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Research on Optimization Paths for Ideological and Political Course Classroom Interaction in Universities Under the Empowerment of Digital Intelligence

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ABSTRACT

The contemporary era is defined by the rapid advancement of digital intelligence, a transformative force reshaping the landscape of higher education. Ideological and Political (I&P) courses in China, as a crucial component of cultivating socialist builders and successors, face both unprecedented opportunities and significant challenges in this new context. The traditional, one-way model of teaching, characterized by teacher-centered instruction and student passivity, is proving increasingly ineffective in engaging the digital-native generation. This paper posits that the "digital intelligence empowerment" paradigm offers a fundamental solution to the optimization of I&P course classroom interaction. Through a systematic analysis, this study first deconstructs the current dilemmas in I&P course interaction, identifying generational, institutional, and pedagogical barriers. Subsequently, it explores the multi-faceted ways in which digital intelligence technologies—such as big data analytics, artificial intelligence (AI), and extended reality (XR)—can empower this interactive process. The core of this paper proposes a "Three-Dimensional Empowerment Model" for optimizing classroom interaction, focusing on intelligent infrastructure, pedagogical innovation, and institutional support. It details three critical implementation paths: creating an immersive interactive atmosphere through XR to foster emotional resonance; fostering collaborative learning using AI-driven platforms; and achieving personalized guidance through big data analytics. Finally, the study outlines corresponding countermeasures, including strengthening teacher digital literacy and ensuring ethical data use, to ensure the successful implementation of these paths. The ultimate goal is to transform I&P course classrooms into dynamic ecosystems of critical thinking and deep-seated value internalization.

KEYWORDS

Digital intelligence empowerment; Ideological and political course; Classroom interaction; Optimization path; Higher education; Big data; Artificial intelligence

1 Introduction

The 21st century is an era of profound digital transformation. The fusion of information technology, big data, artificial intelligence, and other emerging technologies—collectively termed "digital intelligence"—is not merely a technological evolution but a paradigm shift impacting socio-economic structures and the way humans learn. As the cradle of cultivating high-quality talents, higher education stands at the forefront of this revolution. The traditional educational model, relatively static for decades, is increasingly unable to meet the diverse, dynamic learning needs of "digital natives"—students accustomed to rapid information exchange, interactive experiences, and personalized learning. Consequently, the traditional teacher-centered, single-directional instructional model faces a crisis of relevance, a challenge acutely felt in teaching Ideological and Political (I&P) courses in China's universities.

I&P courses occupy a strategic position in China's higher education system. They are the primary channel for implementing the fundamental task of fostering virtue through education, systematically shaping students' worldviews, values, and political consciousness. Their effectiveness lies not in simple knowledge transmission but in the deep internalization of core socialist values and the ability to apply these principles to solve real-world problems. This objective places a premium on high-quality classroom interaction, which acts as a catalyst for transforming passive learning into active critical thinking and emotional resonance.

However, the reality of I&P course classroom interaction is often suboptimal. Teachers frequently confront student apathy or silence, while students perceive courses as "out of touch" and formulaic. This dilemma stems from a generational gap, rigid institutional frameworks, and a pedagogical tradition prioritizing content coverage over interactive processes. These issues directly undermine the core mission of I&P education.

In this context, "digital intelligence empowerment" emerges as a powerful solution. Digital intelligence offers a holistic ecosystem of technologies that can redefine the learning experience. Big data provides insights into student learning behaviors; AI facilitates personalized tutoring; and XR creates immersive, experiential learning environments. By integrating these technologies, I&P courses can overcome traditional limitations, empowering interaction at pedagogical,

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relational, and evaluative levels.

Therefore, this study aims to investigate the optimization paths for I&P course classroom interaction under digital intelligence empowerment. It addresses four key questions: What are the current dilemmas in I&P interaction? How can digital technologies empower this interaction? What is a feasible optimization framework and implementation paths? And what countermeasures are needed for success? This paper adopts a qualitative methodology, including literature review and theoretical modeling, to provide actionable insights for creating more effective and engaging I&P education in the digital age.

2 The Dilemma of Classroom Interaction in University Ideological and Political Courses

The traditional model of I&P course classroom interaction is increasingly failing, a complex dilemma rooted in generational, pedagogical, and institutional factors.

2.1 Generational and Cognitive Barriers: The "Digital Gap"

A primary barrier is the generational gap between instructors and students. Today's university students, Gen Z, are "digital natives" fluent in interactive, multimedia content and non-linear thinking. In contrast, many instructors, "digital immigrants," may be less adept at integrating advanced technologies, relying on traditional lectures. This "digital gap" creates a fundamental disconnect. A 90-minute static lecture fails to engage students accustomed to dynamic digital experiences, rendering the I&P course feel like an "analog" artifact in a "digital" world, leading to disengagement.

2.2 Pedagogical and Content-Related Barriers: "Theory-Practice Disjunction"

Many I&P courses prioritize theoretical knowledge delivery over interactive learning. Packed curricula leave little room for open-ended discussion or critical analysis. Interaction is often superficial Q&A to confirm understanding, not challenge it. This creates a "theory-practice disjunction," where abstract theories like Marxism or socialist core values are presented as timeless truths without clear links to students' lives or complex social issues. Without this practical relevance, the content loses persuasive power, stifling genuine curiosity and value-based interaction.

2.3 Institutional and Environmental Barriers: "Constrained Innovation"

The institutional environment can hinder innovation. Rigid, exam-oriented assessment systems discourage risk-taking and innovative teaching methods, as instructors fear untested strategies will impact student performance. A lack of sustained, high-quality faculty training on digital pedagogy is another issue; providing tools is insufficient without pedagogical support on using them to facilitate interaction. Furthermore, traditional classroom layouts with fixed rows reinforce a passive, teacher-centered model, making it difficult to arrange students for collaborative activities.

In summary, the dilemma is a "syndrome" from interwoven challenges. Recognizing this multi-dimensional problem is the first step toward a solution, which digital intelligence empowerment is poised to provide.

3 Digital Intelligence Empowerment: A Theoretical and Technological Framework

Digital intelligence empowerment is a holistic reimagining of the educational ecosystem, leveraging synergistic technologies to overcome interactive dilemmas.

3.1 The Core Technologies of Digital Intelligence

Big Data Analytics: This involves analyzing in-process learning data (time spent on readings, forum participation, quiz scores) to uncover patterns and provide insights. For I&P courses, this could mean analyzing student sentiment in discussions to gauge engagement.

Artificial Intelligence (AI): AI acts as the "brain" interpreting data. Key applications include AI teaching assistants for 24/7 Q&A, automated feedback on assignments, intelligent content recommendation, and AI-driven simulations for policy debates or ethical dilemmas.

Extended Reality (XR): XR, including Virtual (VR) and Augmented Reality (AR), creates immersive experiences. VR can transport students to historical sites or model villages, fostering emotional resonance. AR can overlay data onto real-world images, making abstract concepts like ecological civilization concrete.

Cloud Computing: This provides the ubiquitous infrastructure for integrating tools, facilitating a "flipped classroom"

model where students access materials online before engaging in high-level activities in class.

3.2 The Synergistic Effect

The true power lies in the integration of these technologies. A cohesive I&P course might use an AI platform for pre-class reading, XR for an immersive historical exploration, cloud-based tools for group work, and AI for providing feedback. This integrated approach transforms the classroom into a dynamic "smart learning space," where technology and pedagogy work in harmony to achieve educational goals.

4 A "Three-Dimensional Empowerment Model" and Specific Optimization Paths

This section proposes a "Three-Dimensional Empowerment Model" and three key implementation paths for optimizing I&P course interaction.

4.1 The "Three-Dimensional Empowerment Model"

This model optimizes interaction through three synergistic dimensions:

Dimension 1: Empowering the Pedagogical Process (Technology-Enhanced Delivery): Shifting from static lectures to dynamic, multi-sensory experiences using XR, videos, and interactive presentations.

Dimension 2: Empowering the Learning Relationship (Collaborative and Interactive Ecosystem): Facilitating meaningful student-student and student-teacher collaboration via cloud platforms, online forums, and AI-driven simulations.

Dimension 3: Empowering Educational Evaluation (Data-Driven Formative Assessment): Moving from one-time exams to continuous, data-driven feedback loops using big data analytics to understand student progress and provide personalized guidance.

4.2 Specific Implementation Paths

Path 1: Immersive Interaction via XR to Foster Emotional Resonance

Utilizing XR to create immersive scenarios can transform passive learning into active experience. For a lesson on the "Great Spirit of the Long March," instead of a lecture, students can use VR to "walk" a virtual replica of the route, experiencing the harsh conditions firsthand. In a course on ecological civilization, AR can allow students to point their devices at a campus tree and see visualizations of its carbon footprint and ecological impact. This experiential learning creates powerful emotional and cognitive anchors, making abstract values tangible and fostering genuine belief.

Path 2: Collaborative Interaction via AI-Driven Scenarios

AI can facilitate complex collaborative tasks. For a course on "Rule of Law," students can be divided into groups and assigned roles in an AI-driven virtual trial simulation. Each student represents a different party (prosecutor, defense, judge), and an AI engine simulates the trial's progression based on their arguments and evidence. This platform allows for deep exploration of legal principles and ethical dilemmas in a safe, repeatable environment. An AI teaching assistant can monitor the simulations, identifying key arguments and prompting reflection, fostering critical thinking and collaborative problem-solving.

Path 3: Personalized Interaction via Big Data Analytics

Big data enables a shift from a one-size-fits-all approach to personalized education. By analyzing student performance on quizzes, participation in forums, and time spent on resources, the system can identify individual strengths and weaknesses. For example, if the data shows a student consistently struggles to connect Marxist theory to modern economic issues, the system can recommend specific supplementary articles, video documentaries, or case studies tailored to that student. The instructor can then use these insights to form small groups for targeted support, ensuring no student is left behind and that every learner's needs are met with precision.

5 Countermeasures for the Implementation of Optimization Paths

To ensure the successful and sustainable implementation of these paths, a multi-pronged approach involving supportive countermeasures is essential.

5.1 Cultivating a New Generation of Digitally Literate Teachers

Teachers are the cornerstone of successful educational transformation. Universities must invest heavily in faculty

development. This goes beyond basic technical training to cultivate "digital-pedagogical literacy." Faculty should be trained not only on how to use the technology but, more importantly, on why and when to use it to enhance specific pedagogical goals in I&P education. This includes workshops, collaborative teaching communities, and incentives for innovative digital course design.

5.2 Building a Supportive Institutional Ecosystem

Institutional leaders must champion this transformation. This involves revising rigid assessment systems to recognize and reward innovative teaching methods. It requires allocating dedicated budgets for both hardware (VR headsets, smart classrooms) and software development, as well as for faculty training. Furthermore, universities should establish interdisciplinary centers for educational technology that can support faculty, develop high-quality, discipline-specific digital content, and stay at the forefront of pedagogical innovation.

5.3 Ensuring Data Security and Ethical Governance

The use of big data and AI in education raises significant ethical concerns. It is paramount to establish a robust framework for data security, privacy protection, and ethical use. Data collected from students must be anonymized and used strictly for educational purposes. Students must be informed about what data is being collected and how it is being used, and their consent must be obtained. Transparency and ethical governance are crucial to building trust and ensuring that technology is used to empower students, not to surveil or control them.

6 Conclusion and Outlook

In conclusion, the traditional interaction model in university I&P courses is ill-suited for the demands of the digital age. The "digital intelligence empowerment" paradigm, however, offers a powerful and comprehensive solution. By systematically applying a "Three-Dimensional Empowerment Model" centered on technological infrastructure, pedagogical innovation, and institutional support, it is possible to overcome the existing dilemmas. The specific implementation paths of immersive XR experiences, AI-driven collaborative scenarios, and data-driven personalized guidance provide a clear roadmap for transforming the I&P classroom from a space of passive reception into a dynamic ecosystem of critical thinking, collaborative inquiry, and deep-seated value internalization.

The journey toward digital empowerment is not without its challenges. It requires a concerted effort to cultivate digitally literate teachers, build supportive institutional ecosystems, and uphold the highest standards of data ethics. The potential rewards, however, are immense. By harnessing the power of digital intelligence, we can ensure that I&P courses remain relevant, engaging, and profoundly effective in their mission of fostering the next generation of socialist builders and successors who are not only knowledgeable but also critical, creative, and deeply committed to core socialist values. This research provides a foundational framework, but continuous exploration, experimentation, and refinement will be necessary as technology continues to evolve and shape the future of education.

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