

Strategic Research on the Path Optimization of Ideological and Political Education in Colleges and Universities Empowered by Artificial Intelligence

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Abstract

In recent years, artificial intelligence (AI) technology has experienced rapid development, witnessing the emergence of various cutting-edge tools represented by large language models such as Deepseek, Doubao, and ERNIE Bot. These technological breakthroughs have brought unprecedented opportunities to the concepts, methods, paths, and technical support of Ideological and Political Education (IPE) in colleges and universities. Against the backdrop of the Ministry of Education's "AI Empowers Education Initiative," this study aims to accelerate the digital transformation of education, enhance college teachers' digital teaching capabilities, and deepen the integration of digital technology with classroom teaching. By focusing on the core application scenarios of AI-enabled IPE, this research explores targeted optimization strategies for the development paths of AI-empowered IPE in higher education institutions, with the ultimate goal of improving the practical effectiveness of ideological and political education.

Keywords

Artificial intelligence; Ideological and political education in colleges and universities; Path optimization; Strategies

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1. Introduction

As a core driving force behind the new round of technological revolution and industrial transformation, artificial intelligence has exerted a profound impact on all aspects of human social life. For Ideological and Political Education (IPE) in colleges and universities, AI has unlocked a series of new opportunities, including enhancing teaching interaction and interestingness,

providing personalized learning experiences, and enabling precise teaching implementation and rational resource allocation. As a pivotal course for fostering virtue through education, IPE courses must proactively seize these opportunities to achieve innovative development.

On January 19, 2025, *Planning Outline for Building an Educational Power (2024–2035)*, which explicitly states the need to "promote AI to assist educational

reform.” Ministry of Education’s “AI Empowers Education Initiative,” this study explores the optimization strategies of AI-enabled IPE paths in colleges and universities, aiming to continuously improve the quality and effectiveness of ideological and political education.

2. Demand analysis for the path optimization of ideological and political education in colleges and universities

2.1. Demand for personalized classroom teaching

With the continuous progress of the times, the growth and learning environment of contemporary college students have undergone profound changes. They are characterized by active thinking and strong self-learning abilities, capable of selecting appropriate learning content and methods based on their own needs and interests. Meanwhile, they can adapt to diverse learning environments and conditions, demonstrating remarkable independent thinking skills. The rapid advancement of AI technology has further expanded the channels for college students to understand the world. The widespread popularity and application of new media platforms such as Weibo, Douyin, and Bilibili have significantly enhanced students’ sense of subjectivity and right to speak.

Moreover, each student is an independent individual with unique family backgrounds, growth experiences, and learning abilities, which determines that in addition to the commonalities shared by contemporary college students, there are significant individual differences and personalized needs among them ^[1]. Therefore, IPE teachers in colleges and universities should recognize these differences and promptly update their teaching strategies and methods to achieve personalized teaching tailored to individual students. However, the current IPE teaching in colleges and universities still faces several prominent problems. In terms of teaching models, large-class teaching is widely adopted, with classes often consisting of over a hundred students. For teachers, it is extremely challenging to implement personalized teaching and pay attention to the individual needs of each student under such circumstances. Regarding teaching content, most IPE courses are confined to textbook

knowledge, with insufficient integration of social hot topics and current political events, resulting in a lack of timeliness and vitality.

In terms of teaching methods, theoretical indoctrination remains the dominant approach, leading to a single and rigid teaching form. The combination of large-class teaching, limited teaching content, and monotonous teaching methods inevitably leads to the neglect of students’ individual differences as the main body of learning ^[2].

2.2. Demand for active classroom interaction

The “head-up rate” serves as a crucial indicator to measure the attractiveness, appeal, and impact of IPE courses. How to make each IPE class engaging enough to encourage students to “look up,” listen attentively, and actively ask questions is a question that every IPE teacher must deeply reflect on. In recent years, with the continuous reform of IPE teaching, corresponding rules and systems have been established, and the teaching staff has been expanded. As a result, students’ enthusiasm for attending classes, head-up rate, and participation have improved compared with the past. However, there are still obvious deficiencies in teacher-student interaction and classroom atmosphere.

One typical issue is the “scripture-reciting style” of teaching: some teachers simply read the courseware verbatim in class, avoiding students’ confusion and questions. In their view, as long as the basic teaching tasks are completed without teaching accidents, their work is done. The tedious content and flat, monotonous tone have led to a growing number of “phubbers” in IPE classes. Another problem is “performance-style” interaction: although it is commendable that IPE teaching has made many innovations in form, some of these innovations are ineffective. For example, some teachers pre-determine classroom themes, ask students to form groups freely after class to prepare presentations around the themes, and then devote most of the class time to student group displays and situational performances. This approach pushes students to the forefront while the teacher remains in the background. While this teaching form may help students conduct independent exploration and free thinking to a certain extent, it can easily make classroom teaching a mere formality if not properly controlled.

Additionally, the “cramming-style” indoctrination still persists: sometimes teachers speak passionately on the podium, while students remain indifferent, with no effective communication or interaction between them. Students’ participation is extremely low, and their initiative as the main body of learning is not fully mobilized, resulting in a negative classroom atmosphere and a significant reduction in the effectiveness of IPE.

2.3. Demand for diversified course evaluation

IPE teaching evaluation is not only an important means to implement national educational policies but also a key tool for teachers to understand teaching effects, adjust teaching strategies in a timely manner, and improve classroom teaching quality. For students, scientific and effective evaluation can not only assess their learning outcomes but also motivate them to actively participate in learning activities, fostering good learning habits and a positive learning attitude. The evaluation methods for teachers in college IPE courses are relatively diversified, mainly including student evaluation, peer evaluation, supervisor evaluation, and teacher self-evaluation.

As one of the main evaluation subjects, students usually conduct a comprehensive evaluation of teachers in terms of appearance, teaching demeanor, teaching content, teaching methods, language expression, and blackboard writing. Peer evaluation involves experts in the same field evaluating teachers’ teaching content, methods, classroom organization, and teaching effects through classroom observations. Supervisor evaluation refers to teaching supervisors conducting professional and comprehensive evaluations of teachers’ preparation of teaching content, application of teaching methods, and classroom management. These evaluation methods help teachers understand their strengths and weaknesses in teaching, obtain timely feedback and suggestions, and further improve their teaching level.

However, the current evaluation methods for students in some college IPE courses are relatively single, mainly adopting summative evaluation through final exams and course papers. This approach neglects the evaluation of intangible and difficult-to-quantify content such as students’ values and critical thinking abilities. In addition, the evaluation criteria are uniform for students of different grades and majors, lacking the evaluation of

students’ dynamic performance in the learning process and failing to reflect the particularity of IPE in “fostering virtue through education.”

3. Research on specific application scenarios and strategies of AI technology in the paths of college IPE

The paths of college IPE are diversified and require the integration of contemporary characteristics, student needs, and educational goals through multi-dimensional and multi-level forms. Currently, the main paths of college IPE include curriculum teaching, practical education, network and new media, campus cultural infiltration, and home-school collaborative education. In the AI era, how to innovatively apply new technologies and carriers to the diverse paths of college IPE, enhance the attractiveness of IPE courses, realize the transformation from “indoctrination” to “infiltration” and from “single-dimensional” to “three-dimensional,” and truly achieve the goal of fostering virtue through education is a critical issue that every college IPE practitioner must deeply explore.

3.1. Optimization of curriculum teaching paths

The establishment of personalized electronic student files is essential. Compared with traditional IPE, AI-empowered IPE in colleges and universities can establish “electronic student files” for each student based on their actual situation. In compliance with relevant regulations, multi-source data collection can be carried out, including learning behavior data, campus activity data, psychological and emotional data, etc. These data can be used to formulate personalized learning plans for each student, promoting the transformation of traditional large-scale undifferentiated IPE towards differentiated and personalized education, which is conducive to improving the pertinence and effectiveness of college IPE.

On top of that, an intelligent teaching platform should be built as AI-empowered IPE enables the co-construction and sharing of high-quality learning resources, providing convenient channels and platforms for teachers and students to access IPE resources. For example, teachers can upload high-quality courseware, learning materials, and excellent IPE courses to the

platform for students to download and learn anytime and anywhere. Meanwhile, with the help of the “AI Teaching Assistant” system, personalized course recommendations can be made based on the data in the “electronic student files,” ensuring that students can access learning resources that match their interests and learning needs. Students can also interact with teachers in real time through the intelligent teaching platform to discuss academic issues and solve learning puzzles.

By using virtual simulation technology to restore important historical events, social scenarios, and practical work scenes, students can be placed in an “immersive” learning environment to deeply understand and internalize IPE theories. This not only enhances the interestingness and interactivity of teaching but also helps students establish a more intuitive and profound understanding of abstract ideological and political theories, thereby improving the overall teaching effect^[3].

3.2. Optimization of practical education paths

The learning of college IPE is not only confined to the theoretical level but also emphasizes practical experience and internalization. AI-empowered practical education in college IPE can deeply integrate theoretical teaching with practical experience through advanced technical means, significantly enhancing students’ sense of participation, interaction, and value recognition. The optimization of practical education paths can be realized through data-driven personalized design:

- (1) Conduct behavior analysis and activity adaptation: by analyzing students’ daily practical behavior data, such as their decision-making in virtual scenarios, participation in offline social practice activities, and performance in group tasks, AI technology can accurately identify each student’s strengths, interests, and areas for improvement, and generate personalized practical tasks that match their characteristics;
- (2) Realize cross-regional collaborative practice through technical support: with the help of AI technology, students from different regions, universities, or majors can be matched to form cross-regional practical groups to jointly complete research projects or social practice tasks. AI can automatically integrate the data and

results generated during the practice process, assist in sorting out research ideas, and generate professional analysis reports, improving the efficiency and quality of collaborative practice;

- (3) Carry out virtual social practice when necessary: considering factors such as the large number of students, safety risks of off-campus activities, and limited practical resources, when it is impossible to organize on-site practical investigations, AI technology can be used to carry out virtual social practice activities. For example, create a virtual city scene to carry out red culture experience activities, such as the “Digital Long March” virtual practice project. By using virtual reality (VR) and augmented reality (AR) technologies, a highly immersive learning environment can be created, making students feel as if they are personally on the Long March, experiencing the arduous journey of the Red Army soldiers and deeply perceiving their revolutionary spirit and lofty beliefs^[4].

3.3. Optimization of network IPE paths

In the context of the widespread popularization of the internet, network IPE has become an important part of college IPE. AI technology can significantly enhance the attractiveness, precision, and effectiveness of network IPE through data analysis, personalized recommendation, and intelligent interaction. For instance:

- (1) Implement personalized content recommendation: by analyzing students’ online learning behaviors, such as browsing records, interaction preferences, search keywords, and knowledge weaknesses, AI technology can accurately grasp each student’s interest points and learning needs. Combined with the core goals of IPE, it can recommend targeted course videos, academic articles, typical cases, and practical activities. For example, based on the interests of the students, recommend high-quality documentaries, virtual red venue visit resources, and online lectures by experts; for students concerned about social hot topics, push relevant policy interpretations and value guidance articles;

- (2) Conduct real-time monitoring and intervention: after class, AI technology can track and analyze students' online learning data, such as login frequency, video viewing duration, completion of after-class exercises, and test scores. Through data mining and analysis, it can identify students with insufficient learning motivation, passive learning attitudes, or potential deviations in values, and promptly feed back this information to teachers. Teachers can then conduct targeted conversations, psychological counseling, or value guidance for these students, realizing real-time monitoring and positive intervention of students' ideological dynamics;
- (3) Optimize homework evaluation and feedback: for open-text assignments submitted by students after network IPE courses, such as learning experiences, research reports, and ideological reflections, teachers can use AI-related technologies (such as natural language processing and semantic analysis) to conduct auxiliary evaluation ^[5].

AI can automatically assess the logic, depth, and value tendency of students' expressions, identify potential problems in their ideological understanding, and generate personalized and targeted evaluation comments. This not only reduces the workload of teachers in correcting assignments but also ensures the timeliness and professionalism of feedback, helping students promptly improve their understanding and cognitive level ^[6].

3.4. Optimization of teacher team building paths

Teachers are the direct implementers of college IPE, the promoters of educational reform and innovation, and the guides of students' ideological development. The overall quality of the teacher team is directly related to the quality and effect of college IPE. Building a high-quality IPE teacher team is a long-term and arduous task. Traditional teacher training methods mainly include centralized offline training, the "mentor-apprentice" model of "old teachers guiding new teachers," regular teaching and research activities, off-campus further study or visits, and academic conference exchanges. While these methods have certain effects, their efficiency and pertinence are

relatively limited compared with AI-enabled teacher team building.

The application of AI technology in the path of teacher team building can be carried out in the following aspects:

- (1) Realize personalized teacher training, where teachers can record their daily classroom teaching videos and upload them to the AI analysis platform. AI can conduct in-depth analysis of the videos from multiple dimensions, such as teaching language, classroom organization, interaction design, and teaching effect, and provide targeted teaching optimization suggestions. At the same time, AI can evaluate teachers' research shortcomings and professional development needs by analyzing their research achievements, published papers, and project application experiences, and recommend personalized training courses and learning resources to help teachers make up for their weaknesses and improve their comprehensive quality;
- (2) Provide research and teaching assistance, for the heavy and tedious research work, teachers can use AI technology to conduct literature retrieval, data collection and analysis, thesis writing, and project application. AI can quickly screen relevant literature resources, sort out research trends, and assist in formulating research frameworks, significantly improving research efficiency. For repetitive teaching work, such as correcting homework, organizing test papers, and analyzing student feedback, teachers can use AI technology to realize intelligent processing, reducing their daily workload and allowing them to focus more on teaching innovation and student guidance;
- (3) Conduct objective assessment and development evaluation, where AI technology can integrate multi-dimensional data such as teachers' teaching effect evaluation results, student satisfaction, research achievements, and participation in social practice activities, and generate comprehensive and objective teacher evaluation reports ^[7].

These reports can provide scientific and reliable reference for year-end assessments, professional title evaluations, and promotion of teachers, ensuring the fairness and impartiality of the evaluation process and motivating teachers to continuously improve their teaching and research capabilities^[8,9].

4. Conclusion

AI technology has brought an all-round transformation from concepts to practices for IPE in colleges and universities. Its in-depth application in college IPE has realized multiple innovations: on the student side, through personalized learning plans, intelligent monitoring, timely and effective feedback, and immersive learning experiences, IPE has become more in line with students' cognitive characteristics and learning habits, effectively enhancing students' sense of identity and participation; on the teacher side, through personalized training, research and teaching assistance, and objective assessment and

evaluation, AI has significantly improved the efficiency and quality of teachers' work, enabling them to better play their roles in IPE. Overall, the application of AI technology has effectively enhanced the timeliness, intelligence, and pertinence of college IPE development. However, it is crucial to emphasize that technology is only a means to achieve educational goals. The core purpose of applying AI in IPE is to better serve teachers' teaching and students' learning, not to replace human beings. Therefore, in the process of promoting AI-empowered IPE, we must avoid over-reliance on technology, adhere to the people-oriented educational concept, and give full play to the leading role of teachers and the main role of students. In the future, with the continuous advancement of AI technology and its in-depth integration with IPE, "precision ideological and political education" and "intelligent ideological and political education" will be further realized, providing a more innovative and effective path for colleges and universities to implement the fundamental task of "fostering virtue through education."

Disclosure statement

The author declares no conflict of interest.

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