

Innovative Research on Talent Cultivation of Art Design Majors in Higher Vocational Colleges from the Perspective of Intangible Cultural Heritage

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ABSTRACT

This paper discusses the innovative path of talent cultivation of art and design majors in higher vocational colleges from the perspective of non-genetic inheritance, and puts forward the collaborative education mode of "three chain integration and cultural empowerment". With non-heritage culture as its core and digital technology as its support, the model aims to build a symbiotic ecosystem through the deep integration of education chain, industry chain and service chain. This paper analyzes the cultural core and integration logic of the three-chain integration, and points out the specific path of building the "three-chain integration" collaborative education system. This innovative mode promotes the reform and development of art design education in higher vocational colleges and the multi-channel value transformation of intangible cultural heritage, which is conducive to the inheritance and innovation of intangible cultural heritage.

Keywords: *Three chains integration, Cultural empowerment, Intangible cultural heritage, Higher vocational art design, Talent cultivation.*

1. INTRODUCTION: BACKGROUND AND CURRENT SITUATION ANALYSIS

Currently, vocational art and design education is driven by the dual forces of national strategy deepening and industrial transformation. On one hand, intangible cultural heritage (ICH) serves as a vital source for inheriting and developing China's outstanding traditional culture. The dynamic inheritance of ICH holds an irreplaceable position in the national strategy of "enhancing cultural confidence and accelerating the construction of a socialist cultural powerhouse" [1]. Policies such as the Traditional Craftsmanship Revitalization Plan explicitly integrate ICH into the education system. On the other hand, the deep integration of culture and tourism, along with the upgrading of the digital creative industry, urgently demands versatile Homo sapiens talents who possess traditional craftsmanship heritage, modern design capabilities, and market transformation literacy.

However, there are three major problems in the traditional talent training mode, namely, the fault of

cultural inheritance, the fragmentation of industry-education coordination and the marginalization of service ability. Specifically, the curriculum system pays more attention to skill teaching than cultural edification, which leads to students' ignorance of skills; school-enterprise cooperation is mostly superficial, and the training content is often divorced from the real needs of the industry; teaching results are difficult to effectively transform into social value. These problems seriously restrict the ability of professional services to regional cultural and economic development.

Fortunately, the rich non-heritage resources and the ever-changing digital technology in various regions of China provide a solid foundation and innovative path for solving the above dilemma. On the one hand, various non-legacy projects rooted in local areas provide inexhaustible cultural materials, creative inspiration and localized practice fields for art design education. On the other hand, the rapid development of digital acquisition, virtual simulation (VR/AR), artificial intelligence (AI aided design) and Internet platform not only innovates the means of non-heritage protection and

innovation, but also deeply reshapes the teaching scene and evaluation system.

In this context, it is an effective way to promote the transformation and upgrading of higher vocational art and design education and effectively respond to the national strategy and industrial needs to construct a "three-chain integration and cultural empowerment" talent training mode for higher vocational art and design majors, which takes non-legacy as the cultural core and digital technology as the key driving force.

2. INTERNAL LOGIC ANALYSIS OF "THREE CHAINS INTEGRATION AND CULTURAL EMPOWERMENT"

2.1 The Cultural Core of Three Chains Integration

The "Three Chains integration" proposed in this paper—comprising the teaching chain, industrial chain, and service chain—is permeated throughout by the technical genes, aesthetic spirit, and creative wisdom of ICH. These elements serve as the shared spiritual core, knowledge source, and value essence, ensuring that the integration does not deviate from the fundamental goal of cultural inheritance. Students build cultural confidence through the teaching chain, achieve cultural value transformation in the industrial chain, and act as disseminators in the service chain, thereby progressing through the identity evolution of "skill inheritor → cultural innovator → industrial enabler."

2.2 The Intrinsic Logic of Three Chains Integration

The concept of "Three Chains Integration" proposed in this paper is theoretically rooted in Henry Etzkowitz's Triple Helix Model. This model emphasizes universities, industries, and governments as the core actors of the innovation system, driving the dynamic development of the innovation ecosystem through interactions and symbiotic relationships, resulting in a "spiral rise" of cross-influence [2, 3]. Building upon this innovative application and practice, "Three Chains Integration" regards the education chain (universities), industry chain (enterprises), and service chain (government and society) as a synergistic whole with complementary functions, resource flows, and value circulation. Notably, the

"three chains" share intangible cultural heritage as their common core and digital technology as their shared support and empowerment tool, tightly interconnected to form a symbiotic ecosystem for talent cultivation and the living inheritance of intangible cultural heritage. The intrinsic logic of integration can be understood from the following dimensions:

2.2.1 Functional Complementarity: Interdependence and Indispensability

The education chain is the "foundation" and "engine." As the core link in talent cultivation, it relies on university educational resources to provide systematic knowledge transmission, skill training, and literacy development, supplying qualified talent to the industry chain and delivering knowledge, skills, innovative works, and R&D outcomes to the service chain.

The industry chain is the "guidance" and "outlet." With enterprises as the main body, the industry chain transforms intangible cultural heritage resources into competitive cultural products and services through market-oriented operations. It connects real markets, providing job requirements, market demand information, practical platforms, resources, and value realization channels. Industry demands drive the optimization of course content and teaching methods while offering application scenarios and commercialization pathways for the service chain.

The service chain is the "antenna" and "feedback mechanism." It emphasizes the participation of government and social forces, directly channeling educational outcomes such as knowledge, skills, talent, and creativity into society to serve communities, industries (e.g., scenic spots, enterprises), and specific groups (e.g., public welfare training). The service chain validates the effectiveness of university talent cultivation, expands practical fields for teachers and students, enhances the social influence of institutions, and continuously collects feedback. More critically, it feeds back the resulting social benefits (e.g., enhanced reputation, policy support), economic benefits (e.g., project revenue, partnership funding), and valuable resource information to the education chain, driving updates to teaching content, case libraries, and methodologies. Simultaneously, it inputs these into the industry chain, deepening school-enterprise collaboration, expanding market space, and elevating brand value.

2.2.2 *Resource Flow: Value Appreciation Through Circulation*

Talent Flow Analysis: Students cultivated by the education chain flow into the industry chain (employment/entrepreneurship) and the service chain (public welfare/operations). After accumulating practical experience, they give back to the education chain as outstanding alumni (e.g., serving as mentors, developing courses), forming a closed loop of talent value.

Knowledge and Technology Flow Discussion: Cutting-edge technologies, market knowledge, and cases from the industry chain are input into the education chain, driving course and teaching updates. R&D outcomes from the education chain are output to the service chain, transforming into training and experiential projects. The service chain synchronizes collected social needs and new intangible cultural heritage scenarios back to the education chain (optimizing courses) and the industry chain (guiding product development), forming a technology feedback loop among the three chains.

Project Flow Analysis: Commercial projects from the industry chain are introduced into the education chain as teaching resources. Social projects from the service chain are input into the education chain for practical application. R&D outcomes from the education chain are output to the service chain (scenic spot experiences/public welfare products) and the industry chain (commercialization), forming a closed loop of project feedback among the three chains.

Funding and Resource Flow Analysis: Enterprise investments, commercial and service revenues feed back into the education chain (optimizing teaching/supporting innovation) while being reinvested into industrial R&D. Government policies and resources provide external support for the synergy of the three chains, forming a sustainable cycle of "economic feedback—industrial upgrading—educational enhancement."

2.2.3 *Value Circulation: Building a Sustainable Ecosystem*

"Education Promotes Industry": The talent, knowledge, and creativity cultivated by the education chain directly advance the industry chain (providing qualified labor and innovative designs) and the service chain (supplying project executors and service content).

"Industry Nourishes Education": The industry chain feeds back to the education chain by providing real projects, job standards, technical resources, corporate mentors, practical platforms, employment outlets, and potential funding, making teaching more practical and dynamic.

"Service Feedback": The service chain enhances student skills through social service practices, validates teaching effectiveness, collects feedback, and creates social and economic benefits (reputation, funding, new resources). These values are fed back to the education chain (updating teaching) and the industry chain (expanding markets, deepening collaboration).

"In the "Three Chains Integration" ecosystem, synergy and feedback are key to achieving the deep integration of intangible cultural heritage inheritance and higher vocational art and design education. Synergy emphasizes close collaboration and resource sharing among the chains, while feedback ensures continuous optimization and adaptation to changes.

Synergy manifests in three aspects: First, the synergy between the education chain and the industry chain integrates intangible cultural heritage elements into courses through school-enterprise collaboration and work-study programs, combining theory and practice. Second, the synergy between the education chain and the service chain involves universities in social services, such as public welfare training and community engagement, enhancing student practical skills and expanding the influence of intangible cultural heritage. Third, the synergy between the industry chain and the service chain enables enterprises to promote intangible cultural heritage products and collect market feedback to guide R&D innovation.

Feedback among the "three chains" is dynamic and real-time. Market feedback and social evaluations from the industry and service chains inform the education chain, driving teaching reforms and providing a basis for talent cultivation adjustments. The education chain's cultivation outcomes and research results feedback into the industry and service chains, influencing their development plans. The service chain's social impact and resource information act on the education and industry chains. This feedback mechanism facilitates the continuous optimization of the system.

3. THE CONSTRUCTION PATH OF "THREE CHAINS" COLLABORATIVE EDUCATION SYSTEM FOR ART AND DESIGN MAJORS IN HIGHER VOCATIONAL COLL

3.1 Education Chain: Constructing the Progressive Ability Training System of "Inheritance-Innovation- Transformation"

As the main body of talent cultivation, higher vocational colleges need to break through the barriers of traditional disciplines and specialties, and construct the teaching system of "inheritance-innovation-transformation" with the help of digital technology, which follows the gradual law of "cognition-practice-innovation" of Dewey's pragmatic educational thought.

3.1.1 Innovative Three-Phase Teaching Scenario of "School-Workshop-Factory"

The "School" Phase for Cultivating Cultural Foundations: Students will receive systematic ICH education on campus, covering in-depth studies of ICH history, technical characteristics, and cultural connotations. Through various formats such as expert lectures, cultural exhibitions, and workshop experiences, students will deeply comprehend the essence of ICH, fostering reverence and a commitment to its preservation. Concurrently, by integrating foundational art and design courses, students will be guided to incorporate ICH elements into modern design concepts, laying a solid cultural foundation for subsequent innovative practices.

The "Workshop" Phase for Skill Inheritance and Innovation: Students will enter ICH heritage workshops to witness firsthand the intricate craftsmanship of ICH techniques. Under the direct guidance of ICH inheritors (Homo sapiens), students will master core skills through hands-on practice while being encouraged to creatively adapt and innovate these techniques by integrating contemporary design concepts. This process not only hones students' design thinking but also deepens their understanding and appreciation of ICH culture.

The "Factory" Phase for Production Skill Refinement and Competency Enhancement: Students will engage in productive training bases established through school-enterprise collaborations,

participating in the design and manufacturing of ICH cultural products. This phase requires transforming design prototypes into tangible products, with students enhancing production skills and problem-solving abilities through involvement in manufacturing and quality inspection processes. The pedagogical objective is to cultivate craftsmanship and practical competencies, establishing a robust foundation for future career development.

3.1.2 Digital Teaching Reform

Digital technology plays a crucial enabling role in the integration of intangible cultural heritage (ICH) dynamic inheritance and design education, permeating every stage of the educational chain.

First, leveraging modern information technology to establish a cross-regional resource co-construction and sharing platform, integrating resources from ICH inheritors, design institutions, and enterprises, facilitates the development of online joint courses and project collaborations. This enables remote sharing of teaching resources, allowing more students to access education in ICH inheritance and innovation.

Second, art and design programs in higher vocational education should incorporate VR, AR, and 3D scanning technologies to build a digital teaching platform. This helps students intuitively grasp the history, craftsmanship, and artistic characteristics of ICH, enhancing immersion and interactivity in learning.

Third, art and design programs in higher vocational education can utilize AIGC technology to assist in cultural and creative product development. By collecting and organizing patterns, techniques, and other materials related to ICH and traditional handicrafts, core elements can be extracted and applied through AIGC to develop relevant cultural and creative products.

3.1.3 Interdisciplinary Curriculum Integration

The deep integration of non-hereditary inheritance and higher vocational art design education needs to rely on interdisciplinary courses. In curriculum design, we should break the boundaries of disciplines and organically integrate knowledge of non-heritage culture, art design, history, culture and marketing. For example, the technical courses such as garment CAD plate

making and 3D virtual design are combined with traditional handicraft to construct a characteristic course group of "combination of art and work"; (the principle of geometric analysis of composition), "paper-cut + history" courses (decoding pattern folk culture) to cultivate students' interdisciplinary thinking; Set up the course of "Market Operation of Non-Heritage Products", covering brand planning, e-commerce live broadcasting, IP authorization and other practical contents, strengthen the market transformation ability of design talents; develop the course of "Non-Heritage + Game Production", and broaden the application scenarios of non-hereditary inheritance^[5].

Furthermore, experts from multiple fields can be invited to co-teach, expanding students' knowledge systems through diverse perspectives. This teaching approach not only broadens horizons and stimulates innovation and practical skills but also injects new vitality into intangible cultural heritage inheritance and innovative education.

3.2 Industrial Chain: Building a "Government-University-Enterprise-Society" Collaborative-Driven Platform for Industry-Education Integration

3.2.1 Collaborative Education Platform Building Path

As the demand orientation and value export of three-chain integration, the core of industrial chain is to build an ecosystem of multi-subject synergy. Through the establishment of an open, cutting-edge, stable and professional collaborative innovation system, the "Non-Heritage Conservation Collaborative Innovation Alliance"^[4] can be taken as the core grasp, and the government departments, cultural institutions, universities, scientific research institutes, trade associations, literary and creative enterprises, non-hereditary inheritors and scenic spots can be jointly established. We will jointly sort out the employment gap and technical pain points in the upstream and downstream of the non-heritage industry chain to ensure the precise docking of personnel training and industrial demand.

3.2.2 Industrial Extension and Marketization Pathway

By engaging intangible heritage inheritors (skill mentors), enterprise designers (industrial mentors), and university faculty (academic mentors) to guide

students in interdisciplinary projects—such as scenic spot cultural product development and intangible heritage documentary production—market validation and mass production of student works can be realized through models like "intangible heritage workshops + scenic spot exhibitions + e-commerce platforms." This drives the extension of intangible heritage skills and traditional culture into industries like cultural tourism and e-commerce.

3.3 Service Chain: Constructing Modularized Social Service System and Feedback Mechanism

3.3.1 Modular Design for Social Services

The service chain serves as the value spillover channel for the three-chain integration. Leveraging the "Government-University-Enterprise-Society" collaborative platform, systematically designed social service modules—such as "scenic spot intangible heritage experience programs," "public skills training for intangible heritage," and "rural revitalization services"—are implemented.

Each module focuses on the preservation and innovation of intangible heritage skills, aiming to broaden dissemination channels and enhance public awareness through diversified service formats. For example, "scenic spot intangible heritage experience programs" not only offer tourists hands-on access to heritage skills but also deepen understanding through interactive engagement. "Public skills training" targets diverse societal groups, stimulating interest in intangible heritage via differentiated training courses to cultivate future inheritors. The "rural revitalization services" module harnesses intangible heritage skills to boost rural economies through skill transfer and product design, upgrading traditional handicraft industries and contributing to rural development.

3.3.2 Transformation of Achievements and Construction of Feedback Mechanism

The core value of service chain is that it can build a resource feedback mechanism to promote sustainable development of the ecosystem. The cases, data and user feedback accumulated in social services are transformed into fresh nutrients for classroom teaching to ensure the frontier and authenticity of teaching content. At the same time, service projects (such as non-legacy experience and rural revitalization) can be directly transformed into

teaching and training bases. Students' practical achievements can be applied to service scenarios (such as scenic spot renewal) in real time to ensure the timeliness and practicality of teaching, thus forming a closed-loop of "service-teaching-innovation". In this process, the ability of teachers can be improved, and the service income can also feed back the construction of teaching resources and enhance the self-renewal ability of the system.

4. CONCLUSION

In summary, the innovative research on talent cultivation in higher vocational art and design disciplines from the perspective of intangible cultural heritage inheritance, with the core model of "Three-Chain Integration and Cultural Empowerment," has effectively promoted the inheritance and innovation of intangible cultural heritage and the reform and development of higher vocational art and design education. Under this framework, the education chain, industry chain, and service chain are closely integrated, jointly constructing a virtuous ecosystem for talent cultivation, social services, and industrial development. This model not only significantly enhances students' comprehensive abilities and professional competencies, infusing intangible cultural heritage inheritance with innovative vitality, but also makes positive contributions to local cultural tourism economies and cultural construction. In the future, with the deepening development of digital technologies and the continuous advancement of cross-disciplinary integration, the "Three-Chain Integration and Cultural Empowerment" model will demonstrate even broader prospects and far-reaching social significance.

ACKNOWLEDGMENTS

Project source: "School-Enterprise-Industry" Joint Special Project Group of the Art and Design Teaching Guidance Committee for Vocational Colleges, Ministry of Education.

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