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Foundations, Manifestations, and Pathways of Digital Technology Empowerment in Higher Education Ideological and Political Theory Courseware

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Abstract: *Digital technology has opened up new prospects for intelligent teaching in ideological and political theory courses in universities. Intelligent teaching, an innovative application of digital technology in the field of teaching, refers to a new teaching model that relies on digital technologies such as artificial intelligence, centers around serving teachers and students, and enhances the quality of teaching and the learning experience of students through intelligent teaching environments, platforms, machines, and methods. It represents an important trend in the reform and innovation of ideological and political courses in universities. The intelligent teaching of ideological and political courses in universities is based on machine learning, natural language processing, and human-computer interaction technologies. The teaching advantages and potential of digital technology, coupled with the need for students' intelligent adaptive learning, form the realistic foundation for empowering intelligent teaching in ideological and political courses in universities. Digital technology has created intelligent teaching environments, platforms, and machines for ideological and political courses in universities. To further promote intelligent teaching in ideological and political courses in universities, it is also necessary to enhance the technical literacy of teachers, improve the performance of digital teaching technologies, and strengthen the application of intelligent technologies in teaching scenarios.*

Keywords: *digital technology; ideological and political theory courses in colleges and universities; intelligent teaching; foundation; performance; approach*

1. Introduction

In the epoch of digitalization, the intricate fusion of digital technology with the sphere of ideological and political education (IPE) within the tertiary sector has emerged as an unstoppable trend, garnering widespread scholarly interest in China. Wang and Zhang (2023) contend that the aspiration of integrating technology into IPE at the higher education level is to augment the arsenal of teaching resources, methodologies, and environments, predicated on a technological bedrock. This integration is set to catalyze the emergence of a novel paradigm for IPE that encapsulates the harmonious interplay between human cognition and artificial intelligence. Liu and Lu (2023) elucidate that digital technology has been instrumental in the evolution of IPE within higher education, pioneering personalized learning and assessment strategies, extending the pedagogical canvas both spatially and temporally, and bolstering the digital literacy and competencies among IPE pedagogues. Moreover, Cao and Huang (2022) posit that digital technology possesses the transformative potential to revolutionize IPE pedagogical models, fostering a pedagogy that is precise, contextually aware, and intelligent. This transformation is characterized by the facilitation of a seamless and efficient conduit and platform for the dissemination, amalgamation, dissemination, and operationalization of high-caliber IPE teaching resources, as well as the incarnation of immersive teaching milieus within the academic arena.

Building upon the discourse thus far, it is evident that academic inquiry into the empowering role of digital technology in IPE within higher education has predominantly centered on the nuances of personalized student learning, the digital literacy of educators, the pedagogical milieu, pedagogical frameworks, teaching resources, and pedagogical scenarios. While the periphery of intelligent teaching has been broached in some scholarly discourses, there remains a lacuna that beckons further investigation into the mechanisms by which digital technology can engender intelligent teaching in IPE. The advent of intelligent teaching in the ideological and political theory curriculum of higher education is not merely a developmental trajectory for the future but a critical imperative for the enhancement of

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pedagogical excellence and the fulfillment of the evolving academic and developmental aspirations of students.

Ubiquitous and avant-garde technologies have insidiously infiltrated the multifaceted realms of IPE within the higher education landscape, rendering the augmentation of smart teaching through digital technology an imperative consonant with contemporary evolutionary trends. Unraveling the mechanisms by which digital technology can engender smart teaching in IPE, delineating its foundational underpinnings, empirical manifestations, and methodological approaches—this elucidation of theoretical conundrums is pivotal in mitigating the dissonance between digital technology and IPE pedagogy, and in amplifying the integrative application of technology. Such an exploration is imperative for the relentless enhancement of pedagogical caliber and operational efficacy in IPE within the higher education milieu, underpinned by the robust scaffolding of digital technology. Consequently, this scholarly endeavor aspires to conduct a systematic disquisition on the technological and didactic rudiments of smart teaching in the context of ideological and political theory courses in higher education. It endeavors to dissect the various expressions of technological empowerment, traversing the realms of teaching environments, platforms, and mechanical pedagogical instruments, ultimately proffering a compendium of optimization recommendations from a dual technological and humanistic vantage point.

2. The foundation of digital technology empowering intelligent teaching of ideological and political courses in universities

Digital technology empowers intelligent teaching of ideological and political courses in universities, supported by machine learning, natural language processing, and human-computer interaction technologies. Its advantages and potential are highly compatible with intelligent teaching of ideological and political courses in universities. The integration of the two can effectively meet the needs of students for intelligent adaptive learning and promote the realization of the goal of cultivating moral integrity.

(1) Technical support for digital technology empowering intelligent teaching of ideological and political courses in universities

Firstly, machine learning is the fundamental approach to computer intelligence and the core technological foundation for intelligent teaching in ideological and political courses in universities. It is also a discipline that simulates or realizes human learning behaviors through computers. It is an integrated application of multiple disciplines such as probability theory, statistics, approximation theory, neural networks, and brain science. Specifically, it is a technical method that learns and improves its own performance by analyzing data, continuously modeling, training, testing, and adjusting models, automatically executing tasks, making decisions, or making predictions. The main types of machine learning include supervised learning, unsupervised learning, and reinforcement learning. Machine learning is characterized by data-driven, automated learning, generalization ability, and adaptability. In the teaching of ideological and political courses in universities, its functional value lies in providing personalized teaching content and suggestions for each student based on their learning situation; mining useful information or regular patterns from large-scale teaching data to help ideological and political course teachers predict trends and make scientific decisions; automatically completing repetitive teaching tasks, reducing teachers' labor costs and burdens, and improving teaching efficiency, such as automatically evaluating students' homework or exam scores.

Secondly, Natural Language Processing (NLP) is a crucial component of artificial intelligence and a technological element for intelligent teaching in ideological and political courses in universities. It specializes in theories and methods for understanding, processing, and generating natural language, aiming to transform non-linguistic texts, speech, or data into human-understandable language, enabling human-machine interaction in natural language. The application areas of NLP technology are concentrated in machine translation, semantic understanding, intelligent question-answering, text classification, and generation. In ideological and political courses in universities, it can automatically grade students' thematic essays, final exams, etc. It also plays a significant role in question-answering systems, where it can understand and analyze students' questions, efficiently searching for information for them. As an essay writing assistant for ideological and political courses, it can correct grammatical errors, improve sentence structure, and even automatically extract key information from texts to generate summaries. Based on existing texts and language models, it can generate texts needed by teachers and students, such as ChatGPT and Microsoft Copilot.

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Thirdly, human-computer interaction serves as a crucial technical foundation for intelligent teaching. As a technology that facilitates the exchange of information between humans and computer system software or machines, it integrates knowledge from multiple disciplines, including computer science, psychology, multimedia technology applications, and design. The primary devices for human-computer interaction include keyboards, mice, touch screens, data gloves, digital pens, brain-computer interface devices, VR headsets, and AR glasses. Human-computer interaction methods encompass touch-based interaction, somatosensory interaction, voice interaction, brainwave interaction, and more. Human-computer interaction technology plays a significant role in intelligent teaching for ideological and political courses in universities. With the support of touch-based interaction technology, students can interact with learning applications on the screen in a more natural and intuitive manner, drag, zoom in/out of ideological and political course learning content, and the backend can also capture their learning data through students' gestures to analyze their learning progress and interest points. Virtual reality technology not only creates immersive virtual environments, such as virtual practical teaching bases and digital red memorial halls, but also allows students to interact with objects in the virtual environment, enabling them to experience the unique charm of virtual ideological and political course teaching in a more embodied way.

(2) The Advantages and Potential of Digital Technology and Its Compatibility with Intelligent Teaching in Ideological and Political Courses in Universities

The reason why digital technology can be deeply embedded in various industries of human society is that technology is an artificial object created by humans to meet their own needs, embodying human wisdom and intentions. Similarly, digital technology can be integrated with human educational activities, including IPE in universities. The convergence point lies in the fact that the design of digital technology carries human needs and intentions, enabling it to leverage its relative advantages in teaching to expand the capabilities of teachers and students, reduce their burden, and enhance teaching efficiency. At the same time, contemporary college students are "digital natives" born after the millennium. Smart devices, intelligent programs, and intelligent platforms have been deeply embedded in their daily lives. The application of intelligent technology in IPE in universities is more in line with their growth environment. Intelligent technology can also be continuously optimized and upgraded in specific applications. The intelligent teaching scenarios created by it can enhance students' physical experience, attract students, and enhance their cognitive willingness and recognition of Marxism compared to general technology.

Firstly, digital technology possesses a perceptual advantage in empowering IPE in universities. Due to human limitations, teachers have limited perception of all students and world information. It is impossible for them to grasp the learning status of each student in real time and accurately, nor can they obtain massive information and knowledge in real time. However, digital technology can achieve all-weather, all-round, all-field, and whole-process perception of people and the world. Therefore, ideological and political teachers in universities can leverage this advantage to expand their perception and cognition of students. This can not only alleviate the pressure of teaching and research on teachers, but also improve the quality and efficiency of IPE in universities.

Secondly, digital technology possesses significant advantages in teaching data collection, integration, and storage. Various types of IPE teaching data are embedded in students' daily lives and learning behaviors, teaching activities between teachers and students, as well as ubiquitous information. These serve as the source material and driving force for intelligent teaching. However, relying solely on IPE teachers in universities is difficult to complete the collection and processing of massive amounts of IPE data in real time. The breadth, depth, accuracy, and speed of data collection, as well as the scale and complexity of integrating, storing, analyzing, and updating data information by digital technology far exceed human capabilities. Teachers can utilize digital technology to break through their cognitive limitations and thinking blind spots, strengthen memory storage and retrieval abilities, and thereby compensate for relative deficiencies in this regard. For instance, social hotspots and current political events that students pay attention to daily, the behavior of previewing IPE textbooks before class, and the content and process of teaching activities are all "raw materials" for intelligent teaching data in IPE in universities. The superior processing capabilities of digital technology for these massive dynamic data are far beyond human comparison, and this technological advantage can replace some complex teaching tasks, providing support for assisting IPE teachers in universities to carry out intelligent teaching.[1]

Thirdly, digital technology possesses the potential for affective computing. Its application in intelligent teaching essentially simulates human thinking and behavior. Computers have some of the functions of human brain memory, storage, and computation. Visual technology endows them with

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visual perception capabilities, speech recognition technology provides auditory functions, natural language understanding and speech synthesis technology have language comprehension and expression capabilities, and the development of affective computing technology provides conditions for further enhancing the intelligence level of digital technology. The teachingtarget of ideological and political courses in colleges and universities is a subject with emotions, moods, psychology, and spirit[2] .Therefore, for digital technology to deeply empower teaching and interact intelligently with the subject, it must have the ability to acquire emotional signals from teachers and students, recognize emotional states, understand, feedback, and express emotions. The continuous progress and application of current affective computing technology have shown unlimited prospects for ideological and political course teaching in colleges and universities. In the future, it will achieve a deeper level of integration with ideological and political course teaching in colleges and universities.

(3) Digital technology empowers intelligent teaching of ideological and political courses in universities, meeting the needs of students for intelligent adaptive learning

To achieve the educational goal of ideological and political courses in universities, efforts should not only be made in terms of content, but also in adopting teaching forms that students like and are suitable for them, so as to achieve a multiplier effect. Each generation of students has different characteristics, especially digital natives, who have an increasing demand for rich learning content and forms, are more sensitive to changes in emerging digital technologies and their environment, have stronger adaptability, and are more inclined towards intelligent adaptive learning. Intelligent adaptive learning aims to create a more effective and personalized learning experience for students. Its characteristics lie in diversified learning resources, intelligent learning management, real-time feedback, data-driven decision-making, and personalized learning paths. In the teaching of ideological and political courses in universities, intelligent adaptive learning is student-centered, dynamically providing them with a large amount of teaching resources, flexible and diverse learning methods, customized ideological and political courses based on their learning needs, characteristics, levels, and performance. It precisely and scientifically analyzes and diagnoses learning data and predicts their learning trends, generating better personalized ideological and political course learning paths and schemes. In summary, the intelligent adaptive learning approach is more autonomous, precise, and personalized for students, which can further enhance their experience and sense of gain in learning ideological and political courses in universities.

3. Manifestations of digital technology empowering intelligent teaching of ideological and political courses in universities

The empowerment of digital technology in intelligent teaching of ideological and political courses in universities is primarily manifested in three aspects: intelligent teaching environment, intelligent teaching platform, and intelligent teaching machine.

(1) Intelligent teaching environment

The "hard" environment and the "soft" environment jointly constitute the macro environment of intelligent teaching. With the development of emerging technologies, IPE in universities is gradually transforming towards an intelligent direction. Teaching technologies represented by multimedia and virtual reality, as well as teaching terminals represented by mobile phones and tablet computers, are emerging and being updated continuously. In addition, the ubiquitous network and software and hardware infrastructure have created a "hard" environment for IPE in universities. The information carried and disseminated by the technological environment can have a profound impact on the political beliefs, cognitive landscapes, ways of thinking, moral sentiments, and behavior patterns of teaching subjects. Especially, it has a subtle influence on the stance, attitudes, values, and practical behaviors of young students. These multimodal information create a "soft" environment for IPE, serving as an important source for university teachers' teaching materials and students' independent learning of ideological and political courses.

(2) Intelligent teaching platform

The intelligent teaching platform is a strategic project that conforms to the trend of the times and promotes the digitization of education. It supports ideological and political course teachers in universities to publish online pre-class preview outlines and other ideological and political course documents, enable automated and efficient attendance systems, and view results in real time. It also publishes and compiles classroom quizzes and assignments, uploads courseware after class, answers

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students' questions in real time, collects and reviews students' assignments, etc. The intelligent system automatically records and uploads live broadcast courses, covering both offline classrooms and online remote learning students, monitors and records students' learning data throughout the process, scientifically analyzes and diagnoses teaching processes, and promptly feeds back discovered teaching problems to ideological and political course teachers in universities, helping them optimize teaching reflection and decision-making. In addition, it also supports bulletin board interactions between teachers and students, as well as between students, through pictures, text, emoticons, etc. At the same time, when learning ideological and political courses in universities, students can not only independently choose learning resources, content, and teachers, but the intelligent teaching platform can also adjust learning content, plans, difficulty levels in real time according to students' needs and performance, intelligently recommend relevant classic literature, thematic educational activities, theoretical lectures, study groups, etc., collect data related to students' independent learning topics, duration and progress, answer questions, learning interests, views and attitudes towards problems, ideological and theoretical levels, etc., generate corresponding reports, and propose constructive learning planning paths.

The intelligent teaching platform for ideological and political courses in universities, on one hand, is based on the principle of learning according to needs and promoting teaching through learning. It fully provides ideological and political course teaching resources, facilitates literature and knowledge inquiry, observes and learns from demonstration courses, shares teaching courseware and information, conducts online collective lesson preparation and adaptive learning. It serves as an important research and training base for teachers and students to enhance themselves, ensuring their learning autonomy and sense of gain to the greatest extent. On the other hand, it aims to cultivate virtue and educate people, focusing on improving students' comprehensive quality and promoting their all-round development in morality, intelligence, physique, aesthetics, and labor. It offers columns such as theoretical learning, current political news, party history learning, legal learning, moral character learning, cultural learning, investigation and research, practical labor, etc., to consolidate the effectiveness of ideological and political course teaching in universities.

(3) Intelligent teaching machine

Intelligent teaching machines, as a forward-looking application of technology in the field of teaching, are "virtual partners" and "intelligent learning companions" developed with the aid of artificial intelligence, teaching data mining, and cloud technology, primarily intended to assist students in their learning. They possess characteristics such as non-emotionality, portability, adaptability, interactivity, tracking, and personalization.[3] They are capable of communicating and interacting with learners, guiding and recording their learning. For instance, Tsinghua University has developed an AI teaching assistant based on the platform and technical foundation of the multi-modal large model GLM with billions of parameters, and integrated it with multiple pilot courses.[4]Advanced intelligent teaching machines can help students clarify the inherent relationships between stories, truths, and academic theories based on ideological and political course textbooks in universities, deeply study Marxist theory, collect process data of their theoretical knowledge construction, and respond to their ideological questions and knowledge confusion points. They can also assist students in clarifying the inherent relationships between stories, truths, and academic theories based on ideological and political course textbooks in universities, deeply study Marxist theory, collect process data of their theoretical knowledge construction, and respond to their ideological questions and knowledge confusion points.

The intelligent teaching machine supported by digital technology is constructed by three major models. First, the learner model, which fully collects, stores, and updates students' basic information, learning methods of ideological and political courses, and interests. Basic information includes students' gender, grade, major, student ID, etc. Learning methods include preferences for online or offline learning, self-study or mutual learning, narrative teaching or theoretical teaching, understanding of textbook knowledge, thinking methods, grasp level, and interests in learning ideological and political courses include specific chapters of textbooks, specific knowledge points of a certain lesson's teaching content, related questions expanded from a specific knowledge point, and other focuses.

Secondly, the professional knowledge model. For intelligent teaching machines to be competent in academic guidance, they must possess sufficient professional knowledge or resources related to ideological and political courses in universities, including digitized ideological and political course materials, courses, and other resources. These resources should be intelligently provided to students in real-time to meet their learning needs. Furthermore, traditional flat textbooks should be transformed into digital, three-dimensional, and editable intelligent textbooks. High-quality video courses and lectures from various universities should be categorized and stored according to different educational

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levels, such as undergraduates, postgraduates, and vocational college students. This compilation should include various ideological and political teaching resources such as the ideological and theoretical resources of the Communist Party of China, thematic resources, thematic activities, and ideological and political materials, in order to provide comprehensive resource services for students' learning.

Thirdly, the emotional value interaction model aims to provide students with positive emotions and value guidance, offering them humanistic care in understanding, expressing, and simulating human emotions, thereby satisfying their emotional needs. Simultaneously, to deepen the integration with IPE in universities, the core values of socialism can be integrated into intelligent teaching machines to leverage their value-guiding role. Furthermore, in the study of ideological and political courses in universities, professional intelligent teaching machines can promote the party's lines, principles, policies, and theories, providing a more precise insight into students' emotions, attitudes, and ideological dynamics when learning these courses. This helps them identify and resist the influence of erroneous ideologies, strengthening their political beliefs and ideals, as well as other socialist ideologies. Centered around students' needs and development, courses, lectures, deeds, works, and other related content related to the core values of socialism can be designed and pushed to help students establish correct value orientation and cultivate them into newcomers of the era with a strong sense of patriotism and social responsibility.

4. Approaches to Empowering Intelligent Teaching of Ideological and Political Courses in Universities with Digital Technology

Empowering intelligent teaching of ideological and political courses in universities with digital technology requires enhancing the technological literacy of teachers, improving the performance of digital teaching technologies, and strengthening the application of intelligent technologies in teaching scenarios, thereby promoting reform and innovation in ideological and political course teaching.

(1) Enhance the technological literacy of ideological and political course teachers in colleges and universities

Teachers are the main force in IPE in universities and the guides for young students. Their literacy and abilities play a crucial role in the application of digital technology in IPE in universities. In the information age, as ideological and political teachers in universities, they should not only be politically strong, have deep feelings, innovative thinking, broad vision, strict self-discipline, and positive personality, but also actively adapt to changes, seize the opportunities presented by digital technology, and enhance their technological literacy. Technological literacy mainly includes technological awareness, technological knowledge, technological application, and technological ethics. Technological awareness refers to the understanding and application of digital teaching technology and its equipment development trends by ideological and political teachers in universities, as well as their consciousness and sense of responsibility. Technological knowledge refers to the cognition and degree of understanding of theoretical knowledge such as the concept, history, principles, methods, and application fields of teaching technology by ideological and political teachers in universities. Technological application refers to the specific skills, processes, and effects of ideological and political teachers in universities in using or creatively applying teaching technology to solve teaching problems or achieve teaching goals in ideological and political courses. Technological ethics refers to the ethical issues that ideological and political teachers in universities need to pay attention to and regulate when applying teaching technology, including how to correctly handle the relationship between humans and technology, the fairness issues, privacy issues, security issues faced when applying technology, and the ethical norms that should be followed.

On the one hand, cultivating and enhancing the technological literacy of ideological and political course teachers in universities can be achieved by establishing a digital teaching and research system for ideological and political courses in universities nationwide online, hiring professional technicians or key teachers offline, strengthening the training and practical exercise of teaching technology application for ideological and political course teachers in universities, improving their digital literacy, information literacy, media literacy, application skills, collaboration ability, innovation ability, ethical awareness, etc., encouraging teachers to creatively apply digital technology in actual teaching, incorporating it into the performance evaluation, award and appraisal system, and the related theoretical research and practical achievements can also serve as a reference for professional title evaluation.

On the other hand, ideological and political course teachers in universities should also possess the

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corresponding awareness and ability of technological teaching, master the basic knowledge and practical skills of technological teaching, and be proficient in utilizing digital technology platforms to obtain ideological and political course teaching resources, such as "National Network Collective Preparation Platform for Ideological and Political Course Teachers in Universities", "Resource Development System of Ideological and Political Course Teaching Innovation Center in Universities", "Xinhua IPE", "People's Open Class", "Study Power", etc. They should actively participate in online collective preparation and form collaborative teaching teams; be proficient in operating Office software, especially the basic production tutorials and skills of PPT teaching courseware; apply technological programs or software such as Tencent Meeting, Zoom, "Lanmo Cloud", Canvas, etc. for teaching management and display. On this basis, ideological and political course teachers in universities can also improve their technological teaching level, such as enhancing the level of courseware production; using teaching technology to comprehensively collect learning situations, analyze teaching data, explore teaching problems, teaching rules, teaching trends, etc.; creatively combining teaching technology with the content and form of ideological and political courses, and even attempting to integrate virtual reality technology into ideological and political course teaching in universities, carrying out scene-based teaching, etc.

(2) Improve the performance of digital teaching technology

The application of digital technology in intelligent teaching of ideological and political courses in universities requires two qualities: educational and humanistic. The former is an inherent requirement of the teaching nature of ideological and political courses in universities, which are ultimately about "people". For digital technology to better fit human activities and form a good relationship between humans and technology, further optimization of performance in emotional perception and human-computer interaction is needed.

Firstly, in terms of educational effectiveness, digital teaching technology still has shortcomings in educating individuals. Currently, there is a wide range of highly technical technologies available, and their teaching applicability still has significant room for improvement. On the one hand, it is possible to integrate the value orientation of cultivating moral character into the design, development, and application of technological tools or programs, based on the needs of teachers and students, without increasing the burden on teachers. This can create a series of practical, powerful, and easy-to-operate teaching technology tools or programs for them, expanding their knowledge, emotions, and abilities. On the other hand, whether it is intelligent teaching environments, teaching platforms, or teaching machines supported by digital technology, they must follow a value-rational orientation in teaching dissemination. This means converting general resources into resources for IPE in universities, converting IPE resources into ideological theory and knowledge values, and converting ideological theory and knowledge values into language that students enjoy and that enlightens their minds. It is also necessary to use technology to automatically analyze and filter harmful online resources, reducing their misleading or corrosive effects on students' thoughts, psychology, and values, helping them clarify facts and make correct value judgments and choices.

Secondly, in terms of emotional perception, emotion is an essential element of intelligence and a basic need for learning and life. Currently, intelligent teaching machines supported by digital technology have made breakthroughs in visual and auditory perception, with increasingly refined perception range, sensitivity, accuracy, stability, and repeatability, providing important assistance for IPE in universities. However, they still need to be improved in deep emotional and psychological perception. Technicians need to further develop technologies that can perceive, recognize, and understand students' emotions, strengthen the collection and integration of multimodal data such as facial expressions, physiological reactions, speech recognition, and series of actions, and continuously improve the performance of emotional perception models using deep learning technologies such as convolutional neural networks (CNN) and recurrent neural networks (RNN), so that intelligent teaching machines can achieve qualitative breakthroughs in emotional perception, thereby providing personalized emotional services or humanistic care for students' learning of ideological and political courses.

Thirdly, in terms of human-computer interaction, interaction is an essential function of intelligent teaching, especially intelligent teaching machines. However, current actual interactions are mostly task-based rather than autonomous. Students input text through keyboards, screens, and voice control systems, and the computer generates corresponding outputs based on preset programs. The common form is subject input - screen - computer output. The interaction process is relatively mechanical, the method is relatively single, and the autonomy is relatively weak. Not only is the output information limited by the interface, but it may also weaken people's physical action and voice expression

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interaction abilities in the long run. Therefore, in order to improve the interactive performance of digital technology and the learning experience of students, and to promote intelligent teaching of ideological and political courses in universities, professional and technical personnel are needed to further develop and optimize interactive technology, improve the human-computer interface, and move towards a barrier-free new human-computer interface. White light holography technology should replace stereoscopic displays or glasses, and brain-computer interfaces (BCI), camera tracking, and natural language understanding technology should replace gloves or keyboards. The development of body language interaction technologies such as gestures and movements should be strengthened, and more diverse, smooth, intelligent, and immersive interactive or dialogue technology systems should be continuously created.

(3) Enhance the application of intelligent technology in teaching scenarios

Strengthening the intelligent application of digital technology in IPE in universities is an important measure to promote the integration of modern technology and ideological and political work, which has certain significance in activating IPE and enhancing its appeal. The construction of virtual simulation teaching resources and platforms is a specific application of emerging digital technologies such as virtual reality technology in IPE in universities. This innovative measure is not only an important task in promoting intelligent teaching of ideological and political courses in universities, but also a new manifestation of implementing the work ideas and methods of cultivating virtue and fostering talent.

The intelligent virtual ideological and political classroom can simultaneously trigger students' sensory systems such as vision, hearing, and touch, as well as behavioral systems such as human body movements. The multi-sensory surround of stereoscopic vision, sound, and other forms can provide people with a stronger sense of immersion. When immersed in a virtual immersive space, students can see, hear, and feel the experience, as if they were present and experiencing it. They can immerse themselves in it and become part of the scene, exploring the laws of nature, society, and the operation of thinking in a high sense of presence and on-site feeling, and deeply understanding the essence of teaching. Through intelligent teaching elements, students' emotional resonance and ideological sublimation are triggered, enabling them to extend the theoretical content of teaching to daily life practice through "hands-on" participation, thereby achieving comprehensive development under the unity of theory and practice.[5]

Currently, some universities have already begun deploying virtual simulation ideological and political courses. For example, Shanghai Jiao Tong University's "Eastern Road" virtual simulation project has been approved as the National University Ideological and Political Course Virtual Simulation Experience Teaching Center (Cultivation). Beijing Institute of Technology has established an intelligent interactive and immersive virtual simulation ideological and political theory course experience teaching center.[6] The Marxism Institute of Inner Mongolia University of Finance and Economics has built the first shared virtual reality practical teaching base for ideological and political theory courses in the region. Teachers of ideological and political courses in universities can use virtual reality technology to construct observable and sensory ideological and political narrative scenes, recreating historical events and red sites, etc., so that students can experience the hardships of the Chinese revolution's victory and the charm of the great founding spirit of the Party in a "simulated" historical context, enhancing their sense of historical mission and responsibility. It is also possible to integrate the whole process of people's democracy, socialist culture with Chinese characteristics, poverty alleviation, epidemic prevention, rural revitalization, and the construction of a beautiful China, which are world-renowned achievements, into virtual ideological and political classes, allowing students to personally experience the Chinese spirit, wisdom, strength, and responsibility, guiding them to set lofty ambitions, become strivers in the new era, and consciously devote themselves to the great practice of Chinese path to modernization.

Digital technology serves as the driving force behind construction, and technological application, as a manifestation of human needs and agency, is the ultimate goal of construction. In the technological teaching of ideological and political courses in universities, the true essence of application lies in its integration with people's actual needs. It's not just about technology; application is paramount. Starting from teaching needs and focusing on practical benefits, we should prioritize the informatization and digitization of ideological and political course teaching in universities through application. This approach will deepen the empowerment of digital technology in ideological and political course teaching in universities, allowing teachers and students to genuinely experience the convenience and effectiveness that technology brings to teaching.

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5. Conclusion

Embarking on a scholarly expedition to demystify the mechanisms by which digital technology invigorates the intelligent pedagogical paradigm within the realm of higher education's IPE curricula, this research endeavors to articulate the foundational technological and instructional frameworks undergirding this pedagogical model. It meticulously examines the tangible expressions of intelligent teaching and delves into the strategic optimization and judicious deployment of technological assets to catalyze a more profound amalgamation of avant-garde digital technologies with educational content.

The discourse elucidates that the bedrock of intelligent teaching in IPE courses is firmly established upon the triumvirate of machine learning, natural language processing, and human-computer interaction technologies. The pedagogical merits and latent capabilities of digital technology, when synchronized with the imperatives of students' intelligent adaptive learning, constitute the pragmatic fulcrum for its empowering role in higher education. The advent of digital technology has precipitated the genesis of sophisticated intelligent teaching milieus, platforms, and mechanical pedagogues within the IPE curriculum.

To propel the advancement of intelligent teaching in these courses, there is an ineluctable necessity to augment the technological acumen of IPE pedagogues, to finesse the operational efficacy of digital instructional technologies, and to amplify the pedagogical application of intelligent technologies across various teaching contexts. In actual pedagogical practice, there is a need for further research to enhance the degree of intelligence in IPE teaching, the comfort level of students in technological learning, and to achieve a collective advancement of teachers, technology, and the teaching process itself.

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