

Research on the Integration of Ideological and Political Education in Comprehensive Experimental Course-- Taking the Comprehensive Experiment Course of Material Preparation and Testing as an Example

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Abstract: With the continuous updating of educational concepts, integrating ideological and political education into professional courses has become a new trend in higher education reform. This study takes the comprehensive experimental course of material preparation and testing in the author's own university as an example to explore the integration and practice of ideological and political education in professional courses. Through the reform of curriculum objectives, teaching system and teaching content, a teaching mode that integrates professional education and ideological and political education is constructed. Practice shows that through the integration of ideological and political education, the professional education of the course and the effect of ideological and political education are significantly improved.

Keywords: Course ideology and politics, talents training engineering, materials professional, comprehensive experimental course

Introduction

In recent years, the integration of professional education and ideological and political education has become a new trend of higher education reform. This integration not only reflects the progress of educational concepts, but also responds to the requirements of talent training in the new era^[1]. Especially in the practical professional fields such as material science and engineering, how to effectively integrate ideological and political elements into professional teaching and realize the organic combination of knowledge transfer and value guidance has become an important research direction of education reform^[2]. Based on the above background, this study takes the professional comprehensive experimental course of the author's own undergraduate college as the research object, explores the effective integration of ideological and political education in professional courses, and aims to provide insights and references on how to effectively integrate ideological and political education into practical professional courses.

1. The current situation of the integration of ideological and political education in professional courses

1.1 The current situation of integrating ideological and political education into professional courses

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In recent years, educators have carried out a lot of practice of integrating ideological and political education into professional courses. Many colleges and universities combine ideological and political education with professional education in professional courses through cases, practices, knowledge maps, etc.^[3,4]. For example, some colleges and universities in the material professional courses, combined with the material rules and production accident analysis, to cultivate students' safety awareness and normative awareness. In addition, some colleges and universities promote the in-depth integration of ideological and political education in professional courses through the implementation of curriculum ideological and political teaching reform projects^[5].

At present, there are still some problems in the ideological and political education of college courses^[6,7]. For example, some teachers have insufficient understanding of the importance of curriculum ideological and political education ; the excavation of ideological and political elements in curriculum is not deep enough ; curriculum and ideological and political 'two skins'; ideological and political education means a single, boring and so on.

1.2 The challenges and opportunities of integrating ideological and political education into professional courses

There are many challenges in integrating ideological and political education into professional courses^[6,7]. First of all, how to integrate the content of ideological and political education while ensuring the capacity and quality of professional education is a difficult problem faced by front-line teachers. Secondly, there is a lack of effective support at the school level. In addition, how to evaluate the integration effect scientifically and reasonably is also an urgent problem to be solved.

However, the integration of ideological and political education has also brought new opportunities for professional courses. First of all, ideological and political education can enrich the teaching content and methods of professional courses and improve students ' interest and participation in learning. Secondly, ideological and political education can promote the connection between professional education and real society, make students pay more attention to social problems and challenges, and cultivate their sense of social responsibility and innovative spirit.

2. The ideological and political integration design of the comprehensive experimental course of material preparation and testing

In this paper, the comprehensive experimental course of material preparation and testing for engineering materials specialty is taken as the research object. Through the curriculum reform, a teaching mode that integrates professional education with ideological and political education is established.

2.1 The innovation of curriculum objectives

In order to reflect the dual goals of ideological and political education and professional education at the same time, the curriculum goal of this course is: after learning this course, students should master the professional experimental technology in the production and application of material industry and scientific research ; and on this basis, use the technical cooperation to complete the scientific and technological innovation practice project; it lays a foundation for becoming high-quality applied technical talents with craftsman spirit and social responsibility.

2.2 The reset of teaching system

According to the professional knowledge content and technical characteristics of the course, the ideological and political elements of the course are deeply explored, and the two teaching systems of professional education and ideological and political education of the course are determined.

The professional education system includes three modules: professional knowledge, professional skills and professional quality. Among them, the professional knowledge module includes the principle and technical knowledge of material preparation, structural characterization, performance evaluation, and basic methods and knowledge of scientific research. The professional skills module includes the preparation of materials, structural characterization and performance evaluation skills, as well as basic scientific research skills. The professional quality module includes thinking ability,

hands-on ability, professional ethics and norms.

The ideological and political education system includes three directions, namely, firm belief, shaping character and guiding action. Among them, the direction of firm belief includes institutional self-confidence, family and country feelings, sense of responsibility, etc. The direction of shaping character includes normative dedication, excellence and so on. The direction of action includes craftsman spirit, innovation spirit and so on.

2.3 Reconstruction of teaching content

Guided by the curriculum objectives and based on the curriculum teaching system, two main teaching lines of professional education and ideological and political education are established.

Among them, the main line of professional education includes three progressive teaching contents of technical theory learning, technical training and practical innovation. The main line of ideological and political education includes three contents : firm belief, shaping character and guiding action. The three contents of the two teaching main lines are mutually integrated. Integrate " firm belief " education into the teaching of technical theory, shape students ' character in the process of technical training, and achieve the goal of " guiding action " of ideological and political education through scientific and creative practice activities. In this way, the two main teaching lines of professional education and ideological and political education can be integrated and synchronized.

2.4 The design of teaching process and strategy

In terms of the overall design of the course, the course teaching includes three processes, namely, single experimental skill learning, experimental skill training and comprehensive scientific and technological innovation practice projects. The design of these three processes follows the third-order progressive promotion path of ' memorization mastery-intuitive application-innovation synthesis ', which is in line with Bloom 's cognitive theory.

In the specific teaching activities of the course, the teaching processes of ' pre-class-in-class-after-class ' and ' research-implementation-report ' are adopted. Based on the OBE education concept, the ideological and political elements are integrated into the whole process. For example, before class, teachers publish preview report tasks to urge students to expand their learning independently. Students increase institutional self-confidence and cultural self-confidence by understanding China 's technological development. In the lesson, teachers enhance students ' awareness of scientific and technological power by telling the core points of experimental technology ; through the analysis of China 's technological gap, enhance students ' sense of responsibility ; by guiding students to explore scientific and reasonable experimental operation, we can shape students ' character of being serious, standardized and striving for perfection. After class, students improve their logical analysis ability and self-development ability by writing experimental reports and self-summary. In the process of guiding students to complete practical projects in groups, we should cultivate students ' scientific spirit, craftsman spirit and innovative spirit, and improve their cooperation ability and practical innovation ability.

3. The educational practice effect of the comprehensive experimental course of material specialty

Through the study and training of this course, students ' innovation ability and sense of responsibility have been significantly improved. Based on the professional experimental technology and comprehensive projects of the course, the number of approved innovative and entrepreneurial projects and the number of awards in competitions such as the Challenge Cup are increasing year by year, and the training effect of students has been affirmed by the industry. The students trained by this course work actively and have a strong sense of responsibility in the school-enterprise joint school-running class and the internship class, and have been praised by the enterprise. The professional skills and innovation ability of graduates trained by this course are highly recognized by employers.

4. Conclusion

This study focuses on the integration of ideological and political education and professional education. Through the curriculum reform, a teaching mode that integrates professional education and ideological and political education is constructed in the course of materials specialty. Practice shows that the integration of ideological and political education

not only strengthens the professional education effect of the course, but also achieves the goal of ideological and political education. The successful practice of this teaching mode not only provides a demonstration and reference for the ideological and political reform of materials specialty, but also provides a useful reference for the ideological and political education of other similar professional courses.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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