

Research on the Innovation Path of Cultural Tourism Value of Heilongjiang Lacquer Art Resources Empowered by Green Energy

Zhenyu Zhou^{1*}

¹School of Art and Design, Heilongjiang Institute of Technology, Harbin, Heilongjiang Province 150000, China

Corresponding author: Zhenyu Zhou (e-mail: zhenyu19890625@163.com).

ABSTRACT As an important intangible cultural heritage in northern China, Heilongjiang lacquer art has long been confronted with dilemmas in its cultural tourism transformation, such as short industrial chain, high ecological pressure and insufficient market competitiveness. Taking the collaborative development of Heilongjiang lacquer art resources and green energy technology as the research object, this study systematically discusses the reconstruction logic and implementation path of lacquer art cultural tourism value empowered by green energy based on coupling coordination theory, value chain analysis framework and ecological narrative theory. The results show that the integration of green energy technology into lacquer art production and exhibition scenarios can effectively reduce carbon emission costs and improve the sustainability premium of lacquer art cultural tourism products. With green brand effect as the link, the value chain of lacquer art cultural tourism experience economy can be deeply extended. The green cultural tourism ecosystem collaboratively built by government, enterprises and communities with green energy parks as the spatial carrier has strong replicability. The conclusions provide a systematic path reference for the transformation and upgrading of Heilongjiang lacquer art cultural tourism industry, and also have certain reference significance for the green development of similar northern intangible cultural heritage tourism resources.

INDEX TERMS Lacquer Art Cultural Tourism; Green Energy; Value Innovation; Coupling Mechanism; Heilongjiang

I. INTRODUCTION

THE industrial transformation of intangible cultural heritage is one of the core topics in the current integrated development of culture and tourism. Heilongjiang lacquer art boasts a profound historical accumulation, covering the lacquer art techniques of multiple ethnic groups including Hezhen, Manchu and Daur, with unique regional aesthetic value and scarce cultural symbol attributes. However, restricted by the pain period of industrial structure adjustment in Northeast China and the high emission of volatile organic compounds in the traditional lacquer art production process, the cultural tourism industry of Heilongjiang lacquer art has long been trapped in low value-added and high environmental load, with insufficient market development depth [1].

Meanwhile, the global wave of green energy transformation continues to deepen. The installed capacity of clean energy such as wind power and photovoltaic in Heilongjiang has expanded rapidly, providing a rare technical support window for the green transformation of the cultural industry [2]. Existing studies have shown that the introduction of renewable energy can not only optimize the ecological envi-

ronment quality of tourist destinations, but also significantly enhance their market attractiveness through green brand premium effect [3]. Nevertheless, most current studies focus on the macro impact of green energy on large-scale tourist attractions, and few studies deeply explore the internal mechanism and path design of green energy empowering the subdivision field of intangible cultural heritage tourism resources [4].

Against this background, this study takes Heilongjiang lacquer art resources as the research object and green energy empowerment as the core entry point, systematically constructs the theoretical framework and practical path of value innovation for lacquer art cultural tourism, and strives to enrich the research system in the interdisciplinary field of green energy and intangible cultural heritage tourism. This study aims to answer three core questions: How can green energy technology be embedded into the lacquer art cultural tourism system and produce coupling effect? How can green energy empowerment drive the systematic reconstruction of lacquer art cultural tourism value? How can the innovation path of lacquer art cultural tourism linked by green energy

be implemented in Heilongjiang? The in-depth discussion of the above issues not only has academic value in enriching the theoretical system of intangible cultural heritage tourism, but also has important practical significance for promoting the high-quality development of culture and tourism in Heilongjiang.

II. CULTURAL TOURISM VALUE ATTRIBUTES AND GREEN TRANSFORMATION DEMANDS OF HEILONGJIANG LACQUER ART RESOURCES

A. HISTORICAL ACCUMULATION AND CULTURAL CONNOTATION HIERARCHY OF HEILONGJIANG LACQUER ART RESOURCES

Heilongjiang lacquer art has evolved over hundreds of years, deeply integrating the multi-ethnic craft traditions such as Hezhen fish skin pasting, Manchu gold painting and Daur wood lacquer decoration, forming a unique lacquer art system with both northern cold region aesthetic characteristics and multi-ethnic cultural temperament. From the perspective of cultural connotation hierarchy, its value structure presents significant multi-dimensionality. At the artifact level, the shapes and patterns of lacquer wares carry regional production and life memories, with high historical witness value. At the craft level, the material cognition and manual skills contained in traditional lacquer craftsmanship are living intangible cultural heritage, facing the risk of inheritance fault. At the spiritual level, the national aesthetic consciousness and natural concept embodied in lacquer art constitute an important foundation of Heilongjiang regional cultural identity. The superposition of the three levels endows Heilongjiang lacquer art resources with profound cultural potential beyond ordinary handicrafts. However, the current exploration of the cultural value of Heilongjiang lacquer art mainly focuses on the exhibition and commercialization at the artifact level, while the activation and communication of craft inheritance and spiritual connotation are relatively lagging behind, resulting in low cultural added value of cultural tourism products. This structural imbalance in connotation development is not only the core bottleneck restricting the improvement of lacquer art cultural tourism value, but also the key dimension that must be broken through in the subsequent design of value innovation paths.

B. MARKET VALUE EVALUATION DIMENSIONS AND TRANSFORMATION BOTTLENECKS OF LACQUER ART CULTURAL TOURISM RESOURCES

The market value evaluation of lacquer art cultural tourism resources needs to be comprehensively considered from three dimensions: resource endowment, experience transformation and industrial extension. In terms of resource endowment, Heilongjiang lacquer art has high-quality asset characteristics such as scarcity, regionality and ethnic uniqueness, and theoretically has strong market premium potential. In terms of experience transformation, restricted by the extensive design, insufficient interaction and lack of narrative depth of existing cultural tourism products,

TABLE 1. Market Value Evaluation Dimension Framework of Heilongjiang Lacquer Art Cultural Tourism Resources

Evaluation Dimensions	Core Evaluation Indicators	Current Main Bottlenecks	Improvement Potential Rating
Resource Endowment	Scarcity, Ethnic Uniqueness, Historical Depth	Scattered resource integration, low brand recognition	High
Experience Transformation	Interaction Depth, Narrative Integrity, Tourist Satisfaction	Extensive product design, single experience level	Relatively High
Industrial Extension	Cultural and Creative Development Rate, Research Coverage, Digital Authorization	Lagging derivative formats, prominent chain shortcomings	High
Green Premium	Carbon Footprint Intensity, Ecological Certification Coverage	Green concept not systematically introduced	Extremely High

there is an obvious gap between tourists' in-depth cultural experience and consumption willingness. In terms of industrial extension, derivative formats such as lacquer art cultural and creative products, research and education, and digital authorization are still in the initial stage, and the shortcomings of the industrial chain restrict the overall value realization capacity. The corresponding evaluation framework is presented in Table 1.

From the perspective of transformation path, the development of lacquer art cultural tourism products has long relied on the static exhibition mode, which fails to stimulate consumers' emotional resonance. In the context of the rising green consumption trend, the lack of ecological label endorsement puts lacquer art cultural tourism products at a distinct disadvantage in the competition with similar cultural and creative products. The above transformation bottlenecks indicate that the value improvement of the lacquer art cultural tourism industry cannot rely solely on partial improvement, but needs to introduce new empowering elements to promote systematic reconstruction.

C. TRANSFORMATION PRESSURE AND DRIVING LOGIC OF LACQUER ART CULTURAL TOURISM INDUSTRY UNDER THE GUIDANCE OF GREEN DEVELOPMENT

Under the policy guidance of the "dual carbon" goal and green development strategy, the lacquer art cultural tourism industry faces dual transformation pressures from the production side and the consumption side. On the production side, the collection of natural lacquer and the deployment of synthetic lacquer materials in traditional lacquer art production involve a certain degree of organic solvent emissions, facing increasingly strict environmental supervision constraints. On the consumption side, emerging tourists represented by young groups have a growing preference for ecotourism and green cultural and creative products, promoting the accelerated transformation of the cultural tourism market to a sustainable consumption model. Meanwhile, Heilongjiang is rich in wind and solar resources, and the installed capacity of renewable energy continues to grow, providing accessible energy conditions for the

green transformation of the cultural tourism industry. From the perspective of driving logic, policy pressure forms a rigid constraint for transformation, market demand provides endogenous impetus for value revaluation, and resource endowment determines the practical feasibility of green energy embedding into the lacquer art cultural tourism system. The three together constitute the driving force for the green transformation of the lacquer art cultural tourism industry, making green energy empowerment an important path to break the bottleneck of industrial development and promote value innovation and upgrading [5].

III. COUPLING MECHANISM OF GREEN ENERGY INTERVENTION IN LACQUER ART CULTURAL TOURISM SYSTEM

A. MECHANISM OF GREEN ENERGY TECHNOLOGY EMBEDDING IN LACQUER ART PRODUCTION AND EXHIBITION SCENARIOS

The embedding of green energy technology into the lacquer art cultural tourism system mainly plays a role through three paths: energy substitution, craft optimization and scenario upgrading. At the level of energy substitution, photovoltaic and wind power are used to replace traditional fossil energy, directly reducing the carbon emission intensity of lacquer art workshops and cultural tourism exhibition spaces, so that the production process can obtain quantifiable green certification support. At the level of craft optimization, green power is used to drive the constant temperature and humidity environment control system, which can effectively improve the drying and curing conditions of natural lacquer, thereby enhancing the stability of lacquer art quality and reducing the process waste rate. At the level of scenario upgrading, intelligent lighting systems and immersive digital display devices powered by green energy inject a sense of modern technology into the lacquer art cultural tourism experience scenarios, significantly improving tourists' perceived value. The above three paths are not separated from each other, but form a synergistic strengthening effect in the lacquer art cultural tourism system: the improvement of craft quality lays the foundation for product value, scenario upgrading amplifies the experience premium, and the reduction of the whole-process carbon footprint provides data endorsement for green brand building. It is worth noting that there is a positive correlation between the depth of green energy embedding and the magnitude of lacquer art cultural tourism value gain. Subjects that realize the whole-chain green energy substitution as early as possible are more likely to form comparative advantages in the green cultural tourism market competition [6].

B. VALUE GAIN EFFECT OF ENERGY GREENING ON THE SUSTAINABILITY OF LACQUER ART CULTURAL TOURISM PRODUCTS

Energy greening fundamentally broadens the value gain space of lacquer art cultural tourism products by reducing negative externalities and strengthening the sustainable

TABLE 2. Sustainability Value Gain Path of Lacquer Art Cultural Tourism Products Empowered by Green Energy

Life Stage	Cycle	Green Energy Intervention Mode	Sustainability Improvement Effect	Market Value Gain Type
Production Stage		Photovoltaic/Wind Power Replacing Fossil Energy	Reduced carbon emission intensity, obtained carbon label certification	Green Premium, Brand Credibility
Exhibition Stage		Green Power Driven Intelligent Exhibition	Reduced energy consumption, improved experience quality	Experience Premium, Increased Repeat Visit Rate
Consumption Stage		Green Scene Strengthening Consumption Identity	Enhanced stickiness of ecologically sensitive consumers	Optimized Customer Structure, Word-of-Mouth Communication
Recycling Stage		Activation of Biodegradability of Natural Lacquer Materials	Closed-loop green attribute of whole life cycle	Accumulation of Sustainable Brand Assets

attributes of product life cycle. Specifically, green energy substitution significantly reduces the carbon intensity of lacquer art cultural tourism products in the production stage. Lacquer art cultural and creative products with carbon label certification show an obvious increase in premium acceptance among ecologically sensitive consumer groups. Meanwhile, the energy cost of lacquer art cultural tourism parks powered by green energy shows a long-term downward trend in the operation stage, reducing the cost constraint of product pricing and leaving more space for high-quality content premium. At the end of the product life cycle, the combination of the biodegradability of natural lacquer and green energy production and processing makes lacquer art cultural tourism products conform to the value orientation of sustainable consumption in the whole life cycle, helping to cultivate loyal consumer groups with a strong sense of identity. The sustainability value gain path is summarized in Table 2.

From the perspective of value gain transmission mechanism, energy greening does not act on a certain product feature in isolation, but systematically reshapes the complete value chain of lacquer art cultural tourism products from production to consumption and then to disposal, promoting the transformation of product value from a single cultural attribute to a composite attribute of culture and ecology [7].

C. CONSTRUCTION OF FUNCTIONAL COUPLING MODEL BETWEEN LACQUER ART CULTURAL TOURISM AND GREEN ENERGY SYSTEM

The coupling between the lacquer art cultural tourism system and the green energy system is not a simple energy supply relationship, but an organic whole formed at three levels: resource sharing, functional inter-embedding and value coordination. Based on the coupling coordination degree theory, this study divides the coupling relationship between the two systems into three stages: low-level coupling, basic coupling and in-depth coupling. In the low-level coupling stage, green energy only serves as an external power source for cultural tourism facilities, and has not been integrated into the cultural tourism narrative system and product design logic. In the basic coupling stage, green energy facilities and lacquer art experience spaces realize physical integration, and the clean energy image

becomes part of cultural tourism brand communication. In the in-depth coupling stage, the operation data and carbon emission reduction achievements of the green energy system are deeply integrated with the value narrative of lacquer art cultural tourism products, forming a differentiated competitive advantage of “intangible cultural heritage + ecological energy”, and real-time transmission of green value information to consumers through digital platforms. The establishment of the functional coupling model clarifies the phased goals and transition conditions for the green transformation of the lacquer art cultural tourism industry, providing a clear structural reference for subsequent path design. To clearly illustrate the coupling relationship and evolutionary stages between the green energy and lacquer art cultural tourism systems, a functional coupling model is constructed as shown in Figure 1.

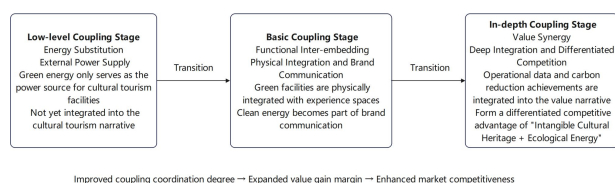


FIGURE 1. Functional Coupling Model of Lacquer Art Cultural Tourism and Green Energy System

IV. RECONSTRUCTION LOGIC OF LACQUER ART CULTURAL TOURISM VALUE EMPOWERED BY GREEN ENERGY

A. DIGITAL ACTIVATION AND ECOLOGICAL NARRATIVE RECONSTRUCTION OF CULTURAL SYMBOL VALUE

Green energy empowerment provides a new narrative framework for the digital activation of the cultural symbol value of lacquer art. In the traditional context, the cultural symbol value of lacquer art is mainly transmitted through physical carriers, which greatly limits the transmission scope and audience depth. With the popularization of digital technology facilities driven by green energy in lacquer art cultural tourism spaces, augmented reality and virtual reality technologies have reconstructed the presentation mode of lacquer art cultural symbols, enabling the immersive transmission of national myths, natural philosophy and craft wisdom behind lacquer art patterns, effectively breaking through the time and space limitations of traditional exhibitions [8]. More importantly, green energy empowerment endows lacquer art cultural tourism scenarios with the internal logic of ecological narrative: the craft philosophy that natural lacquer originates from biological resources and traditional lacquer art respects natural material attributes forms a natural value resonance with the sustainable development concept represented by green energy. Through conscious narrative design, this resonance can integrate the cultural symbol value and ecological responsibility value of lacquer art, shape the differentiated cultural image of “Northern

Ecological Lacquer Art”, and realize the superposition and amplification of cultural symbol potential in the new consumption context [9].

B. VALUE CHAIN EXTENSION OF LACQUER ART CULTURAL TOURISM PRODUCTS UNDER THE FRAMEWORK OF EXPERIENCE ECONOMY

Under the framework of experience economy theory, the value of lacquer art cultural tourism products depends not only on the cultural content of the products themselves, but also on the integration depth and emotional resonance intensity of the whole experience chain. Green energy empowerment provides two key nodes for the extension of lacquer art cultural tourism value chain: one is the green scene attraction at the front end of experience. Green architectural forms such as ecological lacquer art workshops powered by solar energy and intangible cultural heritage exhibition centers with wind-solar complementarity build unique visual signs, enhance the perceived value of destinations, and form differentiated attraction in the consumer decision-making stage. The other is the technical support for in-depth experience. Interactive experience devices driven by green power enable tourists to deeply participate in the lacquer art creation process, transforming from passive viewing to active experience, significantly extending consumers’ residence time and improving consumption depth. The study finds that lacquer art research courses integrated with green energy themes have high premium acceptance in the parent-child tourism market, indicating that green theme integration under the experience economy framework is an effective path to enhance the added value of lacquer art cultural tourism products. In the overall design of value chain extension, attention should be paid to the coordinated promotion of front-end attraction, mid-end deepening and back-end transformation to ensure the integrity and consistency of the experience value chain [10].

C. REMODELING MECHANISM OF GREEN BRAND EFFECT ON THE MARKET COMPETITIVENESS OF LACQUER ART CULTURAL TOURISM

The formation of green brand effect is the core mechanism for green energy empowerment of lacquer art cultural tourism to finally realize the remodeling of market competitiveness. From the perspective of brand asset construction path, green energy empowerment promotes the systematic formation of lacquer art cultural tourism green brand through three mechanisms. The first mechanism is differentiated positioning at the cognitive level: against the background that the northern cultural tourism market generally lacks distinctive ecological labels, the product portfolio of “lacquer art + green energy” constitutes an effective basis for market differentiation, providing clear selection signals for target consumer groups. The second mechanism is value recognition at the emotional level: green consumption tendency has increasingly become an identity expression of young tourists. Lacquer art cultural tourism

experience backed by green energy can activate consumers' self-identity motivation, making brand loyalty have a solid foundation driven by emotion. The third mechanism is word-of-mouth diffusion at the social level: green cultural tourism products, with their dual attributes of cultural value and ecological value, have stronger topicality and spontaneous sharing willingness in social media communication, enabling the continuous diffusion of brand influence at low marketing cost. The three mechanisms work synergistically, transforming the green brand effect from an external label into a core competitive asset embedded in the value system of lacquer art cultural tourism products [11]. To visually present the reconstruction path of the market competitiveness of lacquer art cultural tourism by the green brand effect, its mechanism is sorted out as shown in Figure 2.

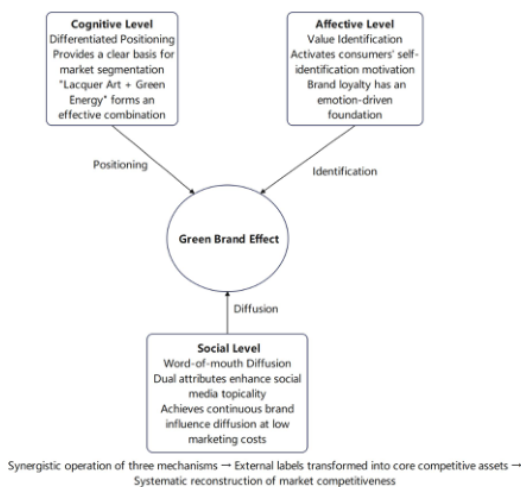


FIGURE 2. Reconstruction Mechanism of Green Brand Effect on the Market Competitiveness of Lacquer Art Cultural Tourism

V. IMPLEMENTATION PATHS OF VALUE INNOVATION FOR HEILONGJIANG LACQUER ART CULTURAL TOURISM

A. CONSTRUCTION OF LACQUER ART CULTURAL TOURISM INTEGRATION SPACE WITH GREEN ENERGY PARKS AS CARRIERS

Green energy parks provide an intensive and systematic spatial carrier for the integrated development of lacquer art cultural tourism. In terms of spatial planning, it is suggested to rely on the existing renewable energy industrial parks in Heilongjiang to delimit lacquer art cultural tourism functional areas, realize the spatial integration of green energy production facilities with lacquer art workshops, exhibition halls and research bases, and form a composite tourist destination form of “energy landscape + cultural experience”. In terms of function configuration, lacquer art cultural tourism facilities in the park should be fully connected to the renewable energy power supply network. At the same time, green energy facilities such as wind turbines and photovoltaic arrays should be integrated into

the landscape design, making them both functional and ornamental, and becoming an intuitive medium for tourists to experience the concept of green development. In terms of operation management, through the establishment of a real-time monitoring and publicity mechanism for energy consumption and carbon emission reduction data in the park, tourists can intuitively perceive the ecological contribution of green energy while experiencing lacquer art culture, and strengthen the brand awareness of “green lacquer art”. It should be noted that the construction of integrated space should avoid the simple superposition of green energy facilities and lacquer art cultural symbols, but integrate the two into a unified theme experience through in-depth narrative design to ensure the internal logical consistency and emotional appeal of spatial experience [12].

B. CONSTRUCTION OF GREEN CULTURAL TOURISM ECOSYSTEM DRIVEN BY THE COLLABORATION OF GOVERNMENT, ENTERPRISES AND COMMUNITIES

The sustainable promotion of green energy empowering lacquer art cultural tourism depends on the structural collaboration mechanism formed by the three main bodies: government, enterprises and communities. At the government level, it should play the role of policy guidance and resource coordination, integrate the intangible cultural heritage protection policies, green energy subsidy policies and cultural tourism industry support policies for lacquer art, formulate special support plans, and build a cross-departmental coordination mechanism to eliminate institutional obstacles to the green transformation of lacquer art cultural tourism. At the enterprise level, green energy operation enterprises and lacquer art cultural tourism operators should establish a stable strategic cooperative relationship. The former provides clean power guarantee and green technical support, and the latter deepens the ecological design of cultural tourism products. The two realize collaborative value-added through benefit sharing mechanism. At the community level, lacquer art inheritors and local residents are important participants in the green cultural tourism ecosystem. Through workshop shareholding, skill training and cultural tourism income distribution mechanisms, communities should be encouraged to actively participate in the development and promotion of green lacquer art cultural tourism products, enhancing the endogenous power of industrial development. The collaborative efficiency of the three main bodies depends on the fairness of the benefit distribution mechanism and the smoothness of the information sharing platform, which needs to be continuously optimized and coordinated in practice [13]. The role division matrix is displayed in Table 3.

C. EFFECT EVALUATION AND OPTIMIZATION STRATEGY OF LACQUER ART CULTURAL TOURISM INNOVATION PATH EMPOWERED BY GREEN ENERGY

The establishment of a scientific effect evaluation system is the basic support to ensure the continuous optimization

TABLE 3. Role Division Matrix for Green Cultural Tourism Ecosystem Driven by Government, Enterprises and Communities

Subjects	Core Functions	Main Contribution Resources	Collaborative Action Nodes
Government	Policy Integration and Institutional Guarantee	Financial Subsidies, Land Policies, Cross-departmental Coordination	Top-level Design, Institutional Barrier Removal, Brand Promotion
Green Energy Enterprises	Technical Support and Energy Supply	Clean Power, Carbon Emission Reduction Data, Smart Energy System	Facility Construction, Green Certification, Data Publicity
Lacquer Art Cultural Tourism Enterprises	Product Development and Market Operation	Cultural Content, Experience Design, Marketing Channels	Experience Upgrading, Brand Building, Market Expansion
Community Residents and Inheritors	Craft Inheritance and Content Supply	Traditional Regional Crafts, Cultural Knowledge, Oral History	Content Authenticity, Tourist Interaction, Community Participation

of the lacquer art cultural tourism innovation path. The evaluation framework should cover three dimensions: economic benefit, ecological benefit and cultural benefit, and build a multi-dimensional comprehensive performance index system. The economic benefit dimension focuses on the market sales growth rate, per capita tourist consumption and green premium realization rate of lacquer art cultural tourism products. The ecological benefit dimension focuses on monitoring the changes in carbon emission intensity, renewable energy usage ratio and tourist ecological satisfaction in the park. The cultural benefit dimension focuses on tracking the changes in the number of lacquer art intangible cultural heritage inheritors, the coverage of craft activation projects and the improvement of audience cultural cognition. In terms of optimization strategies, in view of the weak links exposed in the evaluation feedback, the closed-loop optimization logic of “problem identification-cause attribution-strategy adjustment-re-evaluation” should be followed to avoid path dependence. It should be emphasized that with the iteration of green energy technology and changes in market demand, the optimization of innovation paths should maintain dynamic adaptability, timely absorb emerging digital technologies and green material innovation achievements, to ensure that the lacquer art cultural tourism industry always maintains a frontier development trend in the green competition track. In the long run, the institutional embedding of evaluation and optimization mechanisms is the core guarantee to maintain the sustainable operation of the green innovation path of lacquer art cultural tourism [14].

VI. CONCLUSION

This study systematically discusses the theoretical mechanism and practical path of green energy empowering the value innovation of Heilongjiang lacquer art cultural tourism. The results show that there is a deep-seated functional coupling relationship between green energy and lacquer art cultural tourism system, and its value gain effect runs through the whole chain of product production, experience presentation and brand communication. By digitally activating cultural symbol value, extending the value chain of experience economy and building green brand assets, the lacquer art cultural tourism industry can gradually realize

the transformation from single cultural value to composite cultural and ecological value. The implementation path constructed in this study, with green energy parks as the spatial carrier, multi-subject collaboration as the institutional guarantee, and dynamic evaluation as the optimization mechanism, provides an operable systematic framework for the transformation and upgrading of Heilongjiang lacquer art cultural tourism industry. The limitation of this study is that the quantitative empirical data for specific coupling effects still need to be deepened through subsequent field investigations. Future research can introduce panel data model on the basis of the theoretical framework of this study to further verify the marginal effects of each path node, and explore the applicable conditions for the promotion of green energy empowerment mode to other northern intangible cultural heritage tourism resources [15], [16].

ACKNOWLEDGMENT

The authors wish to thank the anonymous reviewers for their valuable comments on this paper.

(2025 Heilongjiang Province Art and Science Planning Provincial Key Project: Innovative Research on the Transformation Path of Cultural Tourism Value of Heilongjiang Lacquer Art Resources from the Perspective of Cultural Power (Project No. 2025A017)

(In 2025, Harbin Volga Manor Cultural Tourism Co., Ltd. commissioned Heilongjiang Engineering College to undertake a project: Cross media cultural and creative development practice of traditional Chinese intangible cultural heritage painting techniques and Russian elements 2025015H)

REFERENCES

- [1] Y. Song, M. Kaewboucha, and C. Daoduean, “Using Extension Materials to Improve Efficiency and Promote Environmental Protection and Sustainable Development in Contemporary Chinese Lacquer Arts,” *Journal of Environmental & Earth Sciences*, vol. 7, no. 5, 2025, doi: 10.30564/JEES.V7I5.8947.
- [2] Ł. J. Kozar and A. Sulich, “Energy Sector’s Green Transformation towards Sustainable Development: A Review and Future Directions,” *Sustainability*, vol. 15, no. 15, 2023, doi: 10.3390/SU151511628.
- [3] X. Song, Y. Yang, R. Yang, et al., “Keeping Watch on Intangible Cultural Heritage: Live Transmission and Sustainable Development of Chinese Lacquer Art,” *Sustainability*, vol. 11, no. 14, pp. 3868–3868, 2019, doi: 10.3390/su11143868.
- [4] I. Gharbi, H. M. Rahman, M. Muryani, et al., “Exploring the influence of financial development, renewable energy, and tourism on environmental sustainability in Tunisia,” *Discover Sustainability*, vol. 6, no. 1, pp. 127–127, 2025, doi: 10.1007/S43621-025-00896-5.
- [5] Y. Guo and Y. Chai, “Toward green tourism: the role of renewable energy for sustainable development in developing nations,” *Frontiers in Sustainable Tourism*, vol. 4, pp. 1512922–1512922, 2025, doi: 10.3389/FRSUT.2025.1512922.
- [6] K. M. Anser, A. A. Nassani, A. M. K. Aiban, et al., “Green energy, pollution, and ecological resilience in China’s tourism,” *Environmental Progress & Sustainable Energy*, vol. 45, no. 1, pp. e70198–e70198, 2025, doi: 10.1002/EP.70198.
- [7] M. Imran, Z. Sheng, N. Wei, et al., “Green energy, natural resources and tourism: Unlocking environmental sustainability in selected asian economies,” *Energy Strategy Reviews*, vol. 62, pp. 101951–101951, 2025, doi: 10.1016/J.ESR.2025.101951.

- [8] Y. Hai, "Research on the Innovative Path of Traditional Lacquer Art Education Empowered by AIGC Technology," *World Journal of Educational Research*, vol. 12, no. 6, 2025, doi: 10.22158/WJER.V12N6P101.
- [9] L. Zhang, X. Wang, H. Fang, et al., "An Analysis of the Cultural Implications, Inheritance Dilemmas and Innovative Promotion Paths of SHE Ethnic Traditional Costumes and Silver Jewelry Crafts from the Perspective of Cultural Inheritance," *Journal of Sociology and Ethnology*, vol. 8, no. 1, 2026, doi: 10.23977/JSOCE.2026.080117.
- [10] T. Blom, "The Swedish Fika culture as a touristic experience and value-creating resource," *International Journal of Gastronomy and Food Science*, vol. 37, pp. 101008–101008, 2024, doi: 10.1016/J.IJGFS.2024.101008.
- [11] Y. You, "Translation of Traditional Chinese Crafts Culture in the New Media Environment: A Case Study of Subtitle Translation in Li Ziqi's YouTube Short Videos," *International Journal of Translation and Interpretation Studies*, vol. 3, no. 3, pp. 44–51, 2023, doi: 10.32996/IJTIS.2023.3.3.3.6.
- [12] X. Tan, J. Abbas, A. K. Sulaiti, et al., "The Role of Digital Management and Smart Technologies for Sports Education in a Dynamic Environment: Employment, Green Growth, and Tourism," *Journal of Urban Technology*, vol. 32, no. 1, pp. 133–164, 2025, doi: 10.1080/10630732.2024.2327269.
- [13] I. Cem, O. Serdar, A. Munir, et al., "Special issue on green energy, innovation, government spending, sustainable tourism & production under climate change and pollution (ENTECON)-environmental science and pollution research," *Environmental Science and Pollution Research International*, vol. 30, no. 34, pp. 81493–81494, 2023, doi: 10.1007/S11356-023-27875-5.
- [14] S. Tiwari, A. S. Raza, K. S. Gupta, et al., "Testing the LCC hypothesis by considering environmental sustainability and economic development: Role of green energy and resource management," *Geoscience Frontiers*, vol. 15, no. 3, pp. 101666–, 2024, doi: 10.1016/J.GSF.2023.101666.
- [15] M. Wang, "On Refining and Development of Traditional Lacquerware Style of Art," *The Art & Design Research*, vol. 2, no. 9, 2021, doi: 10.37420/J.ADR.2021.038.
- [16] X. F. Guo, "Design strategies of tourism cultural and creative products from the perspective of regional culture," *Textile Reports*, vol. 42, no. 5, pp. 74–76, 2023.