

Research on the Integration of “Civics Curriculum” and the Course “Integration of Oil and Gas Pipeline Design and Management”

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Abstract: Civics Curriculum refers to a comprehensive educational concept that takes all kinds of courses and humanistic thought and theory courses together in the form of building a whole staff, whole process and whole course education pattern, forming a synergistic effect, and taking "Building Morality and cultivating students" as the fundamental task of education. It has always been a fine tradition of education in China to "educate students" before "educate morals" and to focus on the organic unity of teaching and educating students. This paper combines the course "Oil and Gas Pipeline Design and Management" with Civics Curriculum in order to improve the teaching effect of the professional course and at the same time to achieve the simultaneous improvement of professional knowledge and ideological and moral level. Firstly, the problems that plague students in the teaching of the course "Oil and Gas Pipeline Design and Management" and the significance of combining it with ideological education were explained; then the feasibility of the course in relation to humanistic ideological concepts was analyzed and the various aspects of ideological education were discussed. Finally, ideological education was added to the teaching of the course "Oil and Gas Pipeline Design and Management" through three ways: improving the humanistic and ideological qualities of teachers, continuously learning educational and teaching methods, and expanding ideological content.

1. Introduction

When teachers teach professional knowledge and skills, they should enhance students' professional identity, improve their professionalism and cultivate good professional ethics, so as to lay a good "ideological" foundation for their future work and even life foundation [1]. General

Secretary Xi stressed at a symposium for teachers of school Civics Curriculum courses held on March 18, 2019." We run a good education on socialism with Chinese characteristics, that is, we should justify the opening of a good civics course, use the thought of socialism with Chinese characteristics in the new era to forge the soul and educate students, guide students to enhance the confidence in the road, theory, system and culture of socialism with Chinese characteristics, thicken the spirit of patriotism, and consciously integrate the love for the country, the desire to serve the country and the act of serving the country into the cause of upholding and developing socialism with Chinese characteristics, building a modern and strong socialist country and the struggle to achieve the great rejuvenation of the Chinese nation". General Secretary also emphasized the establishment of moral education on Civics Curriculum in universities at the National Conference held in December 2016, encouraging the integration of cultivating and practicing socialist core values into the whole process of teaching and educating students [2]. Carefully studying the General Secretary's speech, accurately interpreting the ideas and logic contained in the phrase "dangling a good civics class" and carefully implementing the phrase of "establishing morality and educating students" are all directly related to whether colleges and universities can truly accomplish the task of offering a good civics class in the practice of educating students.

The course of Oil and Gas Pipeline Design and Management is an important mandatory professional course for oil and gas storage and transportation majors, and the course task is to enable students to master the basic knowledge and design principles and methods of oil and gas pipeline design and management. Students will learn to calculate the physical properties of oil and natural gas, process methods, process calculations of transmission pipelines, the characteristics and layout of each pressure station and pumping station, etc., and train students to use basic knowledge to discover, analyze and solve practical problems in the process of oil and gas transmission systems. The preliminary exploration and research has been conducted on the significance and feasibility of Civics Curriculum in the teaching, and explored civic education in conjunction with the course content. Finally, we analyzed and explored the meaning and feasibility of Civics Curriculum.

2. Significance of "Civics Curriculum" in the Course of "Oil and Gas Pipeline Design and Management"

As a major component of the oil and gas storage and transportation engineering curriculum, the course of "oil and gas pipeline design and management" mainly studies the phenomena, principles and processes of transporting, handling, measuring and testing oil and gas in pipelines or equipment. With the development of the gas and oil industry teachers often focus only on professional knowledge in the teaching process, while ignoring the moral ethics, socialism and other patriotic education. In the case of our school, students of oil and gas storage and transportation majors learn four civics and philosophical courses, namely, the foundation of ideological and moral cultivation and law, the Outline of Modern History, Introduction to Marxism, Introduction to Mao Zedong Thought and Theory of socialism with Chinese characteristics, in the first two years, they mainly learn professional foundation courses and professional courses in the second two years. The cognitive system of students' theoretical and practical knowledge system and their cognitive system of majors, industries and even the whole society were mainly formed in the last two years. The marginalization of civics education may lead to students' poor sense of teamwork, poor sense of collective honor, heavy personal gain and loss, and lack of patriotic feelings. After talking with students, it is obvious that many of them are looking for jobs in institutions and civil servants. Considering their professional jobs, such as engineers, factories and production, is their least important choice. The teaching mode of emphasizing science and technology and neglecting humanities makes students' sense of responsibility, ecological consciousness and ethical

consciousness weak.

In the process of teaching, let them touch the history of the motherland, realize the importance of this profession for the construction of socialism, realize that a profession, an industry and even a strong nation must rely on our personal dedication and efforts, let them have a sense of mission, honor and hard work, make them further understand the significance of Marxism, Mao Zedong Thought, socialism The significance of the characteristic road, etc. To sum up, "Civic politics of professional courses" is really necessary.

3. Feasibility of "Civics Curriculum" in the Course of Oil and Gas Pipeline Design and Management

Table 1: Teaching content of the Civics Curriculum

Teaching content	Civics points	Relationship between the two
Overview of oil and gas resources	Current affairs and politics	Introduction of current affairs and international relations in China through the problem of imbalance between supply and demand of oil and gas resources and production demand in China
The history of the oil and gas industry	Cultivate the entrepreneurial spirit of hard work and struggle	Cultivate the entrepreneurial spirit of hard work and struggle. The commitment of Wang Jinxi and other exemplary workers in the early days of China's oil fields led to 30 years of stable production at the Daqing Oilfield.
Pipeline equipment and technology	Cultivate students' patriotism and strength from the aspect of real-time politics	From the late start of China's pipeline industry equipment and technology compared with foreign countries, some of the early technology and equipment depend on foreign links to real-time politics - the United States trade war against China, Huawei overseas market impact and other events, to encourage students to join the research field, to Revitalize national industry and cultivate their love for the country and its strength
Oil and gas properties	In-depth understanding of the scientific concept of seeking truth from facts	Under the same experimental methods, instruments, reagents and conditions, the results obtained by different students are not the same, insisting on data as the basis, science allows errors, errors inspire the truth
Comparison of oil and gas transportation	Dialectical materialism theory	Through the comparison of two kinds of fluid transportation, guide students to learn to analyze the problem of dialectical materialism theory.
Analysis of pipeline leakage conditions	Compliance with laws and regulations	Oil theft is common, but no one who steals oil gets rich from it, but it causes danger, which leads to compliance with the law and guides students to form a correct outlook on life values world view
The impact of pipeline conditions on the pipeline	Through the phenomenon to see the essence	Through the pressure, temperature, flow of fluid in the pipeline changes, leading to the analysis of the specific conditions of the pipeline, leading students to analyze the essence through the phenomenon
Analysis of pipeline accident conditions	Maintain a rigorous and serious learning and working attitude to avoid formalism	Most of the man-made accidents in pipelines are caused by unfamiliar operation or misoperation, which requires students to love their job, to do their job well, to work with a rigorous and serious attitude, and to prevent the cultivation of formalism
Oil and gas pipeline standards	Oil and gas pipeline standards strictly in accordance with national or industry standards	National or industry standards must be strictly observed when we design or use, which is a prerequisite to ensure the feasibility of design and safety, so that students are aware of the importance of national or industry standards
Safe operation of oil and gas storage and transportation	Improve professional ethics and strengthen the sense of professional responsibility	The safety of oil and gas storage and transportation is related to social stability and students's safety, and the medium transported is related to the students's livelihood, so students must have a strong sense of professional responsibility and mission, and educate students to establish the belief that "a qualified engineer must adhere to professional ethics".

The course of oil and gas pipeline design and management was originally combined into one of the two courses due to the reduction of the professional curriculum and the commonality, so the

course itself is the integration of the two courses, the process of integration can be added to some elements of civics, for example, the beginning of the development of oil and gas overview, China's oil and gas resources are abundant, and constantly discover new oil and gas deposits, but China's rapid industrial development, supply and demand imbalance. For example, we can only rely on the output of importing countries, and the output of resources is inseparable from the national relationship, thus introducing the relationship between our country and other countries, and linking with international current affairs, why our country is sometimes unwilling to fight hard in the face of provocations from other countries and willing to negotiate peacefully? This will enhance students' interest in national current affairs and their understanding of national policies.

For example, oil and gas pipeline transportation has its own characteristics, natural gas transportation because of its compressibility so there is no water strike phenomenon and can use this feature for gas storage, but natural gas also has certain limitations is its other transportation methods other than pipelines because of its large volume and the need for secondary processing such as compression, liquefaction, solidification, etc., and the need to release gas again when using; oil transportation is prone to water strike phenomenon, through Large drop areas are easy to form a discontented flow, but the oil can use cars, trains and other means of transport, more flexible transport methods. This situation can be analyzed with dialectical materialist thought, which not only helps students understand their professional knowledge, but also helps them form a scientific way of thinking, and lays a good foundation for them to establish a correct outlook on life and worldview.

According to the syllabus of oil and gas pipeline design and management, combined with their own teaching practice, the current affairs and politics, the traditional culture , philosophical theories, social morality and professional ethics education into the teaching of oil and gas pipeline design and management, summarized the teaching content of the course Civics Curriculum, seen Table 1.

4. How to Implement the Content of "Civics Curriculum" in the Teaching

4.1 Improve Teachers' Civics Literacy

As the guide of teaching practice, teachers' civics literacy and even personality charm have a direct impact on students' spiritual construction, emotional cultivation and moral improvement [3-5]. At present, most teachers of professional courses, especially those of science and technology, do not actively engage in the "civics curriculum", resulting in the lack of a broad research perspective on the civics aspects of such professional courses, which is not only detrimental to the expansion and extension of course content, but also restricts the outward diffusion of students' thinking about the curriculum, and does not give students the opportunity to learn more about the civics aspects of the curriculum. The students should be given timely political orientation and ideological guidance when they encounter problems and conflicts [6]. Therefore, the teachers of the course must continuously study in depth, comprehensively and deeply understand the great theoretical significance and ideological connotation of philosophical theories such as Marxism theory, Mao Zedong Thought, the socialism theoretical system of Chinese characteristics, especially Xi Jinping's socialism in the new era, enhance civics literacy, deeply understand and grasp the connotation and significance of Civics Curriculum through training, lectures, exchanges, etc., and the teachers of the course First of all, teachers should read more, study more, link political literacy with professional knowledge, link professional outlook with current affairs and politics, improve their professional knowledge, but also have a certain degree of civics awareness and the ability to penetrate affairs and politics into the profession. In short, the key to the Civics Curriculum is the teachers, especially the teachers of professional courses, to improve their civics awareness, to integrate the civics and traditional culture with the professional knowledge, and to be able to teach by example, in order to better be

the guide of students.

4.2 Continuous Learning of Education and Teaching Methods

Teachers should also consciously take the initiative to learn modern advanced educational concepts[7], learn more about curriculum design theories such as Taylor's curriculum theory, OBE classroom (Outcome-based Education, OBE), BOPPPS (Bridge-Objective-Pre-assessment-Participatory Learning- Post-assessment- Summary, BOPPPS), etc., continuously improve their professionalism, update their educational philosophy, innovate educational methods, change the traditional didactic and indoctrination mode, and keep up with the times by integrating social hotspots and other ideas guided by Marxism theory into practical teaching. In this way, students can improve their theoretical learning skills and form correct ideological judgment and understanding. Teachers increase the advanced innovative education concept, improve the innovative thinking and creativity, study traditional culture and philosophical theories, dig out the contents adapted to the professional education and introduce them into their practical teaching, and convey the advanced civics to students through their professional course education.

4.3 Expanding the Content of Civics Curriculum

Teachers should take moral education as the fundamental of talent cultivation and the core value of course, and one of the key points here is to establish morality first and then cultivate students, and cultivate students first with morality, so we should fully explore the civics contents of the course, integrate the core traditional values, dialectical materialist views, philosophical thoughts into the practical course teaching, and actively expand the teaching content. The course is designed to convey the correct values through professional knowledge.

How to scientifically and effectively develop the civics elements contained in the professional knowledge itself is a key issue in building the Civics Curriculum [8]. Therefore, teachers should study and visit more, carry out teaching and research activities, clarify how to expand more resources on the original knowledge system, influence students' values and philosophical orientation through classroom teaching[9], realize the combination of teaching professional knowledge and civics education. During the course, we analyze the psychological characteristics, learning demands and values of different students through talking with them, asking and answering their questions, so as to arouse their intellectual, emotional and value resonance. The educational resources of oil and gas pipeline design and management course are explored to truly integrate thinking, politics and learning, reflect the concept of peer-to-peer and collaborative education, and combine the characteristics of oil and gas storage and transportation students so that students can better understand and master professional knowledge while enhancing professional quality and professional ethics[10].

5. Conclusions

Under the call of General Secretary Xi, the teaching reform of colleges and universities has continued to deepen, and the process of classroom Civics Curriculum must be accelerated. As the main course for students in the second two years of university, the civics course is especially important. The task undertaken by teachers is not only to teach professional knowledge, but also to teach students the right way to think scientifically and positive moral values, and to make students have patriotic sentiments. The author integrates the oil and gas pipeline design and management course with the university's Civics Curriculum, and some of the contents are innovatively integrated to unify the four aspects of education and nurturing, teaching by word and example, diving and

concern for society, academic freedom and academic standards, in order to awaken the enthusiasm of college students for learning, improve the teaching effect of professional courses, and realize the simultaneous improvement of professional knowledge, traditional culture and moral level.

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