

Research on the Implementation Path of Ideological and Political Education in Civil Engineering and Architecture Major Courses from the Perspective of Critical Thinking

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Abstract: "Curriculum thinking and politics" plays an important role in constructing the new pattern of ideological and political education in vocational colleges, and it is of great practical significance for the educational function of each course to give full play to the new pattern of education. At present, there are many problems in ideological and political teaching of civil architecture courses. Critical thinking can cultivate students' independent thinking ability, ability to distinguish information, critical awareness and language ability, as well as judgment and decision-making ability. Combined with the characteristics of civil and architectural majors, we explore the implementation path of teaching ideas, teaching objectives, teaching process, teaching methods, teaching resources, teaching evaluation and other aspects under the perspective of critical thinking.

1. Introduction

Curriculum ideological and political education plays an important role in guiding ideological and political work in vocational colleges, implementing the main responsibility of vocational college teachers in teaching and educating people, and constructing a new three-dimensional pattern of ideological and political education in vocational colleges. Deeply grasping the value connotation of "curriculum ideological and political education" in civil engineering and construction majors, scientifically constructing the generation path of "curriculum ideological and political education", optimizing the construction of ideological and political education curriculum system, excavating and sorting out the ideological and political elements of each course, effectively exerting the educational function of each course, has important practical significance for building a comprehensive, multi-level, and three-dimensional new pattern of education.

2. The relationship between critical thinking and ideological and political education

2.1. The concept and characteristics of critical thinking

2.1.1. The concept of critical thinking

The concept of critical thinking was first proposed by Edward Glaser, an American educationalist in the 1930s. In his book *An Experiment in the Development of Critical Thinking*, Glaser elaborated on the importance of critical thinking and its cultivation methods. Since then, critical thinking has gradually become an important content in the field of education and cognitive psychology research, and has been widely used in education, teaching and vocational training.

Critical Thinking, also known as critical thinking, is an important part of an individual's logical thinking. It not only represents an individual's ability to make rational decisions and reflect, but also represents a purposeful higher-order rational thinking process^[1-3]. With the development of The Times, the connotation of critical thinking is constantly updated.

2.1.2. Characteristics of critical thinking

Professor Ronald Barnett integrated the educational function of critical thinking into three aspects: First, critical thinking can realize the application, evaluation and innovation of knowledge. Second, critical thinking is directly related to character, including self-regulation and self-reflection as well as self-construction. Third, critical thinking has nothing to do with the world, which refers to the critical understanding and evaluation of the world.

2.2. Objectives and contents of ideological and political education

"To make good use of classroom teaching as the main channel, ideological and political theory courses should be strengthened in the course of improvement, improve the affinity and pertinency of ideological and political education, and meet the needs and expectations of students' growth and development. All other courses should maintain a certain channel and plant a good field of responsibility, so that all kinds of courses and ideological and political theory courses can walk in the same direction and form a synergistic effect."^[4-5]

Curriculum thinking and politics should integrate ideological and political education into professional education, adhere to moral cultivation, strengthen the education of world outlook, life outlook and values, pay attention to the inheritance and innovation of excellent Chinese culture, and actively guide contemporary students to establish a correct view of the country, the nation, history and culture, so as to cultivate more talents for the society with all-round development of morality, intelligence, physical beauty. To train qualified builders and reliable successors for the cause of socialism with Chinese characteristics. At the same time, it is necessary to comprehensively deepen the reform of education and teaching, adhere to both standardization and upgrading, pay attention to classroom teaching, practical teaching and the construction of the second classroom, optimize the structure of personnel training, continuously improve the quality of personnel training, maximize the fairness and quality of education, and cultivate pillars for the country and society with reasonable knowledge structure, excellent ability and quality, and high comprehensive quality. China's primary and secondary school stage often said that the student's ability is mainly reflected in the learning ability, and to a large extent is the ability of exam-oriented education. In the university period, we should make up for the shortcomings of early education, cultivate students as well-developed people, expand their horizons of knowledge, stimulate their interests, encourage their extensive participation in social practice, and cultivate their rational thinking mode, self-adjustment ability and comprehensive literacy^[6].

2.3. The role of critical thinking in ideological and political education

The research on the critical thinking of higher vocational college students, especially the research on the cultivation of critical thinking of students, is extremely lacking at present, which is inconsistent with the low level of the overall development of critical thinking of Chinese college students and the important position of critical thinking in the quality of higher vocational students. It is urgent for researchers and educators to explore^[3]. Critical thinking plays an important role in ideological and political education. It can cultivate students' independent thinking ability, ability to discern information, critical awareness and language ability, as well as judgment and decision-making ability. These abilities are of great significance to students' personal development and social progress.

(1) Help students think proactively. Critical thinking helps students think proactively. Ideological and political education is not only about instilling knowledge, but also about guiding students to actively think, question and explore problems. Critical thinking can stimulate students' curiosity and thirst for knowledge, so that they can think about problems from multiple angles without blindly following and credulity, so as to cultivate the ability of independent thinking.

(2) Help students discern whether information is true or false. In the information age, students are faced with a huge amount of information, which includes both true and false information. Critical thinking can help students learn to discern the credibility and value of information, so as not to be misled or deceived. This is essential to develop students' information literacy and media literacy.

(3) Develop students' critical awareness and critical language skills. Ideological and political education aims to cultivate students' sense of social responsibility and citizenship, enabling them to think and express themselves critically on social issues. Critical thinking can help students analyze the nature and root causes of problems and put forward reasonable criticism and suggestions, thus promoting social progress and development.

(4) Cultivate students' judgment and decision-making ability. In a complex and changing social environment, students need to be able to distinguish right from wrong and make correct judgments. Critical thinking can help students think about problems from multiple angles and levels, weigh pros and cons, and make wise decisions.

3. Current situation of ideological and political implementation of Civil and architectural courses

3.1. Characteristics and objectives of Civil and architectural courses

According to the Catalogue of Vocational Education Majors (2021) issued by the Ministry of Education, There are 34 majors in seven professional categories, including architectural design (4401), urban and rural planning and management (4402), civil construction (4403), construction equipment (4404), construction project management (4405), municipal engineering (4406) and real estate (4407). It fully ADAPTS to the requirements of new economy, new technology, new business form and new occupation in the construction industry.

3.1.1. Characteristics of civil and architectural courses

(1) The combination of theory and practice: The courses of Civil architecture focus on the combination of theoretical knowledge and practical skills. Students not only need to master the relevant theoretical knowledge, but also need to apply the knowledge to practical engineering projects through practical training courses, on-the-job internships and other ways.

(2) Both comprehensive and professional: Civil and architectural courses cover the basic

knowledge and professional knowledge of civil engineering and construction engineering. Students need to learn the basic theories, design methods, engineering management and other aspects of civil engineering and construction engineering to cultivate comprehensive quality and professional skills.

(3) Training of teamwork and communication skills: Civil engineering courses focus on cultivating students' teamwork and communication skills. Students need to cooperate with team members in engineering design, construction, project management and other practical links to complete tasks together. At the same time, students also need to have good communication skills to effectively communicate and coordinate with relevant professionals, clients and team members.

(4) Training of engineering practice and innovation ability: The courses of Civil engineering and architecture focus on cultivating students' engineering practice and innovation ability. Students need to participate in the practice of actual engineering projects, understand the problems and challenges in engineering practice, and propose solutions. Through practice and innovation, students are trained in problem solving and innovative thinking.

3.1.2. The objectives of the Civil Engineering and Architecture class

(1) Cultivate students' professional knowledge and skills.

(2) Cultivate students' comprehensive quality and innovation ability.

(3) Cultivating students' professional quality and sense of social responsibility: Civil and architectural courses focus on cultivating students' professional quality and sense of social responsibility. Students need to understand the professional ethics and norms of the engineering industry, have good professional ethics and social responsibility, and make positive contributions to the society.

3.2. The current implementation of ideological and political education in civil and architectural courses

(1)Curriculum: These courses aim to cultivate students' political awareness, ideological and moral accomplishment and legal awareness. In addition, professional courses need to be set up in accordance with national professional teaching standards and in conjunction with regional economies.

(2)Teaching methods: Teachers usually adopt a variety of teaching methods, such as lecturing method and case teaching method. Through these teaching methods, teachers can stimulate students' thinking and discussion, and cultivate students' ability to analyze problems.

(3)Practical education: Ideological and political education also pays attention to the development of practical education in civil and architectural courses. Students are usually organized to participate in social practice, field trips, social research and other activities, so that students can personally experience social problems and deepen the understanding and application of professional knowledge and ideological and political education content.

(4)Teaching evaluation: The current teaching evaluation pays more attention to students' mastery of knowledge and acquisition of skills, and the evaluation of value shaping is relatively lacking.

3.3. Existing problems and challenges

Lack of exemplary model for cultivating artisan spirit Minister Chen Baosheng of the Ministry of Education proposed to "always adhere to the learner-centered, provide personalized, diversified and high-quality education services for different levels and types of educatees, and promote learners' active learning, release their potential and all-round development". The civil construction category covers seven professional categories, but the characteristics of each professional category

are not obvious, the training of talents in each professional category is repeated and crossed, and there is currently a lack of a model of the cultivation of craftsman spirit in the civil construction category. In addition, professional ethics education should be strengthened to cultivate employees' dedication, integrity, spirit of cooperation, sense of mission and responsibility.

4. The application of critical thinking in the teaching of civil and architectural courses

4.1. Teaching philosophy

Article 2 of the new Vocational Education Law defines the connotation of vocational education as three aspects: professional ethics, scientific culture and professional knowledge, and technical skills. Article 4 stipulates that the implementation of vocational education shall carry forward the core socialist values, conduct ideological and political education and professional ethics education for educatees, cultivate the spirit of model workers, labor spirit and craftsman spirit, impart scientific culture and professional knowledge, cultivate technical skills, provide vocational guidance, and comprehensively improve the quality of educatees. Article 49 provides that students in vocational schools shall abide by laws, regulations and codes of conduct for students, and cultivate good professional ethics, professional spirit and behavioral habits.

From the perspective of critical thinking, the course ideological and political teaching design of civil engineering and architecture major should follow the teaching concept of people-oriented, emphasizing the individualized development of students, emphasizing practice-oriented, cultivating students' comprehensive ability, comprehensively improving students' quality, advocating innovative education, strengthening school-enterprise and inter-school cooperation, and paying attention to students' lifelong development.

(1) People-oriented: Vocational education should be people-oriented, pay attention to the personalized development of students, respect the differences of students, and fully mobilize the enthusiasm and initiative of students. Teachers should pay attention to the growth needs of students, and provide each student with an educational environment and opportunities suitable for their development. (2) Individualized teaching: Vocational education should make full use of a variety of teaching methods and means, and carry out personalized teaching according to the characteristics and needs of students. Teachers should be good at finding the advantages and potential of students, provide students with targeted guidance and suggestions, and help students give play to their own advantages and improve their comprehensive quality. (3) Practice-oriented: Vocational education should emphasize practical teaching and cultivate students' ability to solve practical problems. Teachers should pay attention to the development trend of the industry, closely combine with the needs of enterprises, and provide practical projects with practical significance for students, so that students can learn to use professional knowledge in practice and improve their skills. (4) Competency-based: Vocational education should focus on cultivating students' comprehensive ability, including professional ability, innovation ability, communication ability, teamwork ability, etc. Teachers should pay attention to the development needs of the industry, and train students to have the ability to adapt to the development of The Times and industrial changes. (5) Quality education: Vocational education should comprehensively improve the quality of students and cultivate their moral character, professionalism, physical and mental health and social responsibility. Teachers should pay attention to the overall development of students, guide students to form correct values and outlook on life, and lay the foundation for students' lifelong development. (6) Innovation-driven: Vocational education should advocate innovative education and cultivate students' innovative consciousness and entrepreneurial spirit. Teachers should stimulate students' thirst for knowledge and curiosity, guide students to dare to challenge authority, dare to break through tradition, and provide a steady stream of innovation impetus for the development of the

industry. (7) Cooperation and sharing: Vocational education should strengthen school-enterprise cooperation, achieve the integration of production and education, give full play to the advantages of both enterprises and schools, and provide students with better educational resources and practice platforms. At the same time, we should strengthen inter-school cooperation, share high-quality teaching resources, and improve the quality of education and teaching. (8) Sustainable development: Vocational education should pay attention to the lifelong development of students, and cultivate talents with independent learning ability and sustainable development ability. Teachers should pay attention to the development of the industry, constantly update the teaching content, and improve their own education and teaching level to meet the needs of social development.

4.2. Teaching objectives

The Ministry of Education has made it clear that engineering majors should combine the education of Marxist standpoint, viewpoint and method with the training of scientific spirit in curriculum teaching, so as to improve students' ability to correctly understand, analyze and solve problems. Emphasis should be placed on strengthening students' engineering ethics education, cultivating students' spirit of excellence as a national craftsman, and inspiring students' feelings of serving the country through science and technology and their sense of mission.

From the perspective of critical thinking, the establishment of teaching objectives of civil engineering and architecture majors should pay attention to empirical analysis, expert demonstration and dynamic adjustment, so as to ensure that the teaching objectives are in line with national policies, industry needs, enterprise requirements and students' development needs. At the same time, the teaching objectives should cover the aspects of professional accomplishment, innovation ability, communication ability, critical thinking ability, moral quality and lifelong learning ability, so as to cultivate high-quality technical talents with all-round quality and sustainable development ability.

4.3. Teaching process

From the perspective of critical thinking, the teaching process of civil and architectural majors should pay attention to the creation of problem situations, encourage multiple interactions, teach critical thinking methods, emphasize practice and application, etc., and cultivate civil and architectural high-quality technical talents with critical thinking ability and overall quality.

The problem situation should cover the professional knowledge, skills and innovation in the field of civil construction, which will help students apply theoretical knowledge to practical projects. At the same time, guide students to make full use of critical thinking in the process of argumentation, find flaws in arguments, and refuse to accept unfounded views. In this process, teachers play the role of guides and coordinators to ensure the effective development of interactive activities. At the same time, students' critical thinking performance is evaluated to ensure the realization of teaching objectives.

4.4. Teaching methods

Teaching method is a means to achieve teaching objectives, a tool to implement teaching content, and an interactive process between teachers' "teaching" and students' "learning". It is the sum of teaching and learning activities jointly completed by both teachers and students. Different teaching methods will have different teaching effects. The use of Internet, multimedia and other information technology means to provide students with rich learning resources, guide students to conduct independent learning, cultivate students' independent thinking and critical thinking ability, guide

students to self-reflection, cultivate students' critical thinking ability, and evaluate students' critical thinking performance to ensure the realization of teaching goals.

Project-driven teaching method: through real or simulated engineering projects, students are guided to participate in the whole process and cultivate students' ability to solve practical problems. In the process of project implementation, students are encouraged to ask questions, analyze problems, solve problems, and exercise critical thinking. Problem-oriented teaching method: With problem as the core, teachers guide students to ask questions, find information, analyze problems and formulate solutions, and cultivate students' independent thinking and critical thinking ability.

4.5. Teaching resources

Teaching resources are materials and other conditions that can be used for the effective development of teaching, usually including textbooks, cases, films, pictures, courseware, etc., but also including teacher resources, teaching AIDS, infrastructure, etc. In a broad sense, it should also involve educational policies and other content.

(1) Typical figures, collect civil construction industry era model and the role model around, stimulate learning interest. (2) For typical projects, you can collect ancient and modern civil construction projects by engineering type to enhance professional identity. (3) Laws and regulations, collect relevant laws, regulations and typical cases, establish normative awareness. (4) Mission responsibility, collect the forefront of the industry hot spots, dynamics, to keep pace with The Times.

4.6. Teaching evaluation

Teaching evaluation is the activity of judging the teaching process and results according to the teaching objectives and serving the teaching decision. It is the process of judging the displayed or potential value of teaching activities. According to the evaluation analysis method, qualitative evaluation and quantitative evaluation can be analyzed. The evaluation of civil and architectural teaching is more comprehensive, scientific and effective from the perspective of critical thinking.

(1) Establish evaluation objectives: First of all, it is necessary to clarify the objectives of teaching evaluation to ensure that the evaluation process is targeted and effective. In civil and architectural majors, the evaluation objectives should focus on cultivating students' ability of critical thinking, including independent thinking, problem analysis and problem solving. (2) Formulate evaluation standards: According to the evaluation objectives, formulate corresponding evaluation standards. These standards should cover the core knowledge, skills and critical thinking elements of civil and architectural majors, such as reasonableness of argument, depth of analysis, innovation, etc. (3) Diversified evaluation methods: adopt a variety of evaluation methods, such as written test, oral test, experiment report, project design, etc., in order to comprehensively evaluate students' critical thinking ability. In addition, teaching activities such as group discussion, class participation and case analysis can also be used to allow students to demonstrate their critical thinking ability in practical operations. (4) Strengthen the process evaluation: the process evaluation can pay attention to the growth and change of students in the learning process, and is conducive to finding and correcting problems in time. Teachers can continue to pay attention to the development of students' critical thinking through classroom observation, homework, group discussion and other links. (5) Teacher training and motivation: Strengthen the training of teachers to improve their ability to use critical thinking in teaching. At the same time, establish a sound incentive mechanism to encourage teachers to pay attention to cultivating students' critical thinking in the teaching process. (6) Students' independent evaluation: Guide students to evaluate themselves, make them realize their strengths and weaknesses in critical thinking, and learn to adjust their learning strategies actively.

Personal growth records and learning experience sharing can be used to promote students' independent development. (7) Feedback and improvement: In the evaluation process, students, teachers and education administrators should be timely feedback on the evaluation results, so as to adjust teaching strategies and improve teaching methods.

5. Conclusions

The teaching of civil engineering in vocational education from the perspective of critical thinking puts forward higher requirements for teachers in vocational colleges. On the one hand, teachers should grasp the development trends of the civil engineering industry in time, and on the other hand, they should flexibly use various teaching methods in the classroom, so as to cultivate more high-quality technical and technical talents, skilled craftsmen and great artisans who meet the needs of The Times.

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(2) 2022, Zhejiang province Chinese professional scientific research project "construction engineering management professionals craftsman spirit cultivation path research" (ZJCV2022E10).

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