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Research on the Optimization of Environmental Art Design for Rural Homestays in Hainan Based on Tourist Experience

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Abstract: Addressing persistent challenges in the development of rural homestays in Hainan Province, China—including uniform spatial aesthetics, superficial representation of regional culture, and a notable lack of immersive visitor experiences—this study proposes a novel approach to integrating landscape architecture into homestay space optimization from a visitor experience perspective. Through a systematic literature review and field investigation, the research identifies three core visitor needs: natural perception, cultural identification, and emotional resonance. Building upon these insights, three fundamental design principles are established: ecological adaptability, localized cultural interpretation, and embodied participation. Guided by this theoretical framework, practical landscape enhancement strategies are developed across three interrelated dimensions: the optimization of external habitats and microclimates, the reconstruction of traditional cultural spaces, and the creation of multi-sensory interactive environments. These strategies aim to transcend the conventional emphasis on visual appeal, transforming homestay spaces from mere accommodation units into holistic experiential platforms. The findings not only provide a reference framework for localized and differentiated spatial design in Hainan's rural homestays but also offer theoretical foundations and actionable insights for the continuous evolution of tropical rural tourism environments, contributing to the broader discourse on sustainable and culturally responsive landscape architecture in the context of rural revitalization.

Keywords: rural homestays; landscape architecture; tourist experience; cultural identity; microclimate; environmental design

1. Introduction

The redefinition of rural spatial value and the advancement of Hainan's cultural tourism industry within the Free Trade Port framework are profoundly reshaping the spatial positioning and functional role of rural homestays. These accommodations have evolved beyond basic lodging functions to become key spatial mediators that embody local identity and convey indigenous cultural expressions. However, alongside industry development, the spatial evolution of Hainan's rural homestays frequently exhibits structural imbalance—prioritizing individual architectural form while underemphasizing integration with external environments [1]. Most landscape interventions remain limited to aesthetic enhancements and routine greening, lacking deep responsiveness to Hainan's distinctive tropical monsoon climate and rich regional cultural traditions. This contextually detached approach has contributed to widespread spatial homogenization, reducing cultural-tourism integration to symbolic imitation rather than fostering authentic, immersive experiences—a divergence from contemporary travelers' growing preference for meaningful engagement over passive sightseeing.

As a physical extension of homestay architecture, landscape design plays a vital role in anchoring the 'spirit of place' and supporting visitors' embodied cognition. Tourist experience in rural settings is inherently a progressive psychological process involving sensory perception, cultural recognition, and emotional connection [1]. While existing scholarship largely centers on operational models and architectural adaptations of

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homestays, systematic investigation into how external landscape environments shape visitors' emotional responses and behavioral intentions remains limited—particularly from the integrated perspectives of environmental psychology and experience economy.

Homestay landscape design often privileges visual impact at the expense of holistic spatial experience. This study departs from such conventional practice by grounding spatial optimization in diverse, firsthand visitor experiences. Addressing prevalent challenges in Hainan's rural homestays—including diminished regional distinctiveness and low environmental interactivity—the research integrates ecological adaptability, cultural authenticity, and experiential interaction to formulate a practical improvement strategy. Grounded in real-world feasibility, this strategy provides a concrete, localized framework for landscape design in Hainan's rural homestays and explores scalable approaches for continuous enhancement of living environments in tropical rural tourism contexts [2].

2. Analysis of the Realistic Challenges in Landscape Spaces of Rural Homestays in Hainan and Tourists Experience Expectations

2.1. Homogenization of Spatial Representation and Superficial Collage of Local Culture

Many rural homestays in Hainan adopt standardized landscape design approaches that prioritize short-term commercial returns and prevailing market trends. Common features—such as Japanese-style dry gardens, uniform infinity pools, and expansive monocultural lawns—are frequently introduced without regard to local environmental conditions or vernacular spatial logic [3]. When transplanted into rural contexts, these elements often contrast sharply with adjacent farmland, forested areas, and traditional village fabric, undermining spatial coherence and weakening integration with the surrounding countryside. Such context-insensitive design choices obscure Hainan's distinctive tropical climate, volcanic geology, and authentic rural character.

Hainan possesses abundant landscape resources, including volcanic terrain, tropical rainforests, intangible cultural heritage of the Li and Miao ethnic groups, maritime traditions, and time-honored agricultural practices—all offering substantial potential for meaningful spatial interpretation. Yet in practice, these resources are often reduced to superficial motifs: labeled generically as 'cultural elements' in architectural documentation or applied selectively as decorative accents [3]. Few projects engage deeply with the underlying ecological, historical, or social logics of these resources to generate coherent, site-specific spatial narratives. Without such grounding, landscape designs lack differentiation, limiting the capacity of homestays to convey a distinct sense of place; visitors perceive minimal distinction from other destinations, which constrains the development of strong local identity and affects long-term visitor engagement and operational sustainability.

2.2. Multidimensional Perceptions and Shifts in Tourists Needs from the Perspective of the Experience Economy

Contemporary tourist preferences for rural homestays in Hainan have undergone substantial transformation. Whereas earlier visitors prioritized functional attributes such as convenience, hygiene, and basic accommodation, current travelers increasingly seek immersive experiences that facilitate lifestyle shifts, mental relaxation, and psychological rejuvenation. Consequently, homestay offerings must transcend utilitarian lodging functions to holistically support visitor well-being—encompassing physical comfort, cognitive ease, and emotionally resonant moments within the spatial environment [4]. These evolving expectations can be systematically analyzed across three interrelated dimensions.

The first dimension centers on natural environment and ecological authenticity. Many tourists travel to Hainan's rural areas expressly to disengage from highly structured, artificial urban environments and immerse themselves in unmediated natural settings [5]. Landscape design should therefore prioritize ecological integrity over excessive formalization or artificial enhancement, actively preserving and accentuating Hainan's

distinctive tropical character—including shaded forest canopies, terraced rice paddies, meandering streams, expansive skies, and seasonally dynamic vegetation. Such unembellished natural conditions more effectively induce restorative psychological states and deepen aesthetic appreciation.

The second dimension concerns cultural perception through spatial experience. Modern visitors no longer regard brief, performative engagements—such as staged photo opportunities—as sufficient; instead, they seek subtle, embodied encounters with local history and everyday life during their stay [6]. Authentic cultural transmission cannot rely solely on decorative elements like ethnic costumes or curated antiques. Rather, it requires the thoughtful integration of cultural meaning into the spatial fabric itself—through material selection, spatial sequencing, proportion, texture, and responsive lighting strategies. When design successfully evokes a palpable sense of place-specific uniqueness, cultural resonance emerges organically.

The third dimension involves participatory engagement and experiential co-creation. Contemporary tourists resist passive observation and instead desire active involvement—such as assisting with seasonal agricultural tasks, co-producing traditional crafts, or joining villagers in botanical identification walks. Though seemingly modest in scope, these activities significantly strengthen affective and cognitive bonds between individuals and place. Spatial design must therefore accommodate not only visual legibility but also functional flexibility and tactile accessibility—enabling meaningful interaction and adaptive use [7]. As visitors transition from observers to co-participants, spatial meaning is no longer imposed top-down by designers but dynamically generated through reciprocal human-environment exchange.

3. Reconstructing the Principles and Concepts of Landscape Architecture Design for Homestays from an Experience-Oriented Perspective

3.1. The Foundation of Ecological Resilience and Local Cultural-Environmental Logic

Hainan lies at the northern edge of the tropics, where high temperatures, high humidity, and frequent typhoons constitute a defining climatic condition that fundamentally shapes landscape design for rural homestays. Under these conditions, strategies emphasizing extensive engineered solutions are less suitable; instead, climate-responsive and ecologically resilient approaches offer greater practicality. For habitat enhancement, initial assessment of site topography and hydrological systems is essential, followed by integration of low-impact development principles into microtopographic adjustments and rainwater management—supporting resilience against tropical storms and surface runoff. Concurrently, conserving existing vegetation and cultivating multi-layered tropical plant communities contributes to the gradual restoration and strengthening of microenvironmental ecological stability.

At a deeper level, landscape design must meaningfully engage with local cultural and environmental contexts. Traditional village layouts, building orientations, and material selections in Hainan reflect long-standing adaptations to regional climate and daily life. Features such as comb-like street arrangements, walls built from volcanic or coral stone, and Li and Miao traditional weaving and carving techniques embody spatial knowledge grounded in function and place. Designers should move beyond decorative application and instead investigate the functional rationale and aesthetic values embedded in these practices, reinterpreting them through contemporary spatial methods. In this manner, the landscape not only addresses natural environmental conditions but also evolves as an authentic expression of regional culture—allowing visitors to intuitively sense the character and depth of the place through its spatial qualities.

3.2. Emotional Activation through Embodied Interaction Mechanisms and Place Spirit

Experience-oriented landscape design diverges from traditional approaches by integrating users into the spatial environment rather than positioning them as passive external observers. This paradigm shift necessitates attention not only to visual composition but also to embodied possibilities—what users can physically do, sense, and

enact within the space. Practically, this entails designing layered circulation paths and functional zoning to encourage exploration, avoiding immediate visual saturation upon entry. For example, interweaving productive zones—such as tropical orchards and spice cultivation areas—with rest and leisure spaces enables visitors to sit, harvest fruit, or engage with plant textures and aromas, thereby cultivating direct physical engagement with the site. Complementing these elements with water features, mist installations, tactile paving variations, and other interactive sensory stimuli further enriches experiential depth and sustained visitor engagement.

At a deeper level, the design must intentionally cultivate emotional resonance. The concept of place character refers to a space's capacity to evoke enduring affective impressions. Rural landscapes in Hainan exhibit distinctive environmental qualities: dynamic light-shadow patterns across diurnal cycles, plant-derived olfactory cues, weathered material textures—such as sun-bleached wood or wind-eroded stone—and emotionally evocative transitions between spatial sequences. Collectively, these nuanced sensory and spatial qualities may subtly trigger associations with childhood environments, natural settings, or traditional lifestyles. When such affective alignment occurs, a homestay transcends its functional role as overnight accommodation and becomes a meaningful experiential anchor—potentially motivating repeat visitation.

4. Climate Response and Landscape Optimization Strategies Oriented by Local Experience

4.1. Establishment of Native Plant Communities and Creation of Multisensory Landscapes

Plant selection should prioritize native species over water-intensive, high-maintenance exotic species, supporting near-natural community succession and multisensory landscape development. Given Hainan's hot, humid tropical monsoon climate, landscape design should emulate the vertical stratification of tropical rainforests to establish multi-layered plant communities with enhanced ecological resilience [1]. Spatially, tall native trees—including palms—define the forest canopy skyline, reinforcing a distinctive tropical rural character; in the middle and understory layers, flowering trees and shrubs with diverse seasonal blooms, together with shade-tolerant ferns and araceae species, foster a deep, moist microhabitat.

Beyond visual structure, plant design should intentionally integrate olfactory and auditory dimensions. Strategically placed native aromatic plants—such as lemongrass and bergamot—contribute to restorative fragrance environments; concurrently, broad-leaved species like bamboo and banana generate natural ambient sound under wind and rainfall conditions. This multisensory integration enriches experiential depth, facilitating physical and mental relaxation while strengthening place-based identity through immersive environmental perception [8].

4.2. Topographic and Geomorphological Adaptation and Passive Microclimate Regulation

Hainan experiences a prolonged summer with intense solar radiation. To enhance outdoor thermal comfort, spatial design strategies are essential beyond reliance on indoor mechanical cooling. Organizing spaces according to natural elevation gradients—such as through terraces, sunken courtyards, or stepped platforms—facilitates passive air movement between higher and lower zones without major earthwork, offering an effective natural cooling mechanism. Water elements further support thermal mitigation: ecological ponds, shallow cascades, and still reflective surfaces promote evaporative cooling, resulting in measurably lower temperatures at water edges compared to adjacent areas, particularly under windy conditions.

Summer wind patterns across Hainan exhibit consistent directional tendencies; therefore, building layout and vegetation placement should prioritize unobstructed airflow, avoiding solid barriers or dense shrubbery that impede ventilation. For solar shading, integrating broad-canopied trees with trellises and pavilions draped in climbing vegetation creates semi-outdoor zones that combine shade, ventilation, and shelter—ideal for comfortable occupancy during peak insolation. These design approaches collectively

improve energy performance and environmental responsiveness while enabling enjoyable, climate-adapted outdoor use throughout hot periods.

5. The Symbolic Deconstruction and Typological Interpretation of Regional Culture within the Landscape Spaces of Homestays

5.1. Extracting Spatial Logic from the Structural Organization of Traditional Villages

Hainan's traditional villages evolved organically through long-term adaptation to local geography and accumulated practical living experience, rather than adhering to predetermined design schemes. Their spatial layouts typically conform to natural topography, achieving balanced density; to mitigate the hot and humid climate, many adopt a comb-like configuration—featuring narrow, elongated alleys aligned with prevailing wind directions to facilitate natural ventilation across households. These arrangements reflect deep-rooted environmental intelligence and offer valuable insights for contemporary homestay landscape design.

Instead of imposing standardized axial alignments or symmetrical geometric compositions typical of urban gardens, designers can reinterpret the inherent spatial logic of traditional villages. Key elements—including the ecologically demarcated boundaries of fengshui forests, naturally occurring communal spaces beneath expansive banyan trees, and the rhythmic undulation of cobblestone pathways—can be selectively abstracted and reconfigured using modern design methodologies. The resulting outdoor environments need not replicate historic forms literally; yet, through experiential qualities such as shifting sightlines, dynamic visual sequences during movement, and intentional moments of rest in shaded zones, they evoke the atmospheric essence of surrounding historic settlements. Visitors thus intuitively perceive the warm, human-scaled character of Hainan's traditional dwellings without requiring interpretive mediation.

5.2. Utilization of Local Materials and Reinterpretation of Intangible Cultural Heritage Symbols

Materials constitute the 'skin' of space and serve as the most direct medium for establishing tactile connections between people and their environment. Hainan possesses a rich array of regionally distinctive materials: volcanic rock, characterized by its rough, porous surface and inherent sense of mass; coral stone, distinguished by its fine grain and pristine hue that evokes the marine environment; as well as reclaimed shipwood, bamboo, rattan, red bricks, and blue tiles—each bearing visible traces of time and use. Their integration into design extends beyond mere application; it requires recontextualization to allow these materials to acquire renewed expressive agency within contemporary architectural frameworks [9]. Volcanic rock employed in pathways or landscape walls resonates with Haikou's volcanic geological heritage; reclaimed shipwood used in seating or landscape installations conveys maritime narratives through its weathered surfaces and structural imperfections.

Likewise, visual motifs drawn from intangible cultural heritage—including geometric patterns in Li brocade, silhouettes of traditional boat-shaped houses, and ornamental forms from Miao silverwork—are more effectively engaged through abstraction than literal replication on walls or floors. These elements can be deconstructed and rearticulated as spatial organizational principles, dynamic light-and-shadow compositions cast by sunlight through perforated screens, or refined curvilinear continuities embedded in landscape geometry. Such treatment safeguards the cultural resonance of traditional symbols without resorting to didactic representation; instead, they are distilled and woven into the spatial logic. Visitors may not immediately identify specific origins, yet through embodied experience—walking, touching, observing—they gradually discern formal affinities with local cultural expressions, yielding a nuanced and enduring impression.

6. Construction of Multidimensional Interactive Scenarios and Healing Spaces from the Perspective of Embodied Cognition

6.1. Integrating Productive Landscapes with Agricultural Experiences

The appeal of rural homestays largely stems from their distinct contrast with urban environments—particularly through the presence of agricultural landscapes. Integrating productive landscapes into homestay outdoor spaces goes beyond merely allocating land for visual display; it requires transforming agricultural production into an interactive and perceptible spatial component. Hainan's tropical orchards, spice plantations, rice fields, and vegetable gardens—resources already widely distributed across rural areas—can function simultaneously as scenic attractions and participatory activity venues when thoughtfully incorporated [10, 11].

In practice, experience pathways must be carefully designed—from entry points and designated pause zones to activity stations and return routes—ensuring seamless, intuitive progression without artificial imposition. Service facilities should be integrated discreetly to preserve visual harmony [12]. Along the route, displays of traditional farming tools, concise informational signage, and field-side rest areas support visitor engagement during activities such as sowing, weeding, harvesting, or simple on-site processing (e.g., grinding coffee beans or boiling coconut sugar). For urban-raised children and their families, direct participation often proves profoundly impactful: tactile contact with soil, physical exertion, and witnessing the full cycle from cultivation to table convert abstract notions of food and land into embodied, meaningful understanding—naturally cultivating emotional resonance.

6.2. Restorative Environment and Multisensory Healing Space

Contemporary homestay users increasingly seek more than basic accommodation; they prioritize authentic relaxation and psychological restoration. This shift reflects a growing demand for restorative environments—spaces that facilitate temporary relief from daily stressors. Hainan's natural endowments—including dense vegetation, clean air, and favorable climate—provide a strong foundation, yet translating these assets into functional, therapeutic living spaces remains a key design challenge.

Within the homestay premises, a quiet, secluded zone—distanced from primary activity areas—can be designated and enveloped by dense, layered planting. Sunlight filtered through foliage produces soft, diffused illumination, avoiding both glare and excessive dimness [12]. Acoustically, naturally occurring sounds—such as wind rustling through leaves, intermittent bird vocalizations, and the subtle flow of water—prove more effective for inducing calm than artificial audio interventions. For olfactory engagement, aromatic flora including white orchid, galangal, and agarwood may be integrated to deliver gentle, unconscious sensory modulation via inhalation. Ground surfaces should employ natural, tactile materials—such as treated timber, low-maintenance turf, or fine sand—to encourage barefoot contact, leveraging subtle somatosensory variation for enhanced physiological soothing.

7. Conclusion

The landscape design of rural homestays in Hainan transcends mere site beautification; it represents a spatial integration of tropical monsoon ecosystems, regional cultural heritage, and individual emotional needs. This study moves beyond the superficial visual consumption logic inherent in traditional design by incorporating ecological resilience frameworks, typological interpretations of village structures, embodied interaction mechanisms, and restorative environments into a unified framework—thereby redefining an experience-oriented landscape design paradigm. When climate adaptation strategies for low-impact development, the expressive use of local materials, and productive and therapeutic scenarios intersect substantively, homestay spaces evolve beyond their function as "accommodation containers," becoming mediators that anchor spiritual identity and facilitate tourists' perception of and connection with rural memories. This shift in design philosophy establishes distinctive spatial qualities for Hainan's rural homestays amid market homogeneity, while offering actionable pathways for preserving local cultures in tropical regions and restoring rural microhabitats. Furthermore, the evolution of the experience economy and digital

technology continues reshaping human–environment interactions, calling for sustained inquiry into how traditional practices and modern technologies can be thoughtfully integrated in homestay landscape design. By upholding regional authenticity and developing spatial expressions infused with humanistic care and ecological wisdom, rural tourism development in Hainan is better positioned to advance long-term sustainability.

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