Practice and Exploration on the Construction of Ideological and Political Model Courses in Higher Vocational Education

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Abstract: Moral education, as the fundamental mission of education, places curriculum ideology and politics in a pivotal role. In advancing curriculum ideology and politics, we have actively explored effective pedagogical models aimed at cultivating high-quality technical talents with a "global perspective, intellectual acumen, and craftsmanship skills." Taking the course VR Interior Modeling Technology as a breakthrough point, this study integrates disciplinary characteristics to deeply excavate ideological and political elements, constructs a comprehensive teaching framework, and innovates traditional teaching paradigms. hrough continuous teaching practices and innovative trials, we have achieved significant pedagogical outcomes. This paper systematically analyzes reform measures and implementation outcomes in curriculum ideology and politics practices, aiming to provide valuable references for the innovation and development of curriculum ideology and politics in higher vocational courses.

Keywords: Curriculum Ideology and Politics; Teaching Reform; Implementation Strategies; Moral Education; VR Modeling Technology

1. Introduction

Cultivating well-rounded talents with both moral integrity and professional competence, and implementing the fundamental mission of fostering virtue through education, require curriculum ideology and politics as the core lever to build an all-staff, whole-process, and all-round educational system[1-3]. The essence of curriculum ideology and politics lies in breaking down the traditional separation between ideological education and specialized disciplines. Through foundational curriculum design, we cultivate students' sense of civic responsibility and cultural identity by integrating: Universal ethical standards; Cultural heritage values; Professional integrity principles; Evidence-based critical thinking.

All-Staff Participation: A collaborative education community must be established. Beyond subject teachers, universities should integrate the expertise of ideological educators, industry mentors, alumni resources, and administrative staff. For example: Ideological educators may assist in extracting historical cases of patriotism from disciplinary histories; Industry mentors strengthen professional responsibility through ethics-focused lectures; Administrative staff ensure the regular implementation of curriculum ideology and politics through institutional design. Zhejiang Dongfang Polytechnic, by forming an "interdisciplinary teaching team" that combines ideological education experts with VR technology engineers, has successfully achieved deep integration of ideological elements and technical case studies.

Whole-Process Integration: Ideological education must permeate the entire talent development cycle.

Enrollment Stage: Incorporate "mission education for serving the nation through technology" into introductory courses;

Teaching Phase: Guide students to address real-world social issues through project-based learning (e.g., using VR technology to restore historical red architecture to enhance cultural confidence);

Internship Phase: Collaborate with enterprises to establish "professional ethics evaluation metrics," integrating integrity and teamwork into skill assessments;

Graduation Stage: Showcase the value of "technology serving society" through capstone projects, forming a closed-loop ideological education chain.

All-Round Innovation: Reforms must span teaching content, methodologies, and evaluation systems. Taking the VR Interior Modeling

Technology course as an example: Content Restructuring: Embed the craftsmanship spirit of mortise-tenon joinery techniques in the Ancient Pavilion Modeling Project, and infuse the ecological philosophy of "harmony between humanity and nature" into the Neo-Chinese Tea Room Design; Methodology Innovation: Adopt a "contextual immersion method," using virtual simulation to recreate the construction process of the Forbidden City's turrets, allowing students to appreciate traditional wisdom through digital restoration;

Evaluation System Upgrade: Introduce a "Values Competency Radar Chart" to quantitatively assess students' growth in cultural identity, innovation awareness, professional ethics, and other dimensions.

Teachers, as the primary implementers of curriculum ideology and politics, should enhance educational efficacy through the Three-Level Restructuring Method: Objective-Level Restructuring: Embed "knowledge-competence-values" tridimensional goals into course standards. For example, specify "mastering 3D modeling techniques while understanding the ethical boundaries of technological applications"; Content-Level Restructuring: Apply a "salt dissolved in water" strategy to transform ideological elements into implicit guidance within project tasks. For instance, in the European Sofa Modeling Task, cultivate cultural subjectivity in cross-cultural dialogue by comparing Baroque aesthetics with Ming-style furniture philosophy; Methodology-Level Restructuring: Utilize "issue-based teaching," organizing debates on topics like "Inheriting Craftsmanship Spirit in the AI Era," to foster critical thinking and internalization of values.

1.1 Implementation of the Course VR Interior Modeling Technology

Since its integration of curriculum ideology and politics, the course VR Interior Modeling Technology has been delivered to 12 classes across the 2020, 2021, and 2022 cohorts of the Digital Media Technology program, establishing a robust pedagogical foundation. Key achievements include:

2023: The online course 3ds Max/VRay Interior Modeling and Rendering Technology was recognized as a Zhejiang Provincial Online Elite Course in Vocational Education.

2019: Publication of the textbook 3ds Max/VRay Interior Rendering Production Tutorial by Tsinghua University Press.

2023: Approval of the 3D Modeling and Rendering Technology course as a Regional Characteristic Textbook Development Initiative in Wenzhou Vocational Education.

2022: Designation of the follow-up course Interior Rendering Project Training as a Zhejiang Provincial Curriculum Ideology and Politics Model Course (Project No. 2022-660).

1.2 Team and Student Achievements

A high-level interdisciplinary teaching team, comprising ideological educators and industry designers, drives the integration of ideological elements and real-world cases.

Students have repeatedly won awards in the Zhejiang Provincial Vocational College Skills Competition, with works earning first prizes in the National Digital Art Design Competition for College Students.

Instructors have been honored multiple times with the title of "Outstanding Instructor" in national competitions.

2. Implementation of Curriculum Ideology and Politics

The implementation of curriculum ideology and politics adopts a cohesive and dynamic framework, strategically merging ideological education with vocational skill development to cultivate professionals who embody technical excellence, ethical awareness, and cultural responsibility. By anchoring pedagogical design in national educational directives and regional industrial demands, this model transcends conventional disciplinary boundaries through innovative methodologies and collaborative synergies. It emphasizes the seamless infusion of ideological values into technical learning processes, fostering an educational ecosystem where students not only acquire cutting-edge skills but also internalize the social and cultural ethos essential for holistic development. This integrated approach ensures that graduates emerge as versatile contributors to socioeconomic progress, equipped to navigate both technological advancements and societal responsibilities with ideological clarity and moral fortitude. The Figure 1 is placed as follows.

2.1 Curriculum Standards

Explicit curriculum ideology and politics objectives are embedded in the course standards,

with the syllabus emphasizing the cultivation of professional ethics and social responsibility[4].

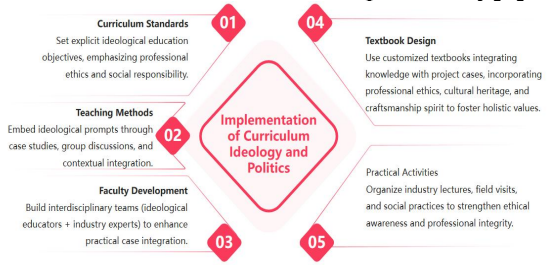

Figure 1. Implementation of Curriculum Ideology and Politics

2.2 Teaching Practices

Ideological and political elements are integrated through case studies, discussions, and group activities, guiding students to reflect on ethical and social issues in a contextually appropriate manner.

2.3 Textbook Design

A self-edited textbook incorporates knowledge points into project-based cases, each containing targeted ideological and political prompts. These prompts align with educational goals, covering professional ethics, social responsibility, historical anecdotes, Chinese traditional culture, and craftsmanship spirit, fostering students' correct values, worldview, and outlook on life[5], enhancing national confidence, and nurturing social responsibility.

2.4 Interdisciplinary Team Building

A structured teaching innovation team, comprising ideological educators and industry engineers, ensures the effective extraction of ideological elements and the integration of practical cases.

2.5 Practical Activities

Regular workshops, industry expert lectures, field visits, and community engagement activities are organized to deepen students' understanding of industry ethics, societal challenges, and professional integrity[6].

3. Educational Objectives and Pedagogical Approaches

Guided by the developmental demands of Wenzhou's regional economy—a hub for light industries such as footwear, eyewear, and smart manufacturing—and aligned with institutional talent cultivation objectives, this program is strategically designed to nurture high-caliber professionals who not only meet socioeconomic development needs but also embody the synergy of ideological conviction, technical mastery, and cultural stewardship. These professionals are cultivated to demonstrate ideological integrity through actions that harmonize ethical cultivation with technical excellence. By integrating Wenzhou's industrial characteristics (e.g., agile manufacturing clusters and digital transformation trends) with national strategic goals, the program ensures graduates are equipped to drive innovation in China's digital media industry while anchoring their work in core social values.

3.1 Scenario-Based Teaching:

Local Industry Cases: Develop teaching modules around Wenzhou's real-world challenges, such as designing virtual showrooms for eyewear exporters or optimizing 3D product visualization for e-commerce platforms. For instance, students collaborate with local enterprises like Aokang Group to create digital twins of footwear prototypes, incorporating ergonomic simulations and sustainable material analysis.

Ethical Dilemma Simulations: Embed scenarios like 'Balancing Profit Margins with Labor Rights in Supply Chain Modeling' to foster decision-making aligned with social ethics and responsible business practices.

3.2 Theme-Based Inquiry

Cultural-Tech Fusion: Launch projects such as "Digitizing Wenzhou's Intangible Heritage," where students use photogrammetry to reconstruct Ou Opera masks in 3D, linking technical workflows to cultural preservation missions.

Innovation Challenges: Host annual competitions like "Smart Workshop 4.0," tasking students with designing AR-based factory training systems that reflect the spirit of "Shanzhai innovation" (grassroots ingenuity) prevalent in Wenzhou's private sector.

3.3 Collaborative Group Learning

Cross-Disciplinary Teams: Form student groups combining digital media majors with business analytics peers to simulate real-world project cycles. For example, a team might develop a VR-based factory safety training program, integrating 3D modeling, user experience design, and cost-benefit analysis.

Industry Mentorship: Partner with Wenzhou's

"Hidden Champions" (e.g., CHINT Electrics) to assign engineers as project advisors, ensuring technical solutions meet industry standards while instilling workplace ethics.

3.4 Case Study Methodologies

Global-Local Parallels: Analyze cases such as Samsung's Digital Art Museums alongside Wenzhou's Lucid VR Museum, prompting students to critique how technology mediates cultural narratives in different ideological contexts.

Red Culture Integration: Study the application of 3D animation in patriotic education, such as recreating historical events like the Wenzhou Merchants' Role in Reform and Opening-Up, to deepen political literacy.

3.5 Technical Skill Training with Ideological Anchors

Craftsmanship Codification: Translate traditional values like "Jiangxin (artisan's core)" into technical protocols. For instance, mandate that every 3D model's topology must achieve "zero n-gons" as a metaphor for meticulousness.

Ethical Coding Practices: Teach students to embed metadata attributions (e.g., cultural source credits) in digital assets, combating plagiarism while honoring intellectual property.

3.6 Cultivating the "Four Dimensions" Talent

Chinese Heart

Rootedness in Local Culture: Through projects like "Virtual Reconstruction of Wenzhou's Ancient Dockyards," students internalize the city's maritime trade history, connecting regional pride with national identity.

Ethical Leadership Seminars: Monthly roundtables with policy experts analyze contemporary themes like sustainable development and cultural heritage preservation.

World Eye:

Global Benchmarking: Compare Wenzhou's manufacturing ecosystems with Germany's Industrie 4.0, fostering adaptive strategies for global competitiveness.

Cross-Cultural Projects: Collaborate with international peers on themes like "Sustainable Packaging Design," blending Wenzhou's cost-efficiency ethos with global circular economy principles.

Wisdom Mind:

AI-Empowered Critical Thinking: Integrate tools like SenseTime's AI rendering into courses, challenging students to optimize rendering workflows while debating AI's ethical implications in creative industries.

Data-Driven Decision Making: Train students to analyze user behavior metrics from platforms like Taobao to inform design iterations, marrying technical agility with market acuity.

Artisan Hands:

Precision Mastery: Implement "Golden Hammer Awards" for flawlessly executed projects, such as a 1:1 digital replica of a Yongjia County wooden loom, where millimeter-level accuracy reflects dedication to craft.

Innovation Legacy: Encourage patent filings for student inventions, like a VR-based quality inspection system adopted by Wenzhou's valve manufacturers, bridging academic creativity with industrial utility.

Knowledge Objectives:

(1) Understand relevant theories and national policies in the interior design industry;

(2) Master the fundamental principles, methodologies, and tools of 3D modeling technology[7];

(3) Comprehend industry development trends and application domains.

(4) Gain proficiency in operating 3D modeling software and execute basic design and production tasks.

Competency Objectives:

(1) Collect and analyze industry trends to develop acuity in acquiring critical information;

(2) Integrate contemporary design elements and cultural heritage into case studies;

(3) Demonstrate observational, analytical, and problem-solving skills for demand-driven 3D modeling;

(4) Cultivate self-directed learning capabilities to continuously adopt emerging modeling technologies;

(5) Exhibit teamwork and communication skills to collaboratively complete 3D projects;

(6) Develop aesthetic discernment in technical-artistic integration.

Values Development Objectives:

(1) Foster cultural confidence, global perspectives, and holistic values[8];

(2) Internalize Chinese cultural heritage to transmit traditional excellence;

(3) Apply scientific methodology and critical thinking in problem analysis;

(4) Strengthen collaborative awareness while refining craftsmanship spirit and model worker dedication;

(5) Nurture scientific innovation capabilities and pioneering mindset;
(6) Establish professional ethics aligned with industry standards.

The curriculum design centers on cultivating high-caliber technical talents with "Chinese Heart, World Eye, Wisdom Mind, and Artisan Hands" through a dual-collaboration model between academia and enterprises. By integrating knowledge points into authentic industry cases, we restructure content into modular units and granulate knowledge components. Traditional Chinese craftsmanship spirit serves as the pedagogical cornerstone, permeating the entire instructional process.

(1)Through systematic design, the curriculum organically synthesizes universal ethical principles, cultural heritage elements, and craftsmanship values into professional training, creating synergy between character formation and technical mastery.

(2)Through Meso-Level Design, we nurture students' outstanding personal qualities and guide them in mastering interpersonal competence. Excellent character serves not only as the cornerstone for individual social standing but also as the key to self-regulation. Possessing ethical integrity and holistic personality constitutes essential core competencies for every professional.

(3)Through Micro-Level Design, we enhance students' professional capabilities and guide them in mastering systematic methodologies. As vocational education aims to cultivate qualified professionals, educators must: Design personalized career roadmaps; Shape professional identities; Strengthen vocational belongingness. Through specialized courses, we: Extract embedded elements of professional ethics, career attitudes, and technical competencies; Employ diversified pedagogies; Assist students in constructing clear career blueprints; Ensure sustained professional engagement and mastery in their chosen fields.

4. Course Content Overview and Ideological Educational Objectives

Project 1: Antique Shelf Modeling

Technical Focus:

• Master geometric framework construction using Multi-cut tools;

• Create spatial hierarchy via polygon extrusion commands;

• Refine edge details with beveling techniques;

• Enhance structural stability through loop edge insertion;

• Overcome precision challenges in transitional joints.

Ideological Integration:

• Cultural Cognition: Analyze traditional motifs and artifact display functions to enhance cultural identity.

• Craftsmanship Cultivation: Study mortise-tenon joint precision to foster excellence-driven professionalism[9].

• Innovative Synergy: Reinterpret classical elements with parametric design tools, establishing an integrated educational paradigm that synergizes technical proficiency, cultural literacy, and national consciousness.

Project 2: European Sofa Modeling

Technical Focus:

• Construct curvilinear profiles with polygon drawing tools;

• Simulate Baroque carvings via soft selection deformation;

• Optimize relief patterns using multi-cut refinement;

• Achieve seamless surface transitions through adaptive beveling.

Ideological Integration:

• Cross-Cultural Dialog: Compare Rococo ornamentation with Ming minimalism to nurture inclusive aesthetics.

• Techno-Humanistic Vision: Trace craftsmanship evolution from hand-carving to digital sculpting, highlighting AI-assisted innovation.

• Global Competence: Balance decorative complexity with modeling accuracy to cultivate internationalized craftsmanship standards.

Project 3: Mandarin Chair Modeling

Technical Focus:

• Replicate symmetric frameworks via mirror modeling;

• Design ergonomic S-curves using topology optimization;

• Construct roof-ridge armrests through extrusion sequencing;

• Resolve curvature continuity in bentwood components.

Ideological Integration:

• Philosophical Heritage: Decode Confucian moderation principles embedded in axial

symmetry.

• Anthropocentric Innovation: Reconstruct ancient ergonomic wisdom through biomechanical simulations.

• Cultural Continuity: Digitally preserve Ming-style joinery techniques while exploring neo-traditional applications.

Project 4: Octagonal Pavilion Modeling

Technical Focus:

• Generate radial symmetry with array duplication;

• Construct interlocking eaves through procedural extrusion;

• Simulate dougong brackets via modular assembly;

• Perfect curved roof geometry with NURBS surface control.

Ideological Integration:

• Ecological Wisdom: Interpret "harmony between humanity and nature" through VR reconstruction[10] of Fengshui principles.

• Symbolic Rebirth: Reimagine auspicious patterns using procedural texture algorithms.

• Techno-Craftsmanship: Bridge traditional timber framing with BIM workflows to activate heritage conservation paradigms.

Project 5: Neo-Chinese Tea Room

Technical Focus:

• Blend sloping roofs with parametric volumes;

• Simulate bamboo textures via displacement mapping;

• Optimize photorealistic lighting with ray tracing;

• Balance material authenticity and ecological performance.

Ideological Integration:

• Cultural Metabolism: Recontextualize tea ceremony spaces through smart material systems.

• Team Ethos: Embody "harmony, respect, purity, and tranquility (he-jing-qing-ji)" in collaborative modeling workflows.

• Sustainable Innovation: Develop carbon-neutral design solutions informed by traditional climatic adaptability.

Project 6: Panoramic Rendering

Technical Focus:

• Configure spherical cameras for 360° scene capture;

• Simulate natural lighting with HDR environment baking;

• Achieve material consistency via multi-channel PBR workflows;

• Optimize real-time interaction in VR walkthroughs.

Ideological Integration:

• Digital Heritage: Systematize cultural symbols through asset library development.

• Techno-Ethics: Balance client demands with historical authenticity in rendering decisions.

• Future Readiness: Cultivate meta-design capabilities for cross-platform digital twins.

5. Conclusion

The construction of curriculum ideology and politics is a long-term, systematic endeavor that demands strategic foresight, persistent innovation, and a scientifically coherent framework encompassing top-level design, implementation pathways, and evaluation mechanisms. To achieve sustainable progress, educators must adopt a "targeted integration" approach, aligning phased strategies with students' cognitive development. This includes designing ideological themes tailored to different academic stages—cultivating professional identity and craftsmanship spirit in foundational years, while emphasizing technical ethics and national consciousness in advanced studies. Leveraging intelligent tools like educational big data, dynamic monitoring models can be established to transition from experience-driven practices to data-empowered precision, ensuring ideological elements are seamlessly infused into technical pedagogy. Furthermore, adherence to China's "Golden Course" standards ensures both academic rigor and ideological depth, exemplified by initiatives such as dual-qualified teaching teams (e.g., pairing VR instructors with cultural heritage experts) and tripartite evaluation systems that assess technical proficiency, ideological literacy, and career potential.

Empirical evidence underscores the efficacy of these reforms. At Zhejiang Dongfang Polytechnic, the "four-dimensional synergy" model (curriculum-activities-environment-institutions) has significantly enhanced graduates' technical leadership and cultural dissemination capabilities in the Yangtze River Delta's digital creative industry. From 2019 to 2023, enterprise satisfaction surged from 72% to 93%, with a 47% improvement in "ethical decision-making" metrics. Student-led projects integrating cultural heritage preservation, such

as the nationally awarded Digital Mortise-Tenon Intangible Cultural Heritage IP Development, increased from 15% to 38%, while faculty teams secured 12 provincial-level curriculum ideology research grants, establishing a replicable "professional cluster + ideological chain" paradigm.

Looking ahead, curriculum ideology and politics must advance on three frontiers: deepening theoretical frameworks by integrating Marxist labor philosophy with digital technology ethics, harnessing immersive technologies like the metaverse to fuse ideological education with technical training, and expanding global influence through initiatives such as "Digital Luban Workshops" under the Belt and Road framework. By embedding core cultural values as the "cultural chip" within technical talent cultivation, vocational education transcends mere skill training, evolving into a holistic endeavor that nurtures a new generation of "digital artisans" equipped with both technical mastery and cultural DNA, thereby contributing to the nation's rejuvenation.

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