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Cultural Translation and Spatial Implementation of Intangible Cultural Heritage

—Rattan Weaving in the Context of Park Cities' Cultural Tourism

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Abstract

This study investigates the contemporary practice of Huaiyuan rattan weaving in Chongzhou, Sichuan, through fieldwork and documentation of local workshops, focusing on material selection, craft processes, and spatial applications. Drawing on in-depth interviews with third-generation inheritors Li Jing and Li Ting, alongside other artisans, the research uncovers narratives of material transformation, craft evolution, and market adaptation. By analyzing cases such as the rattan weaving exhibition at Shenzhen Bay MixC, Chengdu's Jinjiang Night Tour, and Park City landscapes, the study adopts cultural ecology and scenographic design as theoretical lenses to examine the ecological, symbolic, and participatory dimensions of rattan weaving. It ultimately proposes a pathway for embedding Huaiyuan rattan weaving into the spatial framework of the "Park City", advancing an intangible heritage transformation model that integrates ecological value, cultural expression, and experiential participation.

Keywords

Intangible Rattan Weaving, Park City, Cultural Tourism Integration, Innovative Applications

1. Introduction

Amid growing global emphasis on cultural diversity and the revitalization of local contexts, the dynamic transmission of Intangible Cultural Heritage (ICH) has emerged as a critical fulcrum in advancing rural–urban integration and cultural renaissance. In China, particularly within the evolving framework of Chengdu's "Park City" initiative, ICH is undergoing a paradigmatic shift—from static exhi-

bition toward deep integration with contemporary urban spaces. This transformation positions heritage as a vital medium for fostering ecological aesthetics, immersive cultural experiences, and tourism-driven consumption.

Taking Huaiyuan Rattan Weaving in Chongzhou, Sichuan, as a case in point, this traditional craft—rich in regional memory and ecological wisdom—is undergoing a functional reconfiguration from "everyday artifacts" to "spatial language". Its long-standing historical lineage, comprehensive craft system, and the cultural semantics embedded in its flexible materiality and woven logic not only reflect indigenous life knowledge but also offer high ecological adaptability and spatial expressiveness.

Meanwhile, the advancement of the Park City initiative and the growth of urban night-time economies have opened new arenas for Huaiyuan rattan weaving, particularly in public art, interactive installations, cultural wayfinding, and themed environments. Yet its integration into contemporary urban life faces persistent obstacles: the decline of intergenerational transmission, limited product diversification, and insufficient cross-disciplinary collaboration in cultural tourism design. As a result, rattan weaving often appears as fragmented decorative elements rather than as a coherent cultural medium within urban contexts. Against this backdrop, the present study addresses the pressing question of how Huaiyuan rattan weaving can transcend these limitations and acquire renewed spatial and cultural relevance in the Park City framework.

2. The Cultural Genealogy and Craft Characteristics of Huaiyuan Rattan Weaving

As a significant representative of intangible cultural heritage in western Sichuan, Huaiyuan rattan weaving not only embodies the artisanal aesthetics and material intelligence of traditional craftsmanship, but is also deeply embedded in the local social fabric, everyday production practices, and collective cultural memory (Sui, 2020). From its genealogical lineage and symbolic vocabulary to its transmission structures and embodied techniques, Huaiyuan rattan weaving represents a living craft system that integrates ecological logic, social networks, and cultural expression.

2.1. Craft Lineage and Material Evolution

The craftsmanship of Huaiyuan rattan weaving can be traced back to the Three Kingdoms period. Its early development was driven by the local residents of Huaiyuan Town in Chongzhou, who utilized mountain forest resources to meet daily living needs. According to the Chongzhou Folk Customs Gazetteer, Huaiyuan rattan weaving originally used green vine as the main material to make furniture and farming tools, with a strong utilitarian character (Feng, 2023). As the craft evolved, rattan weaving gradually shifted from purely functional products to everyday art objects with both decorative and cultural meanings, showing a fusion of craft aesthetics and regional cultural identity. This trend has expanded further in modern times. By the 1930s, Chinese rattan furniture was being exported to Europe and

the United States. For example, Chinese-style rattan furniture produced by the Shanghai Forest Rattan and Willow Factory in 1940 was popular in both domestic and international markets for its modern (Figure 1), simple, and practical design, combined with an Orientalist style. During this period, rattan furniture not only preserved the essence of traditional craftsmanship, but also incorporated decorative elements of British country style, forming a unique aesthetic blend of East and West.

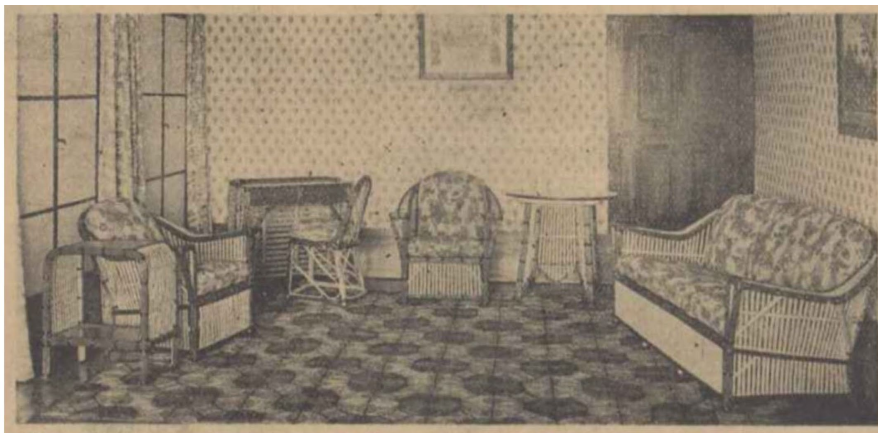

Figure 1. Furniture and interior arrangements produced by the Shanghai Rattan and Willow Factory.

In terms of material selection, according to oral accounts from the third-generation inheritor Li Ting and the author's field investigation, the raw materials used in Huaiyuan rattan weaving have gone through three stages: from locally sourced green vine, to imported Malaysian rattan, and then to artificially cultivated rattan. Before the 1990s, the main source of rattan materials was natural green vine growing in mountainous areas such as Jiguan Mountain, Hanyuan and Qionglai. Green vine is a perennial herbaceous climbing plant with a relatively thin diameter (usually less than 1 centimeter). Because of its thin bark and dense segments, it is difficult to peel in large sections and usually needs to be used whole. Although it has good elasticity and texture, its material characteristics limit the diversity of weaving techniques and the capacity for mass production. According to the inheritor, "Out of 500 jin of green vine collected, less than 180 jin could actually be used", showing its relatively low utilization rate.

Since the late 1990s, major rattan producers in Huaiyuan, such as Li's Rattan Weaving (Figure 2), have increasingly relied on imported Malaysian and Indonesian cane to meet the dual pressures of product standardization and ecological protection. Compared with local green rattan, imported materials are denser, more flexible, and mechanically processable, thus improving efficiency, durability, and aesthetic consistency. This material shift illustrates both the pursuit of industrial quality and the adaptation of traditional craft to modern production logics.

Figure 2. Imported rattan from Malaysia. (Source: the authors' photo, 2025)

During field investigations, intangible heritage inheritors not only explained core techniques such as plain weaving, diagonal weaving, and twill weaving, but also demonstrated the complete production process—from da teng (removing knots from the cane), selection, washing, and sun-drying, to bending, stretching, shaving, followed by bleaching, dyeing, weaving, and finally shaping and oiling. This is not merely a technical mastery of material properties but also an accumulated body of intergenerational experience and craft wisdom. Crucially, the weaving stage remains highly dependent on manual labor, requiring subtle coordination of gestures, rhythm, strength, and spatial awareness. Localized knowledge is further embedded in the form of dialectal rhymes and mnemonic imagery, enabling an organic intertwining of "craft, language, and body". Such practice constitutes a form of embodied heritage transmission that remains alive and dynamic.

2.2. Weaving Patterns and Symbolic Meaning

As an intangible folk craft, rattan weaving carries strong local cultural imagery and traditional aesthetics in its patterns, structural logic, and color style. By extracting and visually translating rattan patterns, their cultural characteristics can be integrated into urban elements such as paving systems, wayfinding systems, and public art, helping to build a visual identity system with both recognizability and cultural depth.

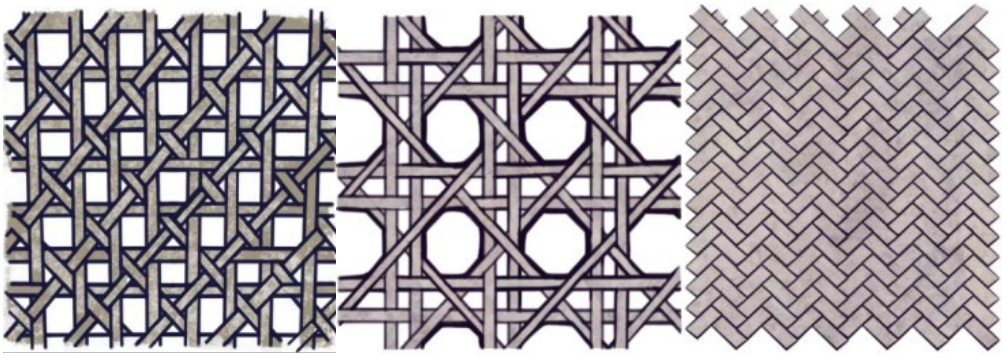

Figure 3. Rattan geometric patterns. (Source: the authors' photo)

Rattan weaving patterns mainly come from the geometric forms created by the regular interlacing of materials. Common types include octagonal holes, floating chrysanthemum patterns, diagonal weaves, cross patterns, diamond patterns, and herringbone patterns (**Figure 3**). These patterns are structurally precise and flexible in shape. They reflect the logic of the craft and also serve as carriers of folk symbolism (Xiao et al., 2023). For example, the octagonal hole symbolizes "stability in all directions", and the herringbone pattern represents "step-by-step promotion". These patterns not only enhance the aesthetic value of the objects but also carry auspicious meanings and a sense of collective identity.

In urban cultural tourism spaces, the cultural characteristics and formal logic of these patterns provide a translatable visual language for spatial design. For example, the octagonal hole pattern, as one of the most representative geometric styles in rattan weaving, can be extracted as a basic compositional module for ground paving. With the octagon as the core unit, combined with rhombus and quadrilateral shapes in an orderly arrangement, it presents strong recognizability, regularity, and scalability. Through modern shape grammar and graphic syntax systems, this pattern can also be further translated into urban spatial design applications, such as paving systems, wayfinding systems, lighting installations, and cultural signage, enhancing the local cultural identity and spatial spirit.

At present, with the promotion and deepening of the Park City concept, urban space is moving toward an integrated transformation of ecology, culture, and daily life. In this process, rattan weaving patterns, as a visual expression of traditional craftsmanship, are expanding their application boundaries in public urban spaces and gradually evolving into a composite symbol system that integrates craft, visuality, and culture. The woven textures reflect a sense of rhythm and order, possessing both formal beauty and good adaptability, allowing reconstruction and combination at different scales and in various materials. Therefore, rattan patterns are gradually becoming an important medium connecting intangible cultural heritage and contemporary urban space. They can be applied to diverse design elements such as floor decoration, railing components, façade textures, and landscape signage. The cultural value of these patterns does not depend on their complexity, but on the craftsmanship, historical memory, and regional cultural imagery they carry—serving as core visual genes for shaping urban cultural identity and aesthetic communities.

3. Constructing Cultural Tourism Scenarios under the Park City Vision

Integrating ecological understanding into design and planning helps foster more sustainable architecture, communities, landscapes, and regions (Steiner et al., 2013). Within the value system of ecological aesthetics, sustainable design, and cultural identity advocated by the "Park City" initiative, rattan demonstrates multiple potentials. It can serve not only as a visual and textural element in urban spaces but also be transformed into small-scale structures and ecological nodes. In doing so,

it enhances both the artistic and ecological qualities of the environment while embedding intangible cultural heritage into everyday life and linking it with cultural education functions.

3.1. Rattan as an Ecological Material in Urban Spatial Design

Compared to high-energy-consumption materials commonly used in modern urban construction—such as plastics, steel, and composite panels—rattan requires relatively low energy during production, is naturally biodegradable, and generates no secondary pollution. These characteristics highlight its environmental and ethical advantages as a sustainable building material. In public space applications, rattan not only serves practical functions but also offers strong potential for artistic and cultural expression. Its physical properties—high flexibility, light weight, and strong plasticity—enable its use in furniture making and façade treatments, as well as its transformation into public art, landscape installations, and interactive media. This allows for an integrated application that merges cultural display with everyday functionality (Song, 2025).

For example, rattan can be used to construct lightweight shading pergolas, public seating, and temporary exhibition structures. It can also be combined with other materials such as bamboo, wood, or metal to form hybrid landscape installations. Especially under spatial governance strategies that emphasize "light intervention" and "micro-renewal", the modular and recyclable nature of rattan provides flexible design solutions for urban parks and community facilities.

In addition, the perforated structure of woven rattan allows for transparency in light and shadow, creating unique visual layers under sunlight or artificial lighting (Zoran, 2013). This lends public spaces a soft and welcoming atmosphere. Such ecological and aesthetic advantages not only highlight the potential of rattan as a green material, but also provide a practical foundation for its cultural expression.

In this sense, rattan weaving, as a culturally embedded medium with strong local characteristics, plays an important role when integrated into the urban landscape system. It not only helps preserve the historical and cultural continuity of the city, but also fosters emotional resonance between urban space and its citizens through the "handmade warmth" of intangible heritage.

In local practice, the model of "tradition-design-scenario" has been actively explored in various cultural tourism and commercial spaces. For example, the "DIORIVIERA Tropical Garden" pop-up space at DIOR's Shenzhen Bay MixC integrated large-scale handcrafted rattan installations to achieve a cross-boundary fusion of intangible heritage and international fashion. In this project (**Figure 4**), major installations—including a 3.8-meter-tall rattan giraffe, elephant, and cactus—were all handcrafted by over 100 rural artisans. Each rattan strip underwent 72 hours of steaming, softening, air-drying, and shaping before being meticulously woven using traditional techniques such as the "three-twist-one-press" method.

These installations not only demonstrated the precision and vitality of traditional handicraft but also brought the natural texture and light-shadow rhythm of

rattan weaving into an upscale urban commercial setting—creating a tangible and immersive cultural experience. This practice not only redefines the contemporary design value of intangible heritage but also reminds us that, in the context of highly industrialized and fast-paced urban life, the "slow craft" and "handmade warmth" embodied in traditional rattan weaving are becoming vital links connecting nature, culture, and everyday urban experience.

Figure 4. Integration of rattan weaving with urban commercial scenes.

It is evident that Huaiyuan rattan weaving, as an important carrier of regional culture in western Sichuan, embodies local wisdom in everyday life and ecological knowledge of natural resource use. With its sustainable material properties, adaptive craftsmanship, and capacity to preserve cultural memory, it aligns closely with the values promoted by the Park City vision. In the construction of park-oriented urban spaces, the patterns and local narratives embedded in rattan weaving not only revitalize the expression of place-based identity, but also infuse urban space with a sustainable, participatory, and co-creative aesthetic of everyday life and public culture. This represents not only a contemporary expression of intangible heritage, but also a collaborative and symbiotic pathway between tradition and modernity.

3.2. Translating from Object to Space: The Pathway of Spatial Transformation

As noted by the Japanese folk craft theorist Yanagi Sōetsu, craftsmanship is characterized by practicality, repetitiveness, affordability, collectivity, formality, impersonality, and indirectness—all of which point to the idea that traditional crafts are made for the common people and are embedded in everyday life (Yanagi, 1991). As a typical form of everyday handicraft, traditional rattan weaving originally existed mainly in the form of utilitarian objects such as furniture and baskets, em-

phasizing functionality and daily use. However, within the contemporary framework of "intangible heritage urban design", rattan weaving is undergoing a multilevel transformation—from daily objects to urban components, and further to immersive spatial experiences.

The first stage involves the spatialization of objects. For instance, traditional rattan chairs and tables, when scaled up, can be transformed into public benches or outdoor tea seats—preserving the warmth of the material and the beauty of its texture while serving citizens' needs for rest and social interaction. At the same time, rattan design is breaking away from the conventional framework of handcrafted utility objects and moving toward integration with new materials, technologies, artistic forms, and urban public art (Zhang, 2020)—becoming a new type of composite medium. For example, Professor Qin Dali and his Fiber Art Experimental Studio at Guangzhou Academy of Fine Arts have explored contemporary expressions and cross-disciplinary transformations of rattan weaving. In commercial and public art spaces, they have experimented extensively with the fusion of rattan structures and heterogeneous materials such as leather, metal, wood, and polymer composites. Through the logic of weaving, they reconstruct forms and explore spatial expressions of rattan weaving in the realms of soft decoration, installation art, and urban fiber sculpture.

The second stage involves the structuralization of components. Due to the inherent flexibility of rattan, it can be woven into complex forms such as grids, curved surfaces, and domes, and translated into urban components such as shading canopies, fences, and architectural façades. This material adaptability provides a viable pathway for transforming rattan from a "traditional craft" into an "ecological design language", particularly in the context of biomimetic design and lightweight architectural exploration. The structural plasticity and formal expressiveness of rattan weaving closely align with key concepts in biomimetic design, such as "flexible logic" and "growth by extension". The dynamic textures, continuous surfaces, and fibrous constructions produced through weaving techniques can emulate natural forms—such as the spreading of plant tendrils, the curling of leaves, or the segmented frameworks of insect exoskeletons. These forms can be generated through repetition, variation, and gradation, creating structures with an organic and lifelike quality.

A notable example is the Spanish Pavilion at the 2010 Shanghai World Expo, whose exterior façade was largely covered with woven materials. This demonstrated the immense potential of weaving logic in architectural skin design. Such integration not only enhances the spatial adaptability of rattan in architecture and landscape design but also expands its expressive dimensions within the modern design system. Transcending its traditional role as a decorative element, rattan weaving has emerged as a multifaceted design medium—one that synthesizes structural performance, aesthetic sensibility, and ecological ethics. This transformation allows for the articulation of lightweight spatial interventions in public contexts, offering a design paradigm where natural materiality, cultural symbolism, and technological rationality converge.

The final stage concerns spatial experience. When rattan weaving evolves from a single object into spatial components, its underlying craft logic is transformed into a spatial narrative language. In theme parks or cultural tourism districts, immersive exhibition halls, experiential workshops, or outdoor installations constructed with rattan as the core material elevate it from decorative detail to a symbolically charged spatial environment. For example, the "House of Artisans" exhibition at the Abu Dhabi Cultural Center centers on the theme of weaving, combining hands-on interaction zones with virtual reality technologies to create an immersive space (Huang & Cui, 2025) where people, objects, and the environment are closely integrated (**Figure 5**). The exhibition is framed by two long, curved walls—one of which features dynamic projections showing slow-motion close-ups of artisans' hand movements, highlighting the intricacies of traditional weaving techniques and celebrating the beauty of craftsmanship. The opposite wall displays a diverse array of local handmade artifacts made from different materials and styles, showcasing the richness of Emirati craft traditions.

Figure 5. The house of artisans in Qasr Al Hosn, Abu Dhabi, permanent exhibition.

At the center of the space stands a pavilion constructed using the local Arish technique, a traditional palm-leaf weaving method, demonstrating the region's vernacular architectural language. The exhibition also includes live demonstrations by artisans, allowing visitors to observe the weaving process up close, appreciate the artisanal skill, and gain a deeper understanding of its historical context and technical features.

This translational pathway from object to space illustrates the scalability and cultural agency of rattan weaving. From everyday functional use to structural applications as architectural components, and further to immersive spatial experiences, rattan weaving extends beyond the traditional boundaries of craftsmanship. It is transformed into a spatial language that integrates functionality, aesthetics, and narrative expression. This evolution facilitates the cross-disciplinary integration of intangible heritage into architecture, landscape, and public art—highlighting rattan weaving's multifaceted identity as product, artistic form, and social medium.

3.3. Intangible Heritage Experience and Cultural Activation in Spatial Scenarios

In traditional contexts, Intangible Cultural Heritage (ICH) such as rattan weaving has often been presented through static displays or product sales, where audiences mostly take on the role of passive observers, with limited opportunities for interaction or participation. However, within the framework of Park City development—which emphasizes citizen co-construction and the living transmission of ICH—heritage exhibitions are gradually shifting from passive viewing toward dynamic, immersive experiences. At the same time, evolving trends in the tourism market are also driving this transformation. As themed tourism, vacation-based travel, and leisure tourism become increasingly mainstream, various themed attractions and eco-leisure projects are being integrated into daily life, promoting the expansion of cultural experiences, interactive shopping, and immersive spatial formats (Zhu, 2019). In this context, ICH tourism is emerging as a key pathway for innovation in the integration of culture and tourism, revealing a high degree of compatibility and potential between traditional craftsmanship and immersive tourism environments (Rahman Prasetyo et al., 2022).

Take urban night tourism as an example. Nighttime tourism products typically include architectural installations, cultural performances, and themed merchandise, all aimed at creating multidimensional immersive experiences for visitors (Yu, 2018). For instance, Chengdu's "Jinjiang Night Tour" project fully leverages local cultural resources by integrating intangible heritage displays, folk performances, and regional art activities along the riverbanks. Combined with modern light and shadow technologies, it tells the story of Chengdu while establishing a culturally distinctive night tourism system that enhances both cultural memory and immersion for tourists. Drawing from this model, rattan weaving also demonstrates unique advantages in nighttime cultural tourism contexts. Due to its lightweight, flexible, and highly moldable properties, rattan is particularly well-suited for use as a medium in lighting design—such as rattan lampshades, woven-pattern light projection walls, and interactive lighting installations. In urban camping sites, night markets, or during traditional festivals like the Lantern Festival or Mid-Autumn Festival, rattan can be combined with waterproof fabrics to construct small-scale woven tents, pavilions, or camping lanterns. Its natural translucency and woven textures help create distinctive lighting atmospheres, blending cultural craft with sensory experience.

Rattan weaving patterns are also well-suited for integration into night tourism elements such as wayfinding systems, interactive maps, and landscape nodes. These applications not only meet visitors' orientation and navigation needs but also enable visual cultural expression, functional guidance, and immersive perception. When combined with low-energy lighting technologies—such as backlit projection and embedded light sources—the visual impact of rattan patterns can be further enhanced in nighttime environments. For example, (**Figure 6**) embedding warm-colored LED lights into ground guidance systems or signage panels

allows the light to pass through the woven textures, casting patterned shadows onto surrounding surfaces. This creates a soft, tactile lighting effect that serves both directional and aesthetic functions. Such shadow-based wayfinding systems offer not only high recognizability and cultural resonance at night but also serve as attractive photo spots, enhancing spatial memory and the cultural atmosphere of tourism destinations.

Figure 6. Lounge and Signpost with Rattan Weaving Patterns. (Source: AI-Assisted Design)

Moreover, with the widespread application of new media technologies such as 3D projection and holographic imaging, nighttime performances, sightseeing, and immersive visual experiences are increasingly converging—giving rise to more creative and culturally enriched forms of night tourism content. Through digital modeling and material simulation technologies, the structure, weaving techniques, and pattern variations of rattan can be reproduced in dynamic visual formats, creating interactive interfaces that combine tactile aesthetics with digital expression. By incorporating VR equipment, users can simulate typical weaving techniques such as twisting and pressing or diagonal weaving (Zhang et al., 2023), gaining a deeper understanding of the craft logic and aesthetic principles through virtual operation. These experiences can be further enriched through scenario-based narrative systems—such as virtual workshops, historical scene reconstructions, and immersive storylines—which link the cultural value of rattan weaving to local production practices, daily life, and folk festivals. Together, these elements form a digital heritage experience system centered on craftsmanship, mediated by interaction, and driven by narrative, offering a multisensory and culturally embedded mode of engagement with intangible heritage.

4. Co-Creation and Revitalization: Design Approaches for Rattan-Weaving Themed Intangible Heritage Parks

With its natural materials, structural flexibility, and soft visual qualities, rattan weaving demonstrates multifaceted potential within the value framework of Park

City—which emphasizes ecological aesthetics, sustainable design, and cultural identity. Rattan can serve not only as a visual texture element in urban spaces, but also be transformed into micro-architectures and ecological nodes. These applications enhance both the artistic quality and environmental character of public spaces, while also integrating intangible heritage into everyday life and linking traditional craftsmanship with cultural education.

4.1. Micro-Landscape Design with Rattan Art and Nature-Based Education

Rattan weaving, when coordinated with natural materials such as wood, stone, and vegetation, can serve as a spatial language for micro-landscapes or temporary nodes in parks. It offers not only aesthetic form and experiential value, but also provides innovative settings for ecological education and intergenerational cultural transmission. For example, drawing on the bird biodiversity around Xinglong Lake and aligning with the development goals of the Bird Conservation Center and Science Education Base, three-dimensional rattan structures can be incorporated into bird-themed interactive play facilities—such as climbing nets and rest pods. In soft-surfaced areas like sandpits and lawns, rattan fences can serve multifunctional purposes, combining space partitioning, backrest seating, and play structures. Rattan patterns can also be translated into ground paving motifs, integrating local visual aesthetics with educational content while meeting the needs of parent–child tourism and field-based learning. This transforms recreational activities into dynamic carriers of cultural transmission.

Figure 7. Children's interactive node with micro-landscape and "Eggshell Chair".

Furthermore, building on the bird theme, natural forms such as nests and eggshells can inspire semi-enclosed rattan "eggshell" hanging chairs, suspended from trees or pergolas (**Figure 7**). These structures provide both shading and ecological symbolism. They enhance the thematic and playful qualities of the site, attract and retain visitors, and can be complemented by interpretive signage introducing avian ecology—facilitating a comprehensive experience of spatial use, cultural interpretation, and environmental learning. This not only supports bird-related science education with tangible infrastructure but can also be linked to dining and

leisure amenities to enrich the overall quality of park experiences.

In ecologically sensitive areas such as wetlands, rattan-structured ecological pavilions can be established to showcase both rattan material processing and weaving techniques, while also supporting nature-based education and cultural experiences. For example, a permanent exhibition zone titled "Rattan and Nature" may be curated within the pavilion to systematically present the ecological characteristics of different rattan species, methods of harvesting, and traditional craft practices—guiding the public to understand the symbiotic relationship between rattan weaving and the natural environment. The exhibition can further incorporate local flora and fauna specimens and displays on habitat evolution. Through the use of interactive digital screens, tactile specimens, and miniature landscape models, visitors can explore topics such as species habitats, migration patterns, and conservation efforts. In doing so, the pavilion achieves a deep integration of craft experience and ecological education.

Moreover, leveraging local resources in the Luxi River Ecological Zone, rattan elements can be further embedded into multifunctional regional spaces: First, in low-density residential experiences such as prefabricated hotels and stargazing tents, rattan can be incorporated into shading devices, partitions, and landscape screens to enhance the ecological texture and express regional cultural identity—thus forming an eco-living zone. Second, in waterfront districts, rattan furniture, lighting, and decorative components can be used to integrate dining, folk culture exhibitions, and leisure functions, creating a nature-friendly, immersive cultural street environment. Third, a rattan-themed exhibition hall can be developed to highlight the dialogue between contemporary rattan art and traditional craftsmanship. This space can be connected with the adjacent Western China International Expo City to form a larger exhibition cluster, expanding rattan's influence in the fields of public art and sustainable design.

These cross-sector integrations not only strengthen the cultural and educational functions of rattan-infused spaces but also establish a sustainable public cultural environment that blends intangible heritage experience, ecological knowledge, and collaborative art-making. Furthermore, they offer new pathways for the regeneration of intangible heritage within urban ecological systems.

4.2. Design Elements of Rattan Art-Themed Cultural Parks

In the development of intangible heritage–themed parks, design should go beyond the superficial use of patterns and engage deeply with the logic of craftsmanship and the spirit of artisanship—seeking resonance between cultural context and spatial expression. The revitalization of intangible heritage lies in the regeneration and reactivation of meaning, rather than the mechanical replication of traditional forms. Within the park—as a public cultural platform—rattan weaving functions not only as a symbol of cultural identity, but also as a tangible and participatory medium of everyday experience. Therefore, at the design level, it is essential to work with core spatial elements such as topography, architecture, facilities, water fea-

tures, and plantings, translating the cultural essence of rattan art into spatial strategies and landscape languages.

1) Topography and Pathways

Topography serves as the structural framework of a park. By making thoughtful use of the site's terrain, designers can create aesthetically pleasing environments that support leisure and recreation (Chengdu Tianfu New Area Investment Group Co., 2020). Following the principles of designing in accordance with local conditions and form following movement, the park's original landform characteristics should be preserved as much as possible. Variations in elevation can be used to organize spatial rhythm and define key landscape features and nodes. Moreover, by integrating weaving-inspired design language with existing topographical features, undulating and dynamic landscape units can be created—such as curved slopes, ring-shaped grass terraces, and spiral platforms—that echo the organic growth patterns of rattan vines. These spatial forms help to reinforce the park's cultural atmosphere and enhance visitors' immersive experience.

2) Architecture and Structures

Architectural elements and structures within a park serve not only functional and spatial organizational purposes but also act as key carriers for the visualization and tactile expression of rattan craftsmanship. In themed park design, the plasticity and interlacing characteristics of rattan can be utilized to create a system of landscape structures that are formally open, structurally dynamic, and materially integrated (Lai, 2024). For example, design strategies may draw upon the structural logic of spiraling, interweaving, and twisting to form semi-open spatial constructs such as rattan pavilions or woven pergolas. These structures serve both as sculptural visual focal points and as functional elements offering shading, gathering, and spatial orientation.

Structurally, hybrid systems combining steel frameworks with rattan cladding can be employed to balance cultural symbolism with durability. Where needed, supplementary materials such as glass or biodegradable fibers can be integrated to enhance the structure's ecological adaptability and contemporary design expression.

3) Facilities and Small-Scale Installations

Landscape installations in a rattan-themed park play a dual role as narrative nodes and artistic interventions. Their design should prioritize safety, comfort, and functional rationality, addressing the diverse needs of visitors for rest, recreation, and social interaction. At the same time, the structural beauty and symbolic logic of rattan weaving can be explored to transform typical forms into three-dimensional woven elements—such as sculptural lampshades and parent–child interactive installations. These "participatory, walkable, and perceivable" landscape features invite visitors to engage physically and emotionally with the material, allowing them to experience the tactile warmth of craftsmanship and the continuity of cultural heritage through movement and pause. Some nodes may also incorporate local folk narratives—such as the Rattan Weaving Lineage or A Hundred

Weaves Make a Vessel—translated into totemic sculptures, soundscape installations, or interactive story walls. These elements help to materialize and contextualize cultural memory, enhancing the immersive and experiential qualities of the park environment.

4) Waterscape Design

As an ecological element in park environments, water bodies help regulate humidity, purify the air, and mitigate the urban heat island effect. At the same time, they serve as emotional connectors between people and nature. From a visual design perspective, (Figure 8) waterscape elements can embody the structural beauty and light-shadow dynamics of rattan weaving—expressed through forms such as linear ripples and floating installations that reflect the logic of woven construction. At night, floating rattan-inspired lanterns or festival-themed water installations can be introduced. For example, a rattan light water stage may combine light curtains and projected imagery to create a layered interplay of illumination and reflection over the water—enhancing the nocturnal atmosphere and festive appeal of the park. Waterfront edges can feature railing systems inspired by woven rattan structures or tiered shorelines incorporating weaving patterns, achieving both safety and cultural expression. The overall design should emphasize spatial rhythm and fluid circulation, enabling visitors to experience a sense of unity between culture and nature as they move, pause, and interact with the water environment.

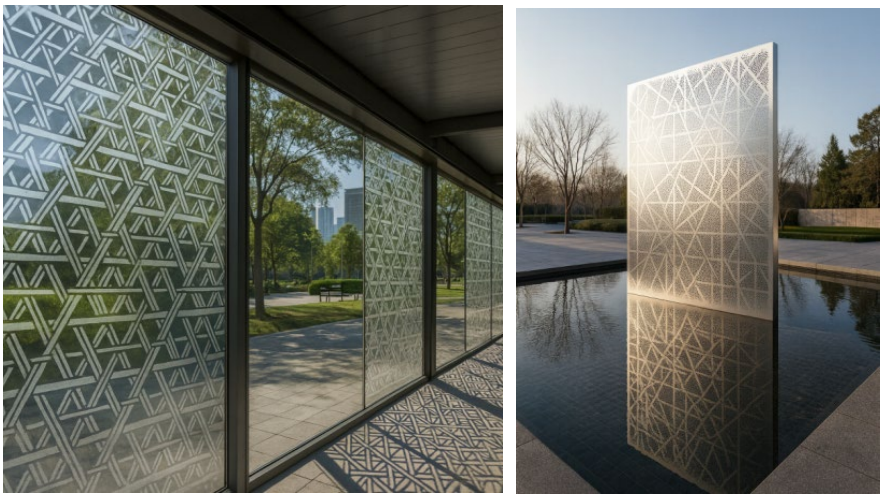

Figure 8. Transformation of weaving patterns into architectural structures and public art.

5) Planting and Paving Design

The material qualities and ecological aesthetics of rattan weaving make it a meaningful cultural medium within planting schemes and paving systems in parks. In terms of vegetation, rattan elements can be combined with locally adaptive plant species such as osmanthus, roses, azaleas, and crape myrtles to form ecologically layered and chromatically harmonious plant groupings. Rattan components—such as planters, fences, and pergolas—can function both as support

structures and spatial boundaries for vegetation, while also serving as flexible ecological art nodes. These installations create a dialogue between natural plant growth and the handcrafted logic of weaving. In terms of material composition, rattan may be integrated with vernacular materials such as raw timber, fieldstone, and jute rope, ensuring consistency in color, texture, and construction language. This approach emphasizes both locality and ecological integrity. This composite method—using rattan as a cultural medium, plants as spatial carriers, and native materials as foundational elements—embodies the design concept that "material is culture, and ecology is design". It enables rattan-themed parks to go beyond formal aesthetics and reflect deeper ecological and philosophical values.

In summary, the design of a rattan-themed cultural park is not as simple as an assemblage of discrete elements, but rather a systematic integration of craft logic and landscape language. Through the narrative shaping of topography and pathways, the spatial translation of architecture and structures, the interactive design of facilities and installations, the ecological storytelling of waterscapes, and the symbolic application of planting and paving systems, rattan weaving is transformed into a spatial interface that is readable, tactile, and participatory. These design components function in dialogue with one another, collectively shaping a public environment that integrates ecological value, cultural expression, and everyday experience. In this context, intangible rattan craftsmanship is extended into a living contemporary form—realizing its dynamic transformation from traditional handicraft to spatial expression within the park setting.

4.3. IP Development and Derivative Material Design

Within the context of cultural–tourism integration, rattan weaving is being incorporated into modern product systems in increasingly diverse and flexible ways, becoming a vital source of urban cultural identity and creative product design (He, 2022). In the field of daily-use product design, rattan patterns are being reinterpreted from two-dimensional motifs into multi-material, multi-format applications. For instance, in textile products such as eco-friendly tote bags, tablecloths, and placemats, the textures and rhythmic aesthetics of rattan patterns are replicated through digital printing, embroidery, and other fabrication techniques. The original rattan colors—such as natural beige or carbonized tones—can be adaptively adjusted according to fabric characteristics to better suit contemporary aesthetic and functional demands, for curved-surface objects like ceramics or mugs, graphic transformations and spatial perspective techniques are employed to ensure pattern continuity and legibility across three-dimensional forms, achieving a balance between decorative appeal and craftsmanship. Such products not only imbue everyday objects with cultural warmth but also facilitate the organic circulation of intangible heritage elements within contemporary life scenarios.

Secondly, extended brand materials also serve as important carriers for the transformation of intangible cultural heritage (**Figure 9**). Rattan elements can be applied across various graphic media such as local agricultural product packaging,

souvenir boxes, brand manuals, and exhibition posters—contributing to a cohesive visual cultural system. In the digital realm, the possibilities for disseminating and reinterpreting heritage patterns are even broader. For example, high-definition printing techniques can be used to apply rattan motifs to consumer electronics accessories such as phone cases and tablet covers, preserving the intricate structure and rhythmic aesthetics of the original patterns. In this way, intangible heritage is seamlessly embedded into the digital routines of daily life through technological carriers. Digital products such as wallpapers and interface skins can further enhance the expressive power and interactivity of traditional patterns through the use of color gradients, dynamic lighting effects, and motion-based visuals—offering users a more engaging and immersive cultural experience.

*The image on the left is Tengying Pastry.

Figure 9. Derivative Products of Rattan Weaving Patterns.

Cross-sector collaborations are also an effective strategy for the branding and development of intangible cultural heritage–based creative products. On one hand, partnerships with regional tourism resources can help build localized IPs—for example, co-developing the "Tianfu Rattan Art" series with destinations such as the Panda Base or Sanxingdui Museum, thereby fostering mutual reinforcement between rattan weaving and regional cultural identity. On the other hand, collaborations with well-known cultural brands and art institutions can lead to the creation of limited-edition rattan accessories, site-specific installations, or curated exhibitions and events—facilitating a shift from product to experience, and from artifact to immersive cultural scenario.

4.4. Practical Constraints and Countermeasures

In practice, the integration of rattan weaving into Park City cultural-tourism scenarios faces several constraints. First, material maintenance and weather resistance remain major concerns: long-term outdoor exposure makes rattan susceptible to weathering, mildew, and discoloration. Protective measures such as anti-corrosion, waterproof, and flame-retardant coatings, together with partial substitution by steel structures or synthetic rattan, can enhance durability, complemented by regular inspection and replacement mechanisms.

Second, safety risks arise from rattan's flammability. Applying flame-retardant

treatments or combining rattan with fire-resistant materials such as metal or glass helps to mitigate potential hazards.

Finally, economic cost and maintenance burdens may limit large-scale promotion. Since rattan structures require complex construction and continuous upkeep, phased implementation, community participation, and social capital investment can distribute costs while fostering public engagement.

Overall, applying rattan weaving in Park City contexts requires balancing cultural value with material properties, safety, and economic feasibility to ensure both viability and sustainability.

5. Conclusion

Overall, the implementation of intangible rattan weaving within park environments follows several key pathways. First, the scaling up of rattan from object to spatial component enables its structural application in lightweight constructions such as shading canopies, fences, pergolas, and exhibition pavilions—demonstrating both functional integration and formal adaptability. Second, the synergy between nighttime tourism and new media technologies—through light projection (Jiang, 2025), VR/AR, and other digital tools—embeds the aesthetics and narrative potential of weaving into immersive spatial experiences. Third, community co-creation and educational practices, supported by micro-landscapes, nature-based learning, and heritage workshops, enhance public participation and intergenerational transmission.

At the design level, a systematic approach can be developed across five dimensions: topography and pathways, architecture and built structures, facilities and small installations, waterscapes, and planting and paving systems. Following the ecological logic of designing with nature and the principle that material is culture, such strategies contribute to the creation of place-based experiences that are both ecologically grounded and culturally expressive.

Furthermore, through IP development and derivative material design, the influence and industrial boundaries of intangible heritage can be extended. With its ecological ethics, structural plasticity, and cultural memory, rattan weaving is gradually becoming a vital link connecting nature, culture, and everyday life. It not only offers sustainable aesthetic and functional solutions for Park City initiatives but also opens new pathways for transitioning intangible heritage from static preservation to living renewal, and from local craftsmanship to urban cultural branding.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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