

Design of Ideological and Political Education for Technology Courses From the Perspective of “Three-Wide Education”: Taking “Design of New Energy Vehicle” as an Example

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In view of the problems of “lack of ideology and politics”, “pan-ideologization and politicalization” in the current ideological and political teaching of professional courses, and the unreasonable evaluation of ideological and political teaching in professional courses, the mode of collaborative work of multidisciplinary teachers such as ideological and political teachers, professional teachers, and information technology teachers was explored, the design methods for integrating ideological and political elements and professional courses before, during and after class were proposed, and the evaluation method that consists of values, professional quality, professional knowledge, and skills was designed. All these methods proposed above were to achieve full participation, the whole process of cultivation, and all-round evaluation of the goal of moral education.

Keywords: vocational education, curriculum ideology and politics, collaboration teaching

Introduction

Comprehensively promoting the ideological and political construction of the curriculum is an important measure to realize the cultivation of compound talents in the new era integrating value shaping, knowledge transfer, and ability cultivation (Jiang, 2017). In 2020, the Ministry of Education issued the “Guiding Outline for the Ideological and Political Construction of Curricula in Colleges and Universities”, pointing out: firmly grasp the “main force” of the teaching team, the “main battlefield” of curriculum construction, and the “main channel” of classroom teaching, let all colleges and universities, all teachers, and all courses assume the responsibility of educating people, guard a section of canals, plant responsible fields, make all kinds of courses and ideological and political courses go in the same direction, unify explicit education and implicit education, form a synergistic

Acknowledgment: This work was supported by the Special Project of Philosophy and Social Sciences of the 13th Five Year Plan for Education and Scientific Research in Guangdong Province for 2019 (2019GXJK236) and Teaching Reform Research and Practice and Practice Project of Guangdong Province Higher Vocational Education (GDJG2021414).

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effect, and build a general pattern of all-staff, whole-process, and all-round education (Zhu & Zhou, 2021; Y. Zhang & Z. X. Zhang, 2019).

Teaching of professional courses is an important part of talent cultivation in colleges and universities, and the effective integration of professional courses and Civic and Political Science courses to achieve the same direction and the goal of collaborative education is an important issue for the teaching of professional courses under the new situation (Yang & Fu, 2020; Wang & Yu, 2020; Wang & Yang, 2020).

The construction of professional course Civics is a curriculum construction system that integrates knowledge transfer, competence cultivation of professional courses, and value shaping in the Civics course, and its construction goals not only reflect the explicit influential role of Civics course, but also play the invisible guiding role in professional courses (Jiang, 2021; Yang, 2019). Therefore, it is necessary for the teachers of Civics and Political Science, professional teachers, IT teachers, and practical teachers to effectively design the teaching activities in terms of curriculum design, content arrangement, teaching activity design, resource development, guidance of practical activities, competence and literacy training and evaluation, to build a new pattern that integrates the whole staff, the whole course and all-round education.

Current Problems in Curriculum Civics

In recent years, researchers have conducted researches on the curriculum design of Civic Education in professional courses in terms of collaborative education mechanism, but the following problems have emerged in the construction of Civic Education in professional courses due to insufficient understanding of the whole staff, whole process and all-round education pattern.

The Phenomenon of “Lack of Political Thinking” in the Construction of Professional Courses

At present, there is a situation that the teaching of professional courses emphasizes the cultivation of technical ability and lightly guides the cultivation of values, which is mainly manifested in the curriculum design, textbook/handout arrangement, and practical activity links only focus on the cultivation of knowledge ability and skills of students in this discipline and lacks the guidance of students' values. The main reason is that the teachers of professional courses have little awareness of the construction of Civics in professional courses, they think that Civics teaching belongs to the category of public courses of ideological and political education and this should be taught by Civics teachers, while Civics teachers only emphasize Civics teaching in teaching because they lack knowledge background and reserves corresponding to professional courses, thus forming a subconsciousness of disciplinary barriers in the construction of courses, and then failing to realize. As a result, a subconsciousness of disciplinary barriers is formed in the construction of the curriculum, and thus the teaching of Civics in professional courses cannot be realized, resulting in a lack of Civics elements in the teaching of professional courses.

The Phenomenon of “Pan-Conscientization” in the Construction of Professional Courses

To respond to the national requirements on the construction of the Civic Politics curriculum, some teachers add Civic Politics elements in the construction of professional courses forcefully. The Civic Politics elements added to the curriculum system are not compatible with the knowledge to be taught, and the timeliness of the Civic Politics elements added is poor, which leads to low interest of students in the curriculum and makes it difficult to achieve the purpose of Civic Politics teaching in professional courses. The main reason is that the teachers of professional courses fail to dig deeply to refine the ideological value and spiritual connotation

contained in the professional knowledge system, and then cannot reasonably expand the breadth, depth, and temperature of the professional courses, the reasons for the above problems are: the teachers of professional courses are more educated in science and technology, and in the process of being taught, they emphasize the training of calculation logic and thinking, and have limited ability to dig the Civic and Political elements in the professional courses. In order to meet the requirements of the university for the teaching of Civics in professional courses, they add Civic Politics elements in the construction of professional courses forcefully.

The Evaluation System of Professional Course Civic Construction Course Is Not Reasonable and Perfect

Course evaluation system is crucial to the construction of professional course Civics, however, in the process of construction of professional course Civics, although Civics elements are integrated into the teaching content, the degree of mastery of professional knowledge is still used as the evaluation index in the course evaluation, and the method of final assessment results is mostly used in the evaluation, without process evaluation of students' learning process, which weakens students' enthusiasm for learning professional course Civics and is not conducive to the improvement of talent training quality.

Poor Currency of Course Pedagogy and Cases

Reasonable use of new information teaching technology is an effective way to improve the teaching effect of courses, in the construction of existing professional ideological and political courses, in the teaching of professional knowledge to carry out more online/offline combination of teaching methods, the explanation of professional knowledge into animation, video explanation technology, lack of ideological and political elements integration and guidance, the main reason is that professional course teachers have limited ability to master new educational technology and teaching theory, and lack of ability to effectively integrate ideological and political elements when displaying professional basic knowledge with videos and animations.

Based on the above analysis, it can be seen that it is of great significance to carry out the construction of ideological and political courses in professional courses to break the barriers of professional courses and ideological and political courses, and solve the problems of "lack of ideology and politics" and "pan-ideologization and politicalization" in the ideological and political construction of existing professional courses.

The Ideological and Political Realization of the Curriculum From the Perspective of "Three-Wide Education"

"Design of New Energy Vehicle" course is a course for the transformation and upgrading of the national automobile industry and the development needs of the new energy automobile industry, the purpose of which is to cultivate automobile developers with excellent professional technology and good professional quality, and is a relatively close combination of theory and practice. In recent years, automobile technology, especially new energy vehicle technology in China has developed rapidly, so that Chinese automobile industry can achieve corner overtaking; its development processes include the spirit of craftsman-like research and the rise of national independent brands, carry out the "Design of New Energy Vehicle" professional course ideological and political construction, can naturally integrate many ideological and political elements in its development process into the course teaching, and then achieve the teaching purpose. To achieve the goal of cultivating virtue and cultivating people, the teaching mode guided by all-staff, whole-process and all-round education was designed, the coupling relationship between professional courses and ideological and political courses was explored, and the essential attributes of professional courses and ideological and political courses in moral education were revealed, and the

“Design of New Energy Vehicle” courses was chosen as an example, the replicable ideological and political construction model of professional courses was formed, which provides reference for the ideological and political construction of various professional courses in the new energy vehicle technology major.

Construction of Ideological and Political System for the Course “Design of New Energy Vehicle”

The construction of professional ideological and political courses not only pays attention to tracing the origin, but also pays attention to pioneering and innovation. The systematic construction of professional ideological and political courses is an effective way to solve the problem of timeliness of professional ideological and political elements and achieve accurate ideological and political activities. Based on projectization, digitalization as a means, and modularization, the teachers carry out systematic design in the aspects of professional course content setting, lecture/teaching material planning, and arrangement of major and difficult points, and carry out the construction of the ideological and political system of professional courses, which can provide convenience for the reconstruction of courses and the update of corresponding ideological and political elements.

Ideological and Political Elements Mining and Collection of “Design of New Energy Vehicle” Course

“Design of New Energy Vehicle” course belongs to the natural science category, the development of its professional knowledge has a specific context, there are many cases and people that can reflect the professional spirit and humanistic spirit in the process of professional knowledge. In the pre-course preparation stage, professional course teachers and ideological and political teachers explore the history and culture from the perspective of curriculum ideology and politics. The inheritance of professionalism naturally integrates ideological and political elements into the preparation of curriculum teaching which can achieve the effect of education.

Innovate the Teaching Method of “Design of New Energy Vehicle” Course

In the classroom, teachers are not only the transmitters of knowledge, but also the organizers and practitioners of teaching activities, and classroom teaching requires not only excellent teaching content, but also good teaching methods. Following the laws of student development and learning needs, with the help of modern teaching methods, the curriculum knowledge and professionalism are displayed in the form of actual pictures through advanced education technology, and the general laws and methods in ideological and political teaching are used to carry out targeted teaching, which can realize accurate ideological and political teaching in professional classrooms.

Innovate the Teaching Method of “Design of New Energy Vehicle” Ideological and Political Practical Activities

The course “Design of New Energy Vehicle” is a typical engineering course that pays equal attention to theory and practice. The organic integration of ideological and political education into the setting of practical activities is an important way to realize the cultivation of professional quality, professional value recognition. In practical activities, relying on professional explanations, demonstrations and guidance of professional course teachers, practical training centers, or enterprise tutors, students are cultivated with professional qualities, and ideological and political teachers are appropriately guided, so as to enhance students’ awareness of family and country feelings and achieve comprehensive cultivation of students’ comprehensive literacy.

Research on the Evaluation Mechanism of Teaching Effect of “Design of New Energy Vehicle”

In the past, the evaluation mechanism of “score” and “ability” weakened the interest and attractiveness of ideological and political teaching of professional courses to varying degrees, which was the main reason for the poor teaching effect of courses, and the perfect evaluation system was an effective measure to enhance students’ awareness of independent ideological and political learning and mobilize students’ enthusiasm for learning, and

it was also an important reference for the evaluation of educational effects and the iterative optimization of subsequent courses. The combination of process evaluation and result evaluation was comprehensively used to evaluate and analyze students from the aspects of values, professional quality, professional knowledge and skills, and feed the results into the course construction to form a closed-loop teaching mode of continuous improvement.

Ideological and Political Implementation Methods of the Course From the Perspective of “Three-Wide Education”

Guided by the “Three-Wide Education”, the ideological and political education implementation methods of curriculum activities before, during, and after school are formulated (Figure 1).

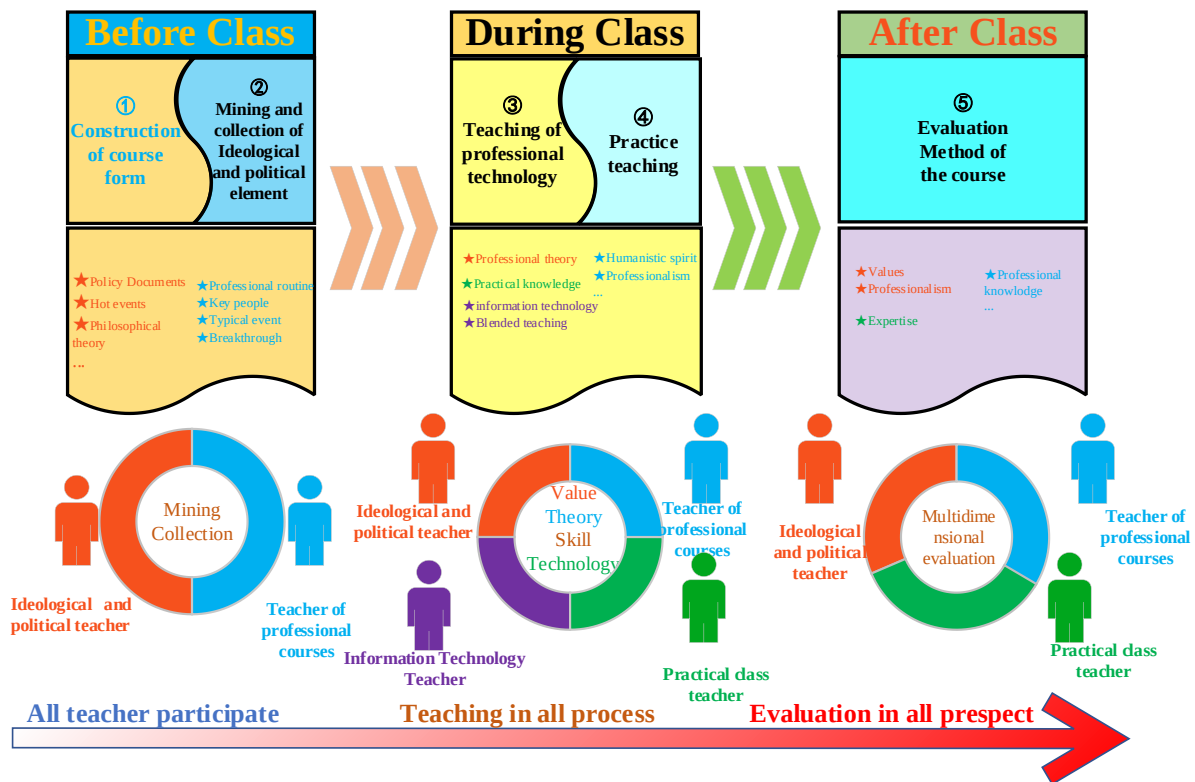


Figure 1. Sketch of “Three-Wide Education”.

In the Pre-course Preparation Stage

Using the literature research method, the professional course teachers and ideological and political course teachers jointly formulate the teaching content system, and the Design of New Energy Vehicle teachers sort out the development process, representative events, and typical characters of the major, etc., and unfold the course context in the form of storytelling in the form of a timeline scroll, in the process of unfolding, highlight the major difficulties of course knowledge and the concentration of ideological and political elements, and display the course knowledge elements and ideological and political elements at the same time. Considering the update of professional technology and the emergence of new professionalism, the curriculum system is modularized in the context of the correlation of knowledge elements, which is convenient for the update of the curriculum framework in the later stage, and pays attention to the timeliness of the course knowledge elements. Using Marxist theory, combined with the current macro policy and current affairs frontier of the country’s vigorous development of

new energy vehicles, teachers of ideological and political courses assist teachers of professional courses to analyze the objective laws and humanistic spirit and other ideological and political elements contained in the professional development process from the dimensions of national planning, industry selection, career planning, and life value realization, formulate ideological and political content for specific professional knowledge, and integrate it into the curriculum structure as ideological and political elements of the curriculum, so as to provide guidance for the ideological and political teaching of professional courses from the upper level of the curriculum system formulation.

The Implementation Stage in the Class

The teaching stage in the class is an important stage of knowledge transfer and emotional communication, in terms of professional knowledge transfer, professional course teachers can give full play to their professional advantages and explain the professional knowledge. Vocational college course teaching is mostly small class teaching, in the course, teachers can go directly to the students to communicate, this course teaching mode is convenient for teachers and students can have knowledge and emotional exchange, in this process, practical teaching methods are used, by professional course teachers, ideological and political course teachers, practical training teachers and information technology teachers together. Based on the pre-class preparation, the law of student growth and learning needs is followed, appropriate information technology teaching methods are adopted, and professional course teaching activities are carried out. In the design of teaching activities, information technology teachers analyze students' learning conditions according to the curriculum planning of professional course teachers and ideological and political course teachers, formulate appropriate blended teaching models, and develop information learning resources that are easy for students to recognize, accept, and obtain.

Students of vocational education colleges have faster cognitive ability for specific things, but it is difficult to understand the knowledge points of data or performance analysis, and the integration of ideological and political elements in professional courses requires a silent way, so it is necessary to do just right in the integration of knowledge transfer and ideological and political elements. In the teaching process of "Design of New Energy Vehicle" course, it is necessary to integrate technological development, show students the latest technology, and introduce its structural form, working principle, performance improvement, technical advantages, and the professionalism and literacy behind technological breakthroughs. The adoption of this step-by-step approach makes it easier for students to accept new knowledge, while integrating ideological and political elements into the teaching of specialized courses when transferring knowledge.

At the same time, Design of New Energy Vehicle is a course closely combined with theory and practice, the teaching of practical courses is the best carrier to combine professional knowledge and professionalism, in the practical course teaching process, ideological and political course teachers and practical training teachers jointly formulate practical training activities, and the Design of New Energy Vehicle training activities required professional quality and professional value identity and other ideological and political elements into practical activities, such as new energy vehicle power battery knowledge part. With the help of virtual reality technology, BYD blade battery acupuncture simulation test is set up, and at the same time BYD's blade battery and ordinary ternary lithium battery acupuncture tests are compared, and the principle of battery fire is explained by animation, so that students can master the safety performance of different types of batteries, and at the same time emphasize the rigorous attitude that designers should consider for consumers from the perspective of safety when developing products, cultivate students' rigorous and responsible professional qualities for consumer safety consideration, and let students "learn by doing", "understand while doing", and "gain by doing".

After-Class Evaluation Stage

Only a single grade as the way of assessment is easy to mislead students to produce utilitarian psychology, but also cannot evaluate students in an all-round way, for the ideological and political construction of professional courses, it is necessary to evaluate students from many aspects, this stage can use analytic hierarchy method, will be the evaluation of students' multi-dimensional decomposition and determine the weight of each dimension, by ideological and political teachers, professional teachers, and practical training teachers respectively from value identification, professional quality. The four dimensions of professional skills and professional knowledge evaluate the entire learning process of students, analyze the teaching effect, and optimize the course based on the results of student evaluation and teaching effect analysis.

Conclusion

In view of the problems of “lack of ideology and politics” and “pan-ideologization and politicalization” in the current ideological and political teaching of professional courses, the mode of collaborative work of multidisciplinary teachers such as ideological and political teachers, professional teachers, and information technology teachers was discussed, the design method of integrating ideological and political elements and professional courses before, during, and after class with the teaching content and activities, and the comprehensive evaluation system for subjective and objective comprehensive evaluation and quantification from the aspects of values, professional quality, professional knowledge and skills, so as to achieve full participation. The goal of moral education is the cultivation in the whole process and all-round evaluation.

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