

Research on the curriculum ideological and political education construction model for IT specialty cluster of higher vocational college

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Abstract. In addressing challenges integrating ideological and political education into talent training and incorporating it into teaching and course design, we have conducted research based on the practical context of constructing a nationally high-level specialty cluster in software technology at our university. We've developed a comprehensive approach known as the "Point-Line-Plane" method for designing ideological and political courses. Through this approach, we've delved into the "Six-Entry Design" to establish the ideological and political teaching system, the "Three-Entry Orientation" innovative model for integrating ideological and political aspects into courses, the "Four-Way Integration" to shape the professional course system, and a "Five-Dimensional Strategy" to improve teachers' awareness and capabilities in curriculum ideological and political education construction. This course design model has successfully achieved a profound integration of curriculum ideological and political education with professional education. It offers a systematic implementation pathway for ideological and political course design in IT-related specialty clusters within vocational education, serving as a valuable reference for other disciplines aiming to fulfill the fundamental mission of moral education and character cultivation.

1 Introduction

Curriculum Ideological and Political Education is an important measure for implementing the fundamental task of cultivating virtues in higher vocational education, receiving high attention at the national level. In 2020, the Ministry of Education issued the "Guidelines for the Construction of Curriculum Ideological and Political Education in Higher Education," proposing to integrate curriculum ideological and political education throughout the talent cultivation system, comprehensively promote the construction of curriculum ideological and political education in higher education, leverage the educative role of each course, and enhance the quality of talent cultivation. The academic community

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has conducted in-depth research on topics such as how to construct the curriculum ideological and political education teaching system and talent cultivation system, and promote the deep integration of ideological and political education with professional courses[3, 4, 5]. However, there is a lack of research on practical aspects, such as "how to strengthen the top-level design of ideological and political education in specialty clusters", "how to explore and integrate ideological and political elements", and "how to achieve deep and lasting effects." There is an urgent need to strengthen the systematic design and method innovation of curriculum ideological and political education construction.

Currently, higher vocational colleges are vigorously promoting the construction of high-level specialty clusters. How to integrate curriculum ideological and political education throughout the entire process of professional teaching, and promote the deep integration of ideological and political education with professional education has become a hot topic in current and future research on curriculum ideological and political education. Therefore, this article, based on the actual construction of our school's national-level high-level specialty cluster in software technology, explores a "Point-Line-Plane" three-in-one curriculum ideological and political design method, investigates the teaching system and integration mode of curriculum ideological and political education in specialty cluster courses, and creates a school-based professional course system that forge character and educate individuals. The research aims to construct an effective curriculum ideological and political education model that achieves parallel development of professional courses and ideological and political courses, providing a systematic implementation method and approach for higher vocational colleges to carry out curriculum ideological and political education construction.

2 The main problems in the construction of curriculum ideological and political education in university courses

In the active promotion of curriculum ideological and political education in Chinese university courses, challenges persist in the construction process. The lack of integration into the professional talent cultivation system in higher vocational colleges leads to a generalization of ideological elements and difficulties in effectively incorporating them into teaching[6, 7]. Additionally, there is a low integration of ideological and political education with professional courses due to insufficient guidance on aligning ideological elements with professional characteristics, resulting in ineffective exploration and potential rigidity[8, 9]. Furthermore, teachers exhibit weak awareness and teaching capabilities, hindering the internalization of curriculum ideological and political education as conscious behavior and impeding the integrated development of values, knowledge, and skills in talent cultivation[10].

3 Curriculum ideological and political education construction model.

3.1 Six-Entry design: constructing the curriculum ideological and political education teaching system

3.1.1 Integration of 'Point-Line-Plane': top-level design of curriculum ideological and political education for specialty clusters courses

In accordance with the Ministry of Education's "Guidelines for the Construction of

Curriculum Ideological and Political Education in Higher Education," we establish ideological and political planes in five areas: "Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era," "Core Socialist Values," "Chinese Excellent Traditional Culture," "Constitutional and Legal Education," and "Career Ideals and Professional Ethics" for the specialty cluster. Combining the characteristics of the six majors in our high-level software technology specialty cluster, we outline ideological and political lines reflecting each major's characteristics and those shared by the specialty cluster. Based on the curriculum ideological and political lines, we start from the knowledge points of professional courses, explore the ideological and political points embedded in each professional course, and formulate a top-level design of curriculum ideological and political education for the specialty cluster, embodying the integration of 'Point, Line, and Plane.'

Considering the characteristics of IT majors, the situation of higher vocational education, and the current teaching status, we systematically organize various elements of curriculum ideological and political education. This involves clarifying ideological and political goals and requirements, outlining ideological and political content, exploring ideological and political elements, developing ideological and political resources, and designing ideological and political evaluations. We construct an curriculum ideological and political element library for the specialty cluster including key components such as Ideological and Political Goals, Requirements, Contents, Elements, Resources, and Assessment.

3.1.2 Six-Entry design: precisely integrating ideological and political elements into the professional teaching system.

(1) Incorporate ideological and political elements into the talent cultivation program.

Analyzing the requirements and characteristics of each component in the talent cultivation program, and considering the characteristics of teaching reform in IT-related vocational education, various curriculum ideological and political education elements are integrated into different parts of the talent cultivation program. Taking the current talent cultivation program of our school as an example, the integration of ideological and political education elements into the talent cultivation program is illustrated in Table 1.

(2) Incorporate ideological and political elements into the talent cultivation program.

Analyze the characteristics and nature of basic courses, core courses, and elective courses in the specialty cluster curriculum system. Focus on the knowledge points of course content, integrate curriculum ideological and political education elements into course standards based on the characteristics of courses, and combine teaching implementation methods.

(3) Incorporate ideological and political education elements into textbooks and resources.

Establish the ideological and political education line in the textbooks, follow the inherent laws and basic characteristics of the content of each chapter in the textbooks, excavate curriculum ideological and political education points, select project cases and ideological and political materials that naturally integrate into the textbooks and resources, ensuring the organic integration of ideological and political elements with textbooks and resources. This facilitates teachers in carrying out curriculum ideological and political education in the curriculum.

(4) Incorporate ideological and political education elements into lesson plans and courseware.

Starting from the structural characteristics of the course content and the organization process of classroom teaching, based on the talent training program and the ideological and political education goals planned in the curriculum standards, explore the ideological and

political elements inherent in professional courses. Choose teaching materials and resources that are highly compatible, closely align with the teaching content, and integrate ideological and political elements into the teaching plan and courseware.

Table 1. Incorporating ideological and political elements into the talent cultivation program.

The elements of the talent cultivation program	Integration of ideological and political education elements	Revising normative requirements
Training objectives and specifications	Ideological and political education objectives, content, and elements	Clearly define the educational goals and content related to practicing the core socialist values, comprehensive development of morality, intelligence, physical fitness, aesthetics, and labor skills, scientific literacy, humanistic qualities, national pride, professional ethics, and innovation awareness. This includes cultivating craftsmanship, patriotism, and law-abiding behavior.
Core courses		Incorporate the literacy (ideological and political) goals and content into the core courses, aligning with the technical features of the curriculum to achieve a unified integration of knowledge, skills, and quality objectives.
Faculty team	Ideological and political education requirements	Clearly state that various teachers should adhere to the combination of knowledge imparting and value guidance, possessing the awareness and teaching capabilities to carry out ideological and political education in the curriculum.
Teaching resources	Ideological and political education resources	Selecting or creating characteristic ideological and political education materials, curating selected ideological and political materials, and developing digital resources for ideological and political education.
Teaching methods	Ideological and political education requirements	Incorporate teaching methods for ideological and political education, such as extended abstraction method, case penetration method, embedded thematic method, analogy mapping method, etc.
Learning assessment	Ideological and political education evaluation	Include assessment requirements for moral education goals, professional qualities, comprehensive qualities, and other aspects.

(5) Incorporate ideological and political education elements into course teaching.

In each link of course teaching, following the steps of starting from professional knowledge points, exploring ideological and political elements, selecting relevant ideological and political teaching carriers, and innovating teaching methods, integrate ideological and political elements into course teaching. Achieve the organic combination of ideological and political elements, teaching forms, and teaching content in a subtle way to achieve the teaching effect of “entering the mind, entering the heart, and entering practice”.

(6) Incorporate ideological and political education elements into course assessments

From the aspects of subjective evaluation, process evaluation, and performance evaluation, decompose the abstract ideological and political goals into a measurable, behavior-oriented evaluation indicator system covering teaching content, teaching methods, and teaching effectiveness. In the specific implementation of evaluation, make appropriate adjustments based on professional characteristics, course characteristics, and the teaching style of teachers.

3.2 Guided by the 'three entry orientation', innovate the mode of incorporating ideological and political education into the curriculum

Following the three stages of pre-class, in-class, and post-class, employing eight segments including online learning, situational introduction, task analysis, explanation and demonstration, group discussions, project training, summary evaluation, and expanded practice. Based on different ideological and political education carriers, adopting self-directed learning, inquiry-based, project-based, discussion-based, interactive, collaborative, and social practice teaching methods, facilitating independent learning, teacher-student interaction, role-playing, and group collaboration. Gradually infusing and deepening ideological and political elements in the curriculum, integrating value concepts with professional knowledge, achieving curriculum ideological and political education 'in the mind.' Utilizing real project cases for discussion and collaborative teaching, where students engage in real project development, fostering gradual comprehension and enhancing professional and social responsibility, achieving curriculum ideological and political education 'in the heart.' Through social practice, aligning knowledge with action, enhancing students' professional ethical qualities, and achieving curriculum ideological and political education 'in practice.'

3.3 Four-way integration, creating a school-based professional curriculum system

In accordance with the 'point-line-surface' integrated curriculum ideological design, modularize the ideological mainline in each professional modular course: The basic course module focuses on ideological mainlines such as political identity and moral cultivation, the position course module focuses on ideological mainlines such as the spirit of craftsmanship, and the practice course module focuses on ideological mainlines such as professional ethics and professional spirit. Select and design teaching projects that contain vivid ideological elements in project-based courses to achieve integration and mutual promotion of project teaching and ideological and political education. Focus on the development of digital ideological and political resources, with an emphasis on high-quality online open courses and IT-themed courses, to realize the Four-Way Integration and create a school-based professional curriculum system that forges the soul and nurtures individuals.

3.3.1 To implement the modularized curriculum ideological and political mainline through classified design.

In the first year, the professional foundation module focuses on the ideological and political cultivation lines of value guidance based on identity, excellent traditional Chinese culture, and civic virtues such as moral integrity. In the second year, the core module of the professional position emphasizes craftsmanship spirit lines, including programming norms, professional ethics, the national big data strategy, and the responsibility of empowering the AI+ industry mission. In the third year, the comprehensive practice module, through projects and internships in collaboration with enterprises, focuses on IT professional ethics and professional qualities.

3.3.2 Design and develop project-based courses that seamlessly integrate ideological and political education with professional skills.

Introduce real projects from enterprises, industry-university-research, innovation, and entrepreneurship. Collaboratively analyze tasks with job requirements, following IT

training law. Carefully select, design, and develop projects integrating ideological and political elements with skills. Develop project-based courses with 'situational projects, case projects, real projects.'

During teaching, conduct ideological education through project-based teaching. Ideological and political elements naturally integrate into the process, achieving unity of knowledge and action. This shapes correct worldviews and cultivates professional ethics and competence.

3.3.3 Establish digital courses and resources that incorporate ideological and political elements.

Combining the knowledge points of professional courses with teaching projects, integrating ideological elements, and developing digital resources for curriculum ideological and political education within the curriculum. Establish a set of "digitized" school-based courses and resources infused with ideological and political elements. Utilize new media information technology to construct a professional curriculum ideological and political resource library composed of main threads like "Quotes from General Secretary Xi Jinping, Struggle Cases of IT Industry Enterprises, Stories of Outstanding Figures, Outstanding Alumni," etc. Build a curriculum ideological and political resource library with IT characteristics to support the development of professional courses and assist teachers in conducting ideological and political education within the curriculum.

3.4 Implementing a Five-Dimensional Strategy to Enhance Teachers' Awareness and Competence in Curriculum Ideological and Political Education.

3.4.1 Study ideologies:

Strengthen the cultivation of teachers' political consciousness through annual learning plans, with a focus on studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. Use innovative learning methods that integrate professional work with Party building activities, combining professional research activities, collective ideological and political education lesson preparations, collective study discussions, and learning on platforms like "Study Strong Nation." Continuously enhance the attractiveness and effectiveness of learning.

3.4.2 Intensify training:

Enhance teachers' curriculum ideological and political education and design capabilities through various forms such as organizing thematic training on curriculum ideological and political education, open classes, competitions on teaching abilities, and selection of exemplary cases. Strengthen the understanding of educational principles, grasp ideological and political methods, and master the theories and laws of educating through curriculum ideological and political education.

3.4.3 Implement reforms:

Implement reforms in the teacher's performance evaluation system, incorporating curriculum ideological and political education. Encourage teachers to actively participate in the educational and teaching reforms related to curriculum ideological and political

education. Design curriculum ideological and political education evaluation standards from multi-dimensional perspectives, combining teacher and student evaluations. Establish a long-term evaluation mechanism and a regular feedback model through tracking evaluations, rolling evaluations, and research interviews. Reform the teacher evaluation system, where the effectiveness of curriculum ideological and political education is not only considered as an outcome of teaching reform but also evaluated comprehensively as part of the construction of professional ethics and moral character.

3.4.4 Promote collaborations:

Collaborate with key teachers from the School of Marxism to jointly conduct collective lesson preparations and curriculum ideological and political education construction with professional teachers. Assist professional teachers in enhancing their ability to explore ideological and political elements and keep abreast of the forefront dynamics of curriculum ideological and political education. Work together in cross-disciplinary mixed teams, organize collective lesson preparations, and research discussions to explore ideological and political education content, design teaching content, and exchange teaching experiences, thereby improving the quality of course teaching and enhancing teachers' abilities in curriculum ideological and political education.

3.4.5 Emphasize incentives:

Establish awards for curriculum ideological and political education teaching quality, awards for landmark achievements in curriculum ideological and political education, projects for exemplary curriculum ideological and political education courses, and projects for teaching reform in curriculum ideological and political education. Use exemplary teachers of curriculum ideological and political education as benchmarks to increase teachers' enthusiasm for participating in curriculum ideological and political education construction. Incentivize teachers to engage in innovative reforms and improvements in curriculum ideological and political education design and teaching capabilities.

4 Conclusion

The curriculum ideological and political education is closely related to the educational values of professional education. In the teaching of professional courses, ideological and political education is not only a requirement of the times for cultivating well-rounded builders and successors of socialism with comprehensive development in morality, intelligence, physical fitness, aesthetics, and labor skills, but also an essential path to advance the deep integration of teaching and moral education. Upholding the principle of fostering virtue through education, strenuous efforts are made to construct a deeply integrated system of ideological and political education within professional education. This involves integrating the cultivation of moral character into various aspects of ideological and moral education, cultural knowledge, technical skills, and social practice. The aim is to elevate students' ideological awareness, moral standards, and cultural literacy, promoting scientific spirit, reinforcing social responsibility, rule consciousness, and a spirit of dedication. This holds significant practical significance for promoting social progress, development, and raising the level of social civilization.

This article addresses common issues in implementing curriculum ideological and political education in higher vocational education, focusing on the practical context of our school's software technology majors. It outlines a model for achieving a deep integration of

curriculum ideological and political education with professional education, providing a systematic approach for implementing curriculum ideological and political education in the IT majors of higher vocational education. This model has reference value for other specialty clusters as well.

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