

Research on Ideological and Political Case Materials of Engineering Geology Course

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Abstract: In order to further implement the requirements of the guiding outline for the ideological and political construction of courses in Colleges and universities, adhere to the fundamental task of Building Morality and cultivating people, and carry out the ideological and political construction of courses in an orderly manner, this paper takes the ideological and political teaching case of engineering geology as the material to explore. Starting from the background of the integration of Ideological and political education into the curriculum, this paper expounds the application of the combination of engineering case materials and majors, in order to form a systematic ideological and political education case of professional courses through clear case combination with curriculum teaching, radiate other relevant majors, and promote and draw lessons from the teaching design of relevant courses.

1. Engineering Geology is Integrated into the Ideological and Political Background of the Course

On May 28th, 2020, the Ministry of Education issued the guiding outline for ideological and political construction of college courses [1]. The outline makes it clear that comprehensively promoting the ideological and political construction of the curriculum is a strategic measure to implement the fundamental task of Building Morality and cultivating people. [2] College teachers should not only impart professional knowledge and skills to students, but also imperceptibly penetrate the correct outlook on life and values into the hearts of students. Integrating professional skills with socialist core values is a necessary measure to cultivate talents in the new era [3]. In the process of promoting the ideological and political construction of the curriculum, we should innovate the "three education reform", transform the reform and innovation of the three education into arming teachers' political thoughts, create a new professional curriculum system integrated into the ideological and political content of the curriculum, and integrate the concept of Ideological and political integration of the curriculum into every corner of the University and the deep germination of everyone's heart in combination with teaching means and various teaching methods [4]. Integrating Ideological and political content into professional courses is to integrate implicit education and explicit education, organically combine them, and cultivate innovative builders and

new forces with a Chinese dream in the new era for socialist construction. Engineering geology is a professional basic course with the basic knowledge of geology as its main content. It is mainly a basic discipline and is widely opened in Colleges and universities with engineering majors such as water conservancy. As a professional basic course for water conservancy and civil engineering majors, engineering geology is an applied discipline based on geological theoretical knowledge. This course mainly uses actual engineering cases to teach college students the typical geological conditions and geological problems encountered in engineering, and takes cases as the guide to guide students to understand, analyze and solve practical engineering problems. From the construction of Qinghai Tibet highway, high-speed railway network, Hong Kong Zhuhai Macao Bridge, Baihetan Hydropower Station and other large-scale projects, it not only shows the strength of the motherland, but also shows the professionalism of Chinese construction workers in the new era. In these engineering construction, the quality of geological exploration determines the process of the project. Engineering geology has laid the foundation for this, connecting each link in the project, The spirit of daring to be the first in the world and the working environment that are not afraid of difficulties and dangers are the best interpretation of the ideological and political education in the course of engineering geology, and are the necessary conditions for carrying out the ideological and political education in the course. However, due to the limitations of traditional teaching methods, teachers often only pay attention to students' learning of professional knowledge when formulating teaching objectives, thus ignoring the formulation of curriculum ideological and political teaching objectives and teaching contents. In view of the learning situation, it is the focus of teachers to make the correct "Three Outlooks" rooted in the hearts of students through ideological and political education in the curriculum, and to be able to love the engineering industry. Based on the understanding of engineering geology, this paper summarizes and expounds the ideological and political cases that can be applied to the teaching process [5].

2. Specific Cases of Ideological and Political Education in Engineering Geology

Material 1: Humanities in the field of Engineering -- Hawking's story.

Case introduction: Stephen William Hawking, a world-renowned physicist, mainly studies general relativity. Hawking was disabled due to illness, but these did not break his inner pursuit of science, so Hawking won the Lucas mathematics chair at Cambridge University. Hawking's life story and spiritual quality can especially be used to lead students to set an example of correct engineering ethical values.

Combination of case and major: discuss with students what is Hawking's greatness? Finally, I sorted out the following aspects with students: 1. Focus on doing things; 2. Tenacious vitality; Selfless and broad, Hawking never discriminates against third world countries, and he is also very friendly with China, which truly reflects the mind of science without borders; 4. New ideas. After such analysis and interaction, students feel the importance of personality charm and have more views on the definition of success. The personality charm and ideological quality of these masters also provide students with good spiritual nutrition.

Material 2: Taking the strategy of revitalizing the northeast and other old industrial bases as the starting point, the ideological and political case teaching of the course "casting souls and educating people" is introduced.

Case introduction: since 2003, since the CPC Central Committee and the State Council made the strategy of revitalizing the northeast and other old industrial bases, the northeast economy has developed well and the economic volume has gradually expanded. Liaoning Qingyuan Pumped Storage Power Station is the largest project among the 156 large-scale projects to revitalize the northeast.

Combination of cases and majors: this task takes the Revitalization Strategy of old industrial bases such as northeast China as the starting point, and introduces the case teaching of Ideological and political education in the course of "casting souls and educating people". Take the revitalization of strategic water conservancy projects in old industrial bases such as the northeast of their hometown as an example, narrow the distance between students and large country projects, feel the care of the party and the state for the northeast and hometown, make students feel the impact of ideas in the process of class, feel the feelings of home and country, and realize the important role of their majors in the development [6].

Material 3: on December 26, 2019, Guizhou Zhangjiakou Changzhou Railway was put into operation.

Case introduction: in the construction of China's "medium and long term railway network planning", as one of the "eight vertical and eight horizontal" high-speed railways, Guizhou Zhangjiakou Changzhou Railway was successfully opened. The completion and opening of Guizhou Zhangjiakou Changzhou Railway marks the end of the long traffic time in Chongqing Qianjiang region and Hunan Changde, which greatly facilitates the passage of people from both places. The construction of national high-speed railway network plays a great role not only in railway construction itself, but also in social and economic development. The opening of Guizhou Zhangjiakou Changzhou Railway not only guarantees the circulation of agricultural products and the development of tourism resources in related areas, but also brings new impetus and new engine to the economic growth of Hunan old revolutionary base.

Combination of cases and majors: behind the completion of the Guizhou Zhangjiakou Changzhou Railway, it is a challenge to railway construction and a risk elimination case base of engineering geological conditions. It has successively passed through more than 20 underground rivers and more than 10 high-pressure and water rich faults buried underground, revealing more than 100 karst geological conditions such as pipeline flow and karst caves in railway construction, once again refreshing the record of high-standard road network construction in Karst prone areas in China. According to the geological survey drawings, Chinese railway builders excavated 100 railway tunnels at karst caves and underground rivers with complex geological conditions, with a length of 171km, accounting for more than half of the total length of Guizhou Zhangjiakou Changzhou Railway. Through the scientific route selection concept and a series of modern technical means, the construction karst disaster is eliminated, and the safety and quality of the tunnel are guaranteed. There has never been a karst disaster accident, which has accumulated valuable experience for similar projects of building railway tunnels in complex karst areas in China [7].

Material 4: the scientific conclusion that "green water and green mountains are golden mountains and silver mountains"

Case introduction: The idea of great rivers and mountains is to permeate students as a valuable resource for future generations. When students engage in engineering construction in the future, they should keep in mind the mission of the times to protect ecological security and water security, and devote their youth and years to the socialist modernization drive and the great rejuvenation of the Chinese nation.

Material 5: take the film subjects that students are interested in as the starting point, and introduce the ideological and political case teaching of the course "casting souls and educating people".

Case introduction: the film "peak explosion" released in September 2021 tells about an unprecedented geological disaster caused by global geological changes. In a critical moment, infrastructure builders represented by Xiao Hong and Lao Hong and their sons stepped forward to carry out life and death rescue. The film runs through the main line with the core idea that the country should take the lead in the face of disasters. Everyone uses his own strength to invest in the

rescue, which reflects the traditional virtue of the Chinese nation that one side has difficulties and all sides support, such as the people's soldiers who rushed to the epicenter of the Wenchuan earthquake and the heroic masses who spontaneously rescue; If the covid-19 epidemic broke out, Wuhan affected the hearts of hundreds of millions of families in China during the Spring Festival. Many medical staff and volunteers left their homes to reunite with their families and went to the epidemic area. Facing the risk of infection, they became the most beautiful rebels; The film peak explosion also shows the Chinese nation's spirit of risking life and death in the face of disasters. China has also shown the world again and again what is called Chinese rescue "Chinese rescue".

Combination of cases and majors: this task is based on the materials that students often contact and are interested in, and integrates the theoretical knowledge and positive energy involved in the film into the course content for teaching. The film involves geological changes, fault structures and other geological structure chapters; There are chapters on karst, collapse and other adverse geological processes; There is also the engineering geology related to tunnel engineering, which is the theoretical knowledge that students need to learn. While learning theoretical knowledge, we also see that as infrastructure workers and engineering related personnel, they use their professional knowledge to minimize disaster losses. These need to be achieved through a solid knowledge base, so that students can personally experience the important role of learning professional knowledge. When a disaster occurs, there is no need to pray for heroes from heaven, because every Chinese who stands up is a hero. The Chinese heroes, Chinese rescue and the spirit of unity emerging in the rescue are all contents that touch students to believe in and love the motherland, and enhance students' social responsibility and national pride [8].

Material 6: introduction and cause analysis of engineering accidents -- comparison between Chengdu Kunming railway and Baotian railway.

Case introduction: Chengdu Kunming Railway: the line is known as the "World Geological Museum", with a total length of more than 1000 kilometers, but 2/3 of the line is high mountains, towering peaks and complex geological conditions, creating a miracle in the history of railway architecture. Because of its high construction difficulty, Chengdu Kunming railway is called the great miracle of human conquest of nature in the 20th century by the United Nations.

Baotian Railway: During the construction of the railway, a large number of high and steep cuttings were excavated, causing landslides, debris flows and other major geological disasters. Baotian line can not operate normally, and it has become the "cecum" on the Northwest Railway, which hurts from time to time.

Combination of case and major: what is the direct factor to discuss the success or failure of the two projects with students? Finally, I sorted out the following aspects with the students: the two railways were also built in a geographical location with complex geological conditions. Baotian railway was built, with 120 tunnels excavated and 707 bridges and culverts built. After completion, it is connected to Longhai railway network. The whole railway line is adjacent to Weihe River and crosses Qinling Mountains. The geological conditions of the whole railway line are complex and thousands of mountains and rivers, causing great difficulties to the project construction. However, due to the different emphasis on the survey work in the planning, design, construction and other stages, the final operation and value of the two projects are different. As early as August, 1936, Chinese geologist Chang Longqing elaborated in detail the importance of building railways in the Ningxia region (today's Panxi region) in his opinion on the development of minerals in the 18th administrative region of Sichuan, and believed that the Chengdu Kunming railway was the top priority for the safety of Southwest China and was also important for the development and construction of this region. Analysis and Research on specific projects can help students clarify their own values and social positioning, so as to establish the concept of engineering ethics.

During the teaching process, teachers can also cultivate students to care about the development

of the motherland and master professional basic knowledge through real-time updated major events at home and abroad and news content of interest to students. For example, China has achieved the "summit" of Mount Everest with 5g signal. In this event, students can be taught about the formation and evolution of geological structures in the engineering geology course [9].

3. Conclusions

With the deepening of the ideological and political teaching reform of the curriculum, the organic integration of the ideological and political elements of the curriculum and professional courses has achieved initial results. Professional courses need the ideological and political elements of the curriculum as the basis and carrier of the curriculum, and transmit professional knowledge to the hearts of students through the love of the motherland, national identity and the spirit of hard-working. Teachers should select representative case materials that can be closely combined with the course content, and quietly integrate them into the teaching process [10].

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