

Exploration and Practice for the Incorporation of Ideological and Political Education into Professional Courses—Taking Cybersecurity Technology as an Example

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ABSTRACT

Taking the computer professional course Cybersecurity Technology as an example, this study deeply excavates the ideological and political education resources contains in the course from the aspects of course content, practice, course assessment, exchange and cooperation, etc., so as to strengthen moral education and cultivate people. It provides a useful reference for the study of professional courses to carry out Ideological and Political Theories Teaching in all courses.

Keywords: *Ideological and Political Theories Teaching in All Courses; moral education and cultivate people; implicit education; cybersecurity*

1. INTRODUCTION

Nowadays, with the rapid development of information, students have a growing number of ways to obtain and transmit information, and the exchange of ideas is more and more abundant. How to guide positively and establish students' correct outlook on life and values is a problem that urgently needed to be solved in higher education. Strengthening moral education and cultivate people is the fundamental way to solve this problem. General Secretary Xi Jinping stressed at National Conference on Ideological and Political Work of Colleges and University: the foundation of colleges and universities lies in moral education and cultivate people. It is necessary to insist on the establishment of moral education and cultivating people as the central link, and carry out ideological and political work throughout the whole process of education and teaching, so as to educate people in the whole process and in all directions[1].

Ideological and Political Theories Course is the key course of moral education and cultivating people, however, it is not the only course of ideological and political education. Ideological and political education can not only rely on *Ideological and Political Theories Course*, otherwise *Ideological and Political Theories Course* and professional courses form "two skins", which are not related to each other. General Secretary Xi Jinping put forward the requirements of "eight unities" at forum for teachers of ideological, political theory. "It is necessary to adhere to the unity of explicit and implicit education, and tap the ideological and political education resources contained in other courses and teaching methods, so as to realize

all-round education of the whole staff" is one of them[2]. It fully demonstrates the unified relationship between *Ideological and Political Theories Course* and Ideological and Political Theories Teaching in All Courses in Professional courses. *Ideological and Political Theories Course* should be strengthened in the process of improvement, enhance the affinity and pertinence of ideological and political education, and meet the needs and expectations of students' growth and development. It is necessary for Ideological and Political Theories Teaching in All Courses to integrate ideological and political education into the professional curriculum, combine the teaching of professional knowledge with the orientation of value, guard a section of canals, plant responsible fields, and walk in the same direction with the course of *Ideological and Political Theories Course* to form a synergistic effect.

The ever-changing network information technology not only accelerates the social development, but also brings more and more serious security threats. Cybersecurity has risen to the level of national security. Cybersecurity personnel should not only have solid professional technology, but also have correct values and professional responsibility. With the goal of cultivating a team of cybersecurity talents with excellent quality and strong combat effectiveness, this paper explores how to carry out Ideological and Political Theories Teaching in All Courses in the computer professional course *Cybersecurity Technology*.

2. THE SIGNIFICANCE OF CARRYING OUT IDEOLOGICAL AND POLITICAL THEORIES TEACHING IN ALL COURSES IN CYBERSECURITY TECHNOLOGY

2.1. The necessity of the reform of curriculum ideological and political education

There is an "isolated island" dilemma in ideological and political education in colleges and universities, and professional course teachers can not correctly understand the relationship between knowledge imparting and value guidance in terms of educational concept. Professional teachers think that everyone has professionals in charge of different aspects, and the ideological and political education is responsible for the professional *Ideological and Political Theories Course*. In the teaching of professional courses, they only pay attention to the cultivation of knowledge and ability, focuses on talent rather than morality, but didn't realize that the complete values education must integrate students' ideological education into each course. It is precise because of the lack of correct guidance of professional teachers that the trained students may be relatively solid in professional technology, but not mature enough in ideological and political aspects.

2.2. The necessity of training cybersecurity talents with excellent quality

In recent years, the state has attached great importance to the training of cybersecurity talents. Article 20 of the Cybersecurity Law of the People's Republic of China requires that the state should provide support to enterprises and training institutions such as institutions of higher learning and vocational schools to carry out the education and training related to cybersecurity, take multiple means to cultivate cybersecurity talents, and promote the exchange of cybersecurity talents. The construction of cybersecurity system, standard system and technical guarantee system all need cybersecurity talents as the basic support. These aspects are all related to national security and social stability, which requires that the trained personnel should not only be skilled, but also be of excellent quality, patriotic, dedicated, and responsible. All these can only be achieved by deeply excavating the connotative value of *Cybersecurity Technology*, integrating ideological and political education resources and cooperating with the explicit education of ideological and political courses.

2.3. The need to build a cybersecurity line

Higher education is not only the main force of cybersecurity personnel training, but also the vanguard of cybersecurity propaganda. The student group is the most

active group on the network, and their network activities deeply reflect the current situation of the network environment. The course *Cybersecurity Technology* should not only impart professional and technical knowledge, but also guide the students to set up correct values, cultivate the consciousness of resisting bad information, turn the ideological understanding into practical action, and use the cybersecurity technology they have learned to be a leader in creating positive and healthy cyberspace. The cybersecurity is for the people, and it also depends on the people. The maintenance of cybersecurity is the common responsibility of the whole society, which requires the joint participation of the government, enterprises, social organizations and the majority of netizens to build a cybersecurity line of defense.

3. THE PRACTICE OF IDEOLOGICAL AND POLITICAL THEORIES TEACHING IN ALL COURSES IN CYBERSECURITY TECHNOLOGY

3.1. Integrating the curriculum content and fully infusing the ideological and political elements

In connection with current politics, teachers should integrate the content of Ideological and Political Theories Teaching in All Courses into the introduction to the course *Cybersecurity Technology*. The conclusion of General Secretary Xi Jinping at the National Conference on Cybersecurity and Informatization that "there is no national security without cybersecurity" undoubtedly points out the extreme importance of cybersecurity, puts forward the urgency of doing a good job of cybersecurity, and points out the direction of ensuring cybersecurity. Taking this conclusion as a starting point, it can not only reflect the importance of the curriculum and improve students' interest in learning, but also educate students from the perspective of national security.

The teachers should sort out the knowledge points of each chapter, find the right entry point of ideological and political elements, and nourish all things in silence.

3.1.1. Carry on the legal education of cybersecurity by expounding the current situation of cybersecurity

The characteristics of network informatization have led to the growth of network crime, seriously endangering the network environment and hindering social order, and teenagers with professional and technical background have become one of the subjects of network crime. Technology is a double-edged sword, we can not be not skilled but law-blind. Taking the Cybersecurity Law of the People's Republic of China, which was implemented on June

1,2017, as the starting point, students should establish a firm legal consciousness while learning to master the cybersecurity technology.

3.1.2. Cultivate the sense of secrecy by explaining the authentication of data encryption

In the information age, the data sharing and lack of confidentiality awareness will lead to the disclosure of information ranging from personal privacy to national security information. With the "Information Security Technology Personal Information Security Specification" promulgated in China on May 1,2018 as the entry point, students should learn to grasp data encryption technology while using these technologies to protect personal privacy and protect national information security consciousness.

3.1.3. Carry out values education by introducing the methods of cyber attacks

Students often marvel at various cyber-attack methods and attack cases, but ignore the nature of the case itself. The essence of cybersecurity lies in confrontation, and the essence of confrontation lies in the ability of attack and defense. Based on the comparison of the representative figures and typical examples of hackers and crackers, and the jailed case of the author of "Panda Burning incense" virus, students can distinguish right from wrong, distinguish good from evil, and establish correct values while understanding common attack methods.

3.1.4. Carry on the construction of comprehensive protection concept by comparing various defense technology

The anti-virus software, firewall, intrusion detection, access control and other technologies all have their own focus and limitations. Nowadays, the threat sources and attack methods of cybersecurity are constantly changing, so the idea of relying solely on a few security devices and security software to keep security forever is out of time. Taking events such as the OpenSSL security vulnerabilities as a starting point, teachers are expected to enable students to establish a dynamic and comprehensive concept of protection. Cybersecurity is not a goal but a process, and it is a dynamic process where people are the core.

3.1.5. To cultivate the consciousness of security management by summarizing the cybersecurity system.

"Three points of technology, seven points of management" is a wise saying in the field of cybersecurity. Cybersecurity

needs the guarantee of security equipment and technology, but it depends more on the improvement of users' security management awareness and the consummation of management mode. Taking the hot news of the cybersecurity week as the starting point, it is the sense of mission of the whole society to make students understand the whole system of cybersecurity protection and establish the maintenance of cybersecurity at the same time.

Classroom teaching has its limitations, only in-class and extracurricular interaction, the combination of online and offline, can consolidate the teaching effect. The practice of the course Cybersecurity Technology can not only stay in the classroom, but also with the help of the course teaching platform, Wechat, QQ group and other information means to answer questions and promote extracurricular communication between teachers and students, so as to further improve the effect of ideological and political education.

Combined with the needs of cybersecurity publicity, students can consult and collect various kinds of materials in advance according to the publicity theme, such as images, videos, typical cases, etc., and form brochures and PPT. Based on full preparation and cooperating with the school workers, a series of activities are organized in the aspects of students' social practice and social investigation during winter and summer vacation. By publicizing and explaining the basic prevention awareness of cybersecurity, issuing cybersecurity publicity manuals, conducting public consultation on cybersecurity, and the other ways, we can not only improve the cybersecurity literacy of students themselves, but also broaden the impact of ideological and political education on a wider range of groups. Besides, it also can strengthen students' professional knowledge and improve their comprehensive ability.

3.2. Refine the curriculum assessment and make ideological and political education run through the whole process

It is necessary to refine the assessment link of the course *Cybersecurity Technology*, reorganize the professional knowledge and curriculum ideological and political related contents organically, and make ideological and political education run through the whole process of curriculum education on the basis of integrating the ideological and political content into the curriculum content and practice, combined with the Ideological and Political Theories Teaching in All Courses content.

3.2.1. In terms of assessment content, add some current events related to cybersecurity

Selectively join some current events of cybersecurity, such as thinking about which technologies of cybersecurity are the mainstream technologies at present, how they will develop in the future, and how to do them from the perspective of learning on the basis of learning the

strategic thought of network power. It is necessary for students to know that it is impossible to build a cybersecurity barrier and a network safety net without the support of good technology, "the core technology is the most important weapon of the country."

3.2.2. In terms of assessment content, add some subjective questions with non-standard answers

It is necessary to reflect not only the application of professional knowledge, but also the discussion related to ideology and politics. For example, on the basis of mastering the technology of resisting network attacks, we should consider the negative impact of network attacks on individuals, society and countries. It is necessary for students to know that the focus of cybersecurity defense lies in things, and the key lies in people, "there will be no national security without cybersecurity."

3.2.3. In terms of assessment methods, add some links of process assessment

On the basis of the combination of ideological and political elements in the whole process of course teaching and practical teaching, the corresponding assessment should also be kept up with, so as to urge students to pay attention to every teaching link and content and ensure the teaching effect. For example, classroom and extracurricular interaction can be included in the usual performance assessment, meanwhile, social practice and social investigation links can be included in the practical performance assessment, and they can be weighted with the final goal assessment to give students' curriculum assessment results.

3.3. Conduct extensive exchanges and cooperation with positive value guidance

The teaching content within the scope of the curriculum system has its lag and teaching effect has its limitations. The Internet is not only a technology-intensive industry, but also one of the fields with the fastest technology renewal. Cybersecurity is dynamic rather than static. Relying solely on curriculum teaching can't realize professional education and ideological and political education throughout the all-round and whole process of education and teaching.

3.3.1. Participate actively in competition exchanges

The Cyberspace Administration of China, the Ministry of Education, the Ministry of Industry and Information

Technology, the Ministry of Public Security, the General Administration of Press and Publication, and the Central Committee of the Communist Youth League jointly issued the Activity Plan of the China Cybersecurity Week, which makes it clear that the China Cybersecurity Week is uniformly held in all provinces, autonomous regions and municipalities throughout the country in the third week of September every year. All provinces, autonomous regions and municipalities have all kinds of forms of publicity and competition activities.

The third China Cybersecurity Week in 2016 was held in Wuhan. It has been four years since Hubei Cyber Information Office, Education Department, Public Security Department and Communications Administration began to hold a cyberspace security practice ability competition. The competition will be held according to four categories: colleges and universities, vocational colleges, enterprises and institutions, and cybersecurity enthusiasts, so as to achieve all-round coverage of the whole staff.

Taking the competition activity of Hubei cybersecurity week as an opportunity, our School of Computer engineering participated in the actively. First, we organized a college selection contest to select students with good cybersecurity technology foundation and strong practical ability, and formed a team to sign up for the provincial cyberspace security practice ability competition. Then during the competition, through competition training, peer exchanges, online and offline preliminary finals, awards and other forms, students' professional ability and professional accomplishment was further improved. Finally, through the campus network news coverage, the propaganda and report of the honorable returning students, we drove the enthusiasm of the college students in the whole school to learn cybersecurity technology and promoted the cybersecurity propaganda, so that all students could fully understand the importance of improving the level of cybersecurity, establishing awareness of cybersecurity and a correct concept of cybersecurity.

3.3.2. Carry out extensive cooperation between schools and enterprises

The mainstream way of domestic cybersecurity personnel training is the construction of higher education and cyberspace security discipline higher education and cyberspace security discipline construction, which mainly trains undergraduate and above professional talents. As applied local colleges and universities, on the basis of various ways to carry out school-enterprise cooperation, we should deeply explore the internal relationship with ideological and political education, and give positive guidance to students' values and professional accomplishment.

By inviting enterprise lecturers to give speeches, students can not only understand the application of cybersecurity technology they have learned in practical work, but also be able to put what they have learned into practice. Besides, it is necessary to publicize and educate students in

combination with professional ethics, awareness of secrecy, laws and regulations.

Through enterprise internship, social practice and other ways, students can observe the enterprise, practice in professional positions, participate in simulation management and other links, which can deepen students' understanding of professional ethics and corporate social responsibility, and make students experience the spirit of teamwork and dedication in this series of practical activities.

Through the mode of school-enterprise cooperation, both schools and enterprises work together to create an ideological and political education environment in which explicit education and recessive education are unified. We should set up a team of teachers mixed with schools and enterprises, and teachers in enterprises should participate in the management of students. From the entrance of freshmen, in-school study, enterprise internship, graduation employment, etc., it is necessary to make overall arrangements for targeted education content and run through the ideological and political education in the whole process and all-round of talent training to improve the effectiveness of personnel training.

4. CONCLUSION

All kinds of courses in colleges and universities should bear the responsibility of moral education and cultivate people, and should be an important carrier of ideological and political education in colleges and universities. Through the value education function of curriculum, the elements of ideological and political education are integrated into the Ideological and Political Theories Teaching in All Courses, and finally realizes the organic combination of curriculum and ideological and political education.

As a professional course of computer science, *Cybersecurity Technology* has been explored and practiced from the aspects of integrating course content, enriching practical design, refining course assessment, and carrying out communication and cooperation, etc. We should combine the teaching of professional knowledge with a value orientation, and expand the dimension of ideological and political education in all aspects of the whole process, which will lay a solid foundation for training professional, competent, responsible and conscious cybersecurity talents.

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