

# From Instrumental Rationality to Value Symbiosis: Logical Rationale and Practical Mechanism of Generative AI Empowering Content Production of Internet Ideological and Political Education in Universities

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**Abstract:** Currently, Generative Artificial Intelligence (AIGC) technologies, represented by ChatGPT and Sora, have triggered a profound transformation in the paradigm of information production, bringing a historic opportunity for the digital transformation of Internet ideological and political education in universities. However, existing practices are largely confined to the one-dimensional perspective of "instrumental rationality," regarding AI merely as a technical means to improve efficiency. This has led to dilemmas in content production, such as homogenized supply, emotional deficit, and the alienation of subjectivity. Based on Marxist philosophy of technology and the principles of ideological and political education, this paper proposes a theoretical proposition of transitioning from "instrumental rationality" to "value symbiosis." The study argues that the empowerment of Internet ideological and political education by generative AI should not stop at technical application but should move towards the ecological reshaping of human-machine collaboration. By constructing a closed-loop mechanism of "intelligent perception—collaborative creation—value alignment—dynamic feedback," a deep coupling of technological logic and value logic can be achieved. Based on this, the paper systematically elucidates the practical paths for generative AI to empower content production in university Internet ideological and political education from three dimensions: constructing vertical domain knowledge graphs, optimizing interaction paradigms through prompt engineering, and governing ethical risks across the entire chain. The aim is to provide theoretical support and action references for resolving "structural contradictions on the supply side" and enhancing the effectiveness of online ideological and political education.

**Keywords:** Generative Artificial Intelligence, Internet Ideological and Political Education, Content Production, Instrumental Rationality, Value Symbiosis, Human-Machine Collaboration.

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## 1. Introduction

With the deepening of the Fourth Industrial Revolution, Artificial Intelligence (AI) has become a key force in reorganizing global factor resources, reshaping global economic structures, and altering global competitive landscapes. General Secretary Xi Jinping has foresightedly pointed out: "Artificial intelligence is a strategic technology leading this round of scientific and technological revolution and industrial transformation." [1] In recent years, Generative Artificial Intelligence (AIGC) technologies, centered on Large Language Models (LLM), have shown explosive growth. From text generation by ChatGPT to video construction by Sora, AI technology is leaping from "discriminative" to "generative," demonstrating powerful capabilities in understanding, reasoning, creation, and multi-modal interaction. This technological leap has profoundly changed the underlying logic of knowledge acquisition, information dissemination, and social interaction, presenting unprecedented opportunities and challenges for Internet ideological and political education in universities.

As an important grasp for occupying the main position of online ideology and implementing the fundamental task of fostering character and civic virtue, the core of university Internet ideological and political education lies in "content

production." For a long time, facing the increasingly personalized, differentiated, and immersive spiritual and cultural needs of "Generation Z" college students, the traditional mode of content production has increasingly revealed "structural contradictions on the supply side": limited productivity leading to lags in timeliness, singular forms leading to insufficient attractiveness, and "flood-irrigation" approaches leading to a lack of pertinence. The intervention of generative AI, with its advantages in massive data processing, natural language interaction, and multi-modal content generation, provides technical possibilities for solving these problems.

However, the introduction of technology is by no means a simple physical addition. In current exploratory practices, a tendency warrants vigilance: the over-glorification of the instrumental attributes of technology. Generative AI is often regarded merely as an "efficiency tool" for mass-producing copy or automatically replying to comments, falling into the trap of "instrumental rationality" described by Max Weber. This "technology-only" orientation can easily lead to the "devaluation," "de-emotionalization," and even "technological alienation" of ideological and political education, causing the relationship between humans and technology to alienate from "humans controlling technology" to "humans depending on technology."

How can we uphold the value core of ideological and political education while enjoying technological dividends? How can we transcend the limitations of "instrumental rationality" to build a new ecology of human-machine collaboration and value symbiosis? This is a growing issue that university ideological and political education must answer in the intelligent age. From the perspective of Marxist human theory and philosophy of technology, this paper attempts to deeply analyze the intrinsic mechanism of generative AI empowering content production in university Internet ideological and political education, propose the logical rationale for the transformation from "instrumental rationality" to "value symbiosis," and construct corresponding practical mechanisms and paths, with a view to providing theoretical reference for the high-quality development of university Internet ideological and political education in the new era.

## **2. Logical Shift: From the Domination of Instrumental Rationality to the Reshaping of Value Symbiosis**

When discussing the integration of generative AI and Internet ideological and political education, the primary task is to clarify the philosophical basis of their relationship. From the early "Internet + Ideological and Political Education" to today's "AI + Ideological and Political Education," the role of technology is undergoing a qualitative leap. We must transcend the traditional objectified perspective and establish a new human-machine relationship of "value symbiosis."

### **2.1. The Overstepping of Instrumental Rationality: A Scrutiny of Dilemmas in Current Technological Applications**

"Instrumental Rationality," further elucidated by the Frankfurt School based on Weber, refers to a mode of thinking centered on calculation, efficiency, and utility, emphasizing the precise adaptation of means to ends while often neglecting the value rationality of the ends themselves. In the field of Internet ideological and political education, the excessive assertion of instrumental rationality brings multiple risks.

#### **2.1.1. "Emotional Alienation" Caused by Efficiency Supremacy**

Ideological and political education is essentially "work on people"; it is the awakening of souls and the shaping of values. Its core lies in emotional resonance and the inspiration of truth. However, driven by instrumental rationality, some educators regard generative AI as an "automatic generator for various summaries and posts." A large amount of temperature-lacking, cookie-cutter AI-generated text floods cyberspace. Although meeting assessment indicators in terms of quantity and frequency, it loses the humanistic care and emotional temperature that ideological and political education should possess. This "obscuration of intersubjectivity caused by technological intervention" makes "keyboard-to-keyboard" communication between teachers and students difficult to translate into "heart-to-heart" identification, turning the educational process into cold data transmission.

#### **2.1.2. "Value Suspension" Induced by Algorithmic Hegemony**

The underlying logic of generative AI is based on large model predictions from probability statistics. Its generated content is often constrained by the distribution of training data

and the optimization goals of algorithms. Under the algorithmic recommendation mechanism dominated by commercial logic, in pursuit of quantitative indicators such as click-through rates and retention rates, AI may tend to generate content that caters to users' curiosity, emotionality, or even vulgar tastes, rather than content with profound thought and value guidance. This substitution of "traffic logic" for "value logic" can easily lead to mainstream values being marginalized or suspended, and may even produce an "information cocoon" effect, intensifying the polarization and narrowing of student cognition [2].

#### **2.1.3. "Technological Dependence" Caused by the Loss of Subjectivity**

Marx profoundly criticized the domination of workers by machines in *Das Kapital*. In the intelligent age, this risk of alienation still exists. Some ideological and political educators may develop inertia due to the convenience of generative AI, gradually degenerating into appendages of technology and losing the ability for independent thinking, theoretical judgment, and content innovation. If educators merely act as "porters" of AI content and lose their subjective consciousness as "value gatekeepers," the dominance of ideological and political education is effectively ceded to uncontrollable algorithmic black boxes, posing a potential threat to ideological security.

## **2.2. The Clarification of Value Symbiosis: A New Panorama of Human-Machine Collaboration**

Facing the dilemma of instrumental rationality, we need to establish a new logic of "value symbiosis." "Value symbiosis" refers to the process where, in the deep embedding of generative AI in content production, technology is no longer a simple, external objective tool but becomes a "quasi-subject" partner that is interdependent with and mutually promoting to the educator (subject). Technological logic no longer overrides value logic but is deeply embedded in and serves the fundamental task of fostering character and civic virtue, achieving resonance and harmonious coexistence between "tech for good" and educational upbringing.

### **2.2.1. Reconstruction of Intersubjectivity: From "Subject-Object Dichotomy" to "Two-Way Empowerment"**

From the perspective of value symbiosis, the human-machine relationship undergoes a fundamental transformation. Teachers are no longer simple operators but "injectors of value" and "engineers of souls"; AI is no longer a cold machine but an "extension of wisdom" and an "amplifier of creativity." The two achieve complementary capabilities in interaction: teachers use AI to expand the breadth of cognition and the precision of information processing, while AI continuously corrects biases and aligns with human values under the guidance of teachers. This "human-machine coupling" intersubjectivity ensures that ideological and political education not only maintains the subject status of humans but also fully releases the dividends of technology.

### **2.2.2. Reconstruction of Production Relations: From "One-Way Instillation" to "Interactive Generation"**

Traditional content production is static, preset, and one-way. In the value symbiosis ecology, content production becomes a dynamic, generative process. Internet ideological

and political education empowered by generative AI can instantly generate personalized answers and guidance content based on students' real-time feedback, questions, and emotional changes. This characteristic of "instant generation" makes ideological and political education no longer a scripted "performance" but a "live broadcast" involving teachers, students, and machines, where sparks of thought collide instantly, greatly enhancing the presence and interactivity of education.

### **2.2.3. Reconstruction of Target Orientation: From "Data Governance" to "Meaning Construction"**

Instrumental rationality focuses on the scale of data and the growth of traffic, while value symbiosis focuses on the generation of meaning and the internalization of beliefs. The ultimate goal of generative AI empowerment is not to produce more information redundancy, but to help students see through phenomena to the essence through precise, story-based, and scenario-based high-quality content, constructing a coherent belief system and correct value coordinates in fragmented cyberspace, achieving a leap from "knowing due to algorithmic recommendation" to "believing through rational thinking."

## **3. Mechanism Analysis: The Intrinsic Mechanism of Generative AI Empowering Content Production**

Achieving the leap from instrumental rationality to value symbiosis cannot stop at the level of philosophical speculation; it requires a deep analysis of the specific operational mechanism of generative AI empowering content production. This is mainly manifested in the intelligent reshaping of the entire chain of "perception—production—dissemination—feedback."

### **3.1. Intelligent Perception Mechanism: Precise Profiling Based on Multi-Modal Data**

Precise content production begins with a precise understanding of the educational object. Traditional student situation surveys often rely on questionnaires or interviews, which have limited samples and lags. Generative AI, combined with big data technology, provides the possibility for holographic perception of students' ideological dynamics.

#### **3.1.1. Fusion Analysis of Multi-Source Heterogeneous Data**

Under the premise of compliance and privacy protection, AI systems can integrate unstructured data such as text comments, search behaviors, and reading preferences of students in online communities, as well as structured data from campus life. Using Natural Language Processing (NLP) technology, sentiment analysis, topic clustering, and semantic mining are performed on massive texts to perceive implicit ideological tendencies and value confusion from explicit behavioral trajectories [3].

#### **3.1.2. Real-Time Construction of Dynamic Ideological Profiles**

Based on deep learning models, the system can construct instantly updated student group profiles and individual profiles. Such profiles are no longer a pile of static tags (such as "freshman," "science and engineering male") but three-dimensional models containing dynamic features like "postgraduate entrance exam anxiety period," "concern for international situations," and "preference for ACG (Anime,

Comic and Games) expression." This provides a scientific data foundation for the subsequent "on-demand supply" of content, solving the problem of "supply-demand mismatch."

### **3.2. Collaborative Creation Mechanism: Creative Emergence of Human-Machine Coupling**

This is the core link of content production, embodying the deep collaboration between the "human brain" and the "intelligent brain."

#### **3.2.1. Creative Divergence and Material Reorganization**

In the topic planning stage, AI, relying on its vast knowledge base, can quickly provide multi-dimensional topic perspectives, title schemes, and material clues. For example, during "Red Spirit" publicity, AI can instantly retrieve relevant red figures and historical events from school history and associate them with current social hot spots, providing teachers with creative combinations that transcend conventional thinking and break mindset fixations.

#### **3.2.2. Automated Generation of Multi-Modal Content**

The greatest advantage of generative AI lies in cross-modal conversion. Teachers only need to input core viewpoints or text scripts, and AI can assist in generating vivid posters, comic strips, H5 pages, and even short video scripts and storyboards. The emergence of video large models like Sora has made "text-to-video" a reality. This endowment greatly lowers the threshold for producing high-quality multimedia content, solving the pain point of ideological and political teachers who "have ideas but lack technology, have content but lack form" [4].

#### **3.2.3. Value Embedding and Human-Machine Iteration**

This is the key that distinguishes it from ordinary content production. After AI generates the first draft, the teacher intervenes as a "value gatekeeper" to review the content for political correctness, theoretical depth, and logic. Through multiple rounds of "Prompt" adjustments and corrections, teachers inject socialist core values and the Party's latest theoretical achievements into the AI's generation logic. Through the iterative cycle of "generation—review—correction—regeneration," it ensures that the final output has both "internet sense" and "quality."

### **3.3. Smart Dissemination Mechanism: The Game Balance Between Algorithmic Recommendation and Value Guidance**

Good content needs effective dissemination channels to reach students.

#### **3.3.1. Scenario-Based Precision Distribution**

Based on user profiles, AI algorithms can achieve personalized content distribution. For students who prefer theory, deep analytical articles are pushed; for visual learners, micro-videos or animations are pushed. Simultaneously, AI can perform instant pushing of micro-content during fragmented time based on students' time patterns, achieving full-time and full-domain coverage.

#### **3.3.2. Strategic Intervention to Break "Information Cocoons"**

Addressing the layer solidification potentially caused by algorithmic recommendation, ideological and political AI should have a built-in "value weighting" mechanism. While satisfying students' personalized interests, it forcibly or strategically inserts expansive, guiding, and corrective

ideological and political content, guiding students to step out of their comfort zones and contact diverse and correct viewpoints, achieving a dynamic balance between "catering to interests" and "value guidance."

### **3.4. Dynamic Feedback Mechanism: Data-Driven Self-Evolution**

Content publication is not the end, but the starting point for a new round of optimization.

#### **3.4.1. Full-Link Effect Tracking**

Use AI technology to conduct real-time monitoring and quantitative evaluation of the dissemination path, reading completion rate, and interactive emotional tendency (positive or negative sentiment of likes, comments, bullet screens) of published content.

#### **3.4.2. Attribution Analysis and Strategic Iteration**

AI can not only tell us "which content is popular" but also explain "why it is popular" through attribution analysis. Is the title attractive? Is the emotional resonance strong? Or is the form novel? Based on these insights, the system automatically adjusts the content generation templates and distribution strategies for the next stage, promoting the data-driven self-evolution and spiral ascent of online ideological and political content production.

## **4. Practical Paths: Action Strategies for Generative AI Empowering University Online Ideological and Political Education**

From theoretical logic to practical implementation, a systematic action plan is needed. Universities should focus on the construction of vertical domain models, the optimization of human-machine interaction paradigms, and the creation of immersive ecologies.

### **4.1. Foundation: Building a Vertical "Ideological and Political Large Model" and Exclusive Knowledge Base**

Although general commercial large models (such as GPT-4, ERNIE Bot) have extensive knowledge, they often have understanding biases, factual errors, or "machine hallucinations" when dealing with specific political theories, Party history and building, and ideological and political content with specific school characteristics. Therefore, building a dedicated model for the vertical domain is a fundamental project.

#### **4.1.1. Cleaning and Construction of High-Quality Corpus**

Data is the fuel for AI. Universities should organize experts from the School of Marxism and technical teams to systematically sort out the classic works, important documents, and authoritative interpretations of Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the Theory of Three Represents, the Scientific Outlook on Development, and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, as well as historical materials of Party history, New China history, reform and opening-up history, and socialist development history. At the same time, school-based resources such as school development history, school motto spirit, and outstanding alumni deeds should be included. Structured and standardized cleaning of this data will establish an authoritative, accurate,

and pure exclusive corpus for ideological and political education [5].

#### **4.1.2. Fine-Tuning and Alignment of Large Models**

Using the exclusive corpus, open-source large models undergo Supervised Fine-Tuning (SFT) to master the specialized terminology, logical paradigms, and value orientations of ideological and political education. Introducing the "Reinforcement Learning from Human Feedback" (RLHF) mechanism, excellent ideological and political teachers are organized to score and rank the model's generated results. Through manual feedback, the model's values are continuously calibrated to ensure that its output conforms more to mainstream ideological requirements, reducing the probability of nonsense generation.

#### **4.1.3. Retrieval-Augmented Generation (RAG) of Knowledge Graphs**

To solve the problem of lagging knowledge updates in large models, Retrieval-Augmented Generation (RAG) technology can be adopted. Real-time updated current affairs and policy document libraries are mounted on the periphery of the large model. When AI generates content, it first retrieves relevant information from the authoritative knowledge base and then combines model capabilities for generation. This ensures both the innovation of content and the accuracy and timeliness of citations.

### **4.2. Empowerment: Promoting "Prompt Engineering" and Enhancing Teachers' Digital Literacy**

In the intelligent age, the ability to "ask" is more important than the ability to "answer." If teachers do not master the skills of conversing with AI, they cannot awaken the dormant computing power.

#### **4.2.1. R&D of Ideological and Political "Prompt" Library**

Universities should organize forces to develop a set of standardized and modular prompt libraries suitable for online ideological and political scenarios. For example, for "theoretical interpretation" scenarios, design interaction templates of "analogical explanation + case evidence + golden sentence refinement"; for "psychological counseling" scenarios, design interaction templates of "empathic listening + rational analysis + action suggestions." Instrumentalizing these verified efficient prompts lowers the threshold for ordinary teachers to use AI.

#### **4.2.2. Conducting Practical Training on Human-Machine Collaboration**

Incorporate digital literacy into the construction system of the ideological and political teaching staff. Regularly hold "AI + Ideological and Political Education" workshops to train not only the operational layer of technology but also the thinking layer. Guide teachers to transform from "content manufacturers" to "human-machine interaction designers" and "learning flow experience architects." Through practical drills, teachers learn at what stage to use AI, how to screen AI-generated information, and how to inject personal style into AI works, thereby truly mastering technology [6].

### **4.3. Reshaping: Creating a Multi-Modal, Immersive Smart Ideological and Political New Ecology**

Utilize the multi-modal capabilities of generative AI to

promote the transformation of ideological and political content from planar and static to three-dimensional and immersive.

#### **4.3.1. Digital Restoration of Historical Scenes and Cross-Time Dialogue**

Use video and image generation models like Sora and Midjourney to transform abstract Party history texts into concrete visual scenes. For example, restoring the scene of the Red Boat on South Lake during the First CPC National Congress or the difficult environment of the snowy mountains during the Long March. Furthermore, virtual digital humans based on large models can be developed to allow students to have real-time cross-time dialogues with "Digital Marx" or "Digital Li Dazhao," making historical figures "come alive," enhancing the sense of presence and immersion in history, and achieving immersive education.

#### **4.3.2. Accompanying Guidance of Personalized "AI Ideological and Political Tutors"**

Develop a "24-hour online" AI ideological and political agent. Unlike simple Q&A robots, it possesses long-term memory and affective computing capabilities. It can provide customized theoretical study plans, career planning advice, and psychological and emotional support based on students' growth trajectories. When students encounter ideological confusion, it can provide heuristic guidance like a close friend, becoming an important extension of "Three-Wide Education" (comprehensive education) in cyberspace [7].

#### **4.3.3. Creation of Interactive Storytelling Works**

Encourage teachers and students to use AI to assist in creating interactive novels, RPG game scripts, or "script kill" (LARP) plots with red themes. Students are not only consumers of content but also co-creators. In the process of weaving stories together with AI, students need to actively consult historical materials, think about logic, and deduce endings. This participatory and experiential learning process often has a deeper educational effect than passive indoctrination.

## **5. Ethical Scrutiny and Risk Governance: Building a Safety Valve for "Tech for Good"**

Generative AI is a "double-edged sword." While embracing technological change, we must maintain a clear ethical consciousness and build a rigorous full-chain risk governance system to ensure the political security and technological ethics of online ideological and political education.

### **5.1. Governance of "Black Box" Risks in Ideological Security**

The "algorithmic black box" characteristic of generative AI makes its generated content uninterpretable and random. If the training data contains implicit Western ideological biases or historical nihilistic views, the model may generate misleading content.

Governance Strategy:

Principles of "Party managing data" and "Party managing algorithms" must be adhered to.

First, establish a "whitelist" system. Strictly screen sources of pre-training data to ensure the political correctness of input data.

Second, implement a "human-machine dual review" mechanism. All AI-generated content released to students,

especially in sensitive areas such as political theory and historical evaluation, must undergo strict manual review by professional teachers. "Authors are responsible for their texts," and the final right of release must never be handed over directly to algorithms.

Third, strengthen Red Teaming. Before the model goes online, specialized teams should be organized to conduct offensive questioning and inducement tests to uncover the model's security vulnerabilities and ethical blind spots for timely repair and reinforcement.

### **5.2. Governance of Privacy Leakage and Data Abuse Risks**

The process of constructing precise profiles involves a large amount of students' personal privacy data. Once data leakage occurs, it not only infringes on students' rights and interests but may also trigger campus public opinion crises.

Governance Strategy:

First, strictly follow the principle of minimum necessity. Collect only data strongly related to ideological and political education and avoid excessive collection of sensitive information such as biometric features.

Second, data desensitization and graded management. Strictly comply with the Data Security Law and the Personal Information Protection Law, anonymize student data, and implement graded and classified authorization management.

Third, promote privatized deployment. Encourage universities with conditions to establish private cloud platforms and run ideological and political large models within the campus LAN environment to avoid uploading sensitive data to overseas or uncontrollable public large model platforms, ensuring data sovereignty and security [8].

### **5.3. Governance of Risks in the Dissolution of Human Subjectivity**

Over-reliance on AI may lead to thinking inertia among teachers and students, weakening critical thinking and moral judgment, creating "technological dependence."

Governance Strategy:

First, establish the ethical norm of "human leading, technology assisting." Explicitly state at the institutional level that AI can only serve as an auxiliary tool and cannot replace human emotional communication and value judgment. In assessment and evaluation, reduce the weight of pure quantity and increase the weight of interaction depth and content thoughtfulness.

Second, carry out algorithmic literacy education. Teach students not only how to use AI but also how to understand AI. Guide students to recognize the nature, limitations, and biases of algorithms, encourage them to maintain a prudent and skeptical attitude towards AI-generated content, actively step out of the comfort zone of algorithmic recommendation, and cultivate "immunity" in independent thinking and value judgment [9].

## **6. Conclusion**

Moving from instrumental rationality to value symbiosis is the only way for the transformation of content production in university Internet ideological and political education in the era of generative AI. This is not only a technological upgrade but also a profound revolution in educational philosophy.

Generative AI, with its powerful productivity and interactivity, provides a strong grasp for university online

ideological and political education to solve "supply-side" problems and achieve precision and personalization. However, technology is never neutral; its use carries a distinct value orientation. We must fully utilize the liberation of productivity brought by AI technology to achieve the immense enrichment and precise reach of ideological and political education resources; at the same time, we must always be vigilant against the overstepping of technology and uphold the subject status of humans and the value background of ideological and political education.

Looking to the future, with the further development of Artificial General Intelligence (AGI), university Internet ideological and political education will enter a smarter, more open, and integrated new stage. By constructing a new content production ecology of "data-driven, human-machine collaboration, and value symbiosis," we are confident in making ideological and political education shine more brilliantly in the digital age, truly achieving the effect of "fostering character and civic virtue" silently and moistening things, and cultivating newcomers of the era capable of shouldering the heavy responsibility of national rejuvenation.

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