

Research on the Integrated Development of Practical Teaching in Ideological and Political Education Across Schools of All Levels in Digital Virtual Spaces

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ABSTRACT

Within digital-virtual spaces, human learning practices and communicative activities undergo fundamental transformations characterized by virtualization, trans-spatiotemporal fluidity, and hyper-mobility. These shifts consequently engender novel dynamics, emergent challenges, and distinctive characteristics in the practical teaching of ideological and political education across all academic levels—manifesting through reconfigured activity spheres, reconstituted pedagogical content, and innovative instructional methodologies. It is imperative to advance the synergistic integration of digital technologies with practical teaching frameworks, thereby continuously exploring pathways to enhance curricular continuity, diversify pedagogical formats, and innovate methodological approaches. Such integration enables students at all educational stages to immerse themselves within digitally-mediated learning and interaction environments. Through participatory engagement in contextualized activities, collaborative endeavors, discursive exchanges, and ideological construction processes, this paradigm facilitates the cultivation of ideological value systems—ultimately actualizing the internalization of theoretical frameworks into cognitive-affective matrices and their externalization through behavioral manifestations.

KEYWORDS

Digital virtual spaces; Ideological and political education; Schools of all levels; Practical teaching

1 Introduction

In the Digital-Intelligence Era, the emergence of new spheres for production and daily life is catalyzed by emerging technologies, including big data, cloud algorithms, and artificial intelligence. Concurrently, the practical teaching space for ideological and political education has expanded beyond the traditional confines of physical spaces both on and off campus into the domain of the digital-virtual. Within this digital-virtual space, achieving integrated practical teaching in ideological and political education across schools of all levels requires the application of a "technology-driven, practice-based teaching" approach. This strategy functions by transcending physical space limitations, expanding opportunities for communicative engagement, embedding pedagogical activities within information ecosystems, and extending the scope of cognitive development. Integration within the digital-virtual space—manifested through unified content structures, holistic cultivation objectives, and coherent interaction frameworks—enables students to deepen their perceptual experiences and undergo significant affective transformations. Consequently, this process, characterized fundamentally by advancing teaching through practice and fostering learning through practice, thereby facilitates the essential formation of core values among students.

2 The Connotation and Constituent Elements of Practical Teaching in Ideological and Political Education within the Digital-Virtual Space

Integrated practical teaching in ideological and political education within the digital-virtual space is fundamentally grounded in the overarching objectives of unified practical teaching. It leverages digital technologies, including intelligent algorithms and virtual datasets, to consolidate pedagogical resources and construct virtual platforms. This synthesis fosters an integrated digital-virtual learning and interaction environment. Consequently, it advances the coherence and alignment of content, interactive engagement, and ideological values within practical teaching activities across student cohorts at all educational levels and developmental stages within this digital-virtual sphere. The integration comprises three core constituent elements: the technological infrastructure, the pedagogical resources, and the spatial configuration of the practical teaching environment.

2.1 Technological Infrastructures

The technological infrastructure is fundamentally predicated upon a suite of digital technologies encompassing network communications, big data, and artificial intelligence. Its operational logic is intrinsically governed by algorithms, utilizing data as the primary transmission vehicle. Through algorithmically driven processes, this infrastructure facilitates the systematic integration of information and the efficient dissemination of content. Consequently, it constitutes the

foundational support enabling both the consolidation of practical teaching content across schools of all levels and the multidimensional integration of intersubjective interaction within unified spatial dimensions.

2.2 Pedagogical Resource Integration

Operating within the computational framework of "big data + algorithms", intangible virtual information data achieves dual functionality through a unified process. By capturing and granularly delineating virtual agents' behavioral traits, developmental trajectories, learning preferences, and knowledge deficiencies, this infrastructure crystallizes personalized knowledge architectures. Such architectures propel the construction of need-oriented practical content, subsequently enabling targeted, personalized, and adaptive content dissemination. Consequently, this mechanism materially enhances both the sequential articulation and conceptual continuity of learning progression across diverse academic tiers and student developmental strata. Simultaneously, the evolving dynamics of virtual agents' learning patterns, interactive engagements, and cognitive transformations continuously reconfigure the digital-virtual ecosystem. This perpetual data deposition progressively recalibrates algorithmic parameters while expanding the pedagogical resource repository, thereby fundamentally reinforcing the structural integrity of the integrated practical teaching paradigm for ideological and political education within the digital-virtual space.

2.3 Spatial Configuration of the Practical Teaching Environment

The digital-virtual modality of practical teaching spaces for ideological and political education manifests a tripartite ontological constitution encompassing physical, social, and cognitive dimensions. Functionally, such spaces preserve the essential physical affordances of traditional practice-based classrooms while providing the foundational locus for pedagogical operations within the digital domain. At the pedagogical level, they prioritize the dual objectives of value internalization and praxis capabilities enhancement across all educational stages. This is operationalized through the technological mediation of integrated learning trajectories and social engagement patterns among students of varying age cohorts and competency levels. Ultimately, the immersive dynamics of digital-virtual practical teaching catalyze the progressive deepening of students' cognitive-affective matrices and sustained advancement of practical competencies through the dialectical interplay between external pedagogical scaffolding and endogenous individual development.

3 Transmutation of Carriers in Integrated Practical Teaching within the Digital-Virtual Space

The ontological transmutation of informational and communicative carriers within digital-virtual practical teaching fundamentally reconstitutes the epistemological foundations of ideological and political education. This paradigm shift dynamically expands information transmission conduits while significantly amplifying discursive efficacy through its departure from traditional pedagogical modalities. Where physical spaces and digitally-mediated environments traditionally rely on material substrates as primary vehicular mechanisms, the digital-virtual sphere elevates data to the status of essential phenomenological substrate. Data consequently emerges as the constitutive medium for all cognitive operations and affective experiences, simultaneously functioning as the direct operative substrate for praxis-based pedagogical interventions and enabling the emergence of derivative digital-communicative vectors mediated through virtual environmental affordances.

3.1 Data-Driven Praxis Content Vectors

The architecture of praxis content vectors materializes through generative AI technologies which construct specialized discursive corpora and immersive simulation environments. These intelligent systems facilitate students' assimilation of ideological knowledge via dialogic interactions that concurrently refine pedagogical repositories through machine learning processes. Complementarily, a matrix-structured media ecology coalesces around short-form video platforms, open educational resource repositories exemplified by NetEase MOOCs, and TED-style knowledge dissemination channels, thereby establishing unified digital resource spaces that integrate multi-tiered pedagogical scenarios. This integrated framework systematically advances curricular continuity across all educational strata through its polymorphic media affordances.

3.2 Digitized Communicative Transmission Media

The synergistic integration of intelligent network terminals and digital learning ecotopes reconfigures epistemic acquisition pathways while expanding intersubjective interaction horizons. Multidimensional transmission ecosystems manifest through institutional platforms typified by the Smart Education of China, whose structured praxis scaffolds

converge with public communication channels such as short video services and WeChat public accounts to deliver pan-ideological content via cognitively accessible interfaces. Such ecosystems dissolve traditional cognitive-affective barriers through their low-threshold multimodal mediation. Simultaneously, integrated social-learning platforms including Yiban and multifunctional academic communities like campus BBS systems strengthen intersubjective linkages among educational stakeholders. These environments optimize ideological internalization efficiency by amplifying affective resonance and consolidating axiological propagation networks through pedagogically structured communal engagement—a dialectical process wherein cognitive continuity arises from guided interactional frameworks which organically generate epistemic fluency through sustained participatory praxis.

4 Pathways for Constructing Integrated Practical Teaching in Digital-Virtual Space

The development of integrated practical teaching for ideological and political education in digital-virtual environments should align with the foundational requirements and developmental principles of pedagogical integration. This process must utilize digital technologies such as cloud computing, big data, and artificial intelligence as core drivers to enhance the intelligence, innovation, and experiential depth of practical teaching. Adopting a dual technology-institution approach, this integration is achieved through three interconnected mechanisms: establishing dedicated data spaces for practical teaching resources, strengthening connections between schools, families, and society, and improving both technical infrastructure and institutional frameworks. Collectively, these efforts advance the comprehensive implementation of integrated practical teaching within the digital-virtual sphere for students across schools of all levels.

4.1 Establishing Data Spaces for Practical Teaching through Digital Technologies

Constructing dedicated data repositories for practical teaching resources serves as a critical pathway for implementing ideological and political education in digital-virtual spaces. This involves creating unified databases of teaching materials that subtly shape students' ideological awareness and moral development through curated digital environments.

4.1.1 Refining Generative AI Applications

Enhanced training and deployment of generative AI systems for ideological education should expand both the scope and depth of such applications. Integrating AI directly into practical teaching allows these systems to function as digital mentors. Through specialized training on large-scale ideological corpora, they can guide students from fundamental concepts to advanced understanding via interactive questioning, progressively cultivating political consciousness and ethical perspectives. Furthermore, AI assists instructors by employing predictive modeling to simulate teaching scenarios and project outcomes, enabling continuous refinement of content and methodologies. Simultaneously, by generating personalized learner profiles, these systems support data-targeted pedagogy across all educational stages—ensuring teaching approaches align with developmental needs while improving learning objective attainment rates.

4.1.2 Developing Immersive Digital Learning Environments

Complementarily, constructing multi-sensory educational environments using short videos, educational games, and diverse digital materials remains essential. Such environments dynamically evolve through algorithm-driven analysis of students' requirements at each educational stage. Establishing dedicated platforms that aggregate educational resources and student communities enables the systematic curation and integration of existing digital teaching materials. This consolidates practical teaching resources into centralized repositories, thereby creating cohesive data spaces for ideological and political education.

4.2 Strengthening School-Family-Society-Government Synergies through Digital Platforms

Digital platforms must mobilize their integrative capacities to establish interconnected networks among educational institutions, families, societal entities, and governmental bodies within ideological and political education. This integration enables functional complementarity across all stakeholders to enhance practical teaching efficacy.

4.2.1 Educational Institutional Leadership

Schools and teachers should exercise primary authority over designing, evaluating, and disseminating digital pedagogical content. Simultaneously, they must implement continuous monitoring mechanisms that utilize technological tools to screen instructional materials and communication channels. This requires systematically filtering

erroneous content with deviant value orientations while regularly updating or retiring obsolete resources.

4.2.2 Familial Guidance Framework

Parents must maintain longitudinal oversight of students' psychological well-being during extracurricular digital learning activities. They bear responsibility for guiding students' ideological development and ensuring participation in scientifically validated digital educational practices outside formal academic settings.

4.2.3 Societal Innovation Entities

Corporate entities and individual content creators should align digital resources with curriculum objectives and student developmental needs across all educational stages. This entails rigorous content development protocols, continuous innovation in platform functionalities, and iterative optimization of pedagogical algorithms and predictive models.

4.2.4 Governmental Governance Mechanisms

Government agencies should establish comprehensive oversight systems for public and third-party digital platforms. These frameworks must incorporate content screening protocols, robust user data protection measures, and student-centered evaluation methodologies that assess educational outcomes against predefined learning objectives.

4.3 Strengthening Foundational Support through Digital Infrastructure and Institutional Frameworks

Digital infrastructure and institutional mechanisms collectively constitute the material foundation and operational parameters essential for integrated practical teaching in ideological and political education within digital spaces.

4.3.1 Technological Infrastructure Components

Digital facilities encompass mobile devices and underlying technological infrastructure systems. Mobile devices serve as bridging mediators connecting physical participants with digital entities during pedagogical activities, while core infrastructure provides fundamental support for advancing educational technologies and developing integrated digital learning and interaction environments.

4.3.2 Institutional Functions

Formalized institutional frameworks establish clear governance obligations for all educational stakeholders within digital spaces while regulating individual conduct. These regulatory structures function as the essential underpinning that safeguards both the systematic development and sustainable operation of integrated practical teaching ecosystems in digital-virtual environments.

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