

Exploring the Education Reform of Architectural Drawing and Drafting Under the Background of Curriculum Ideology and Politics

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Abstract: Curriculum ideology and politics is an innovative concept in the implementation of the fundamental task of education – establishing moral education. Taking higher vocational schools' Architectural Drawing and Drafting as an example, we search for the penetration point of course knowledge and skills by exploring the teaching resources of ideology and politics with the same connotation, realize the synergy of value leading in the process of imparting knowledge and cultivating skills, help students to establish ideals and beliefs, as well as cultivate patriotism and the spirit of craftsmanship among students. Teachers are responsible for teaching and educating people. Therefore, teachers should not only impart professional knowledge, but also emphasize on the elements of ideology and politics in the teaching of professional courses from the essence of “educating people,” which focuses on the organic combination of value leadership, knowledge transmission, and skills cultivation. It is worthwhile for every teacher to reflect deeply and put it into practice. This paper studies the application of higher education curriculum ideology and politics in Architectural Drawing and Drafting, and subsequently proposes measures on how to better integrate the elements of ideology and politics into the course content, hoping to provide reference for the teaching of architecture courses.

Keywords: Curriculum ideology and politics; Education reform; Architectural Drawing and Drafting

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1. Overview

Curriculum ideology and politics is a comprehensive concept with a whole-person, whole-process, and whole-course education pattern, in which all kinds of courses and ideological and political theory courses are moving in the same direction and forming a synergy, while taking “establishing moral education” as the fundamental task of education ^[1].

In August 2019, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued “Several Opinions on Deepening the Reform and Innovation of Ideological and Political Theory Classes in Schools in the New Era,” which not only emphasized the role of curriculum ideology and politics, but also put forward requirements for the implementation of curriculum ideology and politics in all types of schools at various levels. As institutions that cultivate high quality workers and technical talents with comprehensive development in respect of moral, intellectual, physical, and aesthetic skills, higher vocational schools should respond to the call of the state for education reform to promote the integration of the thought on socialism with Chinese characteristics in the new era and the elements of moral education into all courses, so as to form collaborations. In order to promote the

teaching of knowledge and skills as well as the shaping of values in the same direction, enact the entire curriculum to educate people and implement the fundamental task of moral character development ^[2].

Higher vocational construction students serve the national and local infrastructure construction. They are the workforce for the future construction industry. Since the reform and opening-up, the construction industry has made great progress, becoming a national pillar industry; a series of new achievements have been made in the field of engineering and construction, which have attracted worldwide attention. These achievements have enhanced people's pride and at the same time put forward higher requirements for the training of talents in the construction industry. Therefore, as technically skilled talents in the construction industry, higher vocational construction students should not only have sufficient theoretical knowledge with certain operation skills, but also the craftsmanship and solidarity spirit of love and dedication, excellence, as well as continuous attentiveness, so as to give full play to their potential and innovation in their workplace and promote the progress of the industry and the development of the country ^[3].

Architectural Drawing and Drafting is a professional foundation course for various majors in architecture in higher education institutions. It is a training course that focuses on developing the ability to read drawings. It is also one of the basic courses for architecture students to step into the profession and really understand the construction industry in a comprehensive manner. Through this course, students will come to understand the construction principles and measures of building construction as well as master engineering drawings and their methods for subsequent courses, thus laying the theoretical foundation for those who will engage in the construction industry in the future. The main purpose of this course is to enable students to understand architecture, develop proficiency in various building construction theories and in reading construction drawings, familiarize themselves with the rules of drafting, as well as develop comprehensively in various aspects: moral, intellectual, physical, aesthetic, and labor ^[4]. This course is the basis for the subsequent learning of various professional courses. It is a theoretical and practical course, and it plays an important role in the overall knowledge structure and skill structure of professional construction talents. At the same time, this foundation course plays a particularly huge role in ideological and political education.

Through the reform of ideological and political education in Architectural Drawing and Drafting, it is possible to explore the ideological and political education resources contained in the course and combine knowledge education, skills practice, as well as ideological and political education in a reasonable way, which can stimulate students' professional interest and career sentiment, lay the necessary foundation for subsequent professional courses and construction engineering technology work, as well as assist students achieve overall development.

At present, teachers in higher vocational institutions mainly carry out research on the teaching of curriculum ideology and politics, the basic problems of curriculum ideology and politics, and the path of carrying out curriculum ideology and politics ^[5]. There are only few studies on the teaching of curriculum ideology and politics in certain professional courses. The function of educating people in each teaching link and the role of the main channel of the classroom in the ideological and political work of colleges and universities are minimal, and even less work is carried out at the practical level. Therefore, it is extremely necessary and practical to carry out the practical research and application of curriculum ideology and politics for the professional basic course of Architectural Drawing and Drafting.

2. The role and necessity of curriculum ideology and politics

2.1. The role and necessity of carrying out ideological and political education in the curriculum

In higher vocational institutions, ideological and political education for students in professional courses and that for students in ideological and political courses should go hand in hand to cultivate students' patriotic spirit and train better successors for the new socialist era. If a country does not have an excellent traditional

spirit, it will not achieve political and economic independence. If a person does not have culture, there will be no meaning. Therefore, ideological and political education is necessary, urgent, and desperately needed.

2.2. The role and necessity of curriculum ideology and politics for Architectural Drawing and Drafting

First of all, Architectural Drawing and Drafting is a basic course for higher vocational architecture. In this course, curriculum ideology and politics is carried out to teach students in a wide range ^[6]. The knowledge gained from this course is the fundamental portion of construction knowledge. Students may better understand the relevant knowledge points through silent education at the same time. Secondly, the course is offered in the first year of university. The majority of students who have just entered university tend to be more motivated in class; hence, ideological and political education is often more effective at this stage ^[7]. Finally, now the country has entered a new era of socialism, the demand for excellent technical personnel who love their country and jobs is higher. Therefore, it is important to instill the spirit of great craftsmen. After entering the society, students will be able to appreciate that it is difficult to achieve high-end technology with the lack of theoretical knowledge. Therefore, it is urgent for students to receive education of both professional technology as well as ideology and politics at the higher vocational level.

3. Exploring the reform of ideological and political education in Architectural Drawing and Drafting

3.1. Careful selection of teaching materials

Reasonable selection of teaching materials and auxiliary resources should be based on the current situation of students' source in higher vocational schools, the vocational jobs involved in construction majors, and the cultivation of the ability to read and draw engineering construction drawings. The learning tasks should be designed around the reading and drawing of actual engineering drawings. Following the vocational education concept of "learning by doing," the course adopts the task-driven approach and assumes students as the main body to learn and train the knowledge and skills of drawing step by step, providing a suitable carrier for the reform of ideological and political education.

3.2. Determining the teaching goals of curriculum ideology and politics

After the formulation of the national policy, the construction engineering teaching and research group, under the guidance of the Academic Affairs Office, took "building morality and educating people" as the primary goal of talent training and revised the "Program for Training Construction Talents in Higher Vocational Schools" to clarify the goals of training these talents ^[8]. According to the objectives of the training program for construction majors and those of the ideological and political course in higher vocational schools, the objectives of curriculum ideology and politics in Architectural Drawing and Drafting have been determined by combining the content and characteristics of the professional course. The course aims to achieve the following objectives: (1) to understand the professional job responsibilities and the importance of the course, as well as to stimulate students' professional interest; (2) to master the national standards of architectural drawing, and to cultivate students' awareness of the strict implementation of the national standards of architectural drawing; that is, the awareness of standardization; (3) to understand the principles and methods of three-sided orthographic projection, to be able to carry out graphic transformation, and to cultivate students' spatial imagination and graphic architecture ability; (4) to master the methods of reading and drawing architectural engineering drawings, and to cultivate students' engineering consciousness; (5) to cultivate students' ability to read architectural engineering drawings and the spirit of solidarity through the comprehensive practice of the course; (6) to help students establish ideals and beliefs as well as cultivate their patriotism and craftsmanship in the new era through the introduction of civic affairs.

3.3. Integrating ideological and political teaching contents into Architectural Drawing and Drafting

Architectural Drawing and Drafting is a theoretical and practical subject, in which students should not only master the corresponding theoretical knowledge, but also use it flexibly in practical cases. However, the course content is abstract and difficult to understand; coupled with the rigorous, careful, and clear engineering learning requirements, it becomes more difficult for students to learn and thus lose interest. Teachers are constantly optimizing the teaching design when preparing lessons, such as teaching scenarios, case introduction, and so on, which have improved the effect compared with rigid lectures. If teachers can dig deeper into the civic elements of the course and effectively integrate them into the teaching process, it can promote teachers' growth in addition to touching students' emotions and stimulating their demand for positive energy. With the course as the carrier, digging deeper into the connotation of the chapters and refining moral education elements can effectively promote students' understanding, mastery, expansion, and deepening of course knowledge to a certain extent. The excavation and integration of teachers are the key initiatives of the course, while the students' active participation is the key link. For the more practical engineering courses, the continuous exploration of suitable methods for professional curriculum ideology and politics needs to be further strengthened. Teachers in the teaching and research department should carry out practical research based on the practical work of construction and drawing majors. Through the discovery of problems in operation, it is necessary to continuously improve the education and teaching methods of profession ideological and political courses, cultivate students' patriotism, guide students to establish correct employment concepts, consciously practice the core socialist values, and gradually integrate civic elements to further improve the quality and effectiveness of education.

Teachers should dig deeper into the explicit and implicit political education elements contained in Architectural Drawing and Drafting. Firstly, by analyzing the objectives of the course, it is imperative to excavate the political elements from the overall perspective of the course, discover the significance of the course to individuals, the nation, and the country, establish the relationship between theory and reality, as well as improve students' learning initiative. Secondly, beginning from the specific content of architectural literacy, it is important to sort out the content system of the course and determine a suitable content based on the ideological and political theme, so as to systematize the ideology and politics of the course. In the teaching process, the stories of excellent people, pictures, and videos symbolizing the great projects of national glorious construction achievements, famous quotes and sayings, campus culture and excellent traditional culture of the construction industry, as well as other ideological and political resources are integrated into the learning of course knowledge and skills training. They are fully integrated into the course teaching to educate students on ideology and politics, so that the organic combination of value leadership, knowledge transfer, and ability cultivation can be used to achieve the transformation of education from "Civic Science Course" to "Civic Science Course."

In this paper, the integration of the teaching content of Architectural Drawing and Drafting with the elements of ideology and politics is taken as an example. The effective integration of the elements of ideology and politics with the professional knowledge of this course has been specifically elaborated as shown in **Table 1**.

Table 1. Teaching items and contents of ideology and politics in Architectural Drawing and Drafting

Number	Item	Professional teaching content	Ideological and political teaching content
1	Engineering drawings and drafting tools	Professional orientation and course introduction Introduction of engineering drawings Use of drawing tools and supplies Simple geometric drawing	Inspire students' professional interest, national pride, and patriotic enthusiasm with the glorious construction achievements of the country and the importance of engineering drawings; help them to understand the connotation of craftsmanship. Students are motivated to learn by the famous saying, "A gentleman is not born different, but by assuming things" and the "tool" culture of "becoming a great tool," which inspires students to establish their ideal beliefs. Students are guided to handle the relationship between people and tools appropriately. Through geometric drawing, students can cultivate the spirit of craftsmanship.
2	National standards	drafting Drawing frame lines and title bars Line exercise and legend exercise Dimensioning	The famous quote – "If you don't follow the rules, you can't make a square" – and the national drafting standards are used to introduce scientific and rigorous professionalism to help students understand the importance of the national drafting standards, guide them to standardize their drawings, and assists them in developing a sense of standards and compliance with the law. Students will learn to be diligent, meticulous, realistic, and strive for excellence in drawing frames, diagrams, and legends as well as in dimensioning exercises.
3	Basic knowledge of projection and the reading and drawing of the three-sided projection of architectural models	Projection pattern Point, line, and surface projection Fundamental body projection Projection of combinatorial bodies	The use of excellent ancient architectural models, such as the "building method," "Lu Ban blueprints," and other models to expose students to the excellent traditional Chinese culture, inspire their national pride, and instill in them the connotation of craftsmanship. By drawing three views, it helps to develop students' analytic and problem-solving skills as well as cultivate diligent rigorous, meticulous, and realistic students, along with the spirit of excellence.
4	Reading and drawing of sectional and cross-sectional drawings	Reading of sectional and cross-sectional drawings Drawing of sections and cross-sections	To develop students' ability to analyze and solve problems; to develop the spirit of diligence, meticulousness, realism, and excellence.

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Number	Item	Professional teaching content	Ideological and political teaching content
5	Reading and drawing of building construction drawings	Composition of construction drawings for building projects Components of each group of houses Reading and drawing of the whole set of building construction drawings	Students are guided to deal with the relationship between the individual and the collective from the composition of building construction drawings as well as the composition of a house to stimulate their sense of social responsibility; to draw building construction drawings to further strengthen the awareness of standards and cultivate meticulous and focused students as well as the spirit of craftsmanship.
6	Reading and drawing of structural construction drawings	Reading of the general description of structural design The overall expression of reinforced concrete structure construction drawing plan	Students are introduced to the development of structural drawing design in China, guiding them to have a sense of inquiry and innovation; students are encouraged to draw construction drawings to further strengthen their awareness of standards and cultivate their artisan spirit of meticulousness, continuous focus, and excellence.
7	Comprehensive practical training	Comprehensive architectural drawing	Inspire students' sense of mission and cultivate the spirit of solidarity, cooperation, as well as the craftsmanship of meticulousness, continuous focus, and excellence.

4. The implementation of ideological and political education in Architectural Drawing and Drafting
Classroom teaching is the main channel of ideological and political education in the course. Partial teaching and practical teaching are taken as examples to illustrate the implementation of the education in Architectural Drawing and Drafting.

4.1. Inspire students' professional interest and national pride with the country's glorious construction achievements and help them to feel the spirit of craftsmanship

This course is an introductory course for students of higher vocational architecture majors. The "Professional Orientation and Course Introduction" has been set as the first lesson of the course. The course is taught by means of videos, pictures, group discussions, and individual presentations. The introduction to the course is based on various construction projects, such as "The Bird's Nest," an architectural work known as the "stadium of the fourth generation," the Oriental Pearl Tower, which is a landmark in Shanghai, and other superb buildings. This is done so that students can understand the positioning of their profession and their job responsibilities. After the class, students are encouraged to watch videos of other projects, such as the Shanghai World Financial Centre. Through the interactive exchange between teachers and students during the lesson and the extension of students' independent learning after the lesson, students will be able to gain confidence in their profession and understand the value of their professional positions through the country's glorious construction achievements, thus arousing their professional interest, inspiring their national pride and patriotism, as well as cultivating the craftsmanship of hard work and dedication in the construction of buildings.

4.2. The use of quotations and school culture to help students establish their ideals and beliefs

In the “Use of Drawing Tools and Supplies” lesson, quotations and school culture are introduced and discussed in small groups, followed by individual statements. The introduction of quotations, such as “A gentleman is not born different, but by assuming things,” helps students to understand that success is possible with the help of tools. This will stimulate students’ interest in learning and help them to understand that the correct use of drawing tools and instruments is a guarantee for speed and quality.

The final part of the lesson incorporates the “tool” culture – “Make the best use of tools, create tools, and become a great tool.” Students will come to realize that “make the best use of tools” means to learn to make good use of tools; that is, to understand the function of various drawing tools and instruments, and subsequently to be able to use them correctly; “to create tools” means that the students are able to complete drawings with the help of drawing tools and instruments; “to become a great tool” means that through the training with the help of instruments, the students will be able to acquire proficient drawing skills. With the resources, students will be able to use their skills to complete construction drawings by the end of the semester and to motivate each other to build up the ideal of “becoming a tool” as well as to become a useful citizen for economic and social development.

4.3. Cultivating teamwork and craftsmanship in drafting skills training

The teaching method is focused on reading the construction drawings in small groups and integrating ideological and political education elements in the process to develop students’ solidarity and cooperation. The essence of the course is “learning by doing,” where the teacher develops the teaching content, while the students execute it as the basis for a comprehensive learning activity. In the training process of manual drawing, students are implored to pay attention to details, such as proper layout, reasonable drawing steps, correct lines, and accurate dimension labelling, thus cultivating a conscientious and responsible working attitude, a rigorous and meticulous working style, as well as the spirit of craftsmanship.

In order to cultivate students’ spatial imagination and hands-on skills, the comprehensive practical training session assumes a specific project – building engineering drawings – as the carrier, with the task of reading and understanding architectural drawings as well as drawing two-dimensional drawings. In the teaching process, students are the main body. Under the guidance of teachers, the group members are allowed to inquire freely to complete their drawings. This helps to cultivate the teamwork spirit and the craftsmanship spirit of paying attention to details and quality in the process of practice.

5. Problems that need to be solved in the construction of curriculum ideology and politics

In recent years, colleges and universities have achieved remarkable results in promoting the construction of curriculum ideology and politics, but there are also some urgent problems that need to be solved.

The top-level design of the construction is imperfect, the educational objectives of professional courses are not clear, the ideological and political elements of the courses are not tapped, the teachers’ innovation awareness and ability are substandard, and the assessment and evaluation mechanism of curriculum ideology and politics is inflexible.

The expression of key elements such as the objectives, tasks, paths, carriers, evaluation system, as well as the reward and punishment system of the construction of curriculum ideology and politics is not specific or clear enough, resulting in a weak sense of direction in its construction.

Some universities lack a comprehensive and systematic overall plan for the construction of curriculum ideology and politics. They have not yet formed a specific implementation plan with the involvement of multiple departments or established a cooperative exchange mechanism for supporting teachers of professional courses and those of ideological and political education. Furthermore, there is no synergy among the staffs in the effort of educating people. There is also a lack of comprehensive consideration for

curriculum ideology and politics in the practical teaching of professional courses throughout the whole process of students' growth and success. Therefore, the maximum and optimal effect of the collaboration between ideological and political courses and curriculum ideology and politics in educating people has not been brought into full play.

6. Conclusion

In the construction profession, it is particularly important to carry out curriculum ideology and politics with the professional basic course of Architectural Drawing and Drafting. It does not only mobilize students' enthusiasm and improve the teaching effect as well as learning quality, but also cultivate patriotism among students along with their national pride and identity in the effort to train professional and quality successors for the new era. In this process, teachers should guide well and change the previous mindset of "teachers must have a bucket of water to provide students a bowl of water" to that of "teachers must have a bucket of water to teach students to harvest a tank of water," so as to cultivate high, precise, and professional talents, who can contribute to the development of the motherland. As students of the new era, they should actively cooperate with teachers and listen carefully during lectures, turn theoretical knowledge into practice, and combine professional theoretical knowledge with social practice, so as to lay a solid foundation for their personal development. Only with knowledge, skills, morality, and responsibility can they assume the responsibility of the Chinese dream for the great rejuvenation of the Chinese nation.

The ideological and political education in higher education is not a passing trend, but a teaching concept to be practiced now and in the future. How to combine the actual ideology of students and their ability to accept knowledge as well as the teaching of knowledge and skills with the education of ideals and beliefs is a question that every professional course teacher should think about. Professional courses are rich in ideological and political elements, such as the cultivation of professionalism, the establishment of socialist core values, the cultivation of moral sentiment, a healthy outlook on life, and the cultivation of pragmatic and pioneering scientific outlook, all of which require teachers to carry out curriculum ideology and politics. All these require teachers to be dedicated to curriculum ideology and politics as well as to spare no effort in extracting and refining them. In order to enhance the cultural self-awareness and self-confidence of modern students, curriculum ideological and political education is an urgent task. The organic integration of ideological and political elements into professional teaching enriches and expands the width and depth of knowledge. Only in this way can students improve their political awareness and moral quality in their professional studies, so as to adapt to the general trend of educational development and truly realize the cultivation of people with culture and morality.

Disclosure statement

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