

From “Material Carriers” to “Living Heritage”: The Living Reconstruction of Cultural Value from the Perspective of Qí Culture Genes

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Abstract:

As an important source of Chinese civilization, Qí Culture carries profound cultural values with its spiritual core of “respecting the virtuous and valuing merit, advocating commerce and profit, being open and inclusive, and pursuing reform and innovation.” However, under the background of modernization and digital transformation, these abstract cultural genes are facing a crisis of transforming from “living practice” into “static residue.” Drawing on cultural gene theory and cultural memory theory, this paper proposes that the inheritance of Qí Culture urgently needs a value reconstruction from “material carriers” to “living heritage.” The study first systematically sorts out the material carrier pedigree of Qí Culture, categorizing it into six types: respecting the virtuous and valuing merit, advocating commerce and profit, being open and inclusive, pursuing reform and innovation, combining rites and law, and marine culture. It then argues that these artifacts serve as “memory anchors” of cultural value. Using the methodology of the “Qilu Cultural Gene Decoding and Utilization Project,” a three-stage path of “gene decoding – digital translation – living reconstruction” is proposed, exploring the core role of digital design in making cultural genes visible, perceptible, and transformable. The paper concludes that activating the dormant cultural memories in Qí Culture’s material carriers through digital technology, and constructing a transformation mechanism from “material carriers” to “digital twins” and then to “living heritage,” is the key to achieving the creative transformation and innovative development of Qí Culture, providing theoretical and practical references for the modern inheritance of regional cultures. Keywords:

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Qí Culture, Cultural Genes, Material Carriers, Living Heritage, Digital Reconstruction

1. Introduction

Against the backdrop of comprehensively promoting the creative transformation and innovative development of excellent traditional Chinese culture, the modern inheritance of regional cultures has become an important proposition in academic

research and cultural practice. Qí Culture was born when Jiang Taigong was enfeoffed in the Qi region in the early Western Zhou Dynasty. After more than 800 years of development and evolution, it formed a unique cultural system. Together with Lu Culture, it is known as “Qilu Culture.” Qí Culture is famous for its pragmatism, openness, and inclusiveness. Its tradition of emphasizing commerce, military wisdom, and the academic atmosphere of the Jixia Academy have all contributed valuable intellectual resources to Chinese civilization. However, in the digital era, how to revitalize this ancient cultural gene and realize the transformation from “traditional resource” to “modern capital” has become an urgent question.

Current research on Qí Culture mostly focuses on textual collation and historical interpretation, while the study of its material carriers remains largely at the static descriptive level of archaeology and museology. Although this research paradigm is important, it is difficult to respond to the contemporary demand for culture to “come alive” and “be passed on.” In her study of Shipu Fishing Village in Zhejiang, Bao Yuanyang pointed out that rural culture is gradually shifting from “localized” to “residual” in the process of modernization, becoming a marginalized “cultural specimen” [1]. Qí Culture faces a similar dilemma: a large number of artifacts carrying cultural genes – knife coins, eaves tiles, weapons, ritual vessels – are placed in museum display cases, becoming “cultural relics” for people to admire, but they are difficult to transform into “living culture” that can be perceived, participated in, and inherited.

Cultural gene theory provides a new analytical framework for solving this dilemma. Similar to biological genes, cultural genes are the basic units of cultural inheritance and variation – they carry the core information of a specific culture, are transmitted from generation to generation through imitation and learning, and undergo selective retention, variation, or recombination during transmission [2]. The reason why Qí Culture can still be recognized and remembered after more than 2,000 years is precisely because its core genes – such as openness, the spirit of emphasizing commerce, and military wisdom – have remained stable. The material carriers of these genes are the key nodes where cultural memory is anchored.

Based on this, the core questions of this paper are: How do the material carriers of Qí Culture constitute the “memory anchors” of its cultural genes? How can we draw on the theory and methods of cultural gene decoding to achieve the value reconstruction from “material carriers” to “living heritage”? What role can digital design play in this transformation process? By exploring these questions, this paper aims to provide an operable practical path for the modern inheritance of Qí Culture.

2. Materials and Methods

2.1. Theoretical Framework: Cultural Genes and Memory Anchors

The term “gene” originated in the life sciences, referring to the basic unit of biological inheritance. Since the mid-20th century, this concept has gradually been transplanted into the field of cultural research, forming the theoretical discourse of “cultural genes.” Like biological genes, cultural genes are the basic units of cultural inheritance and variation – they carry the core information of a specific culture, are transmitted from generation to generation through imitation and learning, and undergo selective retention, variation, or recombination during transmission.

In 2025, the Shandong Provincial Department of Culture and Tourism issued the “Implementation Plan for the Qilu Cultural Gene Decoding and Utilization Project,” which clearly proposed a systematic working path: “resource identification → gene decoding → digital annotation → copyright registration → platform integration → public welfare promotion → market-oriented transformation → international dissemination” [3]. This “eight-step” path provides an operational methodological guide for cultural gene decoding. Specifically, cultural gene decoding includes three key steps: first, identification and extraction – identifying the most representative and stable core elements from complex cultural phenomena; second, annotation and encoding – digitally annotating the identified cultural genes and establishing searchable and linkable data standards; third, transformation and application – applying the decoded genetic data to diverse scenarios such as cultural and creative development, immersive experiences, and educational dissemination.

Jan Assmann’s theory of cultural memory points out that cultural memory needs to be solidified and transmitted through fixed “memory anchors” [4]. These anchors can be texts, rituals, images, or artifacts and spaces. In the context of Qí Culture, material carriers are one of the most important memory anchors. Unlike abstract written records, artifacts have materiality, intuitiveness, and perceptibility; they are not only carriers of cultural information but also catalysts of cultural emotion.

Bao Yuanyang proposed the concept of “digitization of memory anchors” in her study of Shipu Fishing Village, pointing out that by using digital technology to collect, translate, and reconstruct artifacts and behavioral carriers such as fishing nets, oars, and fishing songs, local cultural identity can be effectively rebuilt [5]. This idea is also applicable to the study of Qí Culture. Qi knife coins are not only mediums of commercial exchange but also material proof of the spirit of “advocating commerce and profit”; the tree-and-animal patterns on Qi eaves tiles are not just architectural decorations but visual representations of the cultural fusion of “openness and inclusiveness.” These artifacts, as “memory anchors,” constitute the material basis for the identifiability, extractability, and heritability of Qí Culture genes.

2.2. Methodological Approach: Three-Stage Path of Value Reconstruction

The material carriers of Qí Culture are the “dormant form” of its cultural genes. Although they carry rich cultural information, they are difficult for contemporary people to perceive, understand, and identify with due to temporal and spatial gaps. To achieve the value reconstruction from “material carriers” to “living heritage,” a three-stage path is proposed: gene decoding, digital translation, and living reconstruction.

(1) Gene decoding involves systematic extraction of cultural information from artifacts, including high-precision image acquisition and 3D modeling, symbol extraction and vectorization, and data annotation with knowledge graphs.

(2) Digital translation transforms the decoded genetic data into perceptible cultural forms through morphological translation, pattern translation, and artistic conception translation (e.g., VR/AR experiences).

(3) Living reconstruction integrates the digital translation outcomes into contemporary life practices across educational, cultural tourism, and creative product scenarios, forming a deep integration mechanism of “cultural gene – digital media – life scenario.”

3. Results and Discussion

3.1. The Genetic Pedigree of Qi Culture's Material Carriers

The material carriers of Qi Culture are rich and diverse, condensing the spiritual pursuits, institutional wisdom, and daily life of the Qi people in material form. From the perspective of cultural genes, these carriers are summarized into six categories, each corresponding to the core spiritual genes of Qi Culture.

3.1.1. The Gene of “Respecting the Virtuous and Valuing Merit”: Jixia Academy Relics and Military Merit Weapons

“Respecting the virtuous and valuing merit” is one of the most core political genes of Qi Culture. When Jiang Taigong was enfeoffed in Qi, he established the governance strategy of “respecting the virtuous and valuing merit,” emphasizing talent and achievements over blood kinship. This tradition was further developed during the reign of Duke Huan of Qi and Guan Zhong, eventually giving rise to the Jixia Academy, the world’s earliest government-run institution of higher learning. The corresponding material carriers include Jixia Academy-related artifacts (pottery inscriptions, bamboo slips, 研学 eaves tiles, scholar inkstones, lecture pottery figurines) and bronze weapons with military merit inscriptions (bronze swords, spears, daggers, etc.).

3.1.2. The Gene of “Advocating Commerce and Profit”: Qi Knife Coins and Sea Salt Utensils

“Advocating commerce and profit” is the most distinctive spiritual gene of Qi Culture. Qi knife coins (Qi Fa Hua, Anyang knives, Jimo knives, etc.) are the most typical material carriers, directly evidencing the commercial prosperity and currency circulation of the Qi state. In addition, sea salt boiling utensils (pottery boiling jars, salt stove components) and fishing and hunting pottery (net sinkers, fish hooks) are material remains of “utilizing the benefits of fish and salt,” witnessing the pragmatic wisdom of the Qi people in developing the economy by relying on marine resources. Weighing and measuring instruments (bronze weights, capacity measures, balances) reflect the spirit of fair trade and integrity in commercial activities.

3.1.3. The Gene of “Openness and Inclusiveness”: Eaves Tile Patterns and Exotic Ornaments

“Openness and inclusiveness” is the internal driving force for the formation and development of Qi Culture. Qi eaves tiles are the most typical in this regard. With the tree pattern as the mother motif, they are symmetrically decorated with figures, animals, cloud scrolls, sun patterns, etc., showing the Qi ancestors’ reverence for trees and nature, as well as their “pursuit of harmony between heaven, earth, and humanity” [6]. This decorative structure is itself a visual cultural fusion – combining the ritual tradition of Zhou Culture with the nature worship of Dongyi Culture. Moreover, unearthed exotic ornaments such as foreign beads and Western Region accessories prove that the Qi state participated in cross-regional trade through maritime and overland Silk Roads.

3.1.4. The Gene of “Reform and Innovation”: Qi Weapons and Chariot Fittings

“Reform and innovation” is the fundamental driving force for Qí Culture to maintain vitality. Artifacts unearthed from Qi weapon depots, such as crossbow triggers, armor, chariot fittings, and chariot components, not only confirm the developed military tradition of the Qi region but also demonstrate the continuous technological innovation of the Qi people. The morphological evolution and technical improvement of these artifacts themselves constitute a material history of “reform and striving for strength.”

3.1.5. The Gene of “Combining Rites and Law”: Chime Bells, Stone Chimes, and Inscribed Bronzes

“Combining rites and law” embodies the governance wisdom of Qí Culture. The corresponding material carriers include ritual musical instruments (Qi chime bells, stone chimes) that embody the cultural concept of “educating through music,” and inscribed bronze vessels bearing decrees, laws, and alliance oaths, which are direct material evidence of the ritual-legal system.

3.1.6. The Gene of “Marine Culture”: Shell Ornaments and Boat-shaped Vessels

“Marine culture” is the unique characteristic that distinguishes Qí Culture from inland Central Plains cultures. The corresponding material carriers include shell ornaments, nautical-related pottery pieces, and boat-shaped vessels. Although these artifacts are not as exquisite as knife coins and weapons, they record the deep interaction between the Qi people and the ocean in a simple form, serving as the most direct material witness to the marine gene of Qí Culture.

In summary, the material carriers of Qí Culture constitute a multi-level, systematic genetic pedigree: knife coins represent commerce, eaves tiles represent inclusiveness, weapons represent merit, sea salt utensils represent pragmatism, ritual vessels represent rites and law, and academy relics represent respect for virtue. These physical objects are the “visible and tangible” carriers of Qí Culture genes, forming the material basis for anchoring cultural memory and realizing cultural inheritance.

3.2. The Empowering Mechanism of Digital Design

Digital design plays a dual role of “catalyst” and “translator” in the transformation from “material carriers” to “living heritage.” Its empowering mechanism is mainly reflected in three dimensions.

3.2.1. Visualization: Making Dormant Genes “Visible”

Through 3D modeling, animation demonstrations, infographics, and other means, digital design transforms the abstract cultural genes contained in artifacts into intuitive visual language. For example, a dynamic evolution map of Qi eaves tile patterns can be produced to show the transformation of tree patterns from Dongyi Culture to Qí Culture; a “commercial network map” of Qi knife coins can be constructed to visually present the circulation range and trade routes of Qi currency.

3.2.2. Perceptibility: Making Distant Memories “Feelable”

Through VR/AR, interactive design, immersive narration, and other technical means, digital design breaks temporal and spatial barriers, allowing users to perceive Qí Culture in an embodied way. Borrowing the “digital twin + immersive narrative” model mentioned in Bao Yuanyang’s study [1], a “Wandering in the Qi Capital” VR

experience project can be built, allowing users to “walk” on the streets of Linzi 2,000 years ago and watch historical scenes such as knife coin casting, salt production, and Jixia debates. This embodied experience shifts cultural memory from “viewing” to “participation” and from “cognition” to “perception.”

3.2.3. Transformability: Making Traditional Resources “Usable”

The ultimate function of digital design is transformability. It turns decoded cultural genes into editable, recombinable, and renewable design resources, empowering diverse practices such as cultural and creative development, brand design, and space creation. By establishing an open Qí Culture gene database, designers, educators, and entrepreneurs can call upon these resources for secondary creation, forming a virtuous cycle of “cultural resources – design transformation – market application – value feedback.”

4. Conclusions

The modern inheritance of Qí Culture faces a fundamental paradox: the material carriers that carry its cultural genes are carefully preserved in museums, yet the culture itself is increasingly marginalized in contemporary life. The key to solving this paradox lies in achieving the value reconstruction from “material carriers” to “living heritage.”

This paper, drawing on cultural gene theory and cultural memory theory, systematically sorted out the genetic pedigree of Qí Culture’s material carriers and proposed a three-stage path of “gene decoding – digital translation – living reconstruction.” The research argues that material carriers are the “memory anchors” of Qí Culture genes, but cultural inheritance cannot stop at the static preservation of artifacts. Through the triple empowerment of visualization, perceptibility, and transformability, digital design can awaken the cultural genes dormant in artifacts, transforming them from “residues” into “living culture,” from “heritage to be viewed” into “life to be participated in.”

The ultimate goal of this path is to ensure that the spiritual core of Qí Culture – respecting the virtuous and valuing merit, advocating commerce and profit, being open and inclusive, and pursuing reform and innovation – is no longer just an abstract concept in history textbooks, but is integrated into the life practices of contemporary people, becoming a “living tradition” that can be perceived, identified with, and inherited. Digital technology, by reconstructing cultural memory in a scenarized way, can help the living inheritance of cultural communities and provide a solution that takes into account both the preservation of cultural roots and the creation of contemporary value.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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