

# Research and Practice on the Civics of Environmental Planning and Management Curriculum in the Context of the New Engineering Disciplines

Yanping Qu\*, Hongcui Li, Wen He, Xiaojuan Gao, Xing Gao

College of Biological and Chemical Engineering, Qilu Institute of Technology, 250200 Jingshi Dong Road 3028, Zhangqiu District, Jinan, China

**Abstract.** The course of "Environmental Planning and Management" has been reformed and explored in terms of the preparation of course teaching programme and the implementation of teaching methodology, and Civic Education has been carried out throughout the whole process of teaching. Through the Civic Education of professional courses, students are guided to set up a correct world outlook, outlook on life and values, and to have the spirit of commitment to be the strivers of the new era. At the same time, we pay attention to the cultivation and inheritance of "craftsmanship" to achieve the goal of cultivating high-quality "moral and talent" application-oriented talents. This study provides reference for the cultivation of "new engineering" talents in polytechnic colleges and universities, and explores effective ways for the teaching reform of integrating "Civics of Courses" in the teaching of polytechnic professional courses according to the characteristics of Civics of Courses.

## 1. Research progress

The current situation of domestic research is based on the new situation of international competition, as well as the new requirements of China's strategic development and moral education, the Ministry of Education has actively promoted the construction of "new engineering" since 2017. Compared with traditional engineering talents, "new engineering" talents do not specialise in a certain discipline, but rather break the traditional disciplinary barriers; they do not only master basic knowledge, but also have the ability to solve the problems that arise in the future development. In other words, "New Engineering" pays more attention to the practicality, intersectionality and comprehensiveness of disciplines. The emergence of "New Engineering" has promoted the formation of the innovative development of engineering education system in colleges and universities. With the steady development of China's socialist construction, new requirements have been put forward for the cultivation of high-quality composite "new engineering" talents with strong engineering practice ability, strong innovation ability and international competitiveness.

Higher education should be guided by General Secretary Xi Jinping's thought of socialism with Chinese characteristics in the new era, further deepen the reform of education and teaching, adhere to the moral education as the first to cultivate talents with moral character as the centre, and organically combine the work of education and teaching and ideological and political work, that is, to carry out the cultivation of morality and nurture talents in all

aspects of education and teaching, and in all aspects of education and teaching. It can be seen that how to effectively consolidate the cultivation of "new engineering" talents through the ideological and political work has become the main topic of many colleges and universities to implement the spirit of the National Conference on Ideological and Political Work in Colleges and Universities and to improve the quality of engineering talents cultivation. In order to promote the reform of the education and teaching of ideology and politics in colleges and universities, it is necessary to use the basic idea of integrating and taking into account the contents of the ideology and politics and professional knowledge of the disciplines in a unified plan, organically united, and strive to achieve the role of value leadership in the teaching of professional knowledge, to achieve the goal of the "curriculum to educate people". The key to a good Civics programme lies in the teachers, which requires colleges and universities to give full play to the leading role of teachers, respect the subjectivity of students, combine the characteristics of majors and curricula, innovate the teaching methods, improve the teaching effect, and achieve the goal of educating people in Civics programmes in the communication and interaction between students and teachers.

For the development of ideological and political education in colleges and universities, the classroom is the main channel and the curriculum is an important carrier. At the national ideological and political work conference of colleges and universities, General Secretary Xi Jinping emphasised that "we should use the classroom teaching as the main channel, and the ideological and political theory

\* Corresponding author: 805025846@qq.com

class should be strengthened in improvement, and enhance the affinity and relevance of ideological and political education." For colleges and universities, cultivating and practicing socialist core values, strengthening ideological and theoretical education as well as value leadership plays a strong guiding role, which requires colleges and universities to combine the actual thinking of teachers and students, use practical experience, and take a solid method to reflect socialist core values education into education and teaching, so for the "new engineering" colleges and universities, how to put socialist core values into education and teaching? So for the "new engineering" universities, how to carry out ideological and political education throughout the whole process of education and teaching, and how to make good use of the main channel of classroom teaching to comprehensively improve the quality of engineering personnel training, the key point is to integrate the "ideological and political elements" and "moral education function" into multiple aspects of teaching and learning. The key point is to integrate the "ideological and political elements" and "moral education function" into many aspects of teaching, so that students can hardly ignore, difficult to stop, unforgettable [1, 2].

After the online search of Knowledge.com, the results show that there are relatively few studies on the Civic Governance of Environmental Planning and Management Courses. The literature generally points out that the penetration of Civic Governance education in the science and engineering courses, which are more technically transmissive, is often far-fetched; compared with humanities courses, there are fewer teaching cases and experiences related to Civic Governance of Science and Engineering Courses. Compared with humanities courses, there is a lack of teaching cases and experiences of "Civic Politics in Courses" in science and engineering courses.

Although foreign colleges and universities have not put forward the concept of "Civic and Political Education in the Curriculum", they actually attach great importance to values education, ethical and moral education, religious education, vocational ethics education, legal education and so on, which corresponds to the Civic and Political Education in China. In the United States, Civic and political education is integrated into general education, for example, ethical reasoning courses are offered to cultivate the ability to think, evaluate and reason and analyse moral and political beliefs and practices; in Japan, it is clearly stated that moral education and civic education must be consistent in national education, and more importance is attached to sustainable moral education; in Russia, Civic and political education is mainly government-led, and schools are required to have a "morality class", "ethics class", "ethics class", "ethics class", "ethics class", "ethics class" and "ethics class". In Russia, the government takes the lead in ideological and political education, requiring schools to have courses such as "morality class", "origins class" and "foundations of the spirit, morality and culture of the Russian nation", which allow students to learn about culture and its intergenerational transmission through the teaching of Russian history, culture, religion and ethnicity. Through the teaching of Russian history, culture, religion, ethnicity,

etc., students acquire culture and the values that have been passed down from generation to generation.

## 2. Significance of the study

The ideological and political elements and moral education functions of professional courses refer to the role, ability and efficacy of professional teaching practices on ideological and political education work. The cultivation goal of environmental professionals is to cultivate students with good ideological quality, humanistic quality, professional ethics and psychological quality, and at the same time have a sense of innovation, teamwork spirit, international vision and sense of social responsibility. Because of this, in order to improve the environmental protection skills of environmental majors, cultivate their positive learning attitudes, expand their horizons, and make them have a positive mindset, it is necessary to give full play to the ideological elements and moral education functions of the professional courses. Therefore, through in-depth excavation and refining of the civic-political elements and moral education functions embedded in environmental professional courses, professional education and civic-political education can be synergistically promoted, so as to achieve the organic unity of the two in terms of knowledge transmission, ability cultivation and value leadership.

The course "Environmental Planning and Management" is an elective course for environmental majors in our university. The course aims to promote the scientific outlook on development, spread ecological civilisation, enhance the environmental science literacy and awareness of college students and the public, and serve the construction of a resource-saving and environmentally friendly society. Through the study of the course, students can understand the current status of resource use in our country, its future development and the current situation of the global environment, understand the importance of harmonious coexistence between human beings and the environment, and carry the concept of rational environmental planning and management throughout their subsequent professional studies. The concept of rational environmental planning and management will be carried through in the subsequent professional learning, laying a foundation for becoming a socially responsible builder in the end. The practice of "environmental planning and management" programme is conducive to improving the quality of talent cultivation in colleges and universities and promoting the building of national and regional capacity for sustainable development. Through environmental education in colleges and universities, the educated can be made to carry out the concept of environment-friendly and resource-saving sustainable development in their values, attitudes and behaviours, cultivate environmental ethics and morals, improve ecological and environmental protection literacy, promote the establishment of environmental awareness and the implementation of environmental protection behaviours, and actively contribute to the improvement of the existing environmental conditions, so as to build a beautiful China. This is also one of the core concepts of socialism with

Chinese characteristics in the new era. At the same time, the chosen major is the foundation for students after graduation, and students attach great importance to the study of professional courses. Therefore, through the research of this project, it is possible to make the professional course play the function of educating people more effectively and cultivate high-quality applied talents of environmental science with comprehensive development [3].

### **3. Teaching practice of the course "environmental planning and management" in the field of philosophy and politics**

Under the background of "New Engineering", this project revises the personnel training programme of environmental science according to the professional accreditation standard, the positioning of the school in the cultivation of application-oriented talents, and the demand of talents in the industry. According to the principle of three-pronged education, we reconstruct the curriculum standard, revise the syllabus, deeply excavate the elements of Civics, build the Civics Resource Library, and implement the reform of Civics teaching in the curriculum. Summarise the experience of course Civics and a scientific and reasonable assessment system.

#### **3.1. Defining the Research Objectives**

Taking the professional course "Environmental Planning and Management" as an example, this study is intended to analyse the significance of the teaching reform of integrating "ideological and political education" in professional courses, analyse the problems of "ideological and political education" in the teaching of professional courses, and set up a database of ideological and political education in the course. Explore the practical way of integrating ideological and political education in the course of "environmental planning and management"; put forward the specific measures of integrating "ideological and political elements" in the teaching process of professional courses, in order to play a certain role in the pedagogical reform of integrating "curriculum ideology and politics" into the teaching of professional courses in colleges and universities. In this way, we hope to make some reference to the teaching reform of "Civic and Political Education in Courses" in colleges and universities.

#### **3.2. Comprehensive updating of course content**

Through the research on the environmental industry field, understand the industry's demand for environmental science talents, construct the Civics standard and determine the syllabus; study the teaching content, explore the Civics elements and construct the Civics element resource base; improve the teaching design, review the literature, draw on the existing research results and lessons learned, revise and improve the lesson plans and

courseware, incorporate the course Civics, and make it effectively integrated with the teaching content [4,5].

On the one hand, in the teaching of professional knowledge of environmental planning and management systems and regulations, the importance and significance of constructing an environmental management system that is in line with the international standards is made clear, and the specific environmental management systems in China are listed in a way that keeps pace with the times. It explains China's unique and gradually improved "three simultaneous" system, quantitative assessment system for comprehensive improvement of urban environment, target responsibility system for environmental protection, and deadline management system in recent years.

On the other hand, in the teaching of professional knowledge of environmental planning and management policies, the course disseminates and practices Xi Jinping's thought on ecological civilisation, introduces the report of the 20th CPC National Congress into the classroom teaching, and makes it clear that ecological environmental protection at the national level is not only the responsibility of an industry, but also a basic guarantee for the sustainable development of the whole society. Emphasis on "consolidating the concept of green mountains is golden mountains"; clear "green low-carbon mode of production and lifestyle", "pollution prevention and control", "enhancement of ecological diversity", "promote the development of ecological protection", and "promote the development of ecological protection". Enhancing ecological diversity" is the main directions of the latest development of the environmental protection industry.

As mentioned above, based on the ideological and political teaching of the course "Environmental Planning and Management" that keeps pace with the times, teachers can guide students to clarify the main connotations and significant advantages of China's special socialist environmental planning and management system, firmly establish the "four self-confidence", and cultivate their national pride and patriotic zeal, as well as to develop a strong sense of patriotism. Teachers can guide students to clarify the main connotations and significant advantages of the environmental planning and management system of socialism with Chinese characteristics, strengthen the "four self-confidence", cultivate students' national pride and patriotic enthusiasm, inspire students to serve the country with science and technology with a sense of patriotism and a sense of mission, and promote the harmonious coexistence of human beings and nature.

#### **3.3. Combination of multiple teaching modes to implement curriculum Civics**

The environmental planning and management programme is highly theoretical and the frontier of the discipline is developing rapidly. In the practical teaching of the Civics of the course, abandon the "indoctrination" teaching method, make full use of information technology, carry out blended teaching. Offline, we make full use of the Civic Politics Resource Library, invisibly inculcate into students' minds, so that students can actively accept the Civic Politics education. Online give full play to the value of

information technology, enrich the case of online Civics, cutting-edge information, current affairs news push, expanding the space of students' moral education; through the Learning Channel release topics for discussion, so that students consolidate professional knowledge at the same time to think about the hot phenomena of society, truly know and act in unity.

### 3.4. Organic combination of social practice

Instructing and encouraging students to actively participate in activities with the theme of environment to enhance their interest and enthusiasm. In addition, in the process of classroom teaching, students can be guided to take advantage of the holiday social practice to investigate the environmental quality of their hometowns and put forward a reasonable planning plan to participate in environmental protection actions in their hometowns .

### 3.5. Optimising teaching assessment and evaluation

Establishing a scientific and reasonable assessment system, integrating the content of Civics into the course assessment process; introducing Civics teachers to evaluate the process of Civics in the courses; strengthening the process of assessment, promoting the improvement of students' professionalism, professional skills and vocational ethics, and fostering the talents of "new engineering" with the "spirit of craftsmanship".

The construction of a course teaching evaluation system with course ideology as the main body focuses on reforming the existing way of evaluating course learning. Increase the proportion of course process assessment, incorporate group tasks, student self-assessment and group mutual assessment into the usual grades, increase the proportion of design and case study assignments; change the phenomenon that the traditional test paper only focuses on the knowledge assessment and ignores the quality assessment, and increase the number of open-ended and design-type test questions, focusing on the students' ability to comprehensively apply knowledge to analyse and solve problems and the assessment of their professional qualities.

### 3.6. Teaching by example and learning by doing.

Practical class is the key link in the implementation of "curriculum politics", teachers should seize the favourable time to educate and remind. Before the class, students are required to study the rules and regulations of the laboratory and cultivate their awareness of compliance with the law; during the class, they are strictly required to follow the experimental specifications, record the experimental data accurately, do not fabricate them, and cultivate a scientific attitude of rigour and truth-seeking, as well as a scientific style of seriousness and responsibility; after the class, they are encouraged to participate in popular science activities, promote and popularise their professional knowledge, so that they can put their knowledge into practice, feel the value of their profession, and stimulate a sense of responsibility in the society.

## 4. Conclusion

This study builds that compared with humanities courses, there is a lack of teaching cases and experiences of "curriculum Civics" in science and engineering, which is more technical in nature, and there is a limited amount of analysis of the scientific connotation and logical structure of curriculum Civics in natural sciences courses, including environmental planning and management. To give full play to the advantages of professional disciplines, explore the philosophical thoughts and elements contained in the teaching content, and in the process of formulating the teaching objectives, pay attention to fully exploring the "Civic and political resources" that characterise the environmental professional courses to expand the teaching content. In the process of designing the integration point of Civics and Politics, we pay attention to the selection of teaching contents, teaching methods and the construction of teaching resources, so as to enhance the students' sense of responsibility and sense of commitment as "environmentalists".

Through the course of "Environmental Planning and Management", we combine the teaching of relevant knowledge with value guidance, respond to the call for whole process and all-round education, make use of our professional advantages to educate students on moral education, promote the natural integration of knowledge transfer and political education, guide students to practice socialist core values, and effectively enhance the educative function of classroom teaching.

## Acknowledgments

This work was supported by the research program of Qilu Institute of Technology (No. kcsz202011).

## References

- 1 S. Liu, *Emerg. Med. Crit. Care*, **7**, 03-19 (2023).
- 2 X. Shan, *Adv. Educ. Technol. Psychol.* **2** (2022).
- 3 L. Allison, *Environmental planning: a political and philosophical analysis*. Routledge (2021).
- 4 X. Xiang, Q. Li, S. Khan, O. I. Khalaf, *Environ. Assess. Rev.* **86**, 106515 (2021).
- 5 H. Li, J. Shen, Y. Zhang, *J Environ. Manage.* **206**, 1115-1125 (2018).