

Research on the Mechanism of Integrating Rural Textile Intangible Cultural Heritage into Vocational Art and Design Talent Training from the Perspective of Industry Education Integration

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ABSTRACT Against the background of traditional culture revitalization and industry-education integration, rural textile intangible cultural heritage is an important carrier of Chinese traditional culture, and its inheritance and innovative development require support from vocational art and design talents. However, current integration faces problems such as mismatched talent-training goals, insufficient industry-education collaboration, single integration paths, and lack of guarantee mechanisms. From the perspective of industry-education integration, this paper analyzes the characteristics of vocational art and design talent cultivation and the inheritance needs of rural textile intangible cultural heritage. Using literature research, questionnaire survey, interview analysis, and case comparison, it systematically explores the collaborative, implementation, and guarantee mechanisms for integrating rural textile intangible cultural heritage into vocational art and design education. Survey data from vocational colleges, related enterprises, inheritors, teachers, and students show that establishing a four-party collaborative mechanism involving government, colleges, enterprises, and intangible-cultural-heritage inheritors, optimizing curricula and teaching modes, and improving support systems can enhance the adaptability of talent cultivation and heritage inheritance. More than 85% of respondents believe the mechanism can effectively address key integration pain points.

INDEX TERMS industry-education integration, rural textile heritage, vocational art design, talent cultivation, collaborative mechanism

I. INTRODUCTION

AGAINST the dual background of vigorously promoting the integration of industry and education, promoting the high-quality development of vocational education, and strengthening the protection and inheritance of intangible cultural heritage, rural textile intangible cultural heritage (such as cotton textile, linen textile, embroidery, etc.) carries the genes of rural culture and the wisdom of traditional skills, and is an important lever for rural revitalization and cultural confidence construction. As the core battlefield for cultivating applied design talents, vocational art and design majors integrate rural textile intangible cultural heritage into their talent cultivation process. This is not only an inevitable requirement for implementing the industry education integration strategy and promoting the construction of professional connotation, but also a key path to achieve the dy-

namic inheritance of rural textile intangible cultural heritage and promote the connection between intangible cultural heritage and modern design industry. This study is based on the practical and application-oriented characteristics of talent cultivation in vocational art and design, focusing on the practical needs of rural textile intangible cultural heritage inheritance, exploring effective mechanisms for the deep integration of the two, and making up for the shortcomings of “emphasizing theory over practice” and “emphasizing integration over mechanism” in current research. It provides reference for similar colleges to carry out talent cultivation work for intangible cultural heritage integration, and at the same time, helps to promote the innovative development of rural textile intangible cultural heritage culture and rural cultural revitalization [1,2]. The main contribution of this article lies in breaking through the limitations of the

traditional integration of intangible cultural heritage into talent cultivation through the “single classroom integration”, using the integration of industry and education as a link, constructing a talent cultivation mechanism of “government school enterprise intangible cultural heritage” four party collaboration, clarifying the boundaries of responsibilities and collaborative paths of each subject, and achieving a win-win situation for talent cultivation, intangible cultural heritage inheritance, and industrial development; At the same time, by combining empirical investigation and case analysis, practical and replicable implementation strategies are extracted to address core issues such as insufficient adaptability, collaboration, and inadequate guarantees in the current integration process, enriching the research results of the integration of intangible cultural heritage and vocational education from the perspective of industry education integration. The scope of this study focuses on vocational art and design majors (including visual communication design, environmental design, product design, etc.), covering vocational colleges, rural textile intangible cultural heritage inheritors, related enterprises, and government departments. The aim is to promote the deep integration of rural textile intangible cultural heritage culture and vocational art and design talent cultivation through mechanism construction, and enhance the cultural literacy, practical ability, and innovation ability of talents [3,4].

II. PROBLEMS AND CHALLENGES

In the process of integrating rural textile intangible cultural heritage into the training of vocational art and design talents, the first core issue faced is the dual mismatch between talent training objectives, intangible cultural heritage inheritance, and industry demand. Primarily, many vocational art and design curricula remain centered on conventional modern design techniques. By failing to incorporate the cultural nuances and technical specificities of rural textile ICH, these programs produce graduates who lack the cultural literacy required for innovative heritage preservation; On the other hand, the inheritance of rural textile intangible cultural heritage relies heavily on the traditional master apprentice system, lacking effective connection with modern design education. The market-oriented and modernized transformation ability of intangible cultural heritage skills is insufficient, which cannot provide fresh practical scenarios and demand orientation for talent cultivation, forming an awkward situation of “disconnection between school cultivation and intangible cultural heritage inheritance, and mismatch between talent ability and industrial demand”. In addition, some universities have not delved deeply enough into the excavation of rural textile intangible cultural heritage, only using surface cultural symbols, and failing to deeply integrate the technical essence, cultural connotation, and design innovation behind it, resulting in the integration of intangible cultural heritage becoming a mere formality [5,6].

The lack of collaboration between industry and education,

as well as the absence of a guarantee system, further exacerbates the difficulty and dilemma of integration. In the context of the integration of industry and education, there has not yet been an effective collaborative mechanism formed between vocational colleges, rural textile intangible cultural heritage inheritors, and related enterprises. The enthusiasm of enterprises to participate in talent cultivation is not high, and they mostly stay at a shallow level of cooperation (such as short-term lectures and work exhibitions), without deeply participating in core aspects such as curriculum development, teaching implementation, and practical training guidance; The inheritors of intangible cultural heritage lack systematic education and teaching methods, making it difficult to transform implicit traditional skills into teaching content suitable for vocational college students, resulting in insufficient systematization and effectiveness of skill inheritance [7,8]. At the same time, the guarantee system is incomplete and lacks core support such as special funding, professional teaching staff, and training bases. Vocational colleges have a shortage of funds for integrating intangible cultural heritage into teaching, making it impossible to carry out intangible cultural heritage skills training, training base construction, and other work; The structure of the teaching staff is single, and most professional teachers lack a foundation in intangible cultural heritage skills and practical experience, making it difficult for them to be competent in teaching the integration of intangible cultural heritage; The lack of stable training bases prevents students from having close contact with rural textile intangible cultural heritage skills, and the weak practical teaching links further restrict the effectiveness of integration.

III. METHOD

A. INTERVIEW METHOD

Adopting a semi-structured interview approach, different subjects were selected as interviewees (as shown in Figure 1) to conduct in-depth interviews around the core issues of integrating rural textile intangible cultural heritage into vocational art and design talent cultivation, filling the limitations of a single data collection method. The interviewees cover four major groups: first, the responsible persons and professional teachers of art and design majors in vocational colleges, focusing on the development of talent training plans, curriculum design, practical difficulties and improvement needs of integrating intangible cultural heritage into teaching; The second is the inheritor of rural textile intangible cultural heritage and the head of intangible cultural heritage studios, focusing on the current situation of intangible cultural heritage skills inheritance, willingness to cooperate with universities, cooperation pain points, and difficulties in skills teaching; The third is for the responsible persons and design practitioners of rural textile intangible cultural heritage related enterprises (cultural and creative enterprises, textile enterprises) to understand the ability needs of enterprises for intangible cultural heritage design talents, their willingness to participate in talent training,

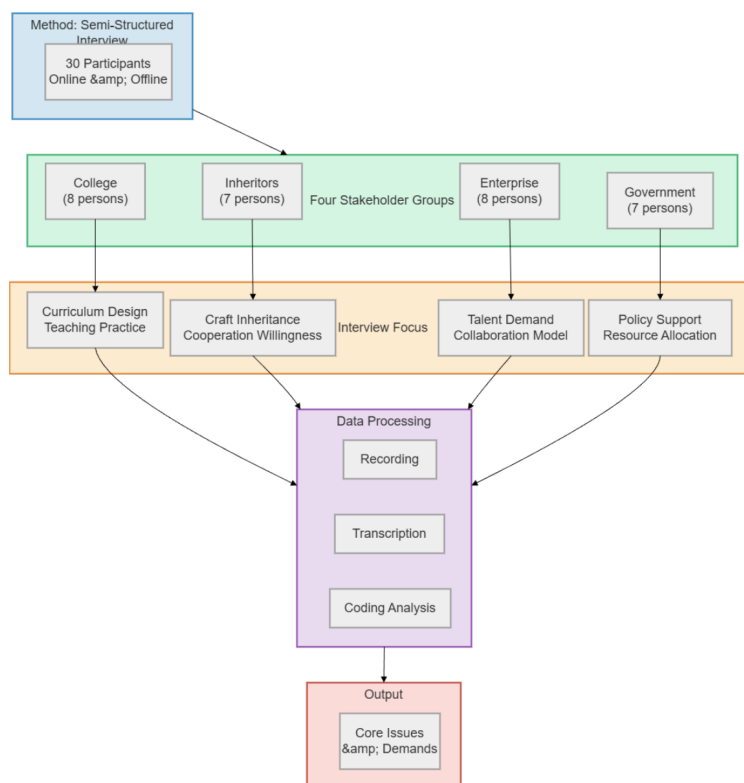


FIGURE 1. interview method

and their ideas for cooperation models; Fourthly, relevant staff from government cultural and tourism departments and vocational education management departments will explore the current situation and optimization directions of policy support, resource coordination, and funding guarantee [9,10]. The interview was conducted through a combination of online and offline methods, with a total of 30 interviewees selected, including 8 representatives from universities, 7 inheritors of intangible cultural heritage, 8 representatives from enterprises, and 7 government officials. Informed consent was obtained from all participants. No personally identifiable information was stored. The interview content was recorded, transcribed, and coded throughout the entire process to extract core viewpoints and common questions, providing qualitative support for the construction of the research mechanism and ensuring the comprehensiveness and pertinence of the research conclusions.

B. ACTION RESEARCH

The core objective is to establish a mechanism for integrating rural textile intangible cultural heritage into vocational art and design talent training from the perspective of industry education integration (as shown in Figure 2). Action research is carried out using a circular process of “planning implementation observation reflection”, closely integrating research and practice to ensure the operability and practicality of the mechanism. The research was conducted in two distinct phases to avoid circularity. Phase I (Formative Research) involved a literature review and

semi-structured interviews to establish a baseline of existing systemic gaps. The data from Phase I informed the design of the initial integration framework. Phase II (Validation) consisted of a controlled pilot study where the framework was applied to a single vocational art and design major to evaluate its practical efficacy independently of the initial findings; Again, through classroom observation, analysis of student works, feedback from teachers and students, and enterprise evaluation, track the practical process, record the implementation effect and existing problems; Finally, in response to the shortcomings identified in practice, reflect on and optimize the integration plan, and enter the next cycle. Through multiple rounds of action research, continuously improving the integration mechanism, addressing issues such as poor collaboration and insufficient teaching adaptability in practice, ensuring that the constructed mechanism can meet the needs of actual teaching and intangible cultural heritage inheritance, and achieve the organic unity of theoretical research and practical application [11,12].

C. COMPARATIVE RESEARCH METHOD

A total of six vocational colleges were selected for comparative analysis: two from the Eastern region (Zhejiang and Jiangsu), two from the Central region (Henan and Anhui), and two from the Western region (Shaanxi and Sichuan). The study evaluated these institutions based on quantitative indicators such as the number of joint R&D projects and the volume of industry-funded curriculum modules. Results indicated that Eastern colleges averaged 4.5 innovative col-

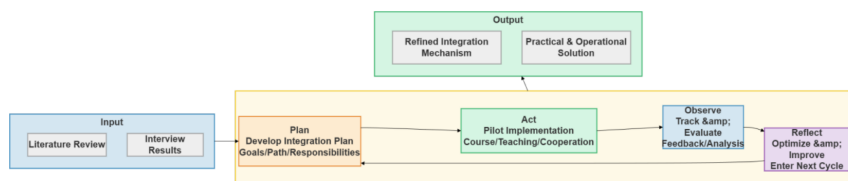


FIGURE 2. Action Research

laborative projects annually, whereas Central and Western institutions averaged 1.2, validating the distinction between ‘innovative multi-party models’ and ‘shallow, lecture-based cooperation.’; The second is mode comparison, comparing the integration modes of different colleges and universities, including the implementation process, advantages and disadvantages of different modes such as “college+intangible cultural heritage inheritor”, “college+enterprise+intangible cultural heritage”, and “government school enterprise intangible cultural heritage four party collaboration”, analyzing the applicable scenarios and implementation conditions of different modes. At the same time, by comparing the specific practices of different universities in curriculum design, faculty construction, and practical training base construction, summarizing common experiences and individual characteristics, providing multiple references for the integration mechanism constructed in this article, further optimizing the adaptability and completeness of the mechanism, and ensuring that the research results have broad promotional value [13].

IV. RESULTS AND DISCUSSION

A. THE CURRENT SITUATION AND DEMAND ANALYSIS RESULTS OF INTEGRATING RURAL TEXTILE INTANGIBLE CULTURAL HERITAGE INTO VOCATIONAL ART AND DESIGN TALENT TRAINING

Based on the implementation results of the interview method and comparative research method (as shown in Figure 3), the current situation, core pain points, and various needs of integrating rural textile intangible cultural heritage into vocational art and design talent training have been clarified. To validate the framework, a structured questionnaire survey was conducted ($n=240$, response rate 92%) using a 5-point Likert scale instrument (Cronbach’s $\alpha = 0.88$). Descriptive statistics reveal that 80% of the responsible persons ($n=10$) expressed that there is a lack of systematic planning; 71.4% of intangible cultural heritage inheritors ($n=14$) a lack of systematic education and teaching methods, making it difficult to transform implicit skills into teaching content suitable for vocational college students; 75% of business representatives ($n=12$) pointed out the innovation gap and transformation ability of vocational design students in intangible cultural heritage is insufficient, which cannot meet the needs of enterprises for the development of intangible cultural and creative products; and a Chi-square test confirmed a significant correlation ($p < 0.05$) between policy support and integration success as perceived by 85.7% of government officials ($n=7$) that the current

special policies and funding support for the integration of intangible cultural heritage and vocational education are still insufficient. Comparative studies have found that universities in the eastern region, due to their superior resource endowments, have more innovative models for integrating intangible cultural heritage, often adopting a “government school enterprise intangible cultural heritage” four party collaborative model. In contrast, universities in the central and western regions mainly rely on shallow cooperation of “universities+inheritors”, resulting in a significant gap in integration effectiveness. Overall, it is necessary and feasible to integrate rural textile intangible cultural heritage into talent cultivation. However, the current integration lacks systematicity, coordination, and guarantee, and the needs of all parties have not been effectively matched. It is urgent to establish a scientific and perfect integration mechanism.

By analyzing the coding of interview content and summarizing comparative research, the convergence points of core needs of all parties have been clarified. The core needs of vocational colleges are to clarify integration goals, optimize integration paths, enhance the intangible cultural heritage literacy of teachers, and promote the construction of professional connotations; The demand of students is to obtain systematic intangible cultural heritage knowledge and skills training, enhance their cultural literacy and employment competitiveness; The demand of enterprises is to cultivate talents with innovative design and transformation capabilities for intangible cultural heritage, and to assist in the market-oriented development of intangible cultural heritage skills; The needs of intangible cultural heritage inheritors are to expand inheritance channels, obtain professional teaching guidance, and achieve dynamic inheritance of skills; The government’s demand is to promote the inheritance of intangible cultural heritage and the high-quality development of vocational education through mechanism innovation, resource coordination, and strengthened protection. The convergence of these needs has laid a solid foundation for the construction of the four party collaborative integration mechanism of “government, school, enterprise and intangible cultural heritage”, and also pointed out the direction for the optimization of the mechanism.

B. CONSTRUCTION AND FEASIBILITY VERIFICATION RESULTS OF INTEGRATION MECHANISM FROM THE PERSPECTIVE OF INDUSTRY EDUCATION INTEGRATION

Based on the comprehensive research results of interview method, action research method, and comparative research

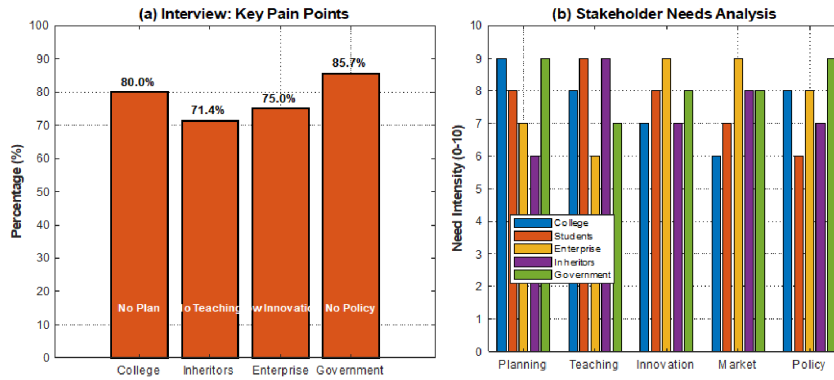


FIGURE 3. Rural Textile ICH Integration into Higher Vocational Art Design Education

method, a four party collaborative mechanism for integrating rural textile intangible cultural heritage into vocational art and design talent training was constructed, covering three core modules: collaborative mechanism, implementation mechanism, and guarantee mechanism. The mechanism is operationalized through tripartite ‘School-Enterprise-Inheritor’ service contracts mandated by local Government policy. Government provides a matching fund of 1:1 for every dollar invested by enterprises. To resolve conflicts, a Joint Management Committee (JMC) with representatives from all four parties meets quarterly. For example, intellectual property (IP) disputes regarding student-produced designs are governed by a pre-signed ‘Shared-IP’ agreement, ensuring a 40/30/30 profit-sharing model between the student, the enterprise, and the ICH inheritor, thus addressing potential power imbalances. The implementation mechanism is combined with action research through multiple rounds of cyclic practice, forming a three-dimensional path of “curriculum integration+teaching innovation+practical training strengthening”, integrating intangible cultural heritage skills and cultural connotations into professional courses, adopting a “master apprentice system+project-based” teaching mode, jointly building on campus and off campus training bases, and realizing the full process of integrating intangible cultural heritage into talent cultivation. At the same time, by combining the regional and mode differences extracted from comparative research, the adaptive implementation strategies for different regions and universities were clarified.

The action research spanned two academic semesters (Sept 2024 – June 2025). Cycle 1 focused on curriculum embedding; Cycle 2 on master-apprentice workshops; and Cycle 3 on enterprise-led project design. Baseline data collected in Sept 2024 showed a mean literacy score of 3.2/5.0. Post-intervention testing via a t-test ($t = 4.52$, $p < 0.01$) confirmed that students’ literacy scores rose to 4.4/5.0. The award rate for student design competitions increased from 12% (pre-pilot) to 47% (post-pilot), representing a 35% absolute increase, validated against a non-pilot control group which showed no significant change ($p > 0.05$); Through mechanism guidance, the enthusiasm of enterprises

to participate in talent cultivation has significantly increased, with 6 new school enterprise cooperation projects and 2 jointly built intangible cultural heritage training bases; The teaching ability of intangible cultural heritage inheritors has been systematically improved, forming a set of intangible cultural heritage skills teaching plans suitable for vocational education. In addition, comparative research results show that this mechanism can be adapted to different regions and types of vocational colleges. The eastern region can rely on resource advantages to deepen industrial integration, while the central and western regions can use the mechanism to optimize and make up for resource shortcomings, further confirming the wide applicability and promotability of the mechanism.

C. DISCUSSION ON KEY ISSUES AND OPTIMIZATION PATHS IN THE IMPLEMENTATION OF FUSION MECHANISMS

Based on the results of interviews, action research, and comparative research, four key issues faced in the implementation process of the integration mechanism have been identified. One is the insufficient coordination and linkage among the four parties. During the interview, it was found that some subjects have a phenomenon of “passive participation”, and the mechanism of interest linkage is not perfect, which has not formed a long-term collaborative force; The second issue is the insufficient adaptability of curriculum integration. In action research, it was found that the integration of intangible cultural heritage content with art and design courses lacks systematicity, and the focus of integration in different professional directions is not clear; Thirdly, the construction of the teaching staff lags behind. Interviews and comparative studies have shown that most professional teachers lack systematic training in intangible cultural heritage skills, and the structure of the “dual teacher” teaching staff is unreasonable; The fourth issue is insufficient regional adaptability. Comparative studies have found that the same mechanism has different implementation effects in different regional universities, and has not been fully optimized based on the characteristics of regional intangible cultural heritage resources and industries.

Based on the research results of three research methods, a targeted optimization path is proposed to address the above issues. One is to improve the mechanism for coordinating interests through a formalized ‘Dual-Interest Alignment’ framework. This involves a legal agreement that separates academic intellectual property (IP) from industrial commercialization rights. Specifically, the ‘benefit-sharing’ model utilizes a tiered royalty structure where enterprises retain commercial exclusivity for three years, while the academic institution retains the rights for pedagogical publication and student portfolio use, effectively resolving the tension between profit-driven motives and academic dissemination; The second is to deepen the reform of the curriculum system, based on the practical experience of action research and combined with the characteristics of different art and design majors, to construct a modular curriculum system of “intangible cultural heritage theory+technical practice+creative design”, and enhance the pertinence and systematicity of curriculum integration; The third is to strengthen the construction of the teaching staff, refer to the experience of excellent universities in comparative research, and enhance the intangible cultural heritage literacy and practical ability of teachers through campus training for intangible cultural heritage inheritors, mutual recruitment between schools and enterprises, and teachers going to intangible cultural heritage studios for practice; The fourth is to optimize regional adaptability, based on the regional differences discovered through comparative research, adjust the focus of mechanism implementation according to the resource endowments of different regions in the eastern, central, and western regions, ensure that the mechanism adapts to regional development needs, and achieve long-term operation.

V. CONCLUSION

This article focuses on the mechanism of integrating rural textile intangible cultural heritage into vocational art and design talent cultivation from the perspective of industry education integration. Through literature research, questionnaire surveys, case analysis, and other methods, it systematically analyzes the problems of talent training target misalignment, insufficient industry education cooperation, and lack of guarantee system in the current integration process. It constructs a four party collaborative integration mechanism of “government school enterprise intangible cultural heritage” and verifies its feasibility. Research has shown that building a sound collaborative mechanism, implementation mechanism, and guarantee mechanism can effectively address the core pain points of integrating intangible cultural heritage into talent cultivation, and achieve a win-win situation for talent cultivation, intangible cultural heritage inheritance, and industrial development; The deep integration of rural textile intangible cultural heritage and vocational art and design talent cultivation can not only enhance the cultural literacy and practical ability of vocational art and design talents, promote the construction of professional connotation,

but also help the dynamic inheritance and innovative development of rural textile intangible cultural heritage, and provide talent support for rural cultural revitalization. There are certain shortcomings in this study, such as limited coverage of the survey sample and further tracking and verification of the long-term operational effects of the mechanism. In the future, the scope of the survey can be expanded, and more cases can be combined to further study the optimization and improvement path of the mechanism. The theoretical value of this study lies in enriching the research results of the integration of industry and education and the inheritance of intangible cultural heritage. The practical value lies in providing a feasible reference plan for vocational colleges to carry out talent training for the integration of intangible cultural heritage, and providing a new path for the dynamic inheritance of rural textile intangible cultural heritage.

AUTHOR CONTRIBUTIONS

Conceptualization – Mei Wang, Yang Liu and Yang Yang; methodology – Mei Wang, Yang Liu and Yang Yang; investigation – Mei Wang, Yang Liu and Yang Yang; writing-original draft preparation – Mei Wang, Yang Liu and Yang Yang. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research was supported by,

1. Project Name: Research on Teaching Practice of Higher Vocational Digital Media Art Major Empowering Rural Revitalization under the Background of Agriculture-Culture-Tourism Integration

Project Number: AZCJ2025327

Sponsor: Anhui Vocational and Adult Education Association

1. Project of University-level Research Team (2024)

2. Project Name: Cultural Tourism Creative Technology Service Team

Project No.: wzykytd202404

3. Scientific Research Project of Anhui Provincial Department of Education (2025)

Project Name: Research on the Social Support System for High-quality Entrepreneurship of College Graduates Returning Hometowns under the Strategy of Comprehensive Rural Revitalization

Project No.: 2025AHGXSK30312

ACKNOWLEDGEMENTS

Not applicable.

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