

IDEOLOGICAL AND CIVIC TEACHING OF EXHIBITION DESIGN COURSE IN ENVIRONMENTAL DESIGN MAJOR FROM THE PERSPECTIVE OF NEW ENGINEERING

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Abstract: Under the requirements of the new engineering discipline construction, China's higher engineering education is facing new tasks. While cultivating students' innovative ability, it is essential to attach importance to value guidance. The environmental design major is characterized by the integration of art and engineering. The cultivation of talents requires a solid foundation of value in engineering practice. This study takes the core professional course "Exhibition Design" as an example for discussion. The course encompasses multiple features such as spatial narrative, cultural dissemination, and technological interaction. The research focus lies in exploring specific methods for integrating ideological and civic education in courses with professional teaching. Practice has shown that systematically integrating value elements such as cultural confidence and technological ethics into theoretical teaching, case studies and practice can guide students to go beyond their single focus on form and function. Students can gradually establish design concepts that serve national strategies, inherit excellent culture and care for nature. The teaching model constructed provides practical references for cultivating environmental design talents in the new era.

Keywords: New engineering disciplines; Curriculum-based ideological and civic education; Environmental design; Exhibition design; Teaching practice

1 INTRODUCTION

At present, China's higher education has entered a new stage of connotative development led by construction and fully implementing the fundamental task of fostering virtue and nurturing talent [1]. In recent years, to promote the integration of ideological and civic education throughout the talent cultivation system, the state has successively issued a series of programmatic documents such as the "Guiding Outline for the Construction of Ideological and Civic Education in College Courses", marking that the construction of ideological and Civic education in courses has moved from a macro initiative to a new era of systematic and precise implementation [2]. Its core objective is to break down the barriers between ideological and Civic theory courses and specialized courses, and achieve a deep unity of knowledge imparting, ability cultivation and value shaping [3]. In response to the new round of technological revolution and industrial transformation, the education reform strategy represented by new engineering and new liberal arts has been deeply implemented. The construction of new engineering disciplines not only emphasizes the cultivation of students' interdisciplinary innovation capabilities and their ability to solve complex engineering problems, but also places a sense of patriotism, engineering ethics and social responsibility at a key position among the core qualities of talents [4]. The environmental design major has a typical interdisciplinary attribute of "integration of art and engineering", and its creation and practice are directly related to cultural inheritance, social relations and ecological sustainability. Under the background of the cross-integration of new engineering and new liberal arts, the talent cultivation of this major urgently needs to go beyond simple technical and formal training, deeply integrate value guidance into the entire process of engineering practice and aesthetic education, and make design behavior consciously serve the national cultural strategy, ecological civilization construction and the needs of people's better life [5]. Exhibition design, as a core course in the environmental design major that focuses on narrative, spatial experience and public interaction, with its public nature, media nature and cutting-edge nature, makes it an ideal carrier for practicing the concept of ideological and Civic education in courses [6,7]. The current frontiers of teaching reform indicate that the construction of this course is presenting several new trends. The outcome-based education (OBE) concept is widely applied in teaching philosophy, emphasizing the reverse design of teaching content and evaluation systems based on students' final learning outcomes [8-11]. Interdisciplinary collaboration in teaching methods has become the main way to solve the problem of the disconnection between teaching and the industry, and to cultivate students' comprehensive practical abilities [12-14]. Ai-generated content has been introduced into teaching to assist in creative generation and enhance teaching efficiency [15,16]. In terms of the education model, we explore the integration of "ideological and

Civic education" with "professional courses", aiming to build a three-dimensional education pattern that involves all staff, the entire process, and all aspects [17]. This study takes the "Exhibition Design" course as an example to explore the goals, paths and achievements of ideological and Civic education in environmental design professional courses, in order to provide practical references.

2 THE IDEOLOGICAL AND Civic EDUCATION GOALS OF ENVIRONMENTAL DESIGN COURSES UNDER THE BACKGROUND OF NEW ENGINEERING

The construction of new engineering disciplines aims to cultivate new types of engineering talents who can adapt to the development of future industries. Its connotation goes beyond mere technical capabilities, emphasizing value guidance and cross-border integration. Environmental design integrates knowledge from multiple disciplines such as art, engineering, and humanities. Under the background of the new engineering discipline, students should not only master design skills but also become creators with profound thinking and the ability to respond to the demands of The Times. Integrating ideological and Civic education into professional education is an inevitable choice for achieving the goal of fostering virtue and nurturing talent. In line with the orientation of the new engineering discipline and the characteristics of the major, the ideological and Civic education goals of the curriculum can be constructed from the following aspects.

2.1 Align With the New Engineering Discipline Strategy and Foster a Sense of Patriotism And Dedication to the Country

In terms of the educational framework, ideological and Civic education in courses should guide students to establish a sense of mission for The Times to serve the development of the country. In the teaching process, efforts should be made to go beyond the mere exploration of form and function, and place design practice in the context of national strategy and social development. Cultivating students' understanding that environmental design is an important means to shape the national image, inherit national culture and improve people's quality of life. Through course content and project practice, students' awareness of serving the construction of a "Beautiful China" and promoting Chinese civilization through design is stimulated. Students are encouraged to combine their personal professional pursuits with the contemporary responsibility of serving the country through science and technology and rejuvenating the nation through culture, and grow into design talents with both international vision and local sentiment, adhering to the concept of sustainable development.

2.2 Based on the Interdisciplinary Nature of the Major, Integrate the Spirit of Art

In terms of professionalism, ideological and civic education in courses should closely adhere to the cross-disciplinary attribute of environmental design, which is the integration of art and engineering. Professional teaching should, in the artistic dimension, adhere to cultivating people through culture and educating them with beauty, guiding students to deeply understand and consciously inherit the spirit of Chinese aesthetics, so that design works contain profound cultural connotations and national aesthetic qualities. From the engineering perspective, it is necessary to strengthen engineering ethics education, cultivate students' scientific attitude of being rigorous and realistic, professional ethics of striving for excellence, and a comprehensive sense of responsibility for public safety, social benefits and the ecological environment. It is necessary to enable students to deeply understand that outstanding design achievements must be a dialectical unity of purposefulness, regularity and ethics.

2.3 Focus on the "Exhibition Design" Course to Achieve Value Guidance

The ideological and civic goals of the course "Exhibition Design" should run through the entire teaching process to achieve an organic integration of value guidance and professional ability improvement. While cultivating students' mastery of professional core skills such as spatial narrative, flow line organization, technology integration, and experience creation, the course must consciously guide them to conduct value reflection and ethical consideration in every design stage. Examine whether the design plan actively interprets and disseminates China's fine traditional culture, revolutionary culture or advanced socialist culture; Evaluate whether the application of new technologies has truly enhanced the visiting experience and cared for the needs of diverse groups, including children, the elderly and people with disabilities; Consider whether the material selection, energy strategy and operation mode have implemented the concepts of green, low-carbon and sustainability. Consider whether design can effectively respond to specific social issues, promote society development, and disseminate positive social values.

3 TEACHING PRACTICES OF IDEOLOGICAL AND CIVIC EDUCATION IN THE "EXHIBITION DESIGN" COURSE

The effectiveness of ideological and civic education in courses hinges on whether it can be deeply integrated with professional teaching. This course takes project practice as the main thread, integrates value guidance throughout the teaching process, and strives for the simultaneous improvement of professional knowledge, practical ability and value shaping. The specific teaching is carried out through the following three main paths.

3.1 Achieve Value Guidance in Theoretical and Case Teaching

When teaching design principles, emphasis should be placed on expanding their cultural, social and ethical dimensions. For instance, when analyzing spatial narratives, it is necessary to delve deeply into the ideological and cultural positions behind them. By interpreting cases such as major national theme exhibitions, students can be guided to understand the profound significance of design serving national strategies and disseminating mainstream values. When explaining technical specifications such as materials, lighting, and multimedia, emphasize engineering ethics and scientific spirit, guide students to think about the moderation and ethics of green material selection and technology application, and establish a professional concept of being responsible for society and the environment. Case teaching selects benchmark projects that are both ideological, professional and contemporary, guiding students to conduct in-depth study from three dimensions: professional logic, value connotation and critical reflection, promoting the organic integration of theory and values.

3.2 Promote the Internalization and Implementation of Value throughout the Entire Project Practice Process

The course is taught around two practical projects: "Copying and Analysis" and "Innovative Design". Starting from the stage of topic selection and research, guide students to focus on practical issues such as rural revitalization, cultural inheritance, and ecological civilization, and cultivate their sense of patriotism and social insight. In the copying session, students are required not only to reproduce the design form but also to complete the translation method of deeply understanding the cultural spirit in the excellent cases. During the original design stage, clearly transform value requirements such as cultural stance, social concern, and sustainable concepts into specific design constraints and decision-making bases, allowing values to naturally integrate into the entire creative process. Through teamwork and outcome reporting, students' sense of responsibility and spirit of collaboration can be further strengthened.

3.3 Establish Rigid Indicators for Value Shaping in the Assessment and Evaluation

Establish a full-process evaluation system that is linked to the teaching process and clearly incorporate the effectiveness of value shaping into the assessment. In the process evaluation, set scoring criteria for cultural understanding, value analysis and social care capabilities. In the evaluation of final design assignments, a specific dimension of "effectiveness of ideological and civic education" is established, and a clear scale is developed. The focus is on examining whether the design embodies core values, whether it achieves cultural inheritance and innovation, whether it cares for diverse groups, whether it implements sustainable concepts, and whether the design description fully explains the social and cultural value of the work. Through this evaluation loop, students are encouraged to consciously pursue the intrinsic unity of professional skills and social responsibility.

4 THE IDEOLOGICAL AND CIVIC TEACHING ACHIEVEMENTS OF THE "EXHIBITION DESIGN" COURSE

In this course, by integrating the ideological and civic education system into professional teaching, the teaching effectiveness has been significantly reflected in three aspects: knowledge acquisition, ability improvement and value shaping. The introduction of value guidance not only fails to diminish the depth of professional teaching, but also effectively enhances the ideological connotation, innovation level and practical value of design works by guiding students to form a clear cultural stance, social responsibility and ethical awareness, achieving an organic unity of professional education and value guidance.

4.1 Significant Improvement and Internalization of Students' Design Values

Teaching feedback and outcome analysis indicate that students' design values are undergoing positive and profound changes. Students who used to pay more attention to the international style are gradually turning to seeking expression within the local cultural context. They can consciously draw nourishment from China's fine traditional culture, revolutionary culture and advanced socialist culture, and carry out modern translation and innovation. Students are generally aware of the social role that designers play. The proportion of those who actively focus on social issues such as public services, barrier-free facilities, society cultural activation, and ecological protection in their designs has significantly increased. The concept of serving the people has gradually been transformed into concrete design actions. In aspects such as application and material selection, students demonstrated a stronger sense of ethical awareness. They were able to view the effects of technological application dialectically, proactively assess the potential impact of design on the preservation of cultural relics, audience experience, and the ecological environment, and actively explore more responsible and sustainable solutions.

4.2 Typical Cases of Ideological and Civic Education Design Achievement

During the course, students created a batch of design works with ideological depth, humanistic warmth and innovative consciousness around the themes of The Times, which comprehensively demonstrated the educational effectiveness of the "knowledge - ability - value" trinity.

Achievement One: "Passing On the Spark" - The design of the Immersive Experience Hall for Local Red Culture breaks through the traditional exhibition model. Through narrative Spaces, scene restoration, light and shadow art, and AR interaction, it transforms revolutionary history into an emotional field that can be entered and experienced. The work not only demonstrates solid spatial shaping and technological integration capabilities, but also reflects students' profound understanding of the connotation of the red spirit and their innovative communication awareness, achieving an organic integration of patriotic education and spatial aesthetics in Figure 1.



Figure 1 "Passing on the Torch" - Design of an Immersive Experience Hall for Local Red Culture

Outcome Two: "Guarding the Nostalgia of the Countryside" - The design of the Comprehensive Exhibition Center with the theme of Rural Revitalization takes the rural exhibition center as the carrier, organically transforming the regional architectural language and cultural symbols. By setting up interactive sections such as villagers' story walls, intangible cultural heritage workshops, and future vision screens, it builds a bridge between cultural inheritance and urban-rural dialogue. The design reflects in-depth research and full respect for local culture, demonstrating the practical exploration of design serving rural areas and promoting society integration, see Figure 2.

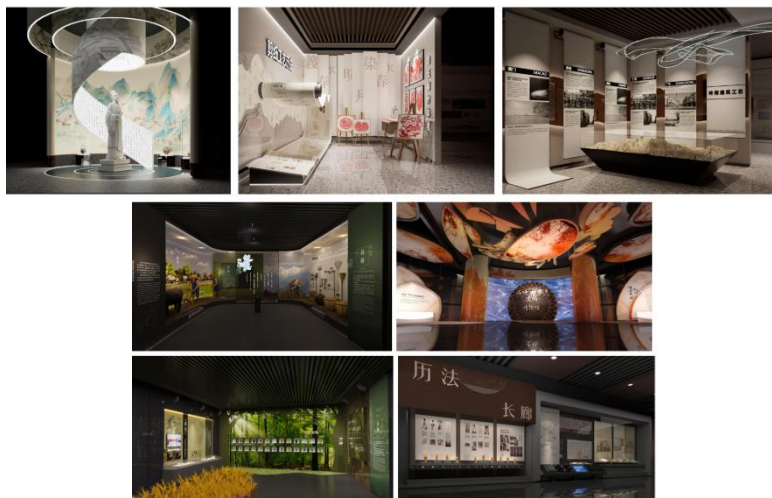


Figure 2 "Guarding Nostalgia" - Design of the Comprehensive Exhibition Center with the Theme of Rural Revitalization

The design of the "Intelligent Vision for the Future" science popularization exhibition hall on Ecological civilization and Science and Technology ethics mainly takes the form of digital and interactive exhibits, focusing on the topic of "Artificial Intelligence and Ecological Symbiosis", guiding the audience to think about the dual impact of technological development and personal environmental protection responsibilities. The design combines a sense of technology and experience, carrying profound thoughts on ecological philosophy and technological ethics, and reflecting students' critical thinking and sense of responsibility towards the common future of humanity, see Figure 3.



Figure 3 Design of the "Intelligent Vision for the Future" Science Popularization Exhibition Hall with the Theme of Ecological Civilization and Science and Technology Ethics

4.2 Support and Verification of Course Objectives by Teaching Outcomes

The above-mentioned teaching achievements have strongly supported the realization of the ideological and civic education goals in the curriculum. The students' works closely echo the country's strategic layout in areas such as rural revitalization, cultural confidence, and ecological civilization, demonstrating the ideological awareness of integrating professional learning with national development. In both artistic expression and technical realization, there is an emphasis on cultural inheritance, material ethics and sustainable concepts, achieving an internal unity of artistic spirit and engineering ethics. The cultural understanding, social research, teamwork and value expression abilities demonstrated by students during the design process further confirm the deep integration of value shaping and professional training. Ideological and civic education in courses has been deeply integrated into students' design thinking and creative practice. In the process of responding to real-world issues and contemporary propositions, students naturally cultivate a sense of patriotism, cultural confidence, scientific spirit and professional ethics, effectively promoting the substantive transformation of educational outcomes from "pleasing to the eye and ear" to "penetrating the mind and heart".

5 CONCLUSIONS

Curriculum-based ideological and civic education is a key measure to implement the fundamental task of fostering virtue and nurturing talent in the new era, and it is also an inevitable requirement to highlight the advantages of socialist education with Chinese characteristics. In the wave of new engineering discipline construction, the educational and teaching reform of the environmental design major must proactively respond to the propositions of The Times and place value shaping at the core of talent cultivation. The "Exhibition Design" course, with its outstanding public nature, narrative quality and interactivity, has become a natural carrier for conducting in-depth, vivid and effective ideological and civic teaching in the curriculum.

This study takes the "Exhibition Design" course as an example to systematically explore the teaching objectives, implementation paths and specific methods of ideological and civic education in environmental design major courses from the perspective of new engineering. Research shows that by establishing a three-level interactive target system of "macro - meso - micro", and integrating ideological and civic elements throughout the entire process, in an immersive and assessable manner into theoretical teaching, case analysis, project practice and achievement evaluation, the "trinity" integration of professional knowledge, innovation ability and value guidance can be effectively achieved. Teaching practice further proves that this deep integration not only does not weaken the depth and professionalism of professional teaching, but also significantly enhances the ideological connotation, innovative quality and practical significance of students' works by endowing design with a clear cultural stance, profound social concern and strict ethical boundaries. Thus, it aims to cultivate design talents with solid professional foundations, firm value positions, as well as innovative capabilities and social sentiments. The ideological and civic teaching reform of the "Exhibition Design" course and even the environmental design major still needs to be explored in the following aspects: First, further enhance the precision and depth of the integration of ideological and Civic elements with professional knowledge to avoid the "two skins" phenomenon and achieve an intangible educational effect like "salt dissolving in water". Second, continuously enrich and update the teaching case and project library to make them more closely align with national development strategies and social hot topics. Third, improve the scientific and quantifiable evaluation system for the effectiveness of ideological and civic education, and establish a long-term feedback and improvement mechanism. Fourth, actively expand the practical platforms for "school-local cooperation and serving the society", allowing students to hone their professional skills, practice value concepts and contribute their wisdom and strength in real projects.

Looking ahead, the construction of ideological and civic education in courses will continue to advance in depth. Environmental design professional education should firmly grasp the historical opportunity of the new engineering discipline construction, continuously deepen the ideological and civic teaching reform of professional courses, and build an all-round, all-process and all-staff education pattern, so as to cultivate more outstanding engineering and design

talents with both virtue and ability who can shoulder the great responsibility of national rejuvenation, and provide solid talent support and value guidance for building a beautiful China and a modern socialist power.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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REFERENCES

- [1] Ministry of Education. Guidelines for the Construction of Ideological and Civic Education in College Courses. Ministry of Education of the People's Republic of China, 2020.
- [2] General Office of the Central Committee of the Communist Cadres of China, General Office of the State Council. Several Opinions on Deepening the Reform and Innovation of Ideological and Civic Theory Courses in Schools in the New Era General Office of the Central Committee of the Communist Cadres of China, General Office of the State Council, 2019.
- [3] Ten departments including the Ministry of Education. The work plan for comprehensively promoting the construction of "Grand Ideological and Civic Courses". Ministry of Education and other ten departments, 2022.
- [4] Liu Guolong, Sun Shimin. Research on the Educational Implications and Teaching Practice of Ideological and Civic Education in "New Engineering" Courses. *School Cadres Building and Ideological Education*, 2022(7): 46-49.
- [5] Wang Xiaoqin, Jin Jianhua, Zheng Yuanxu, et al. Exploration and Practice of the Engineering Talent Cultivation Model for Environmental Design from the Perspective of New Engineering Disciplines *Anhui Architecture*, 2023, 30(6): 105-107.
- [6] Gao Deyi, Zong Aidong. From Ideological and Civic courses to Ideological and Civic education in courses: Constructing the ideological and Civic education curriculum System in colleges and Universities from a strategic perspective. *China Higher Education*, 2017(1): 43-46.
- [7] Graham R. The Global State of the Art in Engineering Education. MIT Report, 2018.
- [8] Lu Daokun. Several Core Issues and Solutions in the Implementation of Ideological and Civic Education in Courses: A Discussion Based on Ideological and Civic Education in Professional Courses. *Ideological and Theoretical Education*, 2018(3): 64-69.
- [9] Wang Xiaoqin, Jin Jianhua, Zhu Cuizhi. Teaching Research on Landscape Design Based on Ecological Civilization Construction Research on Art Education, 2021(21): 108-110.
- [10] Prince M, Felder R. Inductive Teaching and Learning Methods: Definitions, Comparisons, and Research Bases. *Journal of Engineering Education*, 2006,95(2):123-138.
- [11] Kolmos A, de Graaff E. Problem-Based and Project-Based Learning in Engineering Education. Cambridge University Press, 2014: 141-160.
- [12] Ye Zhiming, Wang Dejiang, Zhao Huiling. Curriculum, Teaching Materials, and Education: The Construction and Practice of Ideological and Civic Education in science and engineering disciplines and professional courses. *Mechanics in Chinese Engineering*, 2020, 42(2): 214-218.
- [13] Biggs J, Tang C. Teaching for Quality Learning at University. 4th ed. McGraw-Hill, 2011.
- [14] Holmes W, Bialik M, Fadel C. Artificial Intelligence in Education. Center for Curriculum Redesign, 2019.
- [15] Xia Yan, Wang Lu, Jiang Zhengqing, et al. The integration of engineering ethics factors in civil engineering Education: An Innovative Form of "Curriculum-based Ideological and Civic Education". *Higher Engineering Education Research*, 2020(1): 172-176.
- [16] UNESCO. AI and Education: Guidance for Policy Makers. Paris: UNESCO, 2021.
- [17] Xia Yan, Wang Lu, Jiang Zhengqing, et al. The integration of engineering ethics factors in civil engineering Education: An Innovative Form of "Curriculum-based Ideological and Civic Education". *Higher Engineering Education Research*, 2020(1): 172-176.