

Integration Mechanism of Ideological and Political Education with Specialized Knowledge in the Course of Green Building Design

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Abstract: This paper aims to explore the integration of ideological and political education with specialized knowledge in the course of green building design. Through an analysis of the green building design course, combined with the current social development background and the need for ecological and environmental protection, the study investigates how to effectively integrate ideological and political education elements into course instruction to enhance the comprehensive quality and green design capabilities of architecture students. The paper analyzes the content and characteristics of the green building design course and proposes an integration mechanism for ideological and political education in green building design teaching, aiming to cultivate architecture talents with green design concepts and good ideological and political qualities.

Keywords: Green building design; Ideological and political education in course; Specialized knowledge; Integration

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1. Introduction

In today's higher education system, the equal emphasis on imparting professional knowledge and ideological and political education has emerged as a significant trend in cultivating high-quality talents. As educational reforms continue to deepen, the teaching of professional coursework has begun to explore ways to organically integrate with ideological and political education. Examples include exploring the classroom instructional design of the "Building Materials" course under the reform of ideology-infused education^[1], the pathways for integrating ideological and political education into intelligent construction teaching^[2], the fusion of professional teaching and ideological and political education in the "Architectural Environment Science" course^[3], and research on innovative teaching models featuring a "two-way integration" of ideological and political education with specialized courses^[4]. However, there is still a lack of research on integrating ideological and political elements into the teaching of "Green Building Design." Therefore, this study focuses on the field of green building design education, aiming to explore an effective integration

mechanism for professional knowledge and ideology-infused coursework. The objective is to provide theoretical foundations and practical pathways for cultivating interdisciplinary talents who possess both professional, ideological and political competencies.

2. Research method

2.1. Integration principles

- (1) Collaborative principle: Ensure that the specialized knowledge of green building design and the elements of ideological and political education are coordinated and consistent in terms of teaching content, teaching methods, and teaching objectives, forming a mutually promoting and complementary relationship.
- (2) Infiltration principle: Naturally and organically infiltrate ideological and political elements into the specialized knowledge of green building design, avoiding rigid grafting and ensuring deep integration between the two.
- (3) Practical principle: Through practical teaching activities, let students experience and understand the internal connection between the specialized knowledge of green building design and ideological and political elements, enhancing the teaching effect.

2.2. Integration objectives

- (1) Cultivate comprehensive architects: Integration enables students to not only master the specialized knowledge of green building design but also possess a strong sense of social responsibility, environmental awareness, and innovative thinking.
- (2) Improve teaching quality: By optimizing teaching content and innovating teaching methods, improve the teaching quality and effectiveness of the green building design course.
- (3) Promote the construction of ideological and political education in courses: Provide experience and reference for the ideological and political construction of other courses, promoting the overall development of ideological and political education in courses in colleges and universities.

2.3. Integration strategies

- (1) Content integration: Integrate the specialized knowledge of green building design with ideological and political elements. For example, when explaining the design concepts of green buildings, incorporate the concepts of environmental awareness and sustainable development; when discussing the selection of building materials, emphasize the importance of environmentally friendly materials and social responsibility.
- (2) Case guidance: Typical cases of green building design can guide students to analyze the ideological and political elements within, such as national confidence and professional competence, allowing students to feel and understand the integration of specialized knowledge and ideological and political elements in specific cases.
- (3) Practical teaching: Organize students to participate in practical activities related to green building design, such as research on green building technologies and field visits to green buildings, allowing students to experience and understand the internal connection between the specialized knowledge of green building design and ideological and political elements in practice.
- (4) Interactive teaching: Adopt interactive teaching methods such as group discussions and role-playing

to let students ponder the integration points of specialized knowledge and ideological and political elements of green building design in communication, cultivating students' critical thinking and innovation abilities.

3. Construction content and implementation

3.1. Scientific deconstruction and reconstruction of course content

The “Green Building Design” course closely revolves around the fundamental task of fostering virtue through education, emphasizing the enhancement of students' engineering ethics education, nurturing their craftsmanship spirit of striving for perfection as citizens of a great nation, and inspiring their patriotism and sense of mission to serve the country through science and technology. This course starts from its training objectives and establishes an education model oriented by job positions, grounded in courses, and enhanced by vocational skill certificates and skill competitions. On this basis, the course content is scientifically deconstructed and reconstructed. Using actual engineering projects as the carrier and tasks as the driving force, the course content is reorganized to address the three main issues: what green building is, how to design and evaluate green buildings, and how to implement green building practices. Each module is analyzed for knowledge points and skill points, and ideological and political elements of the course are explored, forming a project-based curriculum system that integrates professional knowledge with ideological and political elements, thereby achieving a seamless connection between course content and job requirements.

4. Integration pathways of ideological and political education in green building design teaching

4.1. Combination of theoretical knowledge teaching and ideological and political elements

In the theoretical teaching of green building design, teachers can combine the concepts, principles, and characteristics of green buildings with current ideological and political elements such as national ecological civilization construction and sustainable development strategies, guiding students to establish correct environmental awareness and social responsibility.

4.2. Ideological and political guidance in case analysis

By analyzing successful green building cases at home and abroad, teachers can showcase the remarkable achievements of green buildings in environmental protection, energy conservation and emission reduction, and improving people's quality of life, enhancing students' environmental awareness and social responsibility. At the same time, analyzing the ideological and political elements in the cases, such as social responsibility and corporate ethics, cultivates students' ideological and political qualities.

4.3. Infiltration of ideological and political education in practical teaching

In the practical teaching sessions of architectural majors, such as architectural design competitions, internships, and training, teachers can incorporate the concepts of green building design, guiding students to practice green design concepts in practical operations. At the same time, through team collaboration, innovative design, and other sessions, it can cultivate students' team spirit, innovation abilities, and social responsibility.

4.4. Course evaluation and enhancement of ideological and political qualities

In course evaluation, teachers can include students' ideological and political qualities as part of the evaluation. By designing evaluation standards and scoring rules, they can assess students' performance in environmental awareness, social responsibility, and innovative spirit during course design and practical operations, thereby promoting the enhancement of students' ideological and political qualities.

4.5. Establishment of an ideological and political education system in courses

By optimizing the supply of ideological and political education content, the construction concept of "one main thread, three themes, and three integration" can be adopted for ideological and political education in courses. With socialist core values as the main thread, ideological and political education can be integrated into classroom teaching, cultivating students to achieve the three integration of patriotism, professionalism, and self-cultivation, fostering patriotism, enhancing professional competence, and professional ethics. The framework for integrating ideological and political education into teaching is shown in **Figure 1**.

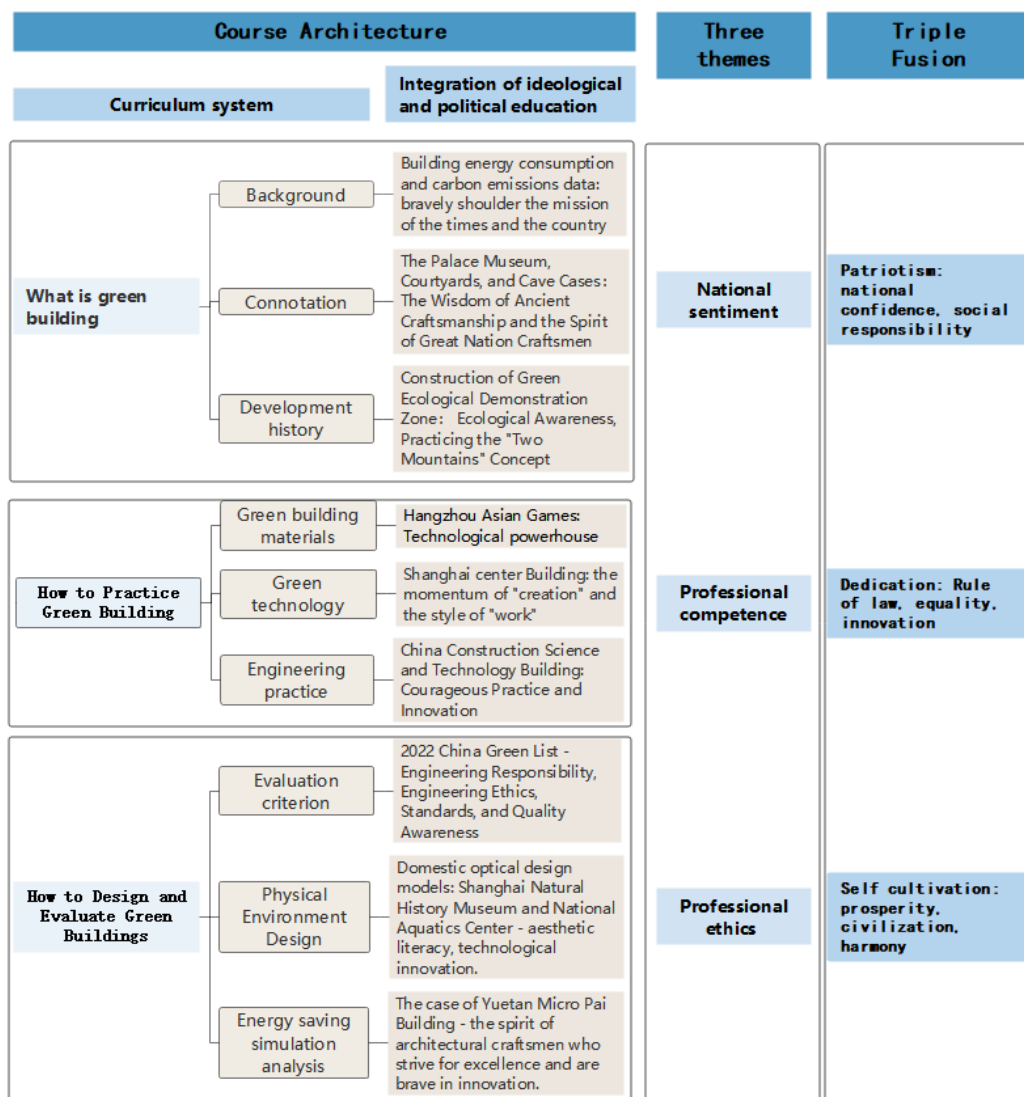


Figure 1. The integration of ideological and political education into the teaching framework system.

5. Construction of digital resources

5.1. Establishment of a digital instructional resource repository

Preserve instructional resources through digital acquisition technology and establish a comprehensive, three-dimensional, one-stop resource repository.

5.2. Enhancement of the vividness of digital resources

Innovate digital presentation forms, such as creating micro-videos, and animations, and designing ideological and political emoji packs, to enhance the attractiveness of resources.

5.3. Reconstruction of teaching modes

Relying on the Chaoxing Learning Platform, a digital lesson preparation system and a learning toolbox can be established, optimizing the digital experience for both teachers' instruction and students' learning. Digital technology can be utilized to optimize teaching evaluation methods, enabling dynamic monitoring and adjustment of the teaching and learning process.

5.4. Creation of virtual scenarios

Utilize digital twin technology to simulate real environments, providing immersive learning experiences.

5.5. Development of digital textbooks

Integrate curriculum and ideological and political content to develop new forms of digital textbooks with ideological and political elements of the curriculum, establishing a teaching system.

5.6. Practice effect

Based on the curriculum content and the ideological and political education system architecture, the supply of ideological and political content can be optimized in the green building design curriculum. Closely integrate the connotation and development, design, and evaluation methods of green buildings, as well as the practical application of green building technologies, organically incorporating ideological and political education into the imparting of professional knowledge.

Through curriculum design, students' professional identity has been enhanced, leading to improved job dedication and workplace recognition. The extensive use of digital teaching resources for ideological and political education has increased student interest and learning efficiency, making the subject more engaging. Incorporating ideological and political elements into professional skill training has significantly improved students' mastery of knowledge and teamwork abilities, evidenced by high pass rates in certification exams and numerous competition awards. Additionally, this approach has greatly enhanced students' national awareness and social responsibility, aligning their ideals with national development.

6. Conclusion

Through systematic exploration and practice of the integration mechanism between professional knowledge and ideological and political education within the curriculum, this study successfully constructed an integration system for ideological and political education within the teaching of green building design, achieving comprehensive ideological and political infiltration in theoretical knowledge instruction, case analysis, practical teaching, and curriculum evaluation. Teaching practice cases indicate that this integration

mechanism not only effectively enhances students' professional qualities but also significantly strengthens their ideological and political qualities and social responsibility, providing strong support for cultivating socialist builders and successors who are well-rounded in morality, intelligence, physique, aesthetics, and labor. In the future, research and practice on the integration mechanism will continue to be deepened, with continuous optimization of curriculum content and teaching methods to better serve the goal of talent cultivation.

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Disclosure statement

The authors declare no conflict of interest.

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