

Exploration and Practice of Course Ideology and Politics Construction in Engineering Course of Application-oriented Universities

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Abstract: This paper analyzes the problems in the construction of course ideology and politics, uses information technology to enable the change of thinking mode, and explores the innovation research on the new carrier and new model. The concept of tree in computer science and technology is applied to the construction of course ideology and politics, based on that a standardized ideological and political case base is built and a closed-loop model is proposed. Through the integration design of the core value system and the entire process of education and teaching, the integrated development of professional construction and ideological and political education is realized.

Keywords: Course Ideology and Politics; Personnel Training System; Information Technology Convergence.

1. Introduction

What kind of people to cultivate, how to cultivate them, and for whom to cultivate them are fundamental issues in education[1]. Moral education should be taken as the central link, and ideological and political work should be integrated throughout the entire process of education and teaching[2]. The course ideological and political work is an educational philosophy of the new era that revolves around the central theme of fostering moral development and nurturing talent. It aims to achieve an organic integration of value formation, knowledge dissemination, and capability cultivation within courses. In the new phase of educational informatization development, empowering course ideological and political construction with information technology is an important choice that moves with the times and adapts to new trends[3].

2. Research Status

The practical research on the application of information technology in the educational field is already quite extensive, especially since the 1990s when its use in teaching became well-established. With the continuous advancement of computer technology, communication technology, and multimedia networking, information technology has permeated every aspect of the educational domain.

Foreign research indicates that the key to applying information technology in the educational field is the integration of digital content. Systematic design of teaching models has become an important focus for researchers. However, in terms of course ideological and political construction, western countries do not have a specialized curriculum system like in China. Consequently, there is a lack of examples combining information technology with course ideological and political construction, which could be considered a gap in the research.

Domestic research can be traced back to the early stages of the informatization of course ideological and political works[4-6]. In the relevant literature, there are many studies focusing on the construction of specific courses under the background of educational informatization. However, there are fewer studies on the pathways for constructing course

ideological and political work under this same background. These studies often lack generalizability and a macro-level perspective. Additionally, most of these studies remain at the design stage without considering the practical feasibility or implementation outcomes of the proposed approaches. As a result, there are very few construction plans suitable for applied undergraduate universities.

3. Proposal of the Ideological and Political Tree

In exploring the construction of ideological and political education in engineering courses, we should focus on utilizing professional advantages to fully tap into the moral education function of professional courses. Tree is a data structure in computer science, widely used in fields such as operating systems, compilers, databases, etc. By introducing the tree structure into the construction of ideological and political education in the curriculum, a ideological and political tree for computer science and technology majors is proposed.

This tree is based on ideological and political cases and socialist core values, striving to run through the disciplinary system, teaching system, textbook system, and management system.

The fruits on the ideological and political tree are the moral education elements required in the training objectives of computer professionals. These ideological and political elements are not only the ideological and political education content that computer courses can reflect and carry, but also the content that students should master and transform into conscious actions. This ideological and political tree has effectively solidified the achievements of ideological and political education in professional courses, and through continuous learning and accumulation, the fruits of the ideological and political tree are also constantly increasing and deepening.

Ideological and political elements are extracted from important documents such as speeches, opinions, and outlines, a structured organization and classification of ideological and political elements is established to facilitate the understanding and use of professional teachers. Value shaping, knowledge

transmission, and ability cultivation are integrated in education, cultivating and practicing socialist core values.

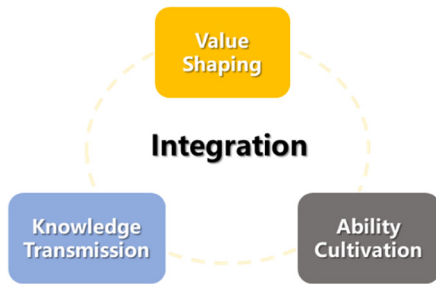


Fig 1. integration of value shaping, knowledge transmission, and ability cultivation

4. Construction of Ideological and Political Case Library

Based on the characteristics of professional courses and the educational goals of ideological and political elements, multimedia resources for course ideological and political cases are constructed. Unified standards have been established for course ideological and political cases, including multimedia information requirements such as videos, text, images, keywords, etc. Teachers upload ideological and political cases to the system to achieve resource sharing. During the process of case construction, teachers associate cases with multiple ideological and political elements to improve the unity and reusability of ideological and political case construction. Course case resources can be implemented in classroom teaching after collective discussion and review.

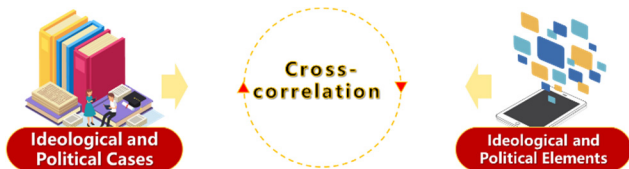


Fig 2. the association between ideological and political cases and elements

In the case library, each case material mainly includes four items, namely: high-definition images, high-definition videos, a case summary introduction, and a detailed text description of the case. By searching through elements, a batch of similar cases can be found, and through comparative analysis, suitable cases for the course can be selected.

5. Closed Loop Working Mode

By utilizing cloud technology, image processing technology, and artificial intelligence, an information system based on the ideological and political tree is innovatively designed and completed. A closed-loop work mode is formed, which includes four parts.

(1) Dig and organize. Firstly, using professionalism as a carrier, teachers should explore ideological and political elements based on their professional educational goals. Then, collect and organize case resources based on ideological and political elements. Finally, through collective discussions among teachers, we will revise and improve the course's ideological and political case resources, submit them to the system for review and release.

(2) Teaching design. Teachers carefully select case resources from the system, write teaching themes, and

organize teaching activities based on their respective students and course characteristics.

(3) Track feedback. After the teaching process is completed, teachers provide feedback on the teaching effectiveness, suggestions for cases, and supplementary content in the system, which also solves the problem of repeated use of ideological and political cases in the curriculum.

(4) Reflection on construction. Organize teachers to conduct teaching discussions and initiate a new round of step-by-step construction process.

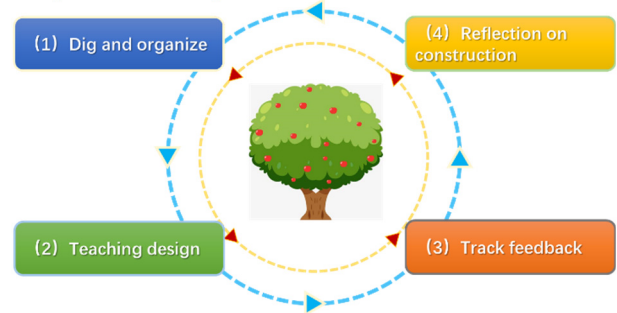


Fig 3. a closed-loop work mode

Through the ideological and political tree information system, professional teachers can be gathered to jointly promote the application of modern information technology in ideological and political education, and achieve high-quality resource sharing. It also provides a high-quality platform and a higher starting point for new teachers to integrate into the teaching team early, enhancing their ability to cultivate morality and talents.

The information technologies used in the ideological and political tree information system cover the knowledge fields of multiple professional courses. Teachers use them as practical case resources and directly apply them to teaching. In teaching and practical operation, students can also learn system design concepts and methods, enhance their abilities to apply professional knowledge, and assist in improving system upgrades.

6. Conclusion

The practice of course ideological and political work in higher education needs to be improved from a methodological perspective. By utilizing information technologies to empower the research on ideological and political education construction, the obstacles that restrict the development of ideological and political education in engineering courses have been overcome, which helps to accumulate and reuse the achievements of ideological and political education construction. This paper provides a new carrier and model for further exploring the integration of ideological and political elements into the talent cultivation process under the OBE education concept.

Acknowledgments

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