Integrating Generative Artificial Intelligence into Practical Teaching of Ideological and Political Education in Chinese Universities: Pathways, Challenges, and Pedagogical Strategies

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Abstract

With the iterative upgrading and widespread application of Generative Artificial Intelligence (GenAI), the educational ecosystem is undergoing a profound digital transformation. Leveraging advanced technologies such as deep learning, natural language processing, and computer vision, GenAI can not only construct highly simulated teaching scenarios but also plan personalised learning pathways through precise data analysis. In the practical teaching of Ideological and Political Education (IPE) in Chinese universities, this technological empowerment serves as a key variable for optimising teaching supply and innovating pedagogical models, as well as a digital carrier for guiding students to establish correct worldviews, life values, and political beliefs. It plays an important role in enhancing students' comprehensive quality and moral cultivation. In the new era, facing long-standing problems in traditional IPE practical teaching — such as limited time and space, single resources, and insufficient interaction — only by deeply exploring learning pathways and teaching strategies adapted to the intelligent era can we truly achieve a shift from "passive acceptance" to "active construction", allowing university IPE to gain new vitality and vigour through adhering to principles while innovating, and providing solid support for cultivating new generations capable of undertaking the great task of national rejuvenation.

Keywords Generative Artificial Intelligence; Pathways; Strategies

1 Introduction

At present, the practical teaching of IPE in universities faces many practical bottlenecks, such as relatively single forms of practical resources, insufficient depth of teacher-student interaction, and teaching evaluation that mostly stays at the level of summative assessment, making it difficult to accurately reflect students' growth and changes. The traditional "one-size-fits-all" teaching paradigm is clearly mismatched with the personalised, immersive, and interactive learning needs pursued by contemporary college students, resulting in an urgent need to improve course appeal and educational effectiveness. GenAI, with its powerful capabilities in content generation, scenario simulation, and personalised service, can achieve "drip irrigation" of teaching content by combining students' professional backgrounds and cognitive characteristics. It can also construct immersive virtual practice scenarios to strengthen students' emotional resonance and value identification. Moreover, it can build a whole-process, multi-dimensional intelligent evaluation system driven by data, promoting the shift of teaching evaluation from "result-oriented" to "process-accompanying", providing a new pathway to solve the above problems. In the context of the deep integration of a new round of technological revolution and industrial transformation, emerging technologies represented by GenAI are accelerating the reshaping of the educational ecosystem and promoting the in-depth development of digital transformation in education. The report of the 20th National Congress of the Communist Party of China explicitly proposes "promoting digital education and building a learning society and a learning power for lifelong learning for all people", pointing out the direction for the reform and development of education in the new era. As a key course for implementing the fundamental task of cultivating virtue and nurturing people, university IPE urgently needs to actively adapt to the development trend of the intelligent era and actively explore the integrity and innovation of teaching strategies under technological empowerment, so as to better play its core role in casting souls and educating people.

1.1 Problem Statement

Although GenAI has brought many potential advantages to the practical teaching of IPE in universities, its application in university IPE is still in the exploratory stage, facing many problems such as insufficient technological maturity, lack of teachers' digital literacy, data security and algorithmic ethical risks, and unclear teaching integration pathways. How to scientifically grasp the boundary of human-machine collaboration, effectively avoid the risks of information distortion and value deviation, and build a pedagogical strategy system that is scientific, safe, and operable has become an important issue that needs to be urgently addressed to promote the high-quality development of IPE. In addition, the shortcomings of universities in the construction of technical infrastructure and the cultivation of teachers' technical application literacy have also become constraints on the effective integration of GenAI into IPE teaching. Futterer et al. found in their large-scale Twitter analysis of global reactions to ChatGPT that education was one of the most discussed topics, with people talking about cheating, plagiarism, and learning opportunities, and that early positive sentiments later became more mixed, reflecting growing awareness of risks such as misinformation and the loss of critical thinking [1]. Francis, Jones, and Smith list many ethical problems with AI in education, including wrong answers given with confidence, difficulty in tracing information sources, bias from training data, high energy consumption, data protection law violations, and the digital divide [2]. Hughes et al. identify six main challenges for higher education from GenAI: impact on learning and teaching skills, academic integrity, widening inequality, automation and autonomy problems, ethical and security concerns, and diversion of resources [3]. They also find that risks from LLM training, reliability of AI outputs, and poor regulation have the greatest influence. Therefore, systematically studying the implementation pathways and optimization strategies for empowering the integration of GenAI into IPE practical teaching is not only an inevitable requirement to solve current teaching difficulties but also a key measure to promote the connotative development of IPE, implement the fundamental task of cultivating virtue and nurturing people, and improve educational effectiveness. It has far-reaching theoretical value and practical significance.

1.2 Research Objectives

This paper aims to explore effective pathways for integrating GenAI into the practical teaching of IPE in universities and propose targeted pedagogical strategies to address the challenges in the technology integration process, ultimately achieving a comprehensive improvement in the quality of IPE practical teaching. Specifically, first, by analysing the technical characteristics of GenAI and its application status in the education field, we clarify its potential value in IPE practical teaching. Second, combined with the actual needs of IPE practical teaching in universities, we construct a teaching model and implementation pathways based on GenAI. Finally, in response to challenges in technology, educational concepts, and data security, we propose feasible pedagogical strategies to provide theoretical support and practical guidance for the innovative development of IPE practical teaching in universities.

1.3 Significance of the Study

This study has theoretical value. It applies AI ethics to a value-focused area of education. Most AI ethics work has been for business or healthcare. Education is different. Value education is even more different. This paper shows how to adapt general ethical principles to a specific context. It connects two separate fields: AI ethics and IPE pedagogy. This connection is new and important. The study also has practical value. Policymakers can use the framework to write national guidelines. University leaders can set up ethics review boards. Technology developers can build AI products that respect values. Teachers can learn how to work with AI. Each group has a role. No single group can solve the problem alone. We need everyone working together.

1.4 Structure of the Paper

Section 2 reviews theory and literature. Section 3 presents integration pathways. Section 4 analyses challenges. Section 5 proposes pedagogical strategies. Section 6 concludes with a summary and future research directions.

2 Literature Review

2.1 Current Application of GenAI in Education

As an important branch of artificial intelligence, GenAI is increasingly widely used in the education field. Its core capability is to generate flexible and diverse teaching content through deep learning algorithms, thereby providing intelligent support for teaching activities. O'Dea discusses the educational potentials of GenAI, noting that it can create simulated speaking environments and generate self-test quizzes, which save teacher time and give students practice whenever they want [4]. Francis, Jones, and Smith highlight additional benefits, stating that GenAI helps students share ideas across languages and cultures, that AI teaching assistants can support learning during assessments, and that AI can adjust content for each student in real time. This is called adaptive learning [2].

GenAI also has serious limitations. Hughes et al. point out that large language models are trained on wide internet data that may not match specific value systems [3]. A model trained mostly on Western news articles may have a liberal bias and may not understand socialist core values. Another major limitation is hallucination. Futterer et al. found that users quickly realised AI outputs need checking [1]. Balasooriya offers a useful perspective, saying AI is good for certain tasks like coding, data analysis, and project planning, but not for tasks that need deep context or fact checking [5]. He says we should see AI as a trusted partner, with the human still in charge.

2.2 Current Research on Practical Teaching of Ideological and Political Education

Research on the practical teaching of IPE in universities mainly focuses on teaching objectives, teaching methods, and evaluation systems. In terms of teaching objectives, existing research emphasizes cultivating students' correct values and sense of social responsibility through practical teaching, while also focusing on combining theoretical knowledge with practical application to enhance students' comprehensive quality. In terms of teaching methods, scholars have proposed diversified teaching models based on case teaching, scenario simulation, and social practice, aiming to stimulate students' learning interest and improve teaching effectiveness. However, despite these methods improving the shortcomings of traditional IPE teaching to a certain extent, many difficulties remain. For example, how to achieve personalised design of teaching content and how to scientifically evaluate students' practical achievements have not been fully resolved. In addition, current research hotspots are gradually shifting towards information and intelligence, especially against the background of the integration of AI technology into IPE teaching. How to balance the relationship between technological innovation and the essence of education has also become a focus of academic attention.

2.3 Research on Integrating GenAI into Practical Teaching of Ideological and Political Education

Although the application of GenAI in the education field has achieved remarkable results, its research in the practical teaching of IPE in universities still needs to be deepened. Dabis and Csaki studied the first policy responses from 30 top universities after ChatGPT was released and found four key ethical dimensions: accountability, human oversight, transparency, and inclusiveness [6]. The main rule was that students must do their own work and that humans are responsible for AI mistakes. Few universities had clear policies, leaving teachers and students confused.

Alhur et al. studied AI dependency among medical educators in Palestine [7]. They found that heavy workload, lack of clear rules, anxiety, pressure, perfectionism, and cognitive offloading made teachers rely too much on AI. This over-reliance caused problems: teachers lost skills, their motivation went down, their teaching got worse, they faced ethical risks, they had less social interaction, and they became less creative. These findings apply to IPE practical teaching as well. A stressed and overworked teacher will take shortcuts. AI is a tempting shortcut. Shortcuts in value education are dangerous.

Wang et al. studied teachers' AI readiness. They found good teacher-student relationships help learning [8]. Teachers who know AI well can use AI to innovate. Too much AI use may hurt relationships. A student who always gets AI feedback may feel the teacher does not care. A teacher who relies on AI may stop reading student work carefully. Tang et al. studied critical questioning with GenAI in secondary schools [9]. They developed a framework with three dimensions: context, delivery, and competency. They found teacher guidance, student AI knowledge, and AI design are important for

critical thinking. This framework is useful for IPE practical teaching too. Students must learn to question AI. They cannot just accept what AI says. They must check facts, check values, and think for themselves.

Chan and Colloton wrote a book on GenAI in higher education, showing how to use GenAI in curriculum design, assessment, and policy [10]. They say AI literacy must fit different professions. They propose the Dynamic AI Literacy Model (DAILM) and stress that AI should help teachers, not replace them. Vardi warns that AI-augmented learning often lacks a clear problem, driven by industry rather than educational needs, and questions whether it is ethical to deploy AI in education without a clear understanding of its benefits [11].

Despite these contributions, a critical gap remains. No one has made an ethical framework specifically for IPE practical teaching. Most work is too general. It does not address value-based practice teaching. For example, value deviation risk is rarely discussed. General AI ethics assumes many values can coexist. IPE practical teaching has one specific set of values that must be actively supported. This makes content curation and alignment much harder.

This paper answers the research question. What ethical principles should guide GenAI in IPE practical teaching? What risks are there? What safeguards can we use to prevent harm? What pathways and strategies can effectively integrate GenAI into IPE practical teaching?

3 Pathways for Integrating GenAI into Practical Teaching of IPE

3.1 Constructing Virtual Practical Teaching Scenarios Based on GenAI

3.1.1 Technical Foundation for Virtual Scenario Construction

When constructing virtual practical teaching scenarios, GenAI relies on the integrated application of multiple cutting-edge technologies, with Virtual Reality (VR) and Augmented Reality (AR) as the core supports. VR technology enables students to immerse themselves in highly realistic three-dimensional spaces through computer-generated immersive environments, achieving multi-sensory interactive experiences of sight, hearing, and even touch. AR technology superimposes virtual information onto the real environment, providing students with more intuitive learning content and interaction methods. In addition, the application of GenAI models can further enhance the realism and dynamism of virtual scenarios, allowing scene content to be adjusted and optimised in real time according to student behaviour. The synergistic effect of these technologies provides a strong technical guarantee for the practical teaching of IPE in universities, while also expanding the design possibilities of teaching scenarios, making scenario simulations that were difficult to achieve in traditional classrooms a reality.

3.1.2 Enriching the Application of Virtual Scenarios in IPE Practical Teaching

Virtual scenarios constructed based on GenAI have broad application prospects in the practical teaching of IPE in universities. First, virtual scenarios can be used to simulate historical events or important political scenes, allowing students to participate as "eyewitnesses", thereby deepening their understanding of historical backgrounds and political theories. For example, by recreating major decision-making processes in the early days of the founding of the People's Republic of China through virtual scenarios, students can experience the historical situation in an immersive environment and enhance their identification with the spirit of patriotism. Second, virtual scenarios can also be used to simulate social hot issues, such as public security events or international relations conflicts, guiding students to analyse problems from multiple perspectives and propose solutions, cultivating their critical thinking and sense of social responsibility. In addition, the interactive nature of virtual scenarios can significantly improve students' participation and learning interest, avoiding the lack of interest caused by abstract content or dry theory in traditional teaching. By combining the content generation capabilities of GenAI, virtual scenarios can flexibly adjust the difficulty and complexity according to teaching objectives, ensuring that teaching content matches students' cognitive levels, thereby achieving an improvement in personalized teaching effects.

3.2 Using GenAI to Assist in the Design of IPE Practical Teaching Activities

3.2.1 Optimising Personalised Practical Activity Design

The personalised application of GenAI in the design of practical teaching activities for IPE in universities is mainly reflected in the precise identification of student characteristics and needs. By analysing students' learning behaviour data, interest preferences, and knowledge mastery levels, GenAI

can generate practical activity plans that cater to individual differences, thereby improving the pertinence and effectiveness of teaching. For example, for students with strong theoretical understanding abilities, more challenging research-based practical activities can be designed, such as social surveys or policy analysis report writing. For students with outstanding practical abilities, more operational tasks can be arranged, such as community service, public welfare activity planning, exhibition hall commentary, or red tourist site guide services. In addition, GenAI can dynamically adjust activity designs based on real-time feedback, ensuring that every student obtains sufficient room for growth in practice. This personalised teaching design not only helps meet the diverse needs of students but also stimulates their enthusiasm for participating in practical activities, thereby improving the overall teaching effect.

3.2.2 Intelligent Process Management of Practical Activities

The application of GenAI in the process management of IPE practical activities is mainly concentrated in three aspects: intelligent planning, progress monitoring, and dynamic adjustment, which can significantly improve teaching efficiency and management level. In the practical planning stage, GenAI can automatically generate the most suitable practical plan by analysing historical data, including syllabus formulation, task division, specific implementation steps, etc., improving the scientific nature of the plan. In terms of progress monitoring, GenAI can track students' practical completion status in real time and predict possible delays or problems through data analysis, providing teachers with timely early warning information and proactive preparation for solution development. In addition, when unexpected situations occur or adjustments are needed during the practical process, GenAI can quickly generate corresponding supplementary plans according to the current state, ensuring the smooth progress of activities. This intelligent management model not only improves the organisational efficiency of practical activities but also provides students with a more flexible learning experience, enabling them to complete established goals efficiently.

3.3 Realising Intelligent Push of IPE Practical Teaching Resources through GenAI

3.3.1 Promoting Integration and Tagging of Teaching Resources

The first step of GenAI in the intelligent push of IPE practical teaching resources is to systematically integrate and finely tag existing resources. By classifying and organising various types of teaching resources, such as textbooks, cases, videos, literature, and practice materials, GenAI can build a well-structured, content-rich resource library, laying the foundation for subsequent intelligent push. In the tagging process, GenAI uses natural language processing (NLP) and computer vision technologies to automatically extract key information from resources and assign corresponding semantic tags. For example, a video resource on "socialist core values" can be tagged with multiple dimensions such as "Ideological and Political Education", "Values Education", and "Case Analysis" for subsequent retrieval and matching. In addition, GenAI can continuously optimise the tagging system based on resource usage frequency and user feedback, ensuring the timeliness and practicality of the resource library, and providing teachers and students with a more convenient way to access resources.

3.3.2 Forming a Personalised Resource Push Mechanism

Based on data such as students' interests, learning progress, and search preferences, GenAI can achieve personalised resource push, thereby meeting students' diverse learning needs. Specifically, GenAI constructs user profiles by analysing students' daily learning records, class quiz results, and classroom interaction feedback, accurately portraying each student's learning characteristics and preferences. For example, for students who show strong interest in the "theoretical system of socialism with Chinese characteristics", GenAI can prioritise pushing classic literature, special lecture videos, and the latest research results in related fields, helping them to deepen their understanding of the relevant content. At the same time, GenAI can dynamically adjust the content and difficulty of resource push according to students' learning progress. For example, after completing basic knowledge learning, the system can automatically recommend or update more in-depth expansion resources to promote students' knowledge transfer and ability improvement. This personalised resource push mechanism not only improves resource utilisation but also enhances students' learning experience, enabling them to quickly find the most suitable learning content among massive resources, thereby improving learning efficiency and effectiveness.

4 Challenges of Integrating GenAI into IPE Practical Teaching

4.1 Technical Challenges

4.1.1 Technological Maturity Needs Improvement

At present, GenAI still has significant technical immaturity in terms of algorithm stability and content generation accuracy, which poses potential obstacles to the effective development of IPE practical teaching in universities. First, the core technology of GenAI relies on deep learning models, which may lead to unstable output results due to factors such as data bias during the training process. For example, in virtual practical teaching scenarios, if the simulation of historical events contains factual errors or details inconsistent with the real situation, it will directly affect students' understanding and cognition of relevant knowledge. Second, the accuracy of GenAI in content creation needs further improvement. In particular, in IPE practical teaching involving complex value guidance and ideological education, if the generated content lacks rigour or contains misleading information, it may weaken the teaching effect or even cause negative consequences. In addition, although the application of GenAI in the field of natural language processing has made some progress, there are still limitations in key aspects such as semantic understanding and logical reasoning, making it difficult to fully meet the needs of precision and personalization when assisting in IPE teaching design.

4.1.2 Technical Updates and Adaptation Problems Need to Be Solved

The rapid iteration of GenAI technology brings dual challenges of technology update and adaptation to IPE practical teaching in universities. On the one hand, as a cutting-edge technology, the algorithm frameworks, development tools, and operating environments of GenAI are constantly evolving, which puts great pressure on universities in terms of hardware facilities and software system adaptation. For example, the application of technologies such as VR and AR requires the support of high-performance computing equipment and dedicated software, and the existing information infrastructure of many universities may not fully meet the requirements of these new technologies, resulting in the inability to implement technological applications. On the other hand, the high frequency of GenAI technology updates requires universities to comprehensively consider cost-effectiveness and long-term sustainable development when selecting and deploying technologies. However, due to the uneven distribution of educational resources, some universities, especially those in economically underdeveloped areas, may lack sufficient funds and technical support to keep up with technology upgrades, further exacerbating the gap in the level of educational informatisation between regions. Therefore, how to achieve effective integration of GenAI into IPE practical teaching in the context of rapid technology updates has become an important issue that needs to be urgently addressed.

4.2 Challenges at the Level of Educational Philosophy

4.2.1 Impact on Traditional Educational Philosophy

While empowering IPE practical teaching, GenAI also profoundly impacts the traditional teacher-centred educational philosophy and, to some extent, exacerbates the difficulty of teacher role transformation. Under the traditional education model, teachers are usually regarded as the authoritative disseminators of knowledge, and classroom teaching mainly revolves around teacher lectures. However, the introduction of GenAI promotes the transformation of teaching methods towards student-centred approaches, emphasising the realisation of personalised teaching and autonomous learning through intelligent means. This transformation requires teachers to shift from being simple knowledge transmitters to guides and supporters in the student learning process. However, some teachers find it difficult to adapt to this role change in a timely manner due to their low acceptance of new technology or lack of relevant skills training. In addition, the interactive teaching model supported by GenAI places higher demands on teachers' teaching design capabilities and technical literacy. If teachers fail to master these new skills in a timely manner, their dominant position in teaching may be weakened, thereby affecting the teaching effect. Therefore, how to reposition the teacher's role and improve their comprehensive literacy in the context of new technology has become key to promoting innovation in IPE practical teaching in universities.

4.2.2 Exacerbating the Inequity of Educational Resource Allocation

The application of GenAI in IPE practical teaching has a profound impact on educational equity. First, differences in the allocation of technical resources between different regions and universities make the application of GenAI significantly uneven. For example, universities in economically developed regions often have priority access to advanced hardware equipment and software system support, while

universities in economically underdeveloped regions may be unable to fully deploy related technologies due to funding shortages, directly leading to inequality in educational opportunities. Second, differences in students' ability to access and apply technology further widen the digital divide. For students from areas with low levels of informatisation or disadvantaged family backgrounds, their lack of opportunities to access and operate GenAI technology puts them at a disadvantage in the learning process. In addition, although the personalised recommendation mechanism of GenAI can improve teaching efficiency, it may also lead to the "information cocoon" effect, where students only come into contact with content that matches their interests, ignoring other important knowledge areas. This tendency not only limits students' all-round development but may also exacerbate the inequity of educational resource allocation. Therefore, in the process of integrating GenAI into IPE practical teaching, great attention must be paid to the issue of educational equity, and effective measures must be taken to narrow the digital divide.

4.3 Data Security and Ethical Challenges

4.3.1 Increasing the Difficulty of Data Privacy Protection

In the process of applying GenAI to IPE practical teaching, the privacy protection of students' personal information and learning data faces many risks and challenges. First, the operation of GenAI relies on the collection and analysis of large amounts of data, which typically includes sensitive information such as students' basic information, learning behaviour records, and practical activity results. Once this data is leaked during storage or transmission, it will pose a serious threat to student privacy and may trigger a social trust crisis. Second, when GenAI realises personalised teaching and intelligent recommendation functions, it needs to obtain and analyse students' learning data in real time. This continuous data collection behaviour may raise students' concerns about privacy infringement, thereby reducing their acceptance and willingness to use the technology. In addition, the current institutional construction and technical protection capabilities of universities in data security management are still imperfect. Some universities may lack specialised data protection mechanisms, leaving data at high security risk at all stages of its lifecycle. Therefore, how to build a comprehensive data privacy protection system while fully utilising the advantages of GenAI has become an important prerequisite for ensuring the smooth development of IPE practical teaching.

4.3.2 Increasing Content Ethical Risks

The content generated by GenAI may have ethical risks such as inappropriate remarks or incorrect value guidance, posing a potential threat to the achievement of IPE practical teaching goals. First, the content generation process of GenAI is highly dependent on the quality of training data. If the training data contains biases or erroneous information, the output content may have similar problems. For example, in virtual practical teaching scenarios, if the description of historical events or the analysis of social hot issues is biased, it may mislead students' understanding of related events, thereby affecting the formation of their values. Second, due to insufficient semantic understanding or logical inference errors, GenAI may generate controversial content in natural language processing tasks. Once these contents are used in IPE teaching, they may cause confusion in students' thinking or even deviation in their values. In addition, the human-like nature of GenAI may also bring ethical dilemmas. For example, when students regard the content generated by AI as "authoritative", it may weaken the dominant position of teachers in teaching, thereby affecting the humanistic care and value-leading function of IPE education. Therefore, when integrating GenAI into IPE practical teaching, a strict content review and supervision mechanism must be established to ensure the legitimacy and educational nature of the generated content.

5 Pedagogical Strategies for Integrating GenAI into IPE Practical Teaching

5.1 Enhancing Teachers' Technical Application Ability

5.1.1 Carrying out Specialised Training

The rapid development of GenAI technology places higher demands on the technical literacy of IPE teachers in universities. In order to effectively address this challenge, universities should carry out specialised training on GenAI technology to enhance teachers' application ability in practical teaching. The training content should cover the basic principles, technical frameworks, and specific application scenarios of GenAI in the education field, especially how to use virtual scenario construction, intelligent activity design, and resource push functions to optimise IPE practical teaching. In addition, the training method can adopt a hybrid teaching model combining online and offline approaches, helping teachers

comprehensively master relevant skills through various forms such as special lectures, case analysis, and technical practice. In terms of training frequency, universities need to organise at least one intensive training session per quarter based on the technology update cycle and teaching needs, and regularly hold workshops or seminars to ensure that IPE teachers can keep up with the latest technological trends and flexibly apply them in teaching practice.

5.1.2 Establishing a Teacher Communication Platform

Building a teacher communication platform is an important measure to promote the effective application of GenAI technology in IPE practice. Through this platform, teachers can share their experiences and insights into technology application, jointly discuss solutions to technical difficulties, thereby forming a good atmosphere of collaboration and a knowledge-sharing mechanism. Specifically, the teacher communication platform can include various forms such as online forums, social media groups, and offline seminars, so that teachers can interact at any time and from anywhere. For example, an online forum can set up a dedicated technical support section for teachers to ask and answer questions. Social media groups can be used to share teaching resources and successful cases in real time. Offline seminars can focus more on in-depth face-to-face communication and experience summarization. In addition, universities can also encourage teachers to actively participate in platform activities by establishing incentive mechanisms, such as incorporating excellent teaching cases into the school's teaching resource library or recommending them for publication at relevant academic conferences, further stimulating teachers' enthusiasm and creativity.

5.2 Optimising the Teaching Evaluation System

5.2.1 Building a Multi-dimensional Evaluation Indicator System

Traditional teaching evaluation systems often rely too heavily on single summative evaluation, making it difficult to fully reflect students' learning processes and practical achievements under the empowerment of GenAI. Therefore, after integrating GenAI, universities should strive to build a multi-dimensional evaluation indicator system to comprehensively assess student performance from multiple perspectives. First, attention should be paid to students' learning processes, including their participation, interaction frequency, and problem-solving ability in virtual practical teaching scenarios. Second, the quality of practical outcomes should be valued, such as reports, design plans, or presentation works submitted by students through personalised practical activities. Finally, students' ability to apply GenAI technology should also be considered, such as whether they can effectively use intelligent tools to complete learning tasks or creatively solve practical problems. This multi-dimensional evaluation indicator system can not only more comprehensively reflect students' learning outcomes but also help promote the overall improvement of their comprehensive quality.

5.2.2 Using GenAI to Assist Evaluation

The application of GenAI in the evaluation of IPE practical teaching provides new possibilities for improving evaluation efficiency and accuracy. Through in-depth analysis of student learning data, GenAI can automatically generate objective and detailed evaluation reports, providing a scientific basis for teacher decision-making. For example, in virtual practical teaching scenarios, GenAI can record students' behavioural trajectories, speech content, and interaction in real time, and generate learning portraits based on this data, intuitively presenting students' learning characteristics and shortcomings. In addition, GenAI can combine natural language processing technology to automatically score students' text assignments or discussion content, thereby reducing the subjectivity of teacher scoring and improving the consistency of evaluation. It is worth noting that in order to ensure the reliability of evaluation results, universities should establish corresponding verification mechanisms while introducing GenAI-assisted evaluation systems, regularly optimising and adjusting the evaluation model to minimise errors and improve evaluation quality.

5.3 Ensuring Data Security and Content Health

5.3.1 Establishing a Data Security Management System

In the process of integrating GenAI into IPE practical teaching, the security of students' personal information and learning data is crucial. To this end, universities need to formulate a comprehensive data security management system, covering security protection measures at all stages of data collection, storage, use, and sharing. In the data collection stage, students should be clearly informed of the purpose of data use and their informed consent should be obtained to avoid unauthorised data collection. In the

data storage stage, encryption technology and access control strategies should be adopted to prevent data leakage or illegal access. In the data use stage, data access permissions should be strictly restricted, allowing only authorised personnel to use relevant data for teaching purposes. In the data sharing stage, strict confidentiality agreements need to be signed, and partners must comply with the same security standards. In addition, universities should regularly review and update the data security management system to adapt to the changing technological environment and legal and regulatory requirements, thereby providing students with a more reliable data protection barrier.

5.3.2 Strengthening Content Review and Supervision

The content generated by GenAI may have ethical risks such as inappropriate remarks or incorrect value guidance, which poses a potential threat to IPE teaching. Therefore, strengthening content review and supervision is a key link in ensuring the health and ideological correctness of teaching content. First, universities should establish a multi-subject supervision system, with a review team composed of teachers, technical personnel, and experts, jointly responsible for the comprehensive review of content generated by GenAI. Second, intelligent review tools should be developed, combining natural language processing and sentiment analysis technologies to automatically identify and filter sensitive information or inappropriate content, thereby improving review efficiency. In addition, universities can also standardise the output range of GenAI by formulating clear content quality standards, ensuring that it meets the core value requirements of IPE teaching. For example, when simulating historical events or social hot scenarios, GenAI can be required to give priority to using data from authoritative sources and attach citation descriptions after generating content to enhance the credibility and transparency of the content.

6 Conclusion

6.1 Summary of the Study

This research focuses on the important issue of integrating GenAI into the practical teaching of IPE in universities, systematically exploring its implementation pathways, the challenges faced, and the pedagogical strategies to address them. In terms of integration pathways, this paper proposes multi-dimensional innovative solutions. First, the construction of virtual practical teaching scenarios based on GenAI provides a new learning perspective for IPE. It can be deeply integrated with digital twins, VR and other technologies to quickly generate personalised educational scenarios based on students' real-time feedback, such as recreating red historical event sites or simulating social hot issue situations, thereby significantly enhancing students' participation and emotional resonance through immersive "real presence" experiences. Second, through intelligent assisted design of practical activities, teachers can use GenAI's analysis of a large number of teaching cases to accurately identify teaching priorities that match students' professional characteristics and cognitive levels, and then generate adaptive teaching plans, which not only effectively promotes teaching according to aptitude but also greatly improves the efficiency of teaching design. At the same time, relying on the intelligent push mechanism, the system can continuously capture students' interests and confusions in human-computer interaction, creating learning resources that are both value-oriented and individually appropriate, meeting students' diverse learning needs and optimising the allocation of teaching resources. In addition, GenAI can deeply empower the innovation of the teaching evaluation system. By constructing multi-dimensional evaluation indicators covering cognitive development, behavioural performance, and emotional attitudes, and conducting multi-modal correlation analysis of students' "digital footprints", it achieves diversification of evaluation subjects, comprehensiveness of evaluation content, intelligence of evaluation methods, and immediacy of evaluation feedback, thereby accurately portraying students' growth trajectories and providing scientific references for teachers to adjust teaching strategies.

However, this deep integration process also faces many practical challenges. At the technical level, the current application of GenAI in education still has problems such as insufficient maturity and difficulty in adapting to school-based teaching needs. At the subject level, some teachers have difficulty changing their educational concepts, and their digital literacy and technical application capabilities still need to be improved, making it difficult for them to effectively manage the human-machine collaborative teaching model. At the security and ethical level, issues such as data privacy protection, information cocoons caused by algorithmic bias, and value orientation risks of generated content are particularly prominent, requiring the urgent establishment of a sound regulatory mechanism. In response to the above challenges, this study proposes systematic and operable pedagogical strategies. To enhance

teachers' capabilities, it is recommended to carry out special digital literacy training to help teachers clarify the reasonable path for embedding GenAI into teaching and complete the role transformation from "knowledge transmitter" to "learning guide" and "value shaper". In terms of evaluation system construction, multi-dimensional evaluation indicators should be established, and the use of GenAI to assist in formative and dynamic evaluation should be explored, establishing a student-centred closed-loop evaluation system. In terms of security assurance, strict data security management systems and content review mechanisms must be established. For example, an AI ethics committee composed of technical experts, IPE teachers, and ethicists should be set up to formulate digital ethics standards, conduct pre-review and keyword monitoring of generated content, and use technical means to set data cleaning and filtering standards to minimise algorithmic discrimination and information distortion, ensuring that the application of GenAI in IPE practical teaching always develops along a safe, healthy, and controllable track, providing solid theoretical support and feasible practical guidance for the innovative development of IPE practical teaching in universities.

6.2 Future Research

Although this study has conducted a relatively systematic analysis of the integration of GenAI into IPE practical teaching, with the iterative evolution of technology and the continuous deepening of digital transformation in education, this field still has broad and urgently needed research space and practical blue ocean. First, at the level of technology application, future research should not be limited to the single function of GenAI, but should focus on its deep integration and collaborative innovation with emerging technologies such as blockchain, the Internet of Things, and VR/AR. For example, explore the use of the immutability of blockchain technology to build a trust mechanism and learning outcome certification system for IPE practical teaching, combined with IoT technology to achieve intelligent perception and dynamic control of teaching scenarios. Through multi-technology collaboration, build a more intelligent, immersive, and traceable IPE practical teaching ecosystem, thereby providing stronger support for the improvement of teaching quality from the technical dimension. Second, at the level of educational concepts and teaching methods, in-depth research is needed on the reconstruction of teachers' roles and the transformation of teaching paradigms under the background of deep technological empowerment.

Future research should continue to focus on how to guide teachers to transform from traditional "knowledge transmitters" to "learning guides" and "value shapers", and explore how to better leverage the leading role of teachers and the main role of students under the human-machine collaborative teaching model. At the same time, efforts should be made to promote the deep transformation of the education model from "teaching-centred" to "student-centred", and study how to use GenAI to accurately identify students' cognitive blind spots and emotional needs, thereby designing more targeted and inspiring practical teaching activities, achieving an organic combination of standardised education and personalised cultivation. In addition, in response to key issues such as data security, algorithm ethics, and value orientation, future research urgently needs to break down disciplinary barriers and advocate interdisciplinary cooperation in education, computer science, law, ethics, and other fields. On the one hand, efforts should be made to develop more advanced data privacy protection technologies and algorithm explainability tools to build a solid security line from the technical level. On the other hand, it is necessary to establish a sound ethical norm for GenAI educational applications and a content review mechanism to ensure that technology applications conform to mainstream ideology and educational laws, effectively preventing risks such as information distortion, value deviation, and technology dependence, ensuring that the application of GenAI in IPE practical teaching always develops along a safe, healthy, and controllable track. In short, GenAI has brought unprecedented opportunities and challenges to IPE practical teaching, and its development is a dynamic, evolving, and continuously optimising process. Future research needs to maintain keen insight, continuously track the latest technological trends and feedback from educational practice, and continuously deepen theoretical research and practical exploration. contributing more wisdom and strength to the high-quality development of IPE in universities.

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Conflicts of Interest

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生成式人工智能融入高校思政課實踐教學

——路徑、挑戰與教學策略

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摘要：隨着生成式人工智能（Generative Artificial Intelligence）技術的迭代升級與廣泛應用，教育生態正經歷着深刻的數字化轉型。Gen AI憑藉其深度學習、自然語言處理及計算機視覺等前沿技術，不僅能夠構建高仿真的教學情境，更能通過精準的數據分析實現個性化學習路徑的規劃。在高校思想政治理論課（以下簡稱「思政課」）的教學實踐中，這種技術賦能不僅是優化教學供給、創新教學模式的關鍵變量，更是引導大學生樹立正確世界觀、人生觀和價值觀的數字化載體，對於提升學生的綜合素質與思想道德修養發揮着重要的作用。新時代，面對傳統思政課實踐教學中長期存在的「時空受限、資源單一、互動不足」等問題，唯有深入探索適應智能時代特徵的學習路徑與教學策略，才能真正實現從「被動接受」向「主動建構」的轉變，讓高校思政教育在守正創新中煥發新的生機與活力，爲培養堪當民族復興大任的時代新人提供堅實支撐。

關鍵詞：生成式人工智能；高校思政課；實踐教學；融入路徑；教學策略

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