

The Exploration and Practice of Constructing the Ideological and Political System of "Mechanical Drawing" Course Following "One Body and Two Wings"

Guohuan Wu

School of Intelligent Manufacturing, Wenzhou Polytechnic, Wenzhou 325035, China

Abstract

The project-based and knowledge-related teaching methods based on actual carriers have good effects on students' mastery of course content, but they have little integration of ideological and political elements, which is inconsistent with General Secretary Xi Jinping's concept of "cultivating morality and cultivating people." This paper takes the course of mechanical drawing as the main body, the excellent traditional Chinese culture and professional ethics as the two wings, and takes the great invention cases of Chinese machinery and the stories of model workers as the starting point to explore the ideological and political elements contained in the course, and reconstruct the ideological and political elements that are ingeniously integrated into the course. The project-based teaching content of the mechanical drawing course takes the basic theory of constructivism as the theoretical basis and the OBE education concept as the strategy to complete the construction of the ideological and political system of the course; build an online teaching platform, and establish a "full-process visualization" education evaluation mechanism to achieve "virtue and talent" The goal of technical and skilled personnel training is to have both skills and morality first.

Keywords

Curriculum ideology and politics projectization constructivism professional ethics system construction.

1. Introduction

The construction of "ideological and political courses" is a strategic measure for the country to implement the fundamental task of moral cultivation in higher education, and its importance is self-evident. In 2016, General Secretary Xi Jinping pointed out at the National Ideological and Political Work Conference of Colleges and Universities that "Ideological and political work cannot be regarded as only ideological and political courses, and other courses must guard the canals that they are responsible for guarding and cultivate the arable land that they are responsible for." [1], thus opening the course of ideological and political courses in colleges and universities. In March 2019, General Secretary Xi Jinping proposed to explore the ideological and political education resources contained in other courses and teaching methods when presiding over a symposium for teachers of ideological and political theory courses in schools so as to achieve all-round education for all staff [2]; June 2019, the "Guiding Opinions on the Formulation and Implementation of Professional Talent Training Programs in Vocational Colleges" issued by the Ministry of Education of China requires the promotion of "three comprehensive education" for all staff and all-round education, and sorting out the ideological and political education elements contained in each course. To promote the close integration of professional course teaching and ideological and political theory course teaching and the same direction [3]. As of May 2020, the Ministry of Education of China officially issued the "Guidelines for the Ideological and Political Construction of Curriculum in Colleges and Universities" [4],

which clarified the requirements, content priorities, teaching, and evaluation system requirements of "curriculum ideological and political" construction. Politics" combined with a variety of courses provide detailed and actionable instruction.

In the early stage of this paper, the construction of the teaching resource library of "Mechanical Drawing" under the background of "Internet +" and its project-based, knowledge-related teaching practice and the research and practice of the project-based informatization teaching mode of the mechanical drawing course in higher vocational colleges under the guidance of the OBE concept were carried out. It is found that the project-based and knowledge-related teaching method based on the project content based on the actual carrier, and the use of the second classroom auxiliary teaching of the online teaching resource library, has a good effect on the students' mastery of the course content. However, in the early research, the integration of ideological and political elements is still very little. On the basis of the previous research, this paper will carry out the exploration and practical research on the construction of the ideological and political system of the "Mechanical Drawing" course in accordance with the "one body and two wings." Constructivism Taking the theory as the basis and the OBE concept as the strategy to achieve the goal of cultivating technical and skilled talents with both ability and political integrity and taking morality first, it is of practical significance to provide a reference for subsequent research.

2. Analysis of the Current Situation of Ideological and Political Construction of Vocational Colleges in Colleges and Universities

In 2020, some education experts discussed the "Trinity" course ideological and political education model in which professional knowledge, ideology and politics, and comprehensive quality cultivation work together in the professional course Machinery Manufacturing Foundation as an example [5]. The course ideology and politics of Chinese colleges and universities have experienced Shanghai's exploration based on "subject moral education" and has explored a teaching mode that connects ideological and political courses with social and humanities courses. Promote nationwide. Under the background of new engineering, education experts and others have analyzed the ideological and political elements contained in mechanical drawing and CAD courses, carried out the ideological and political practice of the course [6], and explored the evaluation criteria for educating people [7]; scholars have focused on the characteristics of mechanical drawing courses. Develop curriculum education resources and implement them through appropriate teaching methods [8]; some professors organically integrate professional training with ideological and political education, design curriculum ideological and political goals, develop curriculum ideological and political elements, and explore classroom ideological and political education. The starting point is to formulate a dynamic evaluation method to continuously improve the status of students to promote the teaching practice of curriculum ideology and politics [9]; education experts and others start from the two dimensions of talent training goals for professional groups and solving students' realistic ideological problems, scientifically design curriculum ideas political goals. Explore the curriculum ideological and political construction model of practice, network, and environmental education, and closely integrate value shaping, knowledge transfer, and ability training [10]. The results of the teaching of "curriculum ideology and politics" in major mechanical courses also have knowledge systematization. It is not strong, and the integration of ideological and political elements and professional elements is not high. Therefore, the integration of ideological and political elements into the teaching of mechanical drawing courses needs further research and practice, fully excavating the ideological and political elements in mechanical drawing courses, and through teaching, design to achieve the integration of professional elements and ideological and political elements in classroom

teaching. This paper takes the course of mechanical drawing as the main body, the excellent traditional Chinese culture and professional ethics as the two wings, and takes the great invention cases of Chinese machinery and the stories of model workers as the starting point to explore the ideological and political elements contained in the course, and reconstruct the ideological and political elements that are ingeniously integrated into the course. The project-based teaching content of the mechanical drawing course takes the basic theory of constructivism as the theoretical basis and the OBE education concept as the strategy to complete the construction of the ideological and political system of the course; build an online teaching platform, and establish a "full-process visualization" education evaluation mechanism to achieve "virtue and talent" The goal of technical and skilled personnel training is to have both skills and morality first.

3. A Block Diagram of the Construction of Cheng's Ideological and Political System

This paper proposes to follow the "one body and two wings" to build the ideological and political system of the "Mechanical Drawing" course and takes the OBE concept as the basic strategy. First, the course objectives are determined according to the needs; secondly, the ability indicators are determined according to the course objectives; The ideological and political elements in the content are applied to the teaching content with the excellent traditional Chinese culture and professional ethics as the ideological and political integration point, forming a mechanical drawing course with organic integration of professional knowledge and ideological and political elements, realizing knowledge imparting, skill training, and value-leading. Lide establishes the goal of people, finally conducts education and teaching evaluation feedback, and judges whether the expected results can be achieved compared with the needs. The block diagram of the ideological and political system of the course is shown in Figure 1.

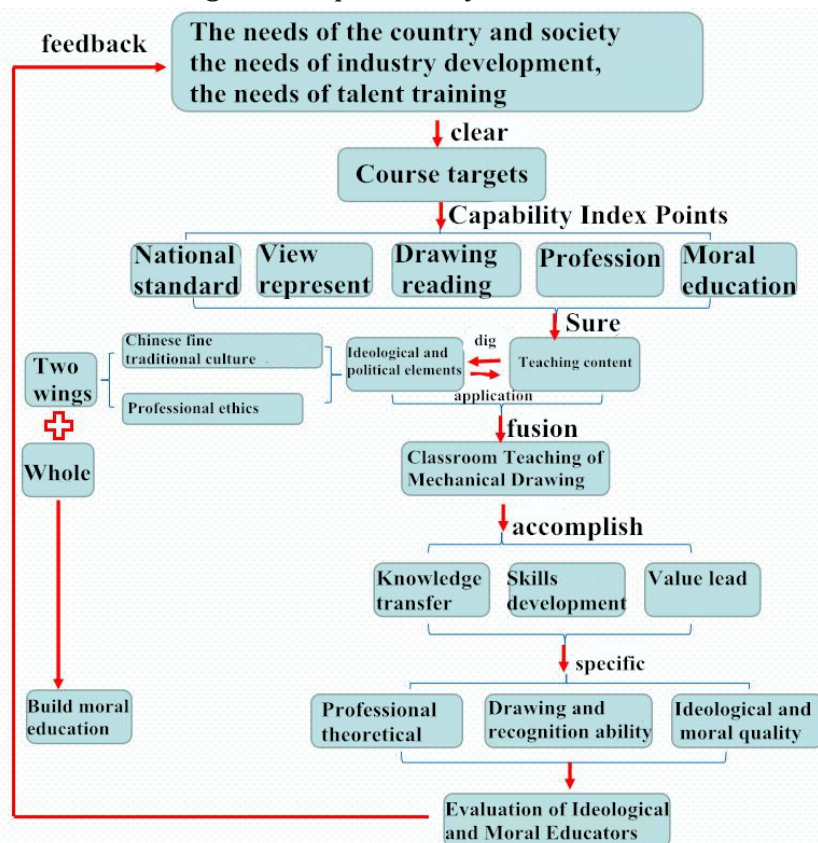


Figure 1. A block diagram of the construction of a curriculum ideological and political system with the OBE concept as a strategy

4. Specific Implementation Measures

4.1. Based on Chinese Mechanical Inventions and the Stories of Model Workers, Dig Out the Ideological and Political Elements in Typical Cases and Wonderful Stories

China is one of the countries with the earliest development of machinery in the world, especially the brilliant ancient Chinese mechanical inventions. Many inventions can be found in modern machinery and institutions (Figure 2). Proud. Major modern mechanical research and development, such as Shenzhou 13 going to the sky, can enhance students' confidence in reform and opening up and modernization, guide students to correctly understand China's national conditions, and establish the belief and confidence to strive for the ideal of socialism with Chinese characteristics. The development of the Shenzhou spacecraft is not the work of one person. It is the result of teamwork. Among them, many people work together to complete the drawing of different parts and components, and they can assemble them together. It guides students to have a team spirit and a craftsman spirit of excellence. Therefore, by studying ancient Chinese mechanical inventions (as shown in Figure 3) and modern inventions, as well as their related background stories (as shown in Figure 4), typical cases with ideological and political significance can be screened out, which can be used for Chinese excellent traditional culture and professional ethics. Related elements provide ideological and political materials for the use of ideological and political teaching in the course.

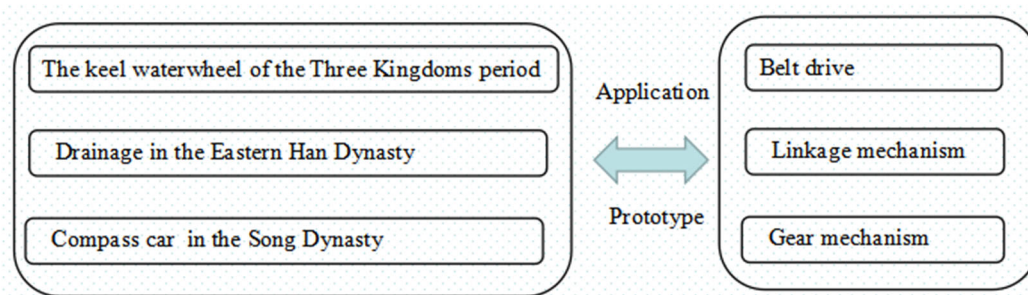


Figure 3. Ancient inventions are connected with modern institutions

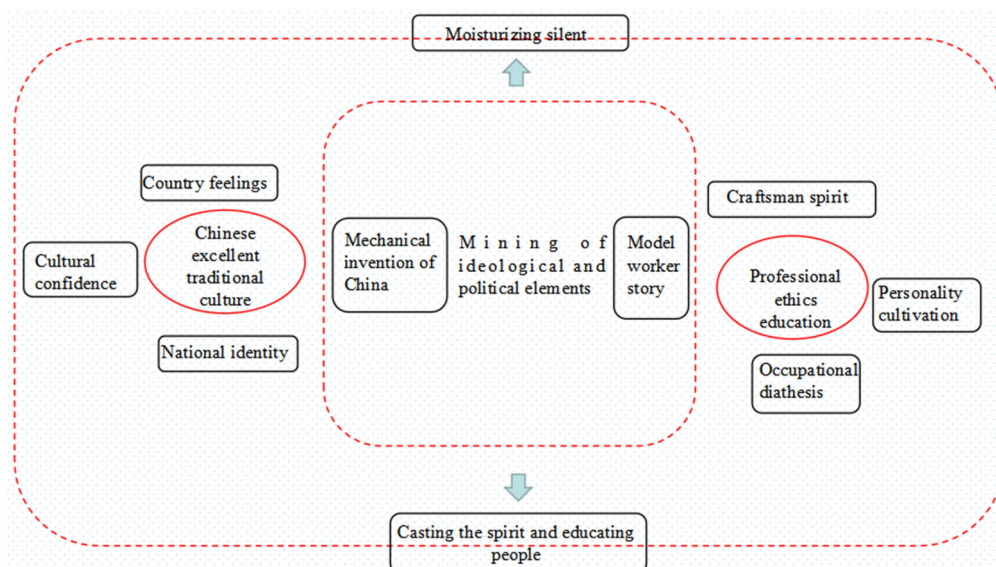


Figure 4. China's mechanical inventions and ideological and political mining of model workers

4.2. Reconstructing the Course Content Based on the Project and Integrating the Appropriate Ideological and Political Elements According to the Characteristics of the Project

From the "knowledge reserve" of traditional mechanical drawing as the main body to the "work practice" as the main body, the knowledge serves the practice of the project curriculum structure reconstruction, with the project as the carrier, so that students can master the knowledge in the process of completing the project, and at the same time according to the characteristics of the project. Integrate ideological and political elements to realize the "trinity" curriculum ideological and political education of professional knowledge, ideological and political, and comprehensive quality cultivation. Taking part drawing as an example, the implementation plan is shown in Figure 5.

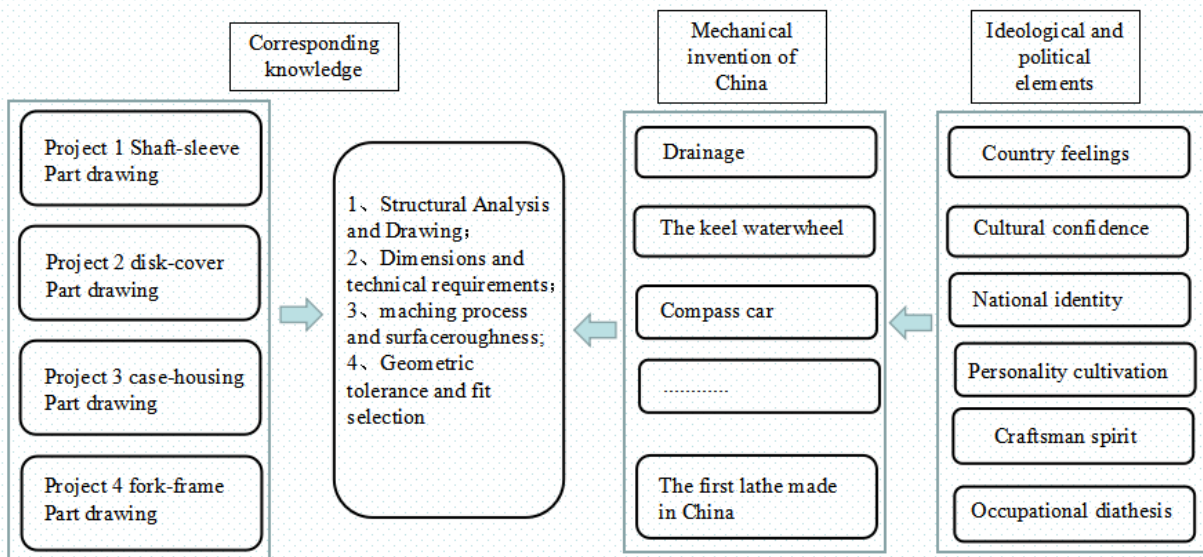


Figure 5. Course content reconstruction and ideological and political integration

4.3. Using typical Products as the Carrier, Construct Teaching Content, Adapt to The Ideological and Political Education Goals of The Course, And Research Specific Teaching Methods

The goal of integrating ideological and political education and mechanical drawing courses is to realize the diversification of teaching situations, the diversification of teaching contents, the innovation of students' thinking, and the integration of practical ability. Based on China's major mechanical inventions and the stories of model workers, the core content of excellent traditional culture, family and country feelings, craftsmanship spirit, scientific spirit, and professional quality education is integrated with the course content to stimulate students' patriotism and national ambition. Taking the part diagram as an example, the corresponding points of developing teaching content and ideological and political elements are shown in Table 1.

Table 1. Overview of teaching content, curriculum ideological and political education goals, teaching methods

serial number	Product Case	Teaching content	Ideological and political education goals	teaching method
1		Project 1: Drawing of gear parts	To understand ancient China, use gears to inspire patriotism and serve the country.	Help students strengthen their democratic pride and inspire patriotism by introducing the ancient Chinese mechanical invention guide car.
2		Project 2: Drawing of pulley parts	Guide students to develop a sense of cooperation	By introducing the working principle of China's mechanical invention of water drainage, students are guided to develop a sense of cooperation.
3	① Gear oil pump; ② One-stage gear reducer	Project 3: Drawing of shaft parts	Responsibility and craftsmanship	Taking Qin Shijun, a national model worker as an example, guides students to take responsibility and be a craftsman.
4		Project 4: Drawing of end cap parts	Develop professional qualities of excellence.	The cooperation between the end cap and the hole, to understand the development of Chinese manufacturing technology, and guide students to develop the professional quality of excellence.
5		Project 5: Drawing of box-like parts	Cultivate patriotism and hard work dedication.	The country is likened to a cylinder block, which supports all components, inspires patriotism, and encourages students to work hard and build their homes.

4.4. Based on the Information-Based Teaching Platform, Construct A New Evaluation System of "Whole Process Visualization" to Realize the Evaluation of Curriculum Ideological and Political Education

With the help of the information-based teaching platform, according to the goal of quality courses, improve the course teaching resource database, enrich teaching materials, create online courses, assist teachers' teaching and students' learning, and provide a platform for teachers and students to interact and communicate. The ideological and political education of the curriculum is carried out in the three links of class and after class, and the ideological and political education is integrated into the curriculum. The whole process records the learning traces of students' pre-class online learning, in-class classroom learning, and after-class learning in the garden and builds a visualization system of "pre-class diagnostic evaluation, in-class process evaluation, and value-added evaluation, and after-class summative evaluation." Monitor the achievement of students' ideological and political goals of the course throughout the process.

Acknowledgments

Supported by the Program of Teaching reform Research Project of Wenzhou Polytechnic(Grant No.WZYSZJG2102).

References

- [1] Xi Jinping emphasized at the National Conference on Ideological and Political Work in Colleges and Universities: To put ideological and political work throughout the whole process of education and to teach to create a new situation for the development of China's higher education . People's Daily, 2016-12-09.
- [2] Xi Jinping. Xi Jinping presided over a symposium for teachers of ideological and political theory courses in schools. People's Daily, 2019-03-19.
- [3] Guiding Opinions of the Chinese Ministry of Education on the Formulation and Implementation of Professional Talent Training Programs in Vocational Colleges, Jiaozhicheng [2019] No. 13.
- [4] Ministry of Education of China. Guidelines for Ideological and Political Construction of Colleges and Universities [EB/OL]. http://www.moe.gov.cn/srcsite/A08/s7056/202006/t20200603_462437.html.
- [5] Jiang Hongkui, Xu Hong. Exploration of Professional Curriculum and Ideological and Political Collaborative Education Model . University Education: 2020(3):108-110.
- [6] Zhao Shiyu, Chen Tianfan. Ideological and Political Exploration and Practice of Higher Vocational Mechanical Drawing and CAD Courses under the New Engineering Background . Journal of Ningde Normal University: Natural Science Edition, 2019, 031(002): 192-196.
- [7] Zhao Shiyu, Guo Lixia, Chen Xiaomei. Exploration of the evaluation criteria for the teaching effect of ideological and political education in the course "Mechanical Drawing and CAD" . Electromechanical Technology, 2019(2).
- [8] Gao Chenghui, Fu Zhengfei. Design and Development of Educational Resources for "Mechanical Drawing" Course . Heilongjiang Education (Higher Education Research and Evaluation Edition), 2019, 000(008): 58-60.
- [9] Qu Fang. Research on Ideological and Political Realization of Mechanical Drawing Course in Higher Vocational Colleges . Journal of Xingtai Vocational and Technical College, 2020, 37(5): 26-29.
- [10] Zhu Jun, Qu Wanwan, Zhao Lina. "Research on the Ideological and Political Construction Model of Higher Vocational Colleges Courses——Taking Mechanical Drawing and AutoCAD Courses as Examples . Journal of Changzhou Institute of Information Technology, 2021,20(3):36-39.