Journal of Contemporary Educational Research, 2026, Volume 10, Issue 5
http://ojs.bbwpublisher.com/index.php/JCER
Online ISSN: 2208-8474
Print ISSN: 2208-8466

Research on the Challenges and Optimization Strategies of Artificial Intelligence Enabling Ideological and Political Education in Universities

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Abstract: With the extensive application of artificial intelligence (AI) technology in education, the traditional ideological and political education (IPE) model dominated by classroom lectures and one-way indoctrination is transforming toward digitalization, intelligence, and personalization. AI not only provides new technical tools and carriers for IPE, but also promotes systematic reforms in educational concepts, teaching methods, and talent cultivation mechanisms. Currently, both academic circles and university practices have recognized the important value of AI-enabled IPE. However, in the process of technology implementation, there still exist problems such as overemphasis on technology over education, form over connotation, and efficiency over ethics. An in-depth analysis of the inherent significance of AI-enabled IPE in universities, a systematic review of practical dilemmas, and an exploration of scientific and feasible optimization paths are of great significance for promoting the integrity and innovation of IPE in colleges and universities.

Keywords: Artificial intelligence; Ideological and political education in universities; Value guidance; Optimization strategies

Online publication: June 9, 2026

1. Significance of artificial intelligence enabling ideological and political education for college students

1.1. Innovating the education model to enhance the attractiveness and appeal of IPE

Traditional ideological and political education (IPE) relies on offline classrooms and theoretical lectures, featuring single content presentation, poor interaction, and low student participation, which easily lead to passive acceptance or even resistance among students. Supported by virtual reality (VR), augmented reality (AR), scenario simulation, and other technologies, artificial intelligence (AI) can transform abstract IPE theories into concrete and immersive teaching environments, allowing students to experience historical

events, feel the spirit of the times and practice values in virtual scenarios, thus realizing the shift from "passive listening" to "active participation" [1]. Meanwhile, intelligent teaching platforms, short video push, interactive courseware, and other forms in line with college students' information reception habits can reduce the dullness of theoretical learning, enhance the interest and communication power of IPE, and make mainstream values more easily accepted and recognized by young students.

1.2. Realizing precise education to strengthen the pertinence and effectiveness of IPE

College students are ideologically active and distinctive, with great differences in value cognition, psychological state, and behavioral habits. The traditional unified and standardized IPE can no longer meet the needs of personalized education. Based on big data collection and analysis technology, AI can integrate and process data on students' classroom behaviors, online behaviors, learning trajectories, and emotional expressions, accurately identify students' ideological confusion, value tendencies, and psychological needs, and form a portrait of students' ideological dynamics [2,3]. On this basis, intelligent systems can realize personalized push of educational content, intelligent planning of learning paths, and instant response to questions and answers, transforming IPE from "flood irrigation" to "precision drip irrigation." It truly adapts to circumstances, advances with the times, and innovates according to situations, solving practical problems in students' ideology and life and improving the effectiveness of education.

2. Practical challenges of artificial intelligence enabling IPE in universities

2.1. Obvious technological instrumentalism and weakened core status of value guidance

AI is essentially a technology serving educational purposes rather than education itself. However, in the practice of some universities, there is a serious tendency of valuing technology over education, regarding the application of intelligent equipment and the construction of online platforms as IPE innovation. They overemphasize the novelty of technical forms while ignoring the fundamental task of value guidance in IPE. Some intelligent IPE courses simply digitize traditional teaching plans without in-depth exploration and value interpretation of theoretical connotations. Some algorithm pushes only focus on students' click-through rates and entertainment needs, weakening ideal and belief education, patriotism education, and other important contents, making IPE a mere formality and failing to achieve the fundamental goal of cultivating morality and shaping souls.

2.2. Prominent data security and ethical risks and obvious hidden dangers to students' rights and interests

The support of AI for IPE lies in the massive collection and use of student data, including personal information, behavioral trajectories, ideological remarks, and psychological status. There are security risks such as data leakage, abuse, and illegal transactions in the process of data collection, storage, analysis, and use. Once information leakage occurs, it will seriously infringe on students' privacy and personality rights. In addition, some universities have not established a complete database ethics system, resulting in over-collection, secret monitoring, algorithmic bias, and other phenomena violating educational equity and humanization [4]. The anonymity and openness of intelligent technology also lead to the rapid spread of false information and harmful content through algorithms, increasing the difficulty of ethical governance in IPE.

2.3. Insufficient Teachers' intelligent literacy and unformed human-machine collaborative education mechanisms

The application of AI puts forward new requirements for the competence of college IPE teachers. In addition to a solid theoretical foundation of IPE, they also need comprehensive abilities such as intelligent technology operation, data interpretation, and platform operation and maintenance. However, at present, some IPE teachers in universities have weak technical application ability and insufficient digital literacy, with only a superficial understanding of AI technology, and cannot effectively use intelligent tools for teaching design, ideological guidance, and academic situation analysis. The human-machine collaborative education mechanism has not yet been established. Some teachers over-rely on intelligent systems and lack emotional communication and humanistic care, while others reject intelligent technology and refuse to innovate teaching models, resulting in the failure to give full play to technical advantages and form a joint educational force between humans and machines.

3. Optimization strategies for artificial intelligence enabling IPE in universities

3.1. Adhering to the fundamental task of fostering morality and talent and clarifying the value orientation of technology empowerment

Fostering morality and talent is the central task of IPE in universities and the fundamental basis for AI applications. In practice, core IPE elements such as socialist core values, patriotism, and humanistic quality should be embedded into the underlying design of AI applications, making technology a carrier for transmitting mainstream values and cultivating correct outlooks on life, world, and values. When building virtual simulation IPE scenarios, red culture and revolutionary history should be taken as the main content, allowing students to experience the original aspiration and mission in an immersive experience rather than only pursuing technical fun. When pushing intelligent teaching resources, cases, and materials with mainstream value orientation should be selected first to avoid the spread of vulgar and fragmented content. Meanwhile, the auxiliary positioning of AI should be defined, adhering to the dominant position of teachers in value guidance, preventing technological alienation from turning IPE into a technology show, ensuring that technology empowerment always centers on the core orientation of education-oriented and morality-first. AI should truly become a strong support for deepening IPE and fulfilling the fundamental task of fostering morality and talent, realizing the organic unity of instrumental rationality and value rationality [5]. In addition, value orientation should be integrated into the research and development and review of AI IPE products, and a mechanism for IPE experts to participate should be established to ensure that every technical application meets the core requirements of IPE and gives full play to the educational value of technology.

3.2. Standardizing algorithm application logic and constructing an algorithm ethics review mechanism

At present, AI-enabled IPE in some universities still has problems such as unclear algorithm logic and a lack of ethical constraints. The one-sided cognitive solidification effect and "information cocoons" caused by algorithm recommendation, as well as the bias hidden in algorithm design affecting educational equity, and the deviation of content push from mainstream value orientation, occur from time to time, which must be improved through systems. In accordance with the *Measures for the Ethical Review and Services of Artificial Intelligence Science and Technology (for Trial Implementation)*, universities should establish a collaborative

governance pattern of "entity responsibility, professional support and departmental supervision," set up an AI ethics committee composed of IPE teachers, legal experts, technicians and student representatives, and define the subject, process and standards of algorithm ethics review [6,7]. In algorithm research and development, the design ideas should be strictly reviewed, focusing on identifying value bias and discriminatory content to ensure that algorithms follow the value orientation of IPE. During algorithm operation, a dynamic monitoring and correction mechanism should be established to regularly evaluate algorithm operation and adjust algorithm bias in a timely manner to prevent "information cocoons" from limiting students' cognitive scope. Meanwhile, an algorithm filing system should be implemented, requiring algorithm developers to provide core codes and training data samples to make algorithm decisions interpretable and traceable, clarify the division of responsibilities among algorithm developers, users and managers, order rectification or suspension of systems with serious algorithm bias or value deviation, build a solid line of defense for algorithm ethics, and keep algorithms serving the positive empowerment of IPE.

3.3. Strengthening data security governance and improving the ethical risk prevention and control system

The process of AI-enabled IPE is essentially the process of data collection, analysis and application. Data security and ethical risk prevention and control are the bottom line to ensure the healthy application of technology. It is necessary to strengthen data security governance and establish an all-round and whole-process ethical risk prevention and control system. Therefore, universities should establish a sound data security management system in strict accordance with the *Cybersecurity Law*, *Data Security Law*, *Personal Information Protection Law*, and other laws and regulations, standardizing the whole process of data collection, storage, use, and destruction [8]. Data collection should follow the principles of legality, legitimacy, and necessity, define the scope and purpose of collection, and not collect sensitive information irrelevant to IPE. Required collection should obtain students' written consent and inform the period of use. For data storage, advanced encryption technology should be used to build a safe and reliable storage platform, and data backup and emergency recovery plans should be formulated to prevent data leakage and loss. In data use, hierarchical and classified management regulations should be strictly followed, permission control should be implemented, and unauthorized sharing and abuse of student data are strictly prohibited. Means such as federated learning and differential privacy should be adopted to achieve the goal of "data available but not visible" and protect students' privacy. Improve the ethical risk early warning and disposal mechanism, establish a normalized risk investigation mechanism to timely detect data security and ethical risks, formulate emergency disposal plans, respond quickly and properly handle sudden data security events, protect students' legitimate rights and interests, and build a safe and compliant environment for AI-driven IPE.

3.4. Improving teachers' digital literacy and perfecting the human-machine collaborative education model

Teachers are the main undertakers of IPE in universities and direct participants in AI-enabled IPE. Therefore, it is necessary to improve teachers' digital literacy and build a new model of human-machine collaborative education. The cultivation of teachers' digital literacy should be integrated into the top-level design of talent training. Guided by *Teachers' Digital Literacy*, a connected training system linking pre-service education, induction education, and continuing education should be established, focusing on key modules such as digital technology foundation, digital processing of IPE resources, intelligent analysis of academic situations, and

algorithm ethical judgment, so as to enhance teachers' ability to implement IPE teaching with AI. Guide teachers to transform from knowledge transmitters to value leaders and digital learning instructors, actively explore new ways, models, and methods for the integration of AI and IPE teaching, and create immersive teaching environments built by virtual simulation technology, students' ideological trends grasped by big data analysis, and personalized teaching resources pushed by intelligent recommendation systems. In addition, improve the human-machine collaborative education mechanism, define the division of responsibilities between teachers and AI, let AI undertake data processing, resource integration, efficient response, and other work, and teachers undertake value guidance, emotional nourishment, thinking shaping, and other work, strengthen teacher-student interaction and communication, and avoid technology weakening the emotional connection between teachers and students [9]. Meanwhile, establish a normalized communication mechanism between IPE teachers and technicians, improve the digital literacy assessment and incentive system, provide key support to teachers who have achieved results in digital teaching reform, mobilize teachers' enthusiasm to improve digital literacy and innovate teaching models, and form a new pattern of IPE with human-machine collaboration and complementary advantages.

3.5. Innovating scene integration paths and reshaping a personalized IPE ecology

The key to AI-enabled IPE lies in breaking the time-space constraints and homogenization problems of traditional IPE teaching, innovating scene integration paths according to students' growth laws and cognitive characteristics, and building a personalized and diverse IPE ecology. Relying on AI technology, universities should break the shackles of single classroom teaching scenarios, promote the in-depth integration of IPE with campus life, social practice, career planning, and other scenarios, and integrate IPE elements into every link of students' daily study and life imperceptibly. Use AI to accurately analyze students' professional characteristics, hobbies, ideological dynamics, and growth needs, create personalized IPE learning portraits, and provide suitable IPE learning content and practical tasks for students of different majors, grades, and ideological levels, achieving precise education of "one policy for one person." For science and engineering students, push intelligent cases and virtual practice scenarios related to serving the country through science and technology and great country craftsmen; for liberal arts students, create characteristic modules such as immersive research of red culture and digital communication of traditional culture [10]. Meanwhile, use AI to build an online-offline linked IPE interaction platform, guide students to participate in IPE topic discussions, red works creation, public welfare practice check-in, and other activities, use intelligent evaluation systems to conduct all-round and whole-process evaluation of students' IPE performance, and provide timely feedback on improvement directions. Promote the in-depth integration of AI and IPE practical teaching, use virtual simulation technology to reproduce revolutionary scenes and social governance scenes, enable students to cultivate character and increase abilities in immersive experience, transform IPE from passive acceptance to active participation and from homogenized indoctrination to personalized cultivation, and enhance the attractiveness, appeal, and effectiveness of IPE.

4. Conclusion

As an important technical force driving educational reform, AI provides new opportunities and paths for the innovative development of IPE in universities, and is an important starting point for improving the quality of IPE and fulfilling the task of fostering morality and talent in the new era. However, technology

empowerment is not smooth sailing, and the integration of AI and IPE is accompanied by multiple challenges such as value risks and ethical dilemmas. Facing the development environment coexisting with opportunities and challenges, universities must always adhere to the fundamental task of fostering morality and talent, guide instrumental rationality with value rationality, avoid falling into the one-sided cognition of technology supremacy, give full play to the technical dividends of AI, and stick to the political, value, and humanistic attributes of IPE.

Disclosure statement

The author declares no conflict of interest.

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