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Exploring the practical path of the comprehensive education mode of "Course, Lesson, Competition and Certificate" in the environmental art design major of higher vocational colleges

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Abstract

With China's industrial upgrading and transformation creating growing demands for high-quality technical professionals, deepening vocational education reform and innovating talent cultivation models have become imperative. This study focuses on the Environmental Art Design program in higher vocational colleges, exploring the development and implementation of the "Job-Course-Competition-Certificate" integrated education model. The paper first examines the theoretical foundations and practical motivations behind this model, highlighting its crucial role in enhancing vocational education adaptability. Building on practical experiences from Zhejiang Province's vocational institutions, it analyzes the synergistic integration of multiple elements including "job-course-competition-certificate" alignment, ideological-political education integration, innovation and entrepreneurship development, and industry-education collaboration. A practical model utilizing core courses as educational platforms is established. Case studies demonstrate that this approach effectively stimulates students' learning initiative, enhances their comprehensive vocational competencies, employment competitiveness, and sustainable development capabilities, providing a replicable theoretical framework and implementation roadmap for cultivating art design professionals in higher vocational education.

Keywords

Post-course-competition-certificate; comprehensive education; environmental art design; higher vocational education; path exploration; industry-education integration.

1. Introduction

China's economy is currently undergoing a critical phase of transforming development models, optimizing economic structures, and shifting growth drivers. The rapid expansion of advanced manufacturing, strategic emerging industries, and modern service sectors has created heightened demands for technical professionals' knowledge frameworks, competency standards, and professional ethics. As the most closely aligned educational system with socioeconomic development, vocational education bears crucial responsibilities in cultivating diverse talent pools, preserving technical expertise, and fostering employment and entrepreneurship. Enhancing vocational education's adaptability to achieve seamless integration between educational systems, talent pipelines, industrial chains, and innovation ecosystems has become a core national strategic priority.

As a crucial branch within the art and design category of higher vocational education, Environmental Art Design (EAD) closely aligns with modern service industries such as architectural decoration, interior design, landscape design, and exhibition design. The quality of its talent cultivation directly impacts the enhancement of urban-rural living environments and the development of cultural soft power. However, current EAD programs still face multiple challenges: curriculum content remains disconnected from industry technical standards and

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job competency requirements; traditional theoretical teaching struggles to translate into practical skills applicable in real-world work scenarios; the "skill-focused, quality-neglected" approach results in insufficient sustainable development capabilities among students; and superficial school-enterprise collaborations fail to effectively convert high-quality industrial resources into educational assets.

To address these challenges, the Ministry of Education and other government agencies have jointly promoted the "Position-Course-Competition-Certificate" integrated education model, guiding vocational colleges to systematically integrate job requirements, curriculum design, skills competitions, and vocational qualification certifications. Building on this initiative, our research project in environmental art design not only combines these four elements but further explores the "Position-Course-Competition-Certificate+" model. This innovative approach deeply integrates curriculum-based ideological education, innovation and entrepreneurship, and industry-education collaboration, aiming to establish a multi-dimensional, end-to-end comprehensive education system. The goal is to explore effective pathways for cultivating high-quality environmental art professionals who meet the demands of the new era[1].

2. Theoretical connotation and inevitability of the "post-course-competition-certificate +" comprehensive education mode

Theoretical Origins: Inheriting and Developing Huang Yanpei's Comprehensive Vocational Education Philosophy The "Position-Subject-Challenge-Certification" integrated education model is deeply rooted in China's modern vocational education ecosystem. It represents a contemporary interpretation and innovative development of the "Comprehensive Vocational Education" philosophy and "Hand-Brain Integration, Learning Through Practice" principles championed by renowned educator Mr.Huang Yanpei. Huang Yanpei advocated for vocational education to be closely aligned with societal needs, emphasizing "hand-brain synergy" and "the parallel development of theory and practice," asserting that education should aim to "provide employment for the unemployed and foster career satisfaction among employed individuals."[2] This model embodies his philosophy through four key dimensions: ① Position-Orientation: The vocational focus serves as both the starting point and ultimate goal of talent cultivation. ② Subject-The primary platform for "hand-brain integration," forming the foundation for knowledge transmission, skill training, and value shaping. ③ Challenge-A competitive arena for "learning through practice," where simulated or real-world project tasks assess students 'comprehensive practical abilities and innovative spirit, serving as exemplary benchmarks. ④ Certification-A social evaluation mechanism that objectively measures students' attainment of industry entry thresholds and professional standards. ⑤ Extension: This model is integrated into the broader "Comprehensive Vocational Education" framework, combining with ideological-political education's "soul-casting cultivation," innovation-entrepreneurship education's "potential stimulation," and industry-education integration's "collaborative symbiosis," thereby forming a more systematic and open educational ecosystem.

Practical Imperatives: Key Measures to Enhance Vocational Education Adaptability The "Job-Course-Competition-Certification+" integrated education model is an inevitable choice to address technological transformation and industrial optimization. 1. Aligning with National Strategies: Documents such as the "National Vocational Education Reform Implementation Plan" explicitly require promoting the "Job-Course-Competition-Certification" integrated education model, guiding professional curriculum content to align with occupational standards and teaching processes to mirror production workflows[3]. This model directly embodies the implementation of national policies and benchmarks for professional education and vocational skill levels. 2. Meeting Industry Upgrade Needs: The environmental art sector is rapidly evolving towards digitalization, green development, and personalization (e.g., BIM technology

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applications, eco-friendly architectural decoration, immersive spatial experience design). By dynamically linking with industry frontiers, the "Job-Course-Competition-Certification+" model ensures timely integration of new technologies, innovative processes, and updated standards into curricula and competition benchmarks, maintaining talent cultivation relevance. 3. Addressing Student Development Needs: Contemporary vocational college students not only seek technical expertise but also pursue comprehensive career growth and lifelong development capabilities. This model provides diversified platforms for students to showcase talents, boost confidence, and secure employment opportunities through multi-dimensional learning outcomes (competition awards, certification credentials) and authentic learning experiences (job tasks, creative projects).

3. The main problems existing in the current vocational environmental art education mode

Although the "Position-Course-Competition-Certificate" concept has gained widespread recognition, its integration in environmental art education still faces deep-seated challenges that hinder quality improvement: 1. Superficial Integration Logic: Position analysis often remains at a macro level, failing to dissect specific roles (e.g., BIM modelers, interior designers, landscape drafters) 'typical tasks and competency requirements, resulting in imprecise curriculum restructuring. The disconnect between competition-certification content and teaching materials leads to token competitions and certifications, failing to drive genuine pedagogical reform. 2. Fragmented Implementation: Different departments (academic affairs, student services, colleges, industry-academia partnerships) manage separate elements of this framework without coordinated planning, creating resource fragmentation and communication barriers among stakeholders. 3. Inadequate Evaluation: Current assessment systems lack scientific metrics for measuring the "Position-Course-Competition-Certificate" integration's effectiveness. How to quantify students' comprehensive vocational development? How to evaluate the impact of ideological-political education in specialized courses? How to demonstrate its long-term career benefits? The absence of effective evaluation tools makes it difficult to objectively assess and sustainably improve integration reforms[4].

4. Path construction and practical model of "Post, Course, Competition and Certificate +" comprehensive education mode

To address the aforementioned challenges, this research project utilizes core environmental art courses (including Residential Space Design, Commercial Environment Design, Introduction to Landscape Design, and BIM Technology Application) as practical platforms, establishing the following integrated pathway model. Core Pathway 1: "Job-Course-Competition-Certification + Ideological Education Integration" -a Value-Guided Path for Soul-Casting and Talent Development

Core Pathway I: "Job-Course-Competition-Certification + Ideological Education Integration" -as a Soul-Casting Pathway This pathway aims to resolve the disconnect between technical skill development and value cultivation, embedding the fundamental task of moral education throughout talent development. Mechanism Construction: "Position-Based Moral Cultivation": Deeply exploring craftsmanship spirit, model worker ethos, and professional ethics embedded in environmental art industry positions (e.g., integrity and punctuality in client communication, meticulousness in design processes, eco-friendly material selection). Inviting industry masters and outstanding alumni to share "ideological education stories from workplace contexts". "In-Class Moral Integration": Explicitly defining ideological education objectives in curriculum standards and teaching plans. For instance, integrating the ecological civilization concept of

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"Lucid waters and lush mountains are invaluable assets" into Sustainable Landscape Design courses; cultivating students' recognition and inheritance of Chinese traditional culture through Traditional Residential Conservation Design projects. "Certification-Driven Moral Demonstration": Incorporating weightings for "professional competence", "teamwork", and "innovative spirit" into skill competition evaluation criteria. Including professional ethics and safety regulations in vocational qualification assessments, making moral cultivation visible and measurable. Practical Model (Corresponding to Figure 1): Establishing a four-dimensional ideological education matrix integrating "job requirements-course objectives-competition standards-certification evaluations", ensuring ideological elements permeate all aspects of professional education like salt dissolving in water.

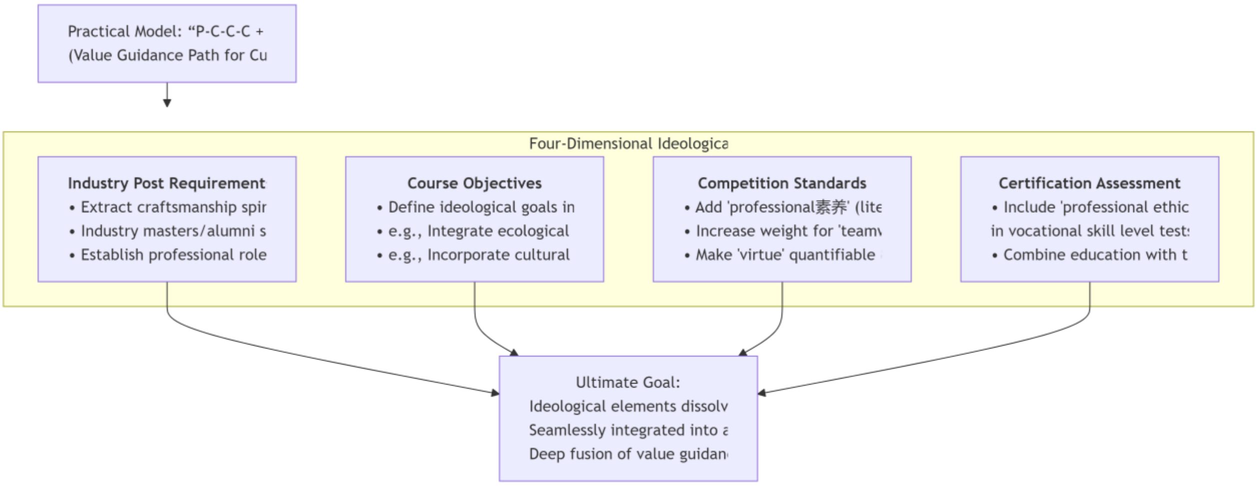

Figure 1: Practical Model for "Post-Course-Competition-Certificate + Ideological & Political Education"

Core Pathway 2: "Post, Course, Competition and Certificate + Innovation and Entrepreneurship" -- A development path that stimulates potential.

This curriculum framework is designed to cultivate students' innovative thinking, entrepreneurial awareness, and cross-disciplinary integration capabilities, responding to the national call for "mass entrepreneurship and innovation". Mechanism Construction: "Position-Driven Innovation": Analyze emerging industry roles and startup hotspots (e.g., old house renovation designers, cultural space planners, independent design studios), using real business projects and client needs as innovation topics. "Course-Competition Incubation": Transform course assignments into project-based learning and competitions into coursework. Encourage students to refine outstanding designs from core courses into business plans or product prototypes for contests like the "Internet+" College Student Innovation and Entrepreneurship Competition and "Challenge Cup". "Certification-Recognition-Innovation": Explore converting innovation achievements (e.g., patents, registered studios, awards) into academic credits or bonus points for "1+X" certifications (e.g., "Digital Creative Modeling"), establishing a diversified learning recognition system. Practical Model (Corresponding to Figure 2): Develop a closed-loop innovation training process of "Problem Discovery (Position)-Knowledge Acquisition (Course)-Solution Optimization (Competition)-Achievement Certification (Certification)", forming an integrated education ecosystem of "Teaching-Training-Practice-Hatching".

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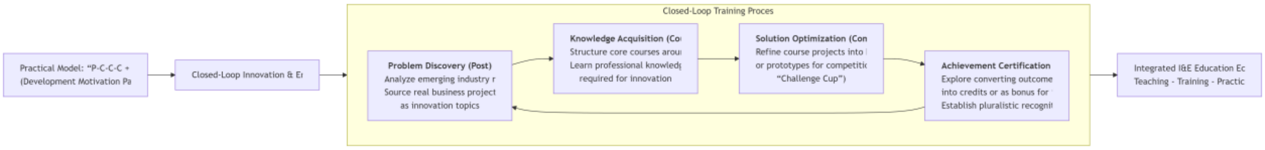

Figure 2: "Post-course competition certificate + innovation and entrepreneurship" practice model

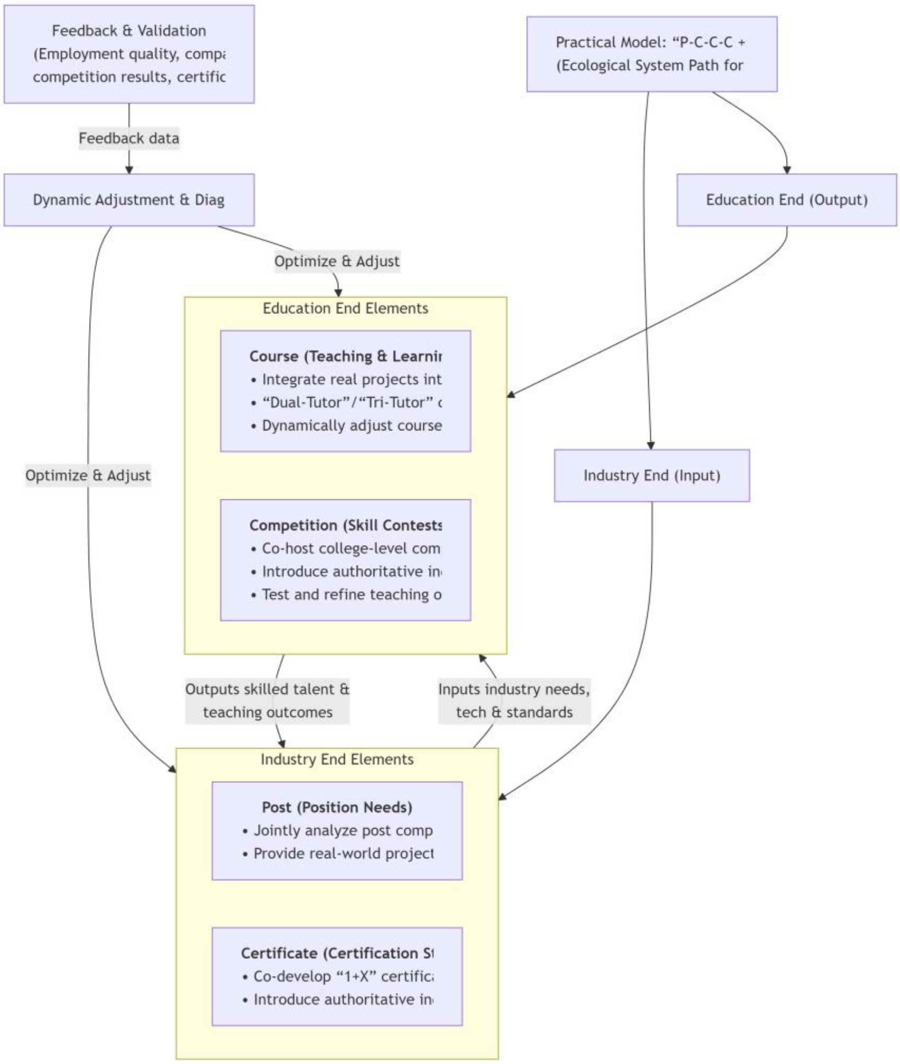

Figure 3: "Post-course competition certificate + industry-education integration" practice model

Core Pathway 3: "Post-course-competition-certificate + industry-education integration"-a collaborative ecosystem path

This path serves as the foundation and guarantee for implementing the "Position-Course-Competition-Certificate+" model, aiming to resolve the "firewall phenomenon" in school-enterprise cooperation and achieve complementary resources and mutual benefits[5]. Mechanism Construction: "Position-Based Standards": Collaborate with industry associations and leading enterprises to establish a professional development committee, analyze job competency matrices, and jointly formulate talent cultivation plans, curriculum standards, and practical training facility construction standards. "Real Project Integration": Introduce authentic enterprise projects and real-world cases into classrooms. Implement a "dual mentor system" where corporate mentors (responsible for project guidance and technical specifications) and academic mentors (responsible for theoretical instruction and

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methodological guidance) collaborate in teaching. Drawing on Lishui Vocational and Technical College's "three-mentor system" experience, research mentors can be added to incorporate cutting-edge technologies. "Competition-Certificate Synergy": Partner with enterprises to host university-level skills competitions or introduce authoritative industry events (such as the <term_0> "Decoration Award" student competition) on campus. Jointly develop "1+X" vocational skill certification standards or directly incorporate enterprise certifications (e.g., AutodeskBIM Engineer Certification) into the curriculum system. "Dynamic Adjustment": Establish a professional diagnosis and improvement mechanism based on employment quality, corporate feedback, competition results, and certificate pass rates to dynamically adjust course content and teaching methods. Practical Model (Corresponding Figure 3): Form a spiral upward structure with two-way interaction between the industrial sector (positions, certificates) and the educational sector (courses, competitions). Industrial demands are fed into the teaching system through positions and certificates, while educational outcomes are fed back to the industrial sector via course cultivation and competition refinement, achieving bidirectional driving force between education and industry.

5. Practical Explorations and Insights from Zhejiang's Vocational Colleges

As a pioneer in vocational education reform, Zhejiang's institutions have provided substantial practical evidence for this research. Zhejiang Tourism Vocational College: Its "Four-Dimensional Integration" model deepens the "Three-Aspect Holistic Education" and "Position-Course-Competition-Certification" integrated approach. Particularly innovative in establishing a comprehensive quality evaluation system, it emphasizes balancing moral cultivation with technical proficiency, highlighting the necessity of holistic student development in integration. Zhejiang Construction Vocational College: Collaborating with enterprises on software technologies like BIM to develop resources and advance dynamic online management exemplifies the integration of "Position-Course-Competition-Certification" with information technology, charting the technological direction for blended models in the digital era. Lishui Vocational College: Its "Four-Pronged Refinement" and "Four Chain Integration" model, especially the modular curriculum scheme of "one course, one project; one skill, one practical task" and the "Three-Mentor System," perfectly illustrates the teaching philosophy of "Work-Study Integration" and "Real Environment, Real Projects." This provides a highly valuable model for deepening industry-education integration and moving classrooms to real-world settings. Its "Full-Cycle Work-Study Alternation" system breaks traditional semester constraints, achieving deep integration of learning and work[6]. These practices collectively reveal key success factors: systematic top-level design, mutually beneficial corporate partnerships, modular curriculum restructuring, and process-oriented diversified evaluation.

6. Implementation Guarantees and Future Prospects

To ensure the effective operation of the "Position-Course-Competition-Certificate+" model, the following safeguard mechanisms need to be established: 1. Organizational Guarantee: Form a special task force comprising school leaders, corporate representatives, and academic leaders to break down departmental barriers and coordinate resources. 2. Faculty Guarantee: Build an innovative "dual-qualified" teaching team through enterprise practice, technical services, and competition guidance to enhance teachers 'ability to integrate positions, courses, competitions, and certifications. 3. Resource Guarantee: Establish an open practical base integrating teaching, training, competitions, certification, and R&D. Develop new multimedia textbooks like modular workbooks and modular course resource packages. 4. Institutional Guarantee: Improve credit recognition and transfer policies to incentivize students to participate in competitions and obtain certificates. Implement a mutual appointment system and compensation incentive

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mechanism between schools and enterprises. Through preliminary practices (such as the three-round validation of core curriculum models mentioned in this article), this model has demonstrated positive outcomes: Students have shifted from passive learning to active exploration, with significant improvements in the quality and implementation rate of course outcomes (design plans, models). The number and level of awards won in various competitions have increased, along with higher employment alignment rates and starting salaries. It is expected that after a full cycle of promotion across all professional clusters, this model will systematically enhance students' comprehensive vocational competencies, forming a replicable and scalable "Environmental Art Solution".

7. Conclusion

The "Position-Course-Competition-Certificate+" integrated education model profoundly responds to the requirements of high-quality development in vocational education for the new era. For the Environmental Art Design program in higher vocational education, this is not merely a simple combination of "position", "course", "competition", "certificate", and various "+" elements. Instead, it represents a complex system engineering based on the educational philosophy of "integrating manual and mental skills, merging practice with learning", using core courses as practical media, industry-education integration as a solid foundation, ideological-political education as its value soul, and innovation entrepreneurship as developmental momentum. The diversified integration pathways explored in this research aim to effectively address current issues in talent cultivation such as unclear integration logic, insufficient synergy, and inadequate evaluation through systematic design, dynamic adjustments, and process-oriented assessment. Ultimately, this approach transforms real-world tasks into learning opportunities, converts theoretical knowledge into practical capabilities, and elevates single-skilled proficiency to comprehensive competencies. Looking ahead, as this model undergoes deeper implementation and continuous optimization, it will undoubtedly provide strong support for cultivating outstanding environmental art design talents who embody "moral-technical integration and unity of knowledge and action", capable of serving advanced manufacturing and modern service industries in Zhejiang and even nationwide. This contributes to the modernization of China's vocational education system.

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