

The Construction of a Practical Teaching System for Collaborative Education of Ideological and Political Education in Higher Education Courses under the Background of Digitization: Theory, Challenges, and Breakthroughs

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Abstract: *The wave of digitization reshapes the education ecology, bringing opportunities for the practical teaching of ideological and political collaborative education in university courses, but also triggering a series of challenges. This article is supported by Marxist humanistic theory, collaborative theory, etc., defining the core concepts of digitization and curriculum ideological and political collaborative education, and systematically analyzing the dual impact of digitization on ideological and political education - both through precise teaching and innovative education models in virtual scenarios, as well as constraints caused by insufficient digital literacy and data security risks of teachers and students. Based on practical research, reveal the current system's difficulties such as poor internal collaboration, loose cooperation between schools, government, enterprises, and society, and insufficient integration of teaching content and digital technology. On this basis, a path for constructing a practical teaching system is proposed from four dimensions: improving collaborative mechanisms, optimizing teaching systems, enhancing teacher capabilities, and upgrading evaluation systems. This provides theoretical references and practical paradigms for enhancing the effectiveness of ideological and political education and cultivating new talents in the era.*

Keywords: *Digitalization, Universities, Course Ideology and Politics, Collaborative Education*

1. Introduction

Currently, the wave of digitization is spreading globally, profoundly reshaping production and lifestyle, and the education sector is also facing changes. Digital technology and artificial intelligence bring opportunities to education, such as enriching teaching resources, innovative methods, precise learning situation analysis, and promoting educational model innovation; At the same time, new requirements have been put forward for traditional educational concepts, methods, and talent cultivation models.

In the field of ideological and political education in universities, the influence of digitization has both sides. On the one hand, the Internet and new media have broadened ideological and political education resources and communication channels. Multimedia, VR, AR and other technologies can transform abstract ideological and political theories into intuitive scenes, enhance students' experience and emotional resonance, and enhance their interest in learning; On the other hand, the rapid and diversified dissemination of information has led to the collision of ideological trends, making students vulnerable to interference from negative ideas, which undermines the authority of ideological and political education, and places higher demands on the digital literacy and technological application abilities of educators.

The construction of a collaborative teaching system for ideological and political education in university courses under the background of digitization is of great significance. On a practical level, it is possible to integrate technology and collaborative concepts, innovate teaching methods, improve the quality and effectiveness of ideological and political education, cultivate students' correct values, and integrate ideological and political education into the entire process of talent cultivation, helping to cultivate high-quality talents that meet the needs of the times; At the theoretical level, it can enrich the theoretical system of ideological and political education across disciplines, expand the understanding of the laws of ideological and political education, and promote the combination of educational teaching theory and practice, providing practical basis for the development of theory.

2. Theoretical basis for the synergy of digitalization and ideological and political education in university courses

2.1 Definition of related concepts

Digital intelligence technology is a complex of digitization and intelligence, covering technologies such as big data, artificial intelligence, cloud computing, the Internet of Things, VR, AR, etc. Among them, big data can assist personalized teaching by analyzing student learning behavior data; Artificial intelligence relies on intelligent teaching systems to achieve dynamic adjustment of teaching content, intelligent Q&A, and other functions, reducing the burden on teachers; VR can build virtual environments to provide immersive learning experiences, while AR can integrate virtual and real scenes to enhance knowledge intuitiveness. These technologies work together to promote the transformation of education towards intelligence, individuality, and diversity.

The curriculum of ideological and political education is centered around the concept of educating all staff, the entire process, and the entire curriculum. It integrates ideological and political elements into professional curriculum teaching, achieving the unity of knowledge transmission and value guidance. It emphasizes that educating students is the common responsibility of all teachers, and all types of courses need to undertake the mission of educating students. Collaborative education focuses on the cooperation of multiple subjects in curriculum ideological and political education, with the overall planning of university committees, the guarantee and coordination of administrative departments, the implementation of tasks by educational colleges and departments, the provision of theoretical support by ideological and political course teachers, the exploration of ideological and political elements by professional course teachers, the cooperation of counselors in daily education, and the active participation of students. Through a sound mechanism, various subjects form a collaborative effect to achieve the goal of all-round education.

2.2 Theoretical basis

2.2.1 Marxist humanistic theory

Marxist humanistic theory emphasizes that the essence of human beings is the sum of all social relations, and the comprehensive development of human beings is the core value pursuit of Marxism[1]. In the collaborative education of ideological and political education in university courses, this theory provides important guidance for student-centered ideological and political education. It requires educators to fully respect the subject status of students, pay attention to their individual differences and developmental needs, and view students as individuals with subjective initiative and creativity, rather than passive recipients of knowledge and ideas. Through ideological and political education courses, students are guided to establish a correct worldview, outlook on life, and values, cultivate their sense of social responsibility, innovative spirit, and practical ability, promote their comprehensive development in morality, intelligence, physical fitness, aesthetics, labor, and other aspects, and become high-quality talents that meet the needs of social development. In the process of ideological and political education, emphasis is placed on guiding students to participate in social practice, allowing them to experience social relationships in practice, enhance their understanding and sense of responsibility towards society, and achieve their comprehensive development.

2.2.2 Collaborative theory

The synergy theory holds that the synergistic effects between various elements in a system can produce an overall effect of "1+1>2". In ideological and political education in universities, collaborative education of ideological and political courses involves multiple subjects and resources [2]. Through collaborative theory, these resources can be integrated to form a synergistic effect. Schools, families, society and other parties should strengthen cooperation to jointly create a good ideological and political education environment for students; Ideological and political theory courses should be aligned with professional courses, achieving an organic combination of knowledge transmission and value guidance; Different disciplines should also permeate each other, explore the ideological and political elements in each discipline, and form a comprehensive educational force. By establishing collaborative mechanisms, such as regularly holding collaborative education work meetings, conducting joint teaching and research activities, and establishing shared resource platforms, we can promote information exchange and resource sharing among various entities, optimize the education and teaching process, and improve the quality and effectiveness of ideological and political education.

2.2.3 Educational communication theory

The theory of educational communication studies the process, methods, and effects of disseminating educational information[3]. In the context of digital intelligence, with the help of digital intelligence technology, such as the Internet, multimedia, mobile terminals, etc., the communication channels of ideological and political education information are more diversified, the communication speed is faster, and the communication scope is wider. The application of educational communication theory can optimize the dissemination effect of ideological and political education information. In terms of dissemination content, attention should be paid to transforming abstract ideological and political theories into vivid, visual, and easily accepted forms by students, combined with current affairs hotspots, case analysis, etc., to enhance the attractiveness and infectiousness of the content; In terms of communication methods, diversified communication methods should be adopted according to the characteristics and needs of students, such as combining online and offline, combining classroom teaching with practical activities, combining teacher lectures with student interaction, etc., to improve students' participation and enthusiasm; In the evaluation of communication effectiveness, big data analysis and other technologies are used to timely understand students' reception and feedback on ideological and political education information, in order to adjust communication strategies, improve communication effectiveness, and enable ideological and political education information to better reach students' hearts and achieve educational goals.

3. Analysis of the current situation of the collaborative education practice teaching system for ideological and political education in higher education courses

3.1 Components of the practical teaching system

3.1.1 Teaching objectives

Under the background of digitalization, the knowledge objectives of collaborative education of ideological and political education in university courses focus on students' systematic mastery of ideological and political theory knowledge such as the basic principles of Marxism and the theoretical system of socialism with Chinese characteristics. It requires them to clarify the "Four Histories" and the development context of the country, while deeply understanding the ideological and political elements contained in professional courses, such as professional ethics and professional ethics, to achieve the integration and construction of ideological and political education with professional knowledge. The ability goal focuses on cultivating students' ideological and political literacy, enabling them to establish correct values and apply Marxist standpoint methods to solve practical problems; Through practical activities such as social research and volunteer service, we aim to enhance students' practical innovation, teamwork, and communication skills to meet the needs of social development. The value goal aims to guide students to cultivate patriotism and stimulate their enthusiasm for striving for national rejuvenation; Cultivate a sense of social responsibility and dedication, and promote students to pay attention to society and participate in public welfare; At the same time, we continuously strengthen our information literacy and digital ethics awareness in the digital environment, ensuring that students use digital technology in a standardized manner and maintain network information security.

3.1.2 Teaching content

The practical teaching content of ideological and political collaborative education in university courses focuses on the imparting of ideological and political theory knowledge, using core courses such as "Introduction to the Basic Principles of Marxism" and "Ideology, Morality, and Rule of Law" as carriers to help students master the Marxist standpoint, viewpoint, and method, clarify the historical context of the leadership in revolution, construction, and reform, and build a solid foundation of ideals, beliefs, and morality. Secondly, it is necessary to deeply explore the ideological and political elements of professional courses and integrate them into practical teaching: science and engineering rely on scientific research projects and engineering practices to cultivate students' spirit of science, innovation, craftsmanship, and professional ethics in scientific research; Humanities cultivate a sense of social responsibility, humanistic care, and critical thinking through case analysis and social research; Law strengthens the concept of the rule of law through simulated courts and legal aid, while medicine permeates professional ethics and humanistic spirit in clinical internships and doctor-patient communication. In addition, the application of digital intelligence technology is an important module that needs to guide students to master the basic principles and application methods of technologies such as big data and artificial intelligence. With the help of online platforms, virtual simulation experiments,

and data analysis tools, students can enrich their practical forms, optimize personalized teaching through big data, and enhance learning intuitiveness through virtual scenes to improve teaching effectiveness.

3.1.3 Teaching methods and means

Case teaching method is one of the core methods of practical teaching, and teachers select typical ideological and political cases and professional cases to guide students to analyze. When explaining the core socialist values, we organize discussions based on exemplary social moral behavior to help students deepen their understanding of the value connotations; We combine engineering projects or research cases in professional courses to explore ideological and political elements, and cultivate students' professional ethics and moral concepts. Project based learning focuses on task driven learning, with teachers designing challenging projects and students using ideological and professional knowledge in group collaboration to solve practical problems. In social hot topic research ideological and political projects, students strengthen their sense of social responsibility and mission by proposing solutions, while also enhancing their teamwork, innovation, and practical abilities. Blended online and offline teaching relies on digital technology to optimize its effectiveness, while online course platforms support self-directed learning and expand time and space; Offline interaction is strengthened through classroom discussions and practical activities. During the practical session, teachers post tasks and materials online for preview, organize practical discussions offline, and provide feedback through online reviews. Meanwhile, multimedia VR/AR, The use of intelligent teaching platforms and other tools can create immersive learning scenarios, achieve dynamic monitoring of learning situations and personalized guidance, and enrich teaching methods.

3.1.4 Teaching evaluation

The practice teaching of ideological and political collaborative education in university courses adopts a diversified evaluation system. Process evaluation focuses on the entire learning process of students, tracking their growth comprehensively by recording their participation, collaboration, and problem-solving abilities in classroom discussions, group collaborations, and practical activities; Relying on digital intelligence technology to collect real-time online learning data (such as duration, homework completion, and discussion quality), analyze learning behavior, promptly identify problems, and provide targeted guidance. Consequential evaluation focuses on the mastery of knowledge and skills, and quantitatively evaluates through exams, assignments, and project results. Exams not only examine ideological and political education and professional knowledge memory and understanding, but also pay more attention to knowledge application ability and ideological and political literacy; The evaluation of project achievements focuses on innovation, practice, collaboration ability, and the quality and application value of the results. Smart technology provides scientific support for evaluation: big data analysis deeply mines learning data, objectively evaluates learning situations and discovers patterns, and serves personalized teaching; Machine learning constructs evaluation models to predict academic and comprehensive qualities to assist teaching decisions; Artificial intelligence enables automatic grading of homework exams, improving evaluation efficiency and accuracy, and providing personalized learning suggestions simultaneously.

3.2 Implementation difficulties of practical teaching system

3.2.1 Incomplete collaborative mechanism

There are significant obstacles to collaboration within universities. Firstly, communication between departments is not smooth, and there is a lack of effective information sharing channels among teaching, student work, logistics and other departments, resulting in a discontinuity in the connection of work and an imbalance in resource allocation in practical teaching organizations. For example, conflicts between teaching plans and student management arrangements in social practice, lagging material support, and affecting the progress of teaching; Secondly, the definition of responsibilities is vague, and various departments have unclear understanding of the responsibility of collaborative education. There is a phenomenon of responsibility shifting, weak integration of ideological and political resources, and professional course teachers classify ideological and political education as the responsibility of ideological and political course teachers, neglecting the integration of ideological and political education into professional courses. Due to professional limitations, ideological and political course teachers find it difficult to collaborate, weakening the joint force of education.

The collaborative mechanism between universities and external entities also has shortcomings. Loose cooperation with enterprises and communities, lack of long-term stable cooperative relationships: low enthusiasm of enterprises to participate in practical teaching, limited opportunities and guidance for

practice, resulting in insufficient authenticity and effectiveness of practical teaching; Social practice activities in collaboration with communities often remain superficial, lacking depth and sustainability, and fail to achieve the goal of collaborative education.

3.2.2 The disconnect between practical teaching and theoretical teaching

In practical teaching, the practical teaching content is not closely related to ideological and political theory courses. The ideological and political theory course emphasizes the imparting of theoretical knowledge, while practical teaching often lacks in-depth application and practice of ideological and political theory, resulting in students being unable to transform the ideological and political theory knowledge they have learned into practical actions in practice. When carrying out volunteer service activities, students simply participate in the service without deeply thinking about the ideological and political connotations behind volunteer service, and cannot truly understand the embodiment of socialist core values in practice.

There is also a phenomenon of insufficient connection between practical teaching content and professional theoretical courses. The teaching of professional theoretical courses focuses on the explanation of knowledge, while practical teaching fails to integrate professional theoretical knowledge well, resulting in students being unable to apply professional knowledge to solve practical problems in practice, which affects their mastery of professional knowledge and the improvement of their application ability. In practical teaching of engineering majors, practical projects may only be simple operational exercises without combining them with engineering principles, design methods, and other theoretical knowledge in the field. Students may not have a deep understanding of the practical application value of professional knowledge.

There are also unreasonable situations in the teaching arrangement between practical teaching and theoretical teaching. Practical teaching is often arranged after theoretical teaching and for a short period of time, resulting in students' memory of theoretical knowledge being blurred during practice and unable to effectively combine theory with practice. Some universities lack systematic and coherent practical teaching, and there is no organic whole formed between various practical projects, which cannot comprehensively cultivate students' practical abilities and comprehensive qualities.

3.2.3 Mismatch of teaching staff abilities

Through a survey of university faculty, it was found that some teachers have insufficient abilities in the application of digital technology. Some teachers have limited understanding of digital technologies such as big data, artificial intelligence, and cloud computing, and are unable to effectively apply them in teaching. When using online learning platforms for teaching, some teachers simply upload teaching materials to the platform, lacking in-depth exploration and utilization of platform functions, and unable to achieve personalized and precise teaching. When using data analysis tools to analyze students' learning situation, many teachers are not familiar with data analysis methods and tools, and cannot extract valuable information from massive data to provide support for teaching decisions.

In terms of integrating ideological and political education into the curriculum, some teachers also have the problem of insufficient ability. Some teachers do not have a deep understanding of the connotation and requirements of ideological and political education in the curriculum, making it difficult to explore the ideological and political elements in professional courses during teaching, or simply adding ideological and political content rigidly to professional teaching, which cannot achieve the organic integration of ideological and political education and professional education. Some teachers lack methods and skills for teaching ideological and political education in the curriculum, and are unable to effectively guide students to think and discuss ideological and political issues in teaching, resulting in poor effectiveness of ideological and political education in the curriculum. Some teachers' own ideological and political literacy and moral qualities also need to be improved, and they are unable to lead by example in teaching, set a good example for students, and affect the effectiveness of the collaborative education of ideological and political education in the curriculum.

4. Strategies for building a collaborative teaching system for ideological and political education in higher education courses under the background of digitization

4.1 Improve the collaborative education mechanism

Internal collaboration within universities is the core of building a practical system for collaborative education of ideological and political courses. The committee of universities needs to play a leading core

role, incorporate it into the school's development strategy, formulate supporting policies and systems, regularly hold special meetings to coordinate the relationship between departments and colleges within the school, and ensure the progress of work. As the main battlefield for ideological and political education, the Marxist Academy should take the lead in conducting theoretical research, exploring the ideological and political elements of Marxist theory, and assisting professional course teachers in improving their ideological and political teaching abilities through seminars, training, and other forms. Each professional college needs to establish a working group led by the dean, develop a construction plan, clarify the ideological and political goals and content of the curriculum, and promote teachers to integrate ideological and political elements into the entire teaching process, such as cultivating students' scientific spirit and professional ethics through the deeds of scientists and cases of scientific research team cooperation in science and engineering. At the same time, it is necessary to establish a regular communication mechanism at both the school and college levels, supplemented by work groups to achieve information sharing and ensure subject collaboration.

Deepening school government enterprise social cooperation is an important way. Universities can collaborate with enterprises to establish practice bases, where enterprises provide practical resources and mentors to cultivate students' professional ethics while imparting professional skills; Collaborate with the community to carry out volunteer services, social research, and other activities to enhance students' sense of social responsibility and practical abilities. To maintain cooperation, universities need to proactively connect with needs, sign cooperation agreements, establish a full process project management mechanism, and promote resource sharing - universities provide talent research support, enterprises provide practical resources, and communities provide practical venues and research materials to achieve mutual benefit and deepen collaborative education.

4.2 Optimizing practical teaching content and methods

The deep integration of digital technology and ideological and political elements is the core of optimizing practical teaching content. Taking the course "Principles and Applications of Artificial Intelligence" in computer science as an example, when explaining algorithms, we introduce achievements in China's AI field such as Baidu PaddlePaddle framework, combined with its role in promoting the economy and society, to inspire students' national pride and patriotism; This study is based on the application of artificial intelligence in medicine. We guide students to explore ethical issues such as data privacy protection and algorithm bias, and cultivate a sense of social responsibility and professional ethics; The practical stage requires students to develop projects with social value such as intelligent environmental monitoring systems, strengthen innovation spirit and service awareness, and achieve the unity of knowledge imparting and value guidance.

Innovative practical teaching methods are key means to enhance the effectiveness of education. We design immersive ideological and political practices based on VR technology, such as the construction of historical scenes such as the Opium War and the May Fourth Movement in the "Outline of Modern Chinese History" course. Students can immerse themselves in history through VR devices, deepen their understanding of national independence and prosperity, and enhance their patriotic emotions. We integrate ideological and political resources through online practice platforms (such as the "Ideological and Political Cloud Practice" platform), support students to independently choose practical projects, and interact and communicate through online discussion forums. Teachers can monitor learning progress in real time and provide guidance; Based on the platform, social research is conducted, and students collect data in groups through online questionnaires and interviews. Analytical tools are used to process the data, such as conducting research on "college students' understanding and practice of socialist core values" and providing suggestions to enhance their practical, innovative, and collaborative abilities.

4.3 Strengthening the construction of the teaching staff

Improving teachers' digital literacy and ideological and political teaching ability is a key guarantee for the construction of the system. In terms of improving digital literacy, a systematic training plan needs to be developed, covering topics such as big data analysis, AI applications, VR technology, etc., and updating teachers' technical cognition and operational abilities through expert lectures and enterprise practice exercises; Establish a "theory+practice" assessment mechanism, incorporating assessment results into performance evaluation, and combining teaching reflection and student evaluation to assess the effectiveness of technology application. In terms of improving ideological and political teaching abilities, we rely on seminars, specialized training, and teaching observation activities, invite experts to guide and share cases, encourage teachers to conduct teaching research, and establish reform projects to

provide financial support; We Establish an assessment mechanism from dimensions such as teaching objectives and integration of ideological and political education, and link the assessment results with professional title evaluation and excellence evaluation to strengthen teachers' motivation for improvement.

Establishing a diverse collaborative teaching team is an important approach, selecting experienced and highly qualified ideological and political course teachers, professional course teachers, and enterprise mentors to form a team: ideological and political course teachers provide theoretical guidance and direction guidance, professional course teachers integrate ideological and political education with professional content, and enterprise mentors provide industry cases and practical guidance. The team adopts a regular operation mode, holding weekly teaching and research meetings to discuss teaching issues, members listen to each other's lectures and communicate, and enterprise mentors regularly come to the school to give lectures; We jointly design teaching plans (such as integrating corporate social responsibility content into the "Principles of Management" course), collaborate to guide practical activities, empower students from the dimensions of ideological and political literacy, professional application, and industry practice, and enhance their comprehensive quality.

4.4 Establish and improve the teaching evaluation system

Constructing diversified evaluation indicators is the core of objectively evaluating the effectiveness of practical teaching. The evaluation of student learning outcomes should take into account both ideological and political education as well as professional knowledge mastery (through exams and homework assessments), and rely more on open-ended questions to test knowledge application and innovation abilities; The evaluation of practical ability focuses on students' comprehensive performance in participation, collaboration, operation, research plan design, data processing, etc. in practical activities; The evaluation of ideological and political literacy combines daily behavior, ideological reporting, and participation in ideological and political activities to comprehensively assess students' values, moral qualities, and sense of social responsibility. The multidimensional indicator system provides scientific basis for teaching improvement and student cultivation.

Digital intelligence technology provides support for evaluating data collection and analysis. Using big data technology to collect data on students' online learning behavior (duration, completion of assignments), classroom interaction (questioning, discussion participation), practical performance, etc., analyzing learning patterns through data mining algorithms, identifying interest points and difficulties, and helping teachers adjust teaching to achieve accurate guidance; We develop an intelligent grading system using artificial intelligence technology to improve the efficiency of grading homework and test papers, and generate evaluation reports containing advantages, disadvantages, and improvement suggestions; We build a visualization platform for teaching evaluation data, presenting data in intuitive charts. Teachers can monitor learning progress in real time, optimize teaching, and management personnel can macroscopically control teaching quality, providing support for decision-making and promoting the improvement of the practical teaching system.

5. Conclusion and prospect

This study deeply explores the construction of a practical teaching system for ideological and political collaborative education in university courses under the background of digitization, which has important theoretical and practical value. At the theoretical level, the system elaborates on the theoretical basis of the synergy between digital technology and ideological and political education in university courses, including Marxist humanistic theory, synergy theory, and educational communication theory, providing solid theoretical support for subsequent research and enriching the theoretical connotation of ideological and political education in universities in the digital age. At the practical level, a comprehensive analysis was conducted on the opportunities and challenges brought by digitalization to the collaborative education of ideological and political education in university courses, providing clear ideas for universities to cope with the digitalization transformation. An in-depth analysis was conducted on the current situation of the collaborative ideological and political education practice teaching system in university courses, clarifying its constituent elements and implementation difficulties, and pointing out the direction for the construction of the system.

Through a series of strategic research, specific measures have been proposed to improve the collaborative education mechanism, optimize practical teaching content and methods, strengthen the construction of teaching staff, and establish a sound teaching evaluation system, providing operational

guidance for universities to build a scientific and effective curriculum ideological and political collaborative education practical teaching system. The case analysis conducted using Luoyang Normal University as an example has verified the effectiveness and feasibility of the proposed construction strategy. Its successful experience has important promotional value and provides useful reference for other universities. The construction of a collaborative teaching system for ideological and political education in universities under the background of digitization is of significant importance and feasibility, which is of great significance for improving the quality of ideological and political education in universities and cultivating socialist builders and successors with comprehensive development in morality, intelligence, physical fitness, aesthetics, and labor skills.

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