

Study on Ideological and Political Practice in the Applied Undergraduate "Building Materials" Course

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Abstract: With the quick development of society and the continuous evolution of technology, the demand for talent is also changing. In addition to professional skills and knowledge, the moral character, social responsibility, and humanistic literacy of talents are increasingly emphasized. Therefore, ideological and political education in higher education has become a crucial link in fostering the comprehensive development of students. In the applied undergraduate course "Building Materials", how to integrate ideological and political education with practice to enhance students' ideological qualities and moral cultivation while mastering professional knowledge, is an important issue facing the current educational field. This paper first analyzes the necessity of implementing ideological and political education in the "Building Materials" course, then explores specific practical methods. Through these explorations, we aim to help students establish correct values, enhance the sense of social responsibility and engineering ethics, and improve their professional literacy and practical skills, which is significant for cultivating high-quality, application-oriented talents that meet societal needs.

Keywords: Building Materials; Course Ideology and Politics; Practical Exploration

1. The Necessity of Ideological and Political Education in the "Building Materials" Course

1.1 Enhancing Students' Comprehensive Quality

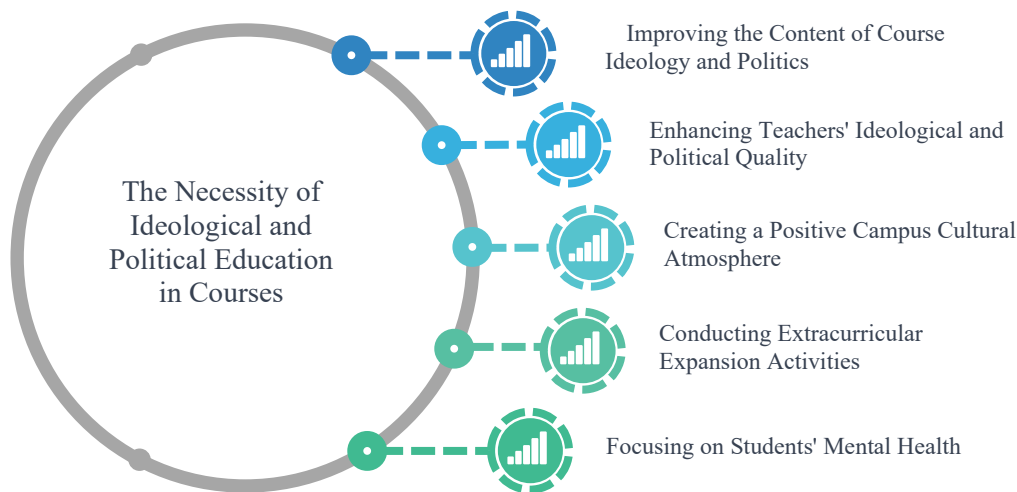


Figure 1: The Necessity of Ideological and Political Education in Courses

The holistic development of students equips them with the necessary tools to navigate society effectively and enhances their competitiveness in the job market. Beyond technical proficiency, attributes like collaborative skills, communicative prowess, and creative thinking hold equal weight in their professional journey. Ideological and political instruction plays a pivotal role in nurturing ethical conduct, societal accountability, and cultural awareness, forming a robust base for their career progression. Incorporating ideological and political themes within the "Building Materials" curriculum carries distinct advantages. Embedding concepts like ecological mindfulness, ethical integrity, and social duties within this course fosters the formation of sound moral compasses and professional

standards among students. Elevating the ideological and political training of educators enhances their proficiency in weaving these aspects into their pedagogy. Cultivating an institutional ethos that champions honesty and societal obligation, through various activities and lectures, positively influences student attitudes and actions. Engaging students in scholarly discourse and innovations in the building materials sector broadens their perspectives, igniting their curiosity and inventive drive. Moreover, prioritizing emotional well-being within ideological and political education, coupled with mental health instruction, fortifies students' optimistic outlook on life and bolsters their resilience and stress management skills, as shown in Figure 1.

1.2 Meeting Societal Development Needs

As the dynamics of society shift, so does the need for skilled professionals across various sectors. The integration of ideological and political education into the "Building Materials" course aims to develop individuals who not only possess high moral standards and ideological integrity but also align with the evolving demands for quality talent in society. This course is designed to educate students about the societal impact and environmental implications of building materials, thereby nurturing their awareness of social responsibility and ecological consciousness. By employing teaching methods like case studies and experimental investigations, students are encouraged to engage in independent thinking, problem identification, and solution development, thereby enhancing their innovative and analytical capabilities. Furthermore, keeping the course content updated with the latest advancements and technological developments in the building materials sector ensures that students remain relevant and competitive in the job market. A significant aspect of the course is the inclusion of professional ethics, which is pivotal in cultivating students' integrity and sense of duty. This aspect shapes them into practically oriented professionals who are not only skilled in their field but also uphold strong ethical standards. Therefore, in the application of ideological and political themes in the "Building Materials" course, the emphasis is on fostering students' environmental stewardship, social accountability, and creative problem-solving skills, thereby preparing them as high-quality, application-oriented talents who are well-equipped to meet the needs of societal progress[1-2].

1.3 Promoting Ideological and Political Construction in the Course

Through the construction of course ideology and politics, integrating ideological and political education into professional courses allows students to receive training in ideological qualities and moral cultivation while learning professional knowledge. This approach helps cultivate well-rounded talents to meet the societal demand for high-quality individuals. For this purpose, the core concept of course ideology and politics, "moral education and talent cultivation", is emphasized, integrating ideological and political education throughout the entire course and focusing on developing students' comprehensive qualities and social responsibility. Additionally, specific ideological and political education goals are set in line with the characteristics of the "Building Materials" course, such as cultivating environmental awareness, integrity, and teamwork spirit, ensuring clear direction and focus for the education. Deeply exploring ideological and political elements, like the environmental impact of building materials and engineering ethics, and organically integrating them with the course content is essential. When possible, actively develop ideological and political education resources related to the "Building Materials" course, such as case databases and teaching videos, to enrich the teaching content and enhance teaching effectiveness. Effectively promoting the ideological and political construction of the "Building Materials" course cultivates talents with both professional knowledge and good moral character, positively contributing to societal development.

2. Design of Course Ideology and Politics Content

2.1 Deeply Exploring Textbook Content

By deeply exploring ideological and political content, socialist core values and engineering ethics can be integrated into the course, guiding students to establish correct values. This helps cultivate students' sense of social responsibility and professional ethics, laying the foundation for their future careers. Additionally, in their course studies, students need to master professional knowledge while enhancing their ideological quality, moral cultivation, and humanistic literacy, improving their ability to adapt to society. In the "Building Materials" course, many ideological and political elements can be explored, such as introducing China's long history and outstanding achievements in building materials

to foster students' national pride and patriotic spirit. For example, China's ancient building materials like bricks, tiles, and glazed tiles, and modern new building materials like high-performance concrete and new wall materials are significant outcomes of China's technological development. The environmental impact of building materials production and application is evident, and introducing knowledge about green building materials and energy-saving and emission reduction guides students to focus on environmental protection, cultivating their environmental awareness and sustainable development concepts. In aspects like building materials testing and quality control, the importance of integrity is emphasized. Through case analysis and experimental operations, students are guided to establish correct values and professional ethics, cultivating their sense of honesty and responsibility.

2.2 Integrating Excellent Chinese Culture

Rich knowledge and wisdom contained in excellent traditional culture can supplement and expand the "Building Materials" course. By integrating excellent traditional culture, the cultural content of the course is enhanced, helping students better understand the relationship between architecture and culture and improving their comprehensive qualities. Excellent traditional culture is the spiritual wealth of the Chinese nation and an indispensable part of students' growth. Studying excellent traditional culture cultivates students' cultural confidence, enhancing their sense of national pride and belonging. First, the history and characteristics of traditional Chinese building materials like bricks, tiles, and stone, and their application in modern architecture are introduced. By comparing traditional and modern building materials, students are guided to understand the modern value of traditional culture. Second, the cultural connotations and artistic characteristics of traditional Chinese architecture, like courtyards, gardens, dougong brackets, and carvings, are presented. By appreciating the aesthetic value of traditional architecture, students' aesthetic awareness and cultural confidence are cultivated. Third, the techniques and characteristics of traditional Chinese architectural craftsmanship, like carpentry, brick carving, and stone carving, are introduced. Learning traditional craftsmanship guides students to experience the skills and wisdom of traditional culture, enhancing their practical abilities. Finally, integrating traditional cultural thoughts into the course, like Confucianism and Taoism, guides students to understand the modern significance of traditional cultural thoughts, cultivating their cultural confidence and humanistic literacy. Thus, more application-oriented talents with good morals and comprehensive qualities are cultivated, positively contributing to societal development.

3. Teaching Methods of Course Ideology and Politics

3.1 Strengthening Classroom Interaction

Classroom interaction helps cultivate students' autonomous learning and thinking abilities. In the interactive process, students are required to think actively, answer questions, or participate in discussions, stimulating their curiosity and developing their thinking skills. Specific methods are as follows: First, during lectures, teachers can pose questions to guide students to think and respond, testing their knowledge grasp. Second, students are divided into groups for discussions on specific topics or cases. Group discussions develop their teamwork and communication skills, promoting classroom interaction. Third, students role-play different characters in simulated real-life scenarios for interactive exchanges. This method enhances their engagement and learning interest. Fourth, select cases related to the course content for students to analyze and discuss. Case analysis develops their abilities to analyze and solve problems. Fifth, students prepare presentations related to the course content, like PPTs or videos, to present and explain to other students. This method improves their expression skills and confidence, fostering classroom interaction. This approach enhances students' comprehensive qualities and social responsibility, cultivating more outstanding application-oriented talents, as shown in Figure 2.

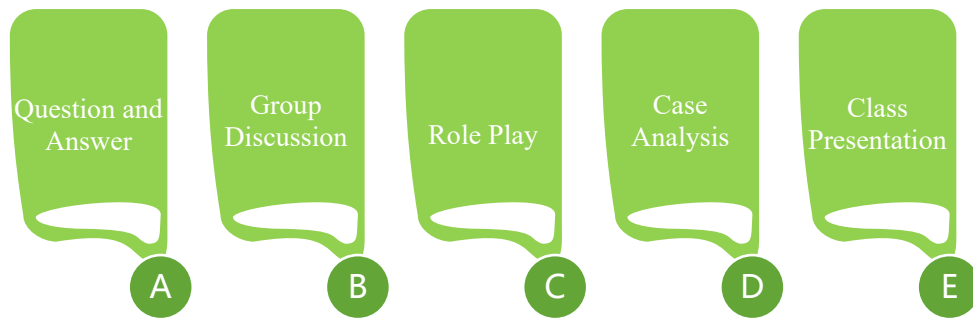


Figure 2: Methods to Strengthen Classroom Interaction

3.2 Emphasizing Practical Teaching

Practical teaching helps students better understand and grasp theoretical knowledge. Through hands-on operation and personal experience, students can combine theoretical knowledge with practical application, deepening their understanding of the course content. In the practice process, students are required to design experiments, operate equipment, and analyze data on their own, which exercises their practical ability and innovative thinking. Simultaneously, solving real-world problems deepens their knowledge. Therefore, in daily teaching activities, experimental courses can be offered, allowing students to conduct experiments, observe phenomena, and analyze data. Through experiments, students can gain a deeper understanding of building materials and develop their experimental skills and scientific literacy. Additionally, organizing field trips to visit building material production sites and construction projects allows students to more directly understand the characteristics and applications of building materials, cultivating their observation and thinking skills. Furthermore, selecting typical cases of building materials application for analysis and discussion helps students understand the practical application of building materials and develop their problem-solving skills[3-5].

3.3 Improving Assessment Methods

Reasonable assessment methods can more accurately evaluate students' learning outcomes. Traditional single written exams may not fully assess students' practical application ability, teamwork, and problem-solving skills. By adding diverse assessment methods like practical assessments, project reports, and group discussions, teachers can more accurately understand students' performance in various aspects. In the applied undergraduate "Building Materials" course, improving assessment methods is crucial. Before assessment, teachers should establish clear standards, including requirements for knowledge mastery, skill application, and comprehensive quality. This helps students clarify learning objectives and improve learning outcomes. Appropriately increasing the proportion of practical assessments in the evaluation emphasizes the importance of practical application skills. Practical assessments can include laboratory operations, case analysis, and solving real-world problems. In addition to teacher evaluations, student self-assessment and peer assessment can be introduced to more comprehensively reflect students' learning status. Through self-assessment and peer assessment, students are encouraged to reflect on their learning process, enhancing their self-management ability. Based on assessment results, a corresponding reward and punishment mechanism can be established to motivate students to study hard and improve their overall quality. Rewards can include verbal praise and extra points, while punishments might involve point deduction and warnings.

4. Conclusion

To encapsulate, the inclusion of ideological and political education in the applied undergraduate curriculum, specifically in the "Building Materials" course, is pivotal for developing individuals who are not only proficient in their field but also exhibit high moral and ideological standards. This approach facilitates a seamless melding of professional coursework with ideological and political instruction, thereby elevating the overall educational quality and producing application-oriented talents that align with the needs of contemporary society. Further, this initiative marks a crucial step in the evolution of higher education. It underscores the necessity of advancing teachers' awareness of educational values and spurs the ongoing reform and innovation within the higher education system. By reinforcing this integrated approach, students are groomed to be high-caliber, application-oriented professionals, equipped with both technical expertise and strong ethical and ideological foundations. To

ensure the continual success and relevance of this approach, it's essential to regularly evaluate and refine these educational practices. This involves collating experiences, enhancing practical methodologies, and fostering the progressive evolution of course ideology and politics, all of which are instrumental in shaping well-rounded, ethically-grounded professionals who can adeptly navigate and contribute to the ever-evolving landscape of modern society.

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