An Exploration of the Underlying Mechanisms and Practical Pathways for Digital Technology to Empower Ideological and Political Education in Higher Education

Ziwei Ma
School of Marxism, Xinjiang Normal University, Urumqi, Xinjiang, China

Abstract: The rapid development of digital technology brings profound transformation opportunities for higher education ideological and political education. Based on the mission of fostering virtue and nurturing talent, applying digital technology transforms the educational ecosystem from closed to open, educational provision from broad-brush to targeted, and evaluation from static to dynamic. This paper proposes three practical pathways: constructing a "human-machine collaborative" educational ecosystem, establishing a "precision-oriented" delivery system, and refining a "full-chain" support mechanism, to provide theoretical and practical guidance for its high-quality development in the new era.
***Keywords*:** digital technology, ideological and political education in higher education, practical pathways

1. Introduction

With the iterative development of digital technologies such as big data and artificial intelligence, human society has entered the digital age. The Outline of the Plan for Building a Strong Educational Nation (2024–2035) emphasizes the strategic requirement of shaping a new framework for fostering virtue and nurturing talent. Empowering higher education ideological and political education with digital technology is both a policy requirement for implementing the national digital education strategy and an intrinsic need for enhancing its guiding role and cultivating era-appropriate talent. However, technological empowerment involves systemic transformations in educational philosophy, content, methods, and evaluation, not just tool application. Thus, exploring the mechanisms of digital empowerment and planning practical pathways is crucial for promoting the preservation of core principles and innovation in higher education ideological and political education.

2. The Underlying Mechanisms of Digital Technology-Driven Empowerment in Higher Education Ideological and Political Education

First, the educational ecosystem is shifting from a closed to an open system: breaking down temporal and spatial barriers and expanding the educational domain. Traditional ideological and political education primarily relied on offline settings such as classroom lectures, themed class meetings, and social practice activities, which were phased in time and limited in space. The introduction of digital technology has fundamentally transformed this landscape. On the one hand, the application of virtual reality(VR)and augmented reality(AR)technologies has created immersive educational scenarios, enabling students to "travel through time and space" to retrace the Long March or visit revolutionary sites via the cloud, thereby achieving a sense of shared values through a truly immersive experience. On the other hand, the widespread adoption of mobile internet and smart devices has enabled ideological and political education to transcend classroom boundaries, providing 24/7 accompaniment and integrating ideological guidance into the minutiae of daily life. This open educational ecosystem has expanded ideological and political education from being "limited to a specific time and place" to being "anytime, anywhere," significantly enhancing its reach and influence. [1]

Second, the shift from a broad-brush approach to a targeted approach in educational provision: deepening demand identification and optimizing resource allocation. For a long time, ideological and political education in higher education institutions has faced the dilemma of a "one-size-fits-all" and "blanket" approach, struggling to meet students' personalized growth needs. The core contribution of digital technology lies in enabling precise identification and targeted provision. Schools can analyze students' daily behavioral patterns to gain an accurate understanding of their ideological trends. [2]Furthermore, through algorithmic recommendation technology, institutions can push tailored ideological and political learning resources to students, shifting the paradigm from "people seeking resources" to "resources finding people." This truly embodies the work philosophy of "centering on students, caring for students, and serving students," effectively enhancing the relevance and effectiveness of ideological and political education.

Third, educational evaluation shifts from static to dynamic: the collection of process data and the implementation of developmental assessment. Digital technology enables formative assessment; through technologies such as IoT sensing and blockchain-based evidence storage, process data — including students' learning behaviors, social participation, and value implementation — can be comprehensively recorded. Based on this data, universities can construct digital profiles of students and conduct value-added evaluations using multidimensional competency indicators such as "cognition, collaboration, innovation, and career readiness," focusing on the extent of students' progress relative to their baseline. [3]This dynamic, developmental evaluation paradigm marks a shift from "outcome-based judgment" to "growth-oriented guidance," better aligning with the essential requirement of ideological and political education to "cultivate virtue and nurture talent."[4].

3. Practical Pathways for Digital Technology to Empower Ideological and Political Education in Higher Education

First, adhere to a people-centered approach and build a "human-machine collaborative" educational ecosystem. Digital technology is always a means rather than an end; technological empowerment must adhere to the value stance of "technology for use" rather than "technology for its own sake." First, educators must establish a correct perspective on technology. They must actively embrace technology and enhance their digital literacy while maintaining their professional agency, avoiding the abdication of educational responsibility caused by overreliance on technology. Second, emphasis must be placed on cultivating students' digital literacy. [5]They must be guided to use digital tools critically, preventing them from becoming passive dependents of technology. Only by emphasizing human agency within "human-machine collaboration" can digital technology truly serve the fundamental mission of fostering virtue and nurturing talent.

Second, strengthen data-driven approaches to build a "precision ideological and political education" delivery system. First, improve data collection and integration mechanisms. Universities should break down departmental barriers, integrate data from operational systems, and establish a unified student development data center. Emphasis should be placed on collecting contextual data; through IoT sensing technologies, process-oriented information such as students' behavioral patterns, learning engagement, and social interactions should be recorded to form a comprehensive student profile. Second, build an intelligent resource supply platform. Based on student profile analysis, develop personalized recommendation algorithms to achieve the precise delivery of educational resources. Third, establish a closed-loop evaluation and feedback mechanism. Timely apply evaluation results to adjust educational strategies, forming a virtuous cycle of "collection — analysis — implementation — evaluation — optimization."

Third, we must improve collaborative mechanisms and refine a "full-chain" support system. Digital empowerment is a systematic endeavor that requires multidimensional support in terms of systems, organizations, and resources. At the institutional level, education authorities should expedite the enactment of laws and regulations governing the collection, use, and management of educational data, clarify data ownership and usage boundaries, and provide a legal basis for the digital transformation of higher education institutions. At the university level, relevant management systems must be revised and improved to integrate digital ideological and political education into the institution's overall development strategy, establishing a working mechanism under the unified leadership of the Party Committee and coordinated advancement by all departments. At the organizational level, training in digital literacy for the ideological and political work team must be strengthened to enhance their capabilities in data analysis and the application of intelligent tools. At the resource level, investment in digital infrastructure must be increased to build hardware platforms such as VR smart classrooms and virtual simulation training labs, while also prioritizing the development and sharing of high-quality digital resources. Higher education institutions of different types should strengthen cooperation to promote the joint development and sharing of high-quality digital resources for ideological and political education, thereby bridging the digital divide.

4. Conclusion

The use of digital technology to empower ideological and political education in higher education is both an inevitable trend of the times and an intrinsic requirement for educational innovation. From an intrinsic perspective, digital technology drives systemic transformations in the educational ecosystem, delivery methods, and evaluation paradigms by breaking down spatial and temporal barriers, deepening the identification of needs, and enabling process-based evaluation. In terms of practical pathways, it is necessary to adhere to a people-centered approach, strengthen data-driven strategies, and improve collaborative mechanisms to achieve the unity of technological empowerment and humanistic care through "human-machine collaboration." Digital technology is ultimately a means; fostering virtue and cultivating talent is the fundamental purpose. Facing the digital wave, higher education institutions must not only proactively embrace technological change but also maintain clear-headed value rationality, ensuring that digital technology truly becomes a powerful support for nurturing the

new generation of the times.

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Author Bio

Ma Ziwei (born Nov. 1999), female, Han nationality. Jimusar County, Xinjiang. School of Marxism, Xinjiang Normal University. Bachelor's degree; postgraduate student. Research interests: Ideological and Political Education, University Student Management.