The Logical Approach of Artificial Intelligence to Empower the Development of Ideological and Political Education

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Abstract: Guided by Marxist theory, this study systematically explores the internal logic of AI empowerment in ideological and political education through three dimensions: technological, value-based, and practical. At the technological level, Marxist productivity theory is applied to analyze how AI optimizes educational resource allocation through tool innovation, process reengineering, and cognitive upgrading. The value-based dimension constructs a closed-loop system of "data calibration-dialectical thinking-ethical prevention," emphasizing that technology should serve human comprehensive development. Practically, Marxist theory of practice examines the theoretical pathways for transforming traditional rote teaching into intelligent interactive pedagogy. Research demonstrates that AI-enhanced ideological education must uphold Marxism's core principle of "human-centered cultivation," achieving unity between instrumental and value rationality, ultimately advancing human subjectivity and fulfilling the fundamental mission of moral education.

Keywords: Artificial Intelligence; Ideological and Political Education; Students; Empowerment; Logical Approach

1. Introduction

With the rapid advancement of artificial intelligence (AI) technology, its deep integration with education is driving profound transformations in ideological and political education. This paper focuses on "AI Empowering Ideological and Political Education" as its central theme, systematically exploring both theoretical frameworks and practical approaches[1]. The study theoretically elucidates the inevitability and feasibility of AI integration in ideological education, while proposing concrete strategies to enhance educational precision through intelligent technologies, interactive teaching methods, and scientific evaluation systems. The research aims to provide theoretical references and practical guidance for building an innovative system of ideological education in the new era.

2. Technical logic: productivity change of tool innovation

Marxist theory of productive forces clearly states that technological progress serves as the fundamental driving force for the evolution of social formations and sectoral development[2]. In the educational sphere, this principle is specifically manifested through the transformative empowerment of teaching tools to enhance educational productivity. As the core of next-generation information technology, artificial intelligence drives systemic transformation in ideological and political education productivity via three synergistic pathways: tool innovation, process reengineering, and cognitive upgrading[3.

Tool innovation restructures the material infrastructure of educational activities, enabling abstract theories to be concretely presented through digital formats. Process reengineering optimizes resource allocation methods, breaking the traditional constraints of time and space in education. Cognitive upgrading reshapes the intrinsic logic of knowledge transmission, shifting from linear delivery to networked construction. These three elements collectively form the core theoretical mechanism through which technology empowers educational productivity[4].

The extensive application of natural language processing technology has provided theoretical and technical support for real-time response mechanisms in ideological and political education. From a technical perspective, this technology constructs specialized knowledge graphs and intelligent dialogue management systems within the ideological education domain[5], breaking through the time constraints of traditional education's "fixed class hours" and "limited faculty resources". It enables real-time responses to learners' theoretical confusions and career planning needs. Essentially, it transforms technological convenience into accessible educational services, which aligns closely with Marx's assertion in *Das Kapital* that "technology shortens necessary labor time"[6]. This allows educators to be freed from repetitive tasks like answering questions and organizing materials, enabling them to focus on more creative educational activities such as explaining theoretical challenges and guiding values. Consequently, this enhances the overall productivity efficiency of ideological education[7].

Knowledge graph technology revolutionizes the presentation of ideological and political education knowledge through theoretical reconstruction, fundamentally transforming learners 'cognitive approaches. As an advanced form of semantic network technology, it establishes dynamic logical connections between core concepts in ideological theories, converting traditional linear textbook knowledge into networked, structured knowledge graphs. This enables learners to intuitively grasp the internal logical framework and dialectical relationships within ideological theories[8]. Such cognitive transformation not only enhances knowledge transfer efficiency but also fundamentally shifts learners' understanding of ideological systems— from fragmented memorization of isolated points to holistic comprehension of interconnected theories. This process perfectly aligns with the Marxist epistemological principle of "progressing from sensory perception to rational cognition," representing a qualitative leap in cognitive dimensions[9].

The fundamental value of technological logic lies in optimizing the configuration structure of productive forces within ideological and political education based on Marx's theory of the three elements of productive forces. In the intelligent era, the "laborers", "labor objects", and "labor materials" in ideological and political education form a new interactive relationship: teachers transition from direct knowledge transmitters to learning guides, organizers, and value aligners; students' learning states shift from passive acceptance to active exploration and self-construction; artificial intelligence serves as the key bridge connecting both parties. Through multi-source data integration, it creates learner profiles that precisely match students' theoretical foundations and learning needs. This transforms ideological and political education from a "flood irrigation" approach of uniform teaching to a "precision drip irrigation" method of personalized guidance, ultimately achieving a qualitative leap in educational productivity[10]. This represents the core theoretical orientation and practical goal of technology-empowered ideological and political education.

3. Value Logic: Technology for Good Led by Marxism

The Marxist perspective on technology posits that "technology is an extension of humanity's essential capabilities," establishing the fundamental value framework for AI-powered ideological education. Technology application should not merely serve as a means to enhance efficiency, but must be guided by Marxist theory to build a closed-loop theoretical system encompassing "data calibration, dialectical thinking, and ethical governance." Marx's comprehensive technical education philosophy in *Instructions from the Provisional Central Committee to Delegates* explicitly requires technological applications to serve the ultimate goal of "holistic human development." This principle equally applies to AI-based ideological tools: technology should not only improve educational efficiency through innovation, but also become a crucial medium for transmitting mainstream values and scientific theories[11]. This ensures that educational activities maintain their value orientation aligned with the fundamental mission of moral cultivation, preventing technological applications from

deviating from the essential nature of ideological education[12].

Cultivating dialectical thinking constitutes the core theoretical framework and practical imperative of value logic. Marxist materialist dialectics asserts that "all technologies possess dual nature", possessing both positive potential to drive social progress and the risk of negative consequences when misapplied. While artificial intelligence enhances ideological education efficiency, it inherently carries risks such as algorithmic bias and value distortions. Theoretically, this demands educators to guide learners in dialectically understanding technology's essence and limitations, steering clear of cognitive pitfalls like "technological determinism" or "technological pessimism." In the intelligent age, this further evolves into comprehensive comprehension of AI's technical principles, algorithmic logic, and societal impacts— representing both theoretical expansion and practical deepening of dialectical thinking cultivation in the new era[13].

The logic of value demands the establishment of robust ethical governance mechanisms for technology at both theoretical and institutional levels. Marxism firmly opposes treating technology as "an objective force independent of human beings," advocating instead for its ethical development through human agency grounded in understanding technological evolution. In this theoretical framework, AI applications within ideological education must adhere to the "human-centric governance" principle: First, algorithmic transparency mechanisms should ensure that AI-recommended content and evaluation results are interpretable, preventing "black box operations" from compromising educational equity. Second, data privacy protections must strictly regulate the collection, storage, and use of learners 'personal information to safeguard their rights and dignity. Integrating technological ethics into ideological education fundamentally seeks to achieve dialectical unity— between instrumental rationality and value rationality. While acquiring AI application skills, learners should cultivate proper technical perspectives and recognize ethical boundaries and moral imperatives in technology use. This approach aligns closely with Marx's comprehensive educational philosophy and contemporary holistic education principles, which aim to nurture modern individuals who possess both technical competence and humanistic values, ethical awareness, and well-rounded development[14].

The ultimate theoretical direction of value logic lies in ensuring technology consistently serves the fundamental mission of moral education and talent cultivation. Rooted in the core principles of Marxist educational philosophy, education fundamentally aims to "cultivate individuals" rather than "utilize tools." Its essence resides in "interpersonal exchanges of ideas and value transmission," thus requiring educational technology applications to adhere to the principle of "supporting rather than replacing human relationships that underpin teaching." This theoretical framework delineates the boundaries of AI's empowerment in ideological education: technology acts as an auxiliary tool for educational implementation, not as a dominant force in the educational process. Whether establishing AI education certification systems or adopting "promoting human subjectivity development" as the core criterion for technological innovation, these efforts essentially reinterpret Marxist's "human-centered education" philosophy in the intelligent age. The fundamental purpose is to ensure technological innovation always revolves around the core objective of "human development," preventing technical alienation from eroding the essence of ideological education.

4. Practical logic: Intelligent transformation of teaching paradigm

The core assertion of Marxist theory of practice is "practice serves as both the driving force and ultimate goal of cognitive development." This philosophical proposition provides the fundamental theoretical basis for the practical logic of AI empowering ideological and political education. From the perspective of practical theory, the empowerment of ideological education by artificial intelligence fundamentally represents a transformation of teaching paradigms from traditional "one-way indoctrination" to modern "intelligent interaction." This process is manifested through three theoretical dimensions: full-process restructuring, field expansion, and collaborative ecosystem construction. Full-process restructuring systematically optimizes pre-class preparation, in-class interaction, and post-class reflection based on the Marxist epistemological law of "practice-cognition-repractice." Field expansion breaks through the spatiotemporal constraints of traditional ideological education practices, constructing new digital and virtual practice spaces. The collaborative

ecosystem, grounded in the systems theory principle that "the whole is greater than the sum of its parts," integrates diverse educational forces including universities, research institutions, and social platforms. Together, these three elements form a comprehensive theoretical framework for the transformation of teaching paradigms[15].

Virtual simulation technology expands the practical field of ideological and political education through the integration of theory and practice, achieving deep unity between abstract theories and concrete practices. As a digital extension of traditional practice fields, virtual simulation technology transforms abstract political philosophy theories into operable and experiential practical scenarios through scenario modeling and interactive design. Learners can intuitively grasp the practical implications and real-world impacts of theories by adjusting parameters and selecting solutions in simulated environments. This innovative form of practice fundamentally represents the theoretical development and practical innovation of Marxism's "integration of education with productive labor" in the digital era. By reconstructing real-world contexts of theoretical application through virtual scenarios, it reduces practical costs, expands participation scope, and ensures organic unity between theoretical learning and practical experience. This fully aligns with the Marxist epistemological logic that "theory originates from practice, guides practice, and is tested in practice," effectively addressing the core challenge of "the disconnection between theory and practice" in traditional ideological and political education.

The enhanced collaborative education mechanism, empowered by AI technology, has established an open and shared ideological and political education ecosystem through theoretical frameworks and practical implementation. Grounded in Marxism's fundamental principle that "humanity is the sum of social relations," ideological education transcends isolated classroom teaching to become a social process involving multi-stakeholder participation and interaction. By breaking down geographical and disciplinary barriers, AI technology enables diverse entities to form collaborative networks that co-create resources and share outcomes aligned with educational objectives. This synergistic model organically integrates educational processes with technological innovation, representing a contemporary extension of Marxism's "integration of education and labor" concept in the intelligent era. Theoretically, cross-disciplinary and cross-regional collaboration can consolidate theoretical strengths from various fields, creating complementary advantages for AI educational tools in both value guidance accuracy and technical application scientific rigor, thereby enhancing the overall effectiveness and influence of ideological education.

The advancement of practical logic is manifested in the intelligent transformation of educational evaluation systems, grounded in Marxism's fundamental principle that "practice is the sole criterion for testing truth." Traditional ideological and political education assessments predominantly rely on a static model combining "final exams and classroom performance," which suffers from limitations such as delayed feedback and single-dimensional evaluation, making them inadequate for adapting to dynamic learning processes and complex educational objectives. AI-assisted formative evaluation continuously collects learners' process data in ideological education, establishing a multidimensional competency assessment framework that encompasses "knowledge mastery, skill enhancement, and value cultivation." This system provides educators with real-time, precise feedback while enabling the educational framework to self-adjust and optimize. Through dynamic monitoring and analysis of learning processes, timely adjustments to teaching strategies and content are made to ensure alignment between educational goals and learning outcomes, fully complying with Marxism's methodological requirement of "specific analysis for specific issues."

The ultimate theoretical goal of practical logic is to achieve the development of learners 'subjectivity based on Marxist theory of human comprehensive development. UNESCO's "learner-centered" educational principle originates from Marxism's emphasis on human subjectivity. In AI-powered ideological and political education, AI-generated theoretical materials and learning suggestions should only serve as supplementary tools, never replacing human independent thinking, value judgments, or intellectual exchanges. This positioning theoretically clarifies the relationship between humans and technology, avoids "technocentrism," and establishes humans as the core subjects in educational activities. As a key pathway for practical innovation, interdisciplinary integration combines theoretical resources from computer science, philosophy, and political science. This approach not only enhances the scientific rigor and contemporary relevance of ideological education but also provides humanistic nourishment and value guidance for AI development.

It embodies Marxism's educational philosophy of "unifying science and technology with humanistic spirit," ultimately aiming at the fundamental goal of "human comprehensive development"— a mission that perfectly aligns with ideological education's mission of cultivating virtue and nurturing talents.

Disclosure statement

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