Construction of Digital Transformation Mechanism for Urban Aesthetic Education Heritage from the Perspective of Bourdieu's Cultural Capital

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Abstract

Urban aesthetic education heritage, which carries historical memory and combines artistic value with educational functions, has become a key cultural resource in the current wave of national digitalization and aesthetic education reform. Its digital transformation is widely regarded as an essential route toward dynamic preservation and value appreciation. Drawing on Bourdieu's cultural capital theory, this study classifies urban aesthetic education heritage into three capital forms-materialized, internalized, and institutionalized-and uses Shenyang as an empirical case. The analysis identifies several barriers in current practice, including weak symbolic translation, limited educational impact, and the absence of collaborative governance. On this basis, the paper proposes a threefold digital transformation mechanism that integrates material translation, internalized cultivation, and institutional guarantee, together with four practical paths: resource archiving, scenario-based dissemination, collaborative governance, and value appreciation. The findings suggest that digital technology can shift urban aesthetic education heritage from static materialized capital to a dynamic cycle of cultural capital, offering a transferable reference for heritage conservation and value realization in comparable industrial cities.

Keywords

Bourdieu, cultural capital, urban aesthetic education heritage, digital transformation, Shenyang.

1. Introduction

The activation of cultural heritage has gained fresh policy momentum since the 20th National Congress of the Communist Party of China called for "upholding the integration of culture and tourism, promoting cultural development through tourism and highlighting cultural characteristics through culture, and advancing the in-depth integrated development of culture and tourism." Two policy documents issued in succession-the "Opinions on Comprehensively Strengthening and Improving Aesthetic Education in Schools in the New Era" and the "Opinions on Promoting the Implementation of the National Cultural Digitization Strategy"-have since raised the digital transformation of cultural heritage to the level of national strategy. Against this backdrop, digital technology has come to provide core support for the protection, dissemination, and value transformation of cultural resources.

Urban aesthetic education heritage refers to the tangible and intangible remains left behind in the course of urban development that carry both aesthetic educational functions and cultural transmission value. It takes such diverse forms as industrial heritage and historical buildings, and serves as a core carrier of a city's cultural soft power and cultural identity. In most cities, however, digital practice still rests at the level of technological application; a systematic value transformation mechanism has yet to take shape. The result is that the educational function of

heritage is only partially released, and the appreciation effect of cultural capital remains inadequate [1].

The French sociologist Pierre Bourdieu proposed a theory of cultural capital that distinguishes three forms-materialized, internalized, and institutionalized-which together offer a mature analytical tool for examining how cultural resources gain or lose value. Introducing this theory into research on the digitalization of urban aesthetic education heritage allows the effects of technology to be observed through the evolution of capital forms, and thereby helps overcome the technology-centered but value-neglectful tendency of existing studies. With Shenyang as an empirical sample, this paper constructs a digital transformation mechanism that responds to the practical needs of heritage protection, supports the digital transmission of aesthetic education resources, and may also serve as a reference for comparable cities.

2. Theoretical Basis and Practical Challenges of Urban Aesthetic Education Heritage Digitalization

2.1. The Cultural Capital Attributes and Theoretical Adaptability of Urban Aesthetic Education Heritage

Bourdieu's typology identifies three mutually convertible forms of cultural capital. The materialized form is carried by physical objects such as buildings and artifacts; the internalized form resides in the aesthetic qualities and cultural cognition that individuals accumulate; and the institutionalized form is expressed through policies, credentials, and standards.

Urban aesthetic education heritage corresponds to this typology in a fairly direct way. Historical buildings and industrial remnants constitute materialized capital; the aesthetic abilities and cultural identity formed by the public constitute internalized capital; and protection policies together with evaluation systems constitute institutionalized capital.

At its core, digital transformation is a process of reconstructing cultural capital forms. Digital technology first acts on materialized capital by translating physical resources into symbolic form; through dissemination and education it then promotes the accumulation of internalized capital; and in the final stage it pushes institutionalized capital to upgrade. This perspective offers a systematic explanation of how digital value flows, and it lays the theoretical groundwork for the transformation mechanism constructed in this paper.

2.2. Current Obstacles in the Digital Transformation of Urban Aesthetic Education Heritage

Viewed from the angle of cultural capital, the digital transformation of urban aesthetic education heritage currently faces three major difficulties that restrict the effective conversion of capital.

The first difficulty concerns the depth of digitalization of materialized capital. In most cities, digitization has stopped at basic image collection and digital archiving; core aesthetic symbols and cultural connotations have yet to be extracted from an aesthetic education perspective. In Shenyang, for example, some industrial heritage and historical buildings have only been documented at a basic level, leaving architectural aesthetics and craftsmanship aesthetics underexplored. Several digital projects concentrate on the preservation of cultural relic data and archival management, without accompanying design for the translation of aesthetic education value. As a result, a large number of high-quality digital resources remain dormant in archives, and it is difficult to convert them directly into perceivable, communicable aesthetic education products [2].

The second difficulty lies in the single conversion path of internalized capital and the weak effectiveness of aesthetic education dissemination. Existing digital products are mostly one-way displays that lack interactivity and immersive design; their capacity to stimulate aesthetic

interest is limited, and the efficiency of capital internalization remains low. Dissemination channels, moreover, are largely confined to cultural and museum circles, so inclusive dissemination has not been achieved. The segmentation effect of traditional cultural capital persists, and the threshold for the public to access aesthetic education resources stays relatively high.

The third difficulty is the insufficient support of institutionalized capital and the absence of a multi-agent collaborative mechanism. Most cities lack dedicated policies and evaluation standards, and unified norms are missing at various stages of the process. The boundaries of rights and responsibilities among government, universities, enterprises, and the public remain unclear. Government projects are inadequately market-oriented, enterprises participate without sufficient guidance, university research findings are not well implemented, and public participation channels are limited-factors that together render the sustainability of digital transformation inadequate.

3. The Core Mechanism of Digital Transformation of Urban Aesthetic Education Heritage from the Perspective of Bourdieu's Cultural Capital

Following the evolutionary logic of Bourdieu's three capital forms, the digital transformation of urban aesthetic education heritage operates through an internal mechanism of "material translation-internal cultivation-institutional guarantee." The three components are progressive and mutually supportive, and together they constitute a complete system of capital transformation.

3.1. Digital Translation of Materialized Capital: Symbolic Reconstruction of Physical Remnants

The digital translation of materialized capital lays the foundation of the transformation mechanism. Its core task is to make tangible aesthetic education heritage symbolic and communicable through digital technology. With the help of 3D scanning, digital twinning, and high-definition modeling, heritage can be preserved with high precision, released from the constraints of time and space, and given an extended capital life cycle. On this basis, aesthetic elements such as architectural patterns, modeling language, and color systems can be extracted and converted into standardized digital cultural symbols, completing the transformation from physical remains to digital aesthetic education resources [3].

Digital translation thus endows static materialized capital with fluidity. Once separated from the physical realm, heritage can enter diverse scenarios of dissemination, education, and industry, providing foundational material for the subsequent transformation of capital forms.

3.2. Immersive Cultivation of Internalized Capital: Inclusive Accumulation of Aesthetic Literacy

The immersive cultivation of internalized capital constitutes the core objective of the mechanism, whose essence is to turn digital aesthetic education resources into public aesthetic literacy and cultural identity. By reconstructing the mode of aesthetic education dissemination, digital technology considerably lowers the threshold of capital acquisition; immersive experiences and interactive learning help to break down the class barriers of traditional cultural capital.

VR/AR experiences, digital art exhibitions, and interactive aesthetic education courses allow the public to accumulate aesthetic knowledge and improve appreciation ability through direct engagement, thereby realizing the internalization of capital within individuals. Channels such as short videos and social media, for their part, expand the scope of dissemination and promote

the inclusive growth of internalized capital, enabling different groups to access high-quality aesthetic education resources on equal terms.

3.3. Synergistic Upgrade of Institutionalized Capital: Systematic Reconstruction of the Governance System

The synergistic upgrade of institutionalized capital serves as an important guarantee for the transformation mechanism. Digital practice drives the continuous improvement of governance systems and policy institutions, creating an institutional environment that fits the transformation. On the one hand, digitalization compels the introduction of policy standards and gradually shapes an institutional system covering resource protection, technology application, and value evaluation, thereby providing normative guidance. On the other hand, it promotes the diversification of governance actors and builds a collaborative mechanism among government, universities, enterprises, and the public, with the role of each actor clarified [4].

An upgraded institutionalized capital provides a stable institutional environment for material translation and internalized cultivation, and thus secures the sustainability of the transformation. Its achievements can, in turn, feed back into the accumulation of the first two capital forms, closing a complete cycle of capital circulation.

4. The Practical Path of Digital Transformation of Urban Aesthetic Education Heritage -- A Case Study of Shenyang

As a national historical and cultural city and an old industrial base, Shenyang boasts rich urban aesthetic education heritage, including industrial heritage and historical buildings, which provides a solid foundation for digital transformation. Given the city's resource endowments and practical conditions, implementation can be carried out along four dimensions.

4.1. Holistic Digital Archiving of Resources to Consolidate the Foundation of Materialized Capital

To begin with, the aesthetic education heritage resources across Shenyang should be systematically surveyed, and a graded, categorized digital resource repository should be established. For historical buildings such as the Shenyang Imperial Palace and the Qing Zhaoling Tomb, as well as industrial heritage sites like the Shenyang Industrial Museum and the 1905 Cultural and Creative Park, echnologies including high-precision 3D scanning, 8K image acquisition, and digital twinning can be applied to complete the digital archiving of all elements and preserve details of form, texture, and craftsmanship. Priority should be given to the digital acquisition of the Tiexi industrial heritage cluster, so that the aesthetic characteristics and historical value of industrial civilization are fully documented.

In parallel, a professional team can be formed to extract core aesthetic symbols such as architectural forms, decorative patterns, and industrial designs, and to build a standardized digital material library categorized by architectural aesthetics and industrial aesthetics. The library would provide reusable resources for aesthetic education dissemination and product development, thereby consolidating the base of materialized capital.

4.2. Developing Scenario-Based Aesthetic Education Products to Activate Internalized Capital

On the basis of the digital resource repository, scenario-based digital aesthetic education products can be developed to advance the transformation of materialized capital into internalized capital. Offline, immersive digital aesthetic education exhibition halls can be created at venues such as the Shenyang Industrial Museum and the Palace Museum, where AR guidance and holographic projection strengthen the visitor experience. A digital aesthetic education workshop set up in the 1905 Cultural and Creative Park, equipped with AIGC tools,

would allow the public to participate in cultural and creative design and to enhance aesthetic ability through hands-on practice.

Online, a "Shenyang Aesthetic Education Heritage Cloud Classroom" can be launched to popularize aesthetic education knowledge through short videos and live broadcasts, while a digital aesthetic education mini-program integrating online exhibitions and courses would offer a lightweight digital platform. By combining online and offline channels, the threshold for accessing aesthetic education resources can be lowered, promoting the inclusive accumulation of internalized capital.

4.3. Multi-Stakeholder Collaborative Governance to Strengthen Institutionalized Capital Support

A collaborative governance system of "government guidance, university support, enterprise operation, and public participation" should be built to strengthen institutionalized capital. The government may introduce dedicated policies, set up supporting funds, and formulate standards for resource construction and value evaluation. Platforms such as the Shenyang Cultural Heritage Digital Inheritance and Innovation Research Center can integrate the research and talent resources of local universities, support theoretical research and technological development, and establish a mechanism for converting research achievements into practical application, so that scientific research outcomes align more closely with market demand and provide intellectual support [5].

Cultural tourism and technology enterprises can be brought in to participate in product development and market-oriented operation, and sustainable business models can be explored. Public participation in communication may be encouraged through activities such as short-video campaigns and cultural and creative design competitions. A cross-departmental coordination mechanism that pools resources from cultural tourism, industry and information technology, and education would further strengthen synergy across departments.

4.4. Whole-Chain Value Appreciation to Build a Capital Circulation Ecosystem

The digital value chain can be extended so that cultural capital is converted into economic and social value, forming a virtuous cycle of "protection-transformation-appreciation-re-protection." Cultural and creative products and digital collections can be developed on the basis of aesthetic education digital IP, characteristic routes such as the "Industrial Aesthetics Journey" can be created, and digital aesthetic education experiences can be integrated into cultural and tourism consumption scenarios.

At the same time, digital aesthetic education resources can be incorporated into local aesthetic education curricula of primary and secondary schools and into the art practice teaching system of universities, opening up a school–local collaborative channel for aesthetic education and expanding the social educational value of heritage. Through the synergy of these diverse values, the benefits can be channeled back into heritage protection and technological upgrading, sustaining the circulation of cultural capital and achieving dynamic inheritance and sustainable development.

5. Conclusion and Prospects

Drawing on Bourdieu's cultural capital theory, this paper maps urban aesthetic education heritage onto three capital forms and constructs a digital transformation mechanism of "material translation-internalized cultivation-institutional guarantee," with Shenyang serving as the case through which the practical paths are proposed. The findings indicate that the digital transformation of urban aesthetic education heritage is essentially a process of reconstructing and adding value to cultural capital forms: digital technology functions not only as a tool for heritage protection but also as a core carrier for promoting the popularization of aesthetic

education, breaking down capital barriers, and realizing the inclusiveness of cultural value. The mechanism can provide replicable practical references for similar industrial cities in Northeast China.

In the process of promotion, the “double-edged sword” effect of digitalization deserves serious attention. While the advantages of communication should be fully exploited, the aesthetic homogenization and loss of cultural diversity that algorithmic recommendation may bring should be guarded against, and the authenticity of heritage culture should be upheld.

Future research may be deepened in three directions. The first is to build a quantitative performance evaluation system and refine institutionalized evaluation standards. The second is to explore the application scenarios of emerging technologies such as the metaverse and generative AI. The third is to develop differentiated transformation models for different types of heritage, so that scalable solutions can be offered to more cities and the dynamic inheritance and value appreciation of urban aesthetic heritage can be promoted.

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