

Research on the Systematic Development of Moral Education Resources of Science and Engineering Majors in Colleges and Universities

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Abstract: There are many courses of science and engineering majors in Colleges and universities, which contain rich elements of moral education, and the value is very great. In order to carry out the curriculum ideological and political education, it is necessary to mobilize the professional teachers to excavate and refine the massive moral education materials in professional courses, and form systematic moral education resources. A resource system composed of ten moral education elements is formed, such as philosophical foundation, feelings of family and country, scientific rationality, Striving and inspiring, innovative thinking, moral cultivation, professional quality, mental health, aesthetic temperament and so on.

Keywords: curriculum ideology and politics, professional courses, moral education resources, system development

1. Introduction

With the deepening reform of higher education and the continuous renewal of educational ideology, the disadvantages of relying solely on ideological and political education courses are becoming increasingly obvious and can not adapt to the development of the times. Our state has begun to pay attention to the all-round penetration of moral education and the cultivation of college students' humanistic quality^[1]. Curriculum ideological and political education is a systematic work of moral education^[2-3]. In addition to the guidance and support of the top-level design and policies, the key is to need a lot of basic work to consolidate the support. It is necessary to mobilize and give full play to teachers' subjective initiative to contribute their intelligence and wisdom to curriculum ideological and political education, and finally converge into the educational resultant force of curriculum ideology and politics through the efforts of all levels.

Science and engineering courses in higher education are the main courses for students to learn, which take up a lot of students' time and the most important teaching resources of the school. Professional courses contain a large number of moral education resources^[4-5]. Moral education content is integrated into professional teaching, which is easy to be understood and accepted by students, so that they can be educated and edified imperceptibly. Therefore, it requires teachers to combine the professional knowledge system, personal teaching experience and ideological and political theory level, deeply excavate and extract a large number of scattered and unsystematic moral education "raw materials" contained in various professional courses, and integrate and solidify them to form basic materials, so as to provide solid support for curriculum ideology and politics.

2. Systematic construction of moral education resources in science and engineering courses

There are many kinds of science and engineering courses, accounting for more than half of the courses in Colleges and universities. They contain a large number of moral education elements, which are the raw materials of moral education. However, these raw materials are presented in a scattered and fragmented state, which requires the professional teachers to carry out eye recognition, brain processing, summary and refinement, language expression and vivid practice, so that they can be transformed from raw materials to usable materials. Because each teacher's theoretical literacy, knowledge structure,

thinking mode and life experience are very different, the value and importance of the same moral education elements in the eyes of each professional teacher are different, and the angle of analysis and the concept of moral education are also different. However, the basic values and core concepts contained in moral education elements remain unchanged, and the final direction is the same. We need to follow the common moral education laws.

2.1. Philosophical foundation is the bottom code to form young students' outlook on world, life and values

Students of all disciplines and different learning stages should learn Marxist theory and master scientific world outlook and methodology, which help students lay a scientific ideological foundation for their lifelong growth. The explanation of Philosophy in the curriculum ideology and politics is not to directly introduce Marxist philosophy. Instead, the positions and viewpoints, principles and methods of dialectical materialism and historical materialism are expressed in the form of philosophical thinking, philosophical practice and case explanation in combination with the study of knowledge points in professional courses. So that young students can learn basic philosophical methods and provide theoretical basis and fundamental methods for students to observe the world, think about problems and social practice.

2.2. The feeling of home and country is the source of power for young students to make contributions

The feeling of home and country is the most basic spiritual pursuit of every Chinese people, and it is the root of the continuous and endless growth of Chinese civilization after 5000 years of wind and rain. Patriotism is the deepest and most lasting emotion in the world. It is the source of morality and the foundation of meritorious service. To carry out curriculum ideology and politics, patriotism must be put in the first place. Teachers should find the right combination point and guide young students to closely connect their ideals with the future of the motherland and their lives with the destiny of the nation, so as to take root in the people and contribute to the country.

2.3. Scientific rationality is the thinking character that young students should develop

Scientific exploration and rational thinking still need to be deepened and popularized. As the backbone of socialist construction in the new era, young students should cultivate the spirit of scientific rationality and develop a good style of pursuing truth, preciseness and pragmatism. Teachers teach students to unswervingly publicize scientific ideas, promote the innovative practice of science and engineering technology, and personally use science and technology to promote social progress and development.

2.4. Striving and inspiring is the youth background of young students' passion

The mission of national rejuvenation depends on struggle to realize, and the sail of life ideal depends on struggle to raise. Young students are energetic and in the golden period of seeking knowledge, working and entrepreneurship. However, due to the relatively favorable growth conditions, they don't know "hard work" well and understand it thoroughly. By carrying out curriculum ideology and politics, teacher can infect students with the deeds and achievements of reformers and builders in various fields since the reform and opening up, guide them to establish the idea of hard work, move forward in the struggle in a down-to-earth manner, and realize their ideals and aspirations as well as the unity of personal value and social value in the struggle.

2.5. Innovative thinking is the most prominent advantage of young students

Innovation is the soul of a nation's progress, the inexhaustible driving force for a country's prosperity, and the deepest national endowment of the Chinese nation. In the fierce international competition, only innovators advance, only innovators are strong, and only innovators win. Young students are at the stage of being most curious and creative. In the curriculum Ideological and political teaching, teachers guide and inspire students to break through thinking habits and stereotypes, and encourage them to think critically and divergently from multiple perspectives. This will help to enhance their innovative consciousness and creative ability.

2.6. Moral cultivation is a compulsory course for young students in dealing with the world

Attaching importance to morality and self-cultivation has been a fine tradition in China since ancient times. Young students are in the development and finalization period of their outlook on world, values and life. They are extremely vulnerable to the interference of external environment. This requires teachers' guidance, edification, care and "drip irrigation" in all-round and whole process. Curriculum ideology and politics is one of the best "drip irrigation" channels. Teachers need to seriously make good use of the academic deeds and moral cultivation of scientists and engineers, and constantly improve students' moral standards. At the same time, as a teacher, we should be more strict with ourselves, create a good and positive image, achieve the consistency of words and deeds, extend the curriculum ideological and political teaching to life practice, and serve as a good example for students.

2.7. Professional quality is the basic requirement for young students

Professional quality refers to the necessary quality requirements for young students after entering the society and taking up jobs. It mainly includes the professionalism of conscientiousness, the working standards of excellence and the rigorous and meticulous work style. It is a strong support for young students to be competent for work, adapt to society, seek development and start their own businesses. The professional quality training of young students should start from the time of enrollment, run through the whole college career. We can carry out all-round training in the form of study, life, extracurricular activities, practice and so on. To carry out curriculum ideological and political education, professional quality training should be included. In the professional class, we should explain the relevant concepts and specific details of professional quality according to the time and local conditions, so as to help young students establish correct professional consciousness and develop good professional ethics and style.

2.8. Team consciousness is a necessary quality for young students to integrate into society and start their own businesses

Team consciousness is not completely equivalent to the spirit of collectivism in the traditional sense of our country. The focus of our traditional collectivist spirit is to emphasize sacrifice and dedication for the sake of the collective and the group, which overemphasizes the collective and ignores the value and interests of the individual. There is no good balance between the collective and the individual, which is easy to ignore and frustrate the individual's subjective value, status and role, and subjective initiative. Nowadays, young students, with superior growth conditions, tend to be more self-centered, unable to correctly handle the collaborative relationship with others. This slides to the other extreme phenomenon. Therefore, we should make use of curriculum ideology and politics to promote modern team consciousness and cooperative spirit, and guide students to correctly understand and treat the relationship among individuals, others and collectives. It is very necessary for them to manage their families and marriages, meet the job needs of enterprises, or start their own businesses.

2.9. Mental health is the regulating valve for young students to adapt to society and start their own businesses

Modern society is a commercial society with market economy as the main body, and its essence is competition and cooperation under certain rules of the game. In a sense, professional rules are the survival of the fittest. Therefore, as soon as young students enter the society after graduation, they will be baptized and tested by the market economy. They will face brutal professional competition, and all kinds of difficulties, setbacks, blows and failures are inevitable. Only by mastering comprehensive and correct psychological knowledge and having a strong self and inward, can they be strong enough to face all kinds of setbacks and challenges, adjust their psychological state in time, and be invincible. Therefore, mental health education is one of the indispensable contents to carry out curriculum ideology and politics. Teachers should integrate psychological knowledge into curriculum ideological and political teaching in the form of stories, cases, philosophies, and "Chicken Soup for the soul". At the same time, combined with their own life experience and rational thinking, teachers should speak out in a perceptual way that young students can easily accept, so that students can understand social competition, learn the correct way of self debugging, and prepare for entering the society.

2.10. Aesthetic temperament is the inner cultivation of young students throughout their life

Aesthetics is formed and developed on the basis of people's practical experience, thinking ability and

artistic accomplishment. It is the understanding and evaluation of objective beauty in the form of subjective hobbies. Aesthetics has not only individual characteristics, but also social, contemporary and national characteristics. Science and engineering teachers are not art teachers. The so-called aesthetic temperament here does not mean professional aesthetic art. It is to guide students to be good at pursuing, discovering and appreciating truth, goodness and beauty, form a correct and elegant life interest, and refuse and stay away from vulgar hobbies and habits. There are many natural beauty, scientific beauty and harmonious beauty hidden in theorems, formulas and charts in science and engineering courses. The responsibility of professional teachers is to dig them out, analyze them comprehensively, and show them to young students, so that they can feel and appreciate the beautiful rhythm of science while learning professional theories, and develop the habit and quality of being good at discovering and appreciating beauty in life, which is an endless spiritual wealth for a lifetime.

3. Conclusions

Science and engineering majors have a wide variety of courses, including everything, and the knowledge system is broad and profound, vast and complex. Teachers' theoretical basis, knowledge structure, experience and quality, personality and hobbies vary greatly. For the same major and course, the moral education elements excavated, summarized and refined are different, and the methods adopted are also very different. However, no matter whether the teachers of professional courses are clearly aware of it or not, they all follow the basic law of thinking and the principles of ideological and political education. Based on these principles, combined with the professional teaching and curriculum ideological and political practice in recent years, the author preliminarily extracts ten basic moral education elements contained in the science and engineering professional courses for the reference of colleagues when carrying out curriculum ideological and political education.

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