Research on Ideological and Political Teaching Reform of Electronic Technology Courses in Vocational and Technical Education Based on CDIO Concept

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Abstract. Starting from the actual situation of Ideological and political teaching of electronic technology courses and based on the CDIO Engineering Education Concept, this paper deeply excavates the ideological and political elements in the theoretical teaching and practical links, constructs the curriculum ideological and political teaching mode, integrates the curriculum ideological and political elements into every link of teaching, summarizes the specific methods of the implementation of curriculum ideological and political teaching, explores the reform path of Ideological and political teaching of electronic technology courses, and realizes value guidance, knowledge education The organic unity of ability training.

1 Introduction

The general secretary pointed out that "we should make good use of the main channel of classroom teaching, strengthen the ideological and political theory course in improvement, enhance the affinity and pertinence of Ideological and political education, and meet the needs and expectations of students' growth and development. Other courses should keep a good channel and plant a good field of responsibility, so as to form a synergistic effect between various courses and ideological and Political Theory Courses". Based on the important concept of Ideological and political course, "curriculum ideological and political" has become one of the important tasks faced by Chinese colleges and universities in the new era. In the guiding outline for the ideological and political construction of courses in Colleges and universities (hereinafter referred to as the outline) issued by the Ministry of education in May 2020, it is pointed out that comprehensively promoting the ideological and political construction of courses is a strategic measure to implement the fundamental task of Building Morality and cultivating people, integrating value shaping, knowledge imparting and ability training. The important instructions of the Party Central Committee and leaders and a series of measures taken by the National Education Department mark the formation of new thinking, new trend and new pattern of Building Morality and cultivating people in Colleges and Universities - cultivating qualified builders and reliable successors of socialism [1].

Electronic technology courses are the main compulsory courses for science and technology majors in Vocational and technical education, and play a basic support in the talent training system. However, at present, in the ideological and political construction of basic courses of electronic technology majors, Cheng Zhen has given some thoughts and suggestions from the perspective of experiential teaching. He Jing has explored the organic integration of professional courses and ideological and political elements by taking the ideological and political teaching reform of basic electrical engineering as an example, Zhang Guoqin gave several aspects that should be paid attention to in the teaching practice of "Ideological and political education" of electronic technology, but they only stay in the integration of Ideological and political elements and teaching practice of a single knowledge point. However, there is no mature model for the construction and implementation of Ideological and political education in electronic technology courses.

2 Proposal of ideological and political teaching of vocational and electronic technology courses based on CDIO concept

According to the achievement requirements of engineering education certification standards for students, the curriculum ideological and political needs to optimize the curriculum system and content construction [2]. Therefore, in order to carry out the reform of Ideological and political teaching in the course, it is necessary to deeply tap the ideological and political elements of the course, closely follow the three concepts of engineering certification, combine the connotation of complex engineering problems, cultivate students' sense of professional honor and professional mission, and let students learn and master the essence of the spirit of "great country craftsman"[3]. The reform of curriculum

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ideological and political teaching should be carried out from three dimensions: teaching objectives, teaching contents, teaching forms and mechanisms. As shown in Figure 1.

![Fig. 1. The relationship between the three (owner-draw)](image)

Based on the high consistency between CDIO and the cultivation of practical ability of electronic technology courses in Vocational and technical education in terms of training vision and connotation, drawing lessons from the latest achievement of international engineering education reform - CDIO Engineering Education Concept, setting students' value objectives, knowledge objectives and ability objectives around two main lines and three levels, combined with the project teaching mode design of electronic technology course teaching[4-5]. Throughout the whole life cycle from product R & D to product operation, according to the post quality requirements of enterprises, actively integrate the connotation of Ideological and political elements in the process of students completing project tasks, and explore the path of Ideological and political teaching reform of electronic technology courses.

3 Research on ideological and political teaching of vocational and electronic technology courses based on CDIO concept

3.1 Clarify the content of students' core ideological and political literacy in vocational and technical education

Goals guide direction and achievement standards. Only by clarifying the content of students' core ideological and political literacy in Vocational and technical education, can we enhance the pertinence and effectiveness of improving students' ideological and political literacy in Vocational and technical education [6]. Starting from the call of the times, practical needs and development and progress, the core literacy includes the professional literacy and professional adaptability required by specific occupations, that is, the transferable literacy that can adapt to the development and changes of modern society, mainly including communication, teamwork, problem-solving, rational thinking, initiative, innovation and learning ability, personal cultivation, social care, family and country feelings, etc.

Combined with the characteristics of electronic technology courses, the ideological and political elements of Ideological and political teaching in Vocational and electronic technology courses include: engineering ethics education, professional ideal and professional ethics education, labor education, innovation and entrepreneurship education, scientific outlook, great country craftsman spirit, national feelings, feelings and responsibilities of serving the country with science and technology, socialist core values, Marxist positions, viewpoints and methods.

3.2 Construction of ideological and political teaching mode of vocational and electronic technology courses based on CDIO concept

Theory is the foundation of supporting practice. Scientific construction of Ideological and political teaching mode of electronic technology courses is an important premise and foundation of Ideological and political construction of courses. On the basis of core literacy, with the help of constructivism theory and developmental teaching theory, combined with the training objects and curriculum characteristics, this paper constructs the curriculum ideological and political teaching mode, as shown in Figure 2.

3.3 Research on the implementation strategy of ideological and political teaching mode of vocational and electronic technology courses based on CDIO concept

Practice is the means to test theory, and the implementation of curriculum ideological and political education is a systematic project. Any discipline has its clear concept and profound theoretical source. The implementation of curriculum ideology and politics is mainly studied through three links: pre class excavation and standardization, in class integration and infiltration, and after class internalization and consolidation. First, explore the ideological and political elements closely related to the teaching content of electronic technology courses and students' Ideological and political literacy.

Then, carry out systematic design and standardized integration, adopt appreciation education and success education, appropriately supplemented by discussion, consultation, sharing, debate and other teaching methods, conduct breadth, depth or multi-dimensional cognitive guidance on the ideological and political objectives of the curriculum, and adopt a variety of teaching methods to integrate the elements of Ideological Education into the teaching practice of electronic technology courses, in order to achieve the teaching effect of "like spring in flowers, like salt water".

3.3.1 Problem thinking

According to the teaching content, teachers set questions reasonably to arouse students' thinking and make students feel in the process of thinking. The problem can be one or several, but it should be noted that the problem
should be targeted, and pay attention to the interest and difficulty of the problem.

- content introduction
  - create a problem situation, ask questions and lead to the content to be learned.
- publish task
  - consolidate the key contents, master the actual post ability requirements, and issue tasks.
- Conceive
  - clarify the task and task preparation, that is, students should understand what they do and consider how to do it.
- Design
  - project implementation scheme design, that is, students design the project implementation plan by yourself.
- implementation
  - project implementation means that students should complete the project by themselves.
- operate
  - according to the task requirements evaluate and feed back the students' completion.

Course Ideological and Political Education: introduce inspirational stories in electronic technology to enhance patriotism.
Course Ideological and Political Education: the mission of Cultivating Science and technology to serve the country life responsibility.
Course Ideological and Political Education: draw inferences from one instance, innovative thinking and teamwork ability.
Course Ideological and Political Education: engineering thinking and responsibility.
Course Ideological and Political Education: craftsman spirit of excellence.
Course Ideological and Political Education: self realization, team spirit, national feelings and mission of serving the country with science and technology.

Fig. 2. Ideological and political teaching mode based on CDIO (owner-draw)

3.3.2 Heuristic discussion
For a certain topic, teachers inspire students to think and discuss. Inspiration strategies can be in-depth dialogue between teachers and students at all levels, or students' discussion with different views. The purpose is to trigger students' thinking and discussion "from the inside out", so as to touch the deep sense of identity and consciously practice it into action.

3.3.3 Debate learning
For topics with distinctive positive and negative characteristics, or highly controversial special topics, teachers can group students and adopt the method of debate learning. Students argue with each other and maintain their own views. In the process of debate, they can promote mutual learning and cooperation, and cultivate and develop critical thinking ability.

3.3.4 Practical experience
Practice is a direct way to obtain recognition and improve cognition and experience. Practice activities can be teaching practice activities organized in class, or on-site teaching, visit and internship after class, so as to put electronic technology teaching in a broader learning background, so as to improve students' learning participation and experiential cognition.

3.4 Research on the evaluation strategy of Ideological and political teaching in electronic technology courses
The status quo is the reflection of the essence of things. Without the objective analysis of the existing results, we will not recognize the internal laws and characteristics of things, and the research on cultivation strategies will not be targeted. The effectiveness of curriculum ideological
and political construction should always adhere to the dominant position of students, and finally take the sense of acquisition of students and the quality of talent training as the test standard.

Therefore, according to the characteristics of students, we should start with the difficulty and effectiveness of the implementation of curriculum ideological and political education, conduct a large proportion of research on teachers and students and invite experts to fully demonstrate, and build an evaluation system for the teaching effect of curriculum ideological and political education. We can't be eager for quick success and instant benefit, only pay attention to the short-term effect in front of us, and ignore the long-term tracking and evaluation mechanism for students. It should be said that the merit lies in today and the benefit lies in the future.

4 Conclusion

The ideological and political teaching design of vocational technology and electronic technology courses based on CDIO concept integrates the curriculum ideological and political teaching in various links such as content introduction, task release and CDIO teaching process through reasonable design of teaching links. Combine professional basic courses with ideological and political education to cultivate skilled talents with practical innovation, cooperation and participation and career development potential, and realize the educational goal of "Building Morality and cultivating people". In short, the construction of curriculum ideological and political education is a long-term project. In combination with the characteristics of China's times and the development trend of the industry, we should continue to dig into the integration point of curriculum ideological and political education and curriculum teaching, grasp the "main channel" of the classroom, and, according to the characteristics of the curriculum, from the multiple dimensions of socialist thought with Chinese characteristics, socialist core values, excellent Chinese traditional culture and professional ethics, driven by the two wheels of Ideological and Political Curriculum and curriculum ideological and political education, Only by making the transmission of values more knowledgeable, giving professional courses more moral connotation, and allowing teachers to return to the original intention of educating people, can we truly form a "whole process and all-round" pattern of educating people, and realize the organic unity of morality and cultivating people.

References


https://doi.org/10.1051/shsconf/202315702016, 02016 (2023) SHS Web of Conferences 157, 02016 (2023) ESSC 2022