprehensively obtaining, scientifically analyzing, and effectively utilizing student data to see their essential characteristics and deep needs is an indispensable foundation for advancing targeted ideological education.

Insufficient Personalized Supply: The concept of targeted ideological education advocates differentiated teaching design and supply based on individual student characteristics. However, many challenges remain in practice. As a country with a large population, China has a vast number of young students with diverse ideologies, values, and behavioral patterns. There are significant differences in ideological status, interests, preferences, and developmental demands. Although current ideological work has begun exploring guidance, issues such as homogenized educational content and extensive supply methods persist at the "group segmentation" level, failing to fully reflect the unique needs of different student groups. The "individual customization" dimension is even weaker, with the existing ideological work system lacking attention and response to individual differences in achieving refined cultivation through new educational means.

3.2. Low Level of Collaborative Management

Incomplete Integrated Digital Intelligence Platform Construction: Digital empowerment of targeted ideological education involves multiple elements and requires higher levels of open sharing and speed in universities. At this stage, although some universities have built big data systems for ideological education, limited by imperfect intelligent terminals and digital infrastructure, a large amount of educational data cannot be fully collected, stored standardizedly, or shared efficiently. This situation makes it difficult to achieve precise matching and intelligent emerge of ideological education resources. The lack of systematic data support for quantitative evaluation and scientific judgment hinders the process of targeted ideological education. Additionally, ideological education data is scattered across multiple incompatible systems, with different platforms using varying data standards and storage architectures, creating data silos that impede cross-system data integration and functional linkage. This fragmented resource distribution severely limits the precise application of

ideological education resources. Faced with practical difficulties such as poor data access channels, insufficient precision in supply-demand matching, and lack of feedback mechanisms, accelerating platform integration and data governance has become an urgent task for improving the precision of ideological education.

Low Coordination of Collaborative Education Models: The advancement of targeted ideological education requires collaboration and cooperation among multiple departments and institutions within universities, as well as the joint construction and sharing of information data. However, universities currently lack comprehensive top-level design and systematic planning for promoting targeted ideological education, and an efficient collaborative working mechanism has not yet been formed [4]. On the one hand, different educational entities in ideological education possess different data, and the data of various functional departments and faculties are constructed according to business needs. Data resources cannot be effectively aggregated, integrated, or fully utilized, often leading to information barriers and poor resource sharing between departments, which restricts the implementation of targeted ideological education goals. On the other hand, many universities have not achieved data exchange and cooperative communication with enterprises, communities, and governments during the process of connecting with social data. The linked education mechanism among educational entities is not yet sound, with obvious shortcomings in information interchange and resource integration. This lack of coordination directly affects the effectiveness of targeted ideological education.

3.3. Insufficient Depth in the Application of Digital Intelligence Technologies and Value Guidance

Superficial Integration of Digital Intelligence: Digital intelligence technologies drive innovative development in the theoretical paradigms, practical methods, and disciplinary styles of ideological education, promoting its digital transformation [5]. With the support of digital intelligence technologies, the wave of digitalization has enabled traditional ideological education to break through time and space constraints, significantly enhancing educational relevance through real-time evaluation and dynamic feedback, and prompting profound changes in teaching forms and educational models. However, the integration of digital intelligence technologies and ideological education still faces multidimensional challenges: in terms of conceptual transformation, educators have not fully adapted to the requirements of intelligent transformation; in practical application, the adaptability of technological tools and teaching scenarios needs strengthening; in value guidance, the organic combination of algorithmic logic and educational principles probe; in teacher training, there is a obvious shortage of interdisciplinary talent. In particular, research on the applicable scenarios and innovative models of intelligent technology in ideological education is still in its early stages, and the organic integration of the two is limited, which directly restricts the pace of innovative development of the modern ideological work system.

Deficient Value Guidance: In contemporary society, where globalization and informatization are deeply integrated, values show a trend of diversification. In the process of promoting the deep integration of intelligent technology and education, how to ensure that technological applications can both adapt to diverse social trends and effectively maintain mainstream value orientation has become an important issue in current educational innovation. On the one hand, university data resources suffer from small volume, limited variety, and low sharing rates, with severe fragmented management. The narrow scope of collection and varying standards create a structural contradiction with the needs of intelligent technology. This makes it difficult for digital intelligence applications to break through the surface level in the field of ideological education, preventing essential changes in education and teaching. On the other hand, core elements of ideological education such as value cultivation and moral emotion have special

implicit characteristics, and their data transformation faces methodological challenges. The lack of a positive guidance mechanism for value orientation and insufficient integration of ideological education elements make it difficult to achieve the educational effect of "gentle influence and silent nurturing."

4. A Layered Approach to Enhancing Ideological Leadership Through Digital Intelligence in Universities

4.1. Deepening the Dimension of Digital Content with Big Data Information: Digital Intelligence-Driven Construction of a New Educational Ecosystem

Precise Identification of Educational Objects: The complex and diverse contemporary context has shaped the differentiated characteristics of college student groups. Universities need to build a data-supported, student-centered, and teacher-led precise education system to guide ideological work from traditional content impart to dynamic cognitive response and behavioral guidance. First, using intelligent analysis technologies, big data processing, and cloud computing capabilities, construct personalized digital models of students to accurately identify their values and psychological characteristics, systematically grasp group commonalities and individual differences, explicit manifestations and implicit needs, and provide comprehensive data support for ideological education. Second, deeply understand the identity needs and emotional belonging expectations of different students, establish an intelligent matching mechanism for personalized needs and educational resources, achieve positive interaction of dynamic feedback and real-time adjustment, and ultimately realize differentiated education and precise guidance to enhance the relevance and effectiveness of ideological education.

Precise Supply of Educational Content: In the implementation of ideological education, the essence is to effectively transmit educationally valuable information resources to the educated. The concept of "targeted ideological education" proposed in the new era is essentially an innovative development and practical deepening of the traditional principle of teaching students according to their aptitude. Its core lies in achieving refinement and precision in the educational process, emphasizing personalized education and differentiated guidance [7]. With the help of intelligent technologies, educators can more accurately grasp students' individual characteristics, developmental differences, and diverse needs, thereby designing customized educational plans that conform to each student's ideological characteristics and growth needs, and creating a personalized digital ideological education system. First, improve the intelligent allocation system of educational resources, use big data analysis technology to build a mechanism for precise alignment with educational needs, and establish exclusive learning portraits, knowledge structure maps, and ability development models based on multivariate data such as students' personalized characteristics, ideological status, and developmental demands. With value shaping as the goal, achieve intelligent matching, timely push, and precise appearance of educational content, effectively enhancing the relevance and effectiveness of ideological education. Second, build a dynamic supply mechanism, use intelligent monitoring systems to track changes in students' ideological dynamics in real time, establish a dynamic adjustment mechanism for educational resources, and ensure continuous matching between educational supply and student needs. Use machine learning algorithms to continuously optimize recommendation models, achieve iterative updating and precise reach of educational content, and always highlight value orientation in the precise supply process. Integrate socialist core values into personalized education plans to ensure the organic unity of technological empowerment and value guidance, and promote quality and efficiency in targeted ideological education. Third, use digital intelligence technologies to develop new carriers for targeted ideological education. Under the premise of precise identification of differentiated data information content, promote the mutual embedding of personalized content recommendation

and diversified content push, explore new interest growth points for college students, expand their new knowledge boundaries, extend the radiation range of mainstream values, and create carriers that better meet the needs of college students and the characteristics of the times.

Precise Management of the Educational Process: Traditional ideological education models lack effective dynamic feedback mechanisms due to insufficient technical support, resulting in lagging behind understanding of students' ideological status. Using intelligent technologies to build a precise management system, relying on data algorithms to achieve real-time tracking and dynamic optimization of the educational process, can comprehensively enhance the precision and timeliness of ideological education. First, based on in-depth analysis of big data, systematically explore the potential laws contained in educational data, fully grasp the characteristics of students' physical and mental development and ideological evolution paths, achieve personalized customization and precise placement of educational plans, realize the transition from "extensive irrigation" to "targeted drip irrigation," promptly correct possible issues such as insufficient supply or supply-demand mismatch in the educational process, dynamically improve educational plans and methods, and reconstruct a precise educational ecosystem. Second, with the help of big data technology, precisely map the ideological evolution and demand evolution trajectories of college students, conduct predictive modeling of existing data, and perform dynamic data prediction of development trends such as the predictive value of real-time analysis. Through macro examination and micro analysis, accurately grasp the overall situation and changing trends of college students' ideological behavior, accurately analyze confused and problems in ideological concepts, value orientations, and behavior shaping, and achieve deep-level, three-dimensional dynamic evaluation combining whole-process vertical evaluation and full-factor horizontal evaluation. Third, build a new evaluation system based on artificial intelligence and big data technology, and reshape information dissemination models through intelligent transformation. Relying on in-depth mining and intelligent processing of massive network data, comprehensively display the ideological status of the audience, build a visual closed-loop system of "information placement - precise reach - dynamic feedback," and provide technical support for conducting precise evaluation combining quantitative and qualitative methods.

4.2. Strengthening the Dimension of Resource Associated with Digital Intelligence Technologies: Building an Integrated Platform for Ideological Education

Optimization of Resource Allocation: The application of digital intelligence technologies can effectively aggregate various educational resources inside and outside the university, construct a diversified and three-dimensional ideological education resource system, expand the supply of high-quality educational resources, and optimize the allocation of educational resources. First, through data analysis, use demand prediction models to precisely meet the demands of differentiated learning demands, implement hierarchical allocation of educational resources, and maximize the input-output ratio of resources. Second, use data visualization technology to intelligently process collected multi-dimensional educational evaluation data, generate graphical displays such as dynamic heat maps, personalized growth trajectories, and horizontal comparative analysis, and help ideological teachers quickly grasp key information to provide a basis for teaching improvement decisions.

Adjustment of Teaching Strategies: With the continuous development of society, ideological education is a dynamic and sustainable process. Establishing a long-term and dynamic evaluation and feedback mechanism for targeted ideological education can effectively enhance its precision. First, universities can use digital intelligence technologies to achieve global dynamic monitoring of ideological education. With the empowerment of big data intelligent algorithms, dynamically grasp students' long-term behavior trajectories, and through the

processing and feedback of dynamic data, timely grasp the demand points in the student growth process to improve the relevance and effectiveness of ideological education. Second, the digital system updates the educational resource library in real time based on data analysis and situation feedback, establishes a periodic teaching data analysis mechanism, systematically evaluates the effectiveness of resource allocation and teaching implementation, and builds an "evaluation-feedback-optimization" cycle for educational quality improvement. Through practical testing, continuously improve the allocation of teaching elements and educational methods, and achieve dynamic evolution and stepwise development of ideological education quality.

Continuous Improvement through Feedback: Relying on educational data mining technology, proactively discover key nodes and demand characteristics in learning trajectories, and achieve whole-process management of "analysis-early warning-support-evaluation." First, implement timely teaching interventions. In the course design stage, rely on previous teaching data and learner portraits to build demand prediction models; in the classroom teaching stage, use machine learning algorithms to achieve dynamic optimization of teaching strategies [7]; in the effect evaluation stage, use data visualization technology to complete quantitative analysis of teaching quality. Second, establish an effectiveness-oriented quality evaluation system for ideological work, achieve the dialectical unity of evaluator assessment and educatee evaluation, the organic combination of qualitative judgment and data measurement, and the coordination of process justice and result fairness. With the help of a smart two-way evaluation platform, optimize the synergistic relationship between educational subjects, objects, intermediaries, and environment, push the precise supply educational model to a higher level, and achieve the dual goals of emotional care and value guidance in ideological education.

4.3. Promoting the Dimension of System Coordination with Digital Intelligence Thinking: Advancing the Construction of an Integrated Educational Community

Data-Driven Management: Data is the "nutrient" for generative artificial intelligence to survive and evolve. Massive and multi-source big data is the basic resource for algorithmic recommendation technology to implement multi-modal analysis and also the technical support for achieving precise ideological education. First, universities need to improve the construction of big data platforms and create smart ideological education platforms with data interoperability, complete functions, and service synergy. Specifically, universities should adopt operational models featuring business linkage, system integration, and online-offline fusion, integrate data resources from various information platforms, establish unified data centers and intelligent platforms covering data collection, processing, and management, and consolidate the data foundation for precise ideological education. Second, coordinate social forces such as the government, enterprises, and families to form a collaborative education pattern, provide multi-faceted guarantees for ideological work, coordinate the construction, maintenance, and management of precise ideological education platforms in universities, establish a characteristic ideological team with high digital literacy and strong ideological education capabilities, and further improve the "comprehensive ideological education" work pattern. Third, improve the data security protection system, optimize supervision mechanisms, and promote the standardized construction of precise ideological education in universities. Although big data-driven algorithmic recommendation technology can enhance the precision of ideological education, there are hidden dangers of excessive collection or misuse of personal information. Therefore, when using teacher and student data, universities need to formulate strict data management norms, improve dynamic monitoring systems, strengthen data security protection measures, abide by technical ethical principles, effectively protect teacher and student privacy and data security, and ensure the legality and normativity of data application.

Digital Application: Relying on digital intelligence technologies, universities must continuously deepen the digital transformation of ideological education, promote the integration and reconstruction of physical and network spaces in universities, facilitate digital transformation of the entire educational process including teaching, learning, management, evaluation, and research, and lay a solid foundation for algorithm-driven precise ideological education practice. First, rely on intelligent data platforms to achieve precise placement of educational resources and build a benign ecosystem for precise ideological education. Establish standardized information collection systems, design differentiated ideological teaching implementation plans, improve cross-departmental collaboration mechanisms, promote open sharing of educational data, and thereby achieve whole-process dynamic monitoring and smart management of the university ideological education system. Second, based on the intelligent analysis function of digital intelligence technology, achieve precise matching and personalized push of ideological education resources. By real-time collection and integrating multi-dimensional data on students' learning processes, ideological dynamics, and behavioral characteristics, use intelligent algorithms for in-depth mining and analysis to provide reliable data support for precise identification of educational needs, dynamic adjustment of educational content, optimization of educational process management, and scientific evaluation of educational effectiveness. Third, establish new information networks, actively create new smart campuses, promote the promotion and sharing of technology and research results, facilitate communication and sharing of network information between universities and other universities and technology enterprises, and improve the level of big data application.

Digital Intelligence Empowerment: Universities give full play to the advantages of intelligent recommendation technology, innovate ideological education methods, and effectively enhance the effectiveness of ideological work through precise content supply and scenario-based educational experiences. First, rely on the advantages of digital intelligence technology to achieve digital reconstruction and innovative integration of ideological education resources. By constructing virtual-real integrated educational scenarios, transform mainstream ideology into immersive and scenario-based digital expressions, break through the time and space limitations of traditional education, create a multi-dimensional digital education environment for students, and enhance the effectiveness of value conduction through hypertext narrative methods. Second, based on the heterogeneous characteristics of educatees' discourse acceptance preferences, construct a multi-media integrated communication system for ideological education. By integrating modern communication resources, form a three-dimensional and full-coverage discourse communication network, innovate the concrete presentation of mainstream ideology, achieve seamless connection between virtual space and real fields and synergistic enhancement of online and offline education, and expand the discourse leadership of ideological education with new communication platforms.

5. Conclusion

In the field of higher education, the accelerated development and deep application of digital intelligence technologies are profoundly reconstructing the new landscape of higher education in China, promoting systematic changes and fundamental breakthroughs in educational concepts and models, and becoming an important driving force for empowering innovative development of higher education [8]. Grounded in the fundamental task of fostering virtue and talent, universities are systematically advancing the deep integration of digital intelligence technologies and ideological education, constructing a new educational ecosystem, building an integrated platform for ideological education, promoting the construction of an integrated educational community, shaping a new "intelligence +" higher education ecosystem, and

achieving precise implementation, scientific evaluation, and dynamic optimization of ideological education.

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