

Building Cultural Identity through Public Art Landscapes in Cross-Border Cooperation Zones—An Empirical Study Based on the P-I-I Model in Hengqin

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Abstract: This study investigates the mechanisms of cultural identity construction through public art landscapes in the Hengqin Guangdong-Macau Deep Cooperation Zone, a distinctive cross-border policy space under the “One Country, Two Systems” framework. Through fieldwork covering over 30 public art nodes and employing theoretical sampling alongside semi-structured interviews, the research systematically examines the spatial configuration and symbolic characteristics of Hengqin’s public art landscape. The findings reveal two dominant thematic threads—the dialogical symbiosis of Chinese and Western cultures, and the bidirectional empowerment of cultural heritage and innovation—manifested across a “point-line-area” spatial framework. Based on empirical evidence, the study proposes a dual-layer theoretical framework: a design-oriented “Visual Translation–Emotional Resonance–Identity Construction” strategic framework, and a recipient-centered “Perceive–Interpret–Identify” (P-I-I) analytical model. The P-I-I model diagnoses that while explicit symbols achieve high perceptual accessibility, they often falter at the interpretive stage, and metaphorical expressions frequently fail to resonate with diverse audiences. The study concludes that visual juxtaposition of symbols does not equate to shared meaning, and that effective cultural integration requires designing for the complete perception-interpretation-identification chain. This framework offers both a theoretical tool for evaluating public art in policy-driven urban spaces and practical implications for cultural governance in cross-border cooperation zones.

Keywords: Public art; Cultural identity; Hengqin Guangdong-Macau Deep Cooperation Zone; Cross-border cooperation; P-I-I Model; Cultural integration

Online publication: October 21, 2026

1. Introduction

The establishment of the Hengqin Guangdong-Macau Deep Cooperation Zone has transformed this area from an economic functional zone into a strategic space tasked with multiple missions—including cross-border governance and cultural integration. Public art in this zone is endowed with social functions that extend beyond the realm of aesthetics; it serves not merely as a decorative element for urban spaces but is also envisioned as a “catalyst for cultural integration” and a “medium for constructing identity.” In recent years, driven by robust policy support, the Cooperation Zone has seen a surge in the development of public art landscapes: the “Measures for Supporting the Development of Cultural Undertakings in the Hengqin Guangdong-Macau Deep Cooperation Zone” offer substantial rewards for original artistic works; the “Tianmu River Cup” Design Competition attracted over a thousand entries from around the world; and landmark buildings featuring Macau-based architects have been successively completed—marking the onset of an “accelerated development phase” for public art. However, a fundamental question has yet to be fully addressed: Are these landscapes, which embody the mission of “integration,” truly perceived, understood, and embraced by the target audiences—namely the residents of Hengqin and Macau, as well as cross-border workers? As the intention of “inclusive integration” as articulated in policy discourse is translated into specific sculptures and installations, does a disconnect in meaning exist between the symbols and their audience?

The current research has provided an important foundation for understanding the relationship between public art and cultural identity. However, there are three significant shortcomings. Firstly, the research subjects are mainly concentrated in Europe and America or first-tier cities in mainland China, with little attention paid to special policy spaces such as “cross-border cooperation zones” and “satellite regions.” These spaces, which face diverse audiences with cross-institutional and cross-lifestyle characteristics, have a distinct identity mechanism different from that in a single cultural context. Secondly, the research perspectives mostly focus on the “design end,” concentrating on the creators’ intentions and symbol choices, and rarely inquire from the “audience end” whether public art truly reaches the public’s cognition and emotions - the realization of publicness not only depends on the openness of the space, but also on whether the meaning is internalized by the public. Thirdly, there is still a lack of an operational assessment tool applicable to the cross-border context and covering the complete psychological chain from perception to identity.

Based on these gaps, this paper takes the Xingqin Guangdong-Macau Deep Cooperation Zone as a case, through field investigations and theoretical sampling, systematically sorts out its public art spatial landscape and symbol characteristics, and then proposes a two-layer theoretical framework—the “visual translation—emotional resonance—identity construction” strategy framework at the “design end,” and the “perception—interpretation—identity” (P-I-I) analysis model at the “audience end.” This framework aims to fill the gap in the research on cultural identity of public art in cross-border cooperation zones, provide a theoretical tool for the assessment of public art in policy-driven urban spaces, and offer a testable analytical path for the micro-practice of cultural integration under the “one country, two systems” framework.

2. Research context and methodology

2.1. Policy context and spatial overview

The construction of public art landscapes in Hengqin is rooted in a specific policy context. In 2021, the

“Overall Plan for the Construction of the Cross-Straits Cooperation Zone in Hengqin” assigned it the strategic role of promoting the diversified development of Macau and enriching the practice of “One Country, Two Systems”^[1]. The “Cultural Development Support Measures” provide substantial funding for original works and public welfare activities, with nearly half of the first batch of 129 applications featuring elements from Macau^[2]; the “Tianmu River Cup” design competition received over a thousand submissions from around the world, with nearly 10% of the participants from Hong Kong, Macau and the Taiwan region; the policy-driven force is evident.

At the spatial level, the cooperation zone has formed a landscape structure of “one ring, one belt, three corridors,” with public art presenting a pattern of “points—lines—surfaces”: points are distributed in parks, squares and nodes, lines run through Tianmu River and the island’s coastline, and surfaces cover the three functional areas. The gateway nodes carry the grand narrative of the integration of Macau SAR and mainland China, community spaces hold local memories, and the landscape belts undertake the continuous visual narrative.

2.2. Field survey and theoretical sampling strategy

This study adheres to the theoretical sampling principle inherent in qualitative research. This concept was introduced by Glaser and Strauss within grounded theory, emphasizing a sampling approach guided by theoretical relevance and dynamically adjusted during data collection and analysis—aimed at maximizing the capture of information pertinent to core theoretical concepts. The specific sampling process is based on three principles: Type Coverage – encompassing the three spatial types of “point–line–plane”; Information Enrichment – prioritizing the selection of nodes that are symbolically dense and rich in cultural meaning; and Theoretical Saturation – conducting continuous sampling until information saturation is achieved across all categories.

The survey covered more than 30 core public art sites within the developed area of the Cooperation Zone, including the Tianmu River Rowing Park (the site where award-winning works from the “Tianmu River Cup” competition were displayed), Hengqin Pier Square (the group sculpture series themed “Fishery Village Memories”), Hengqin Sports Park, Lijun Pangdu Square (designed in a Sino-Portuguese fusion style), various community pocket parks, and iconic sculptures along major roads. The survey tools included: an on-site observation record form (documenting spatial location, artwork form, plaque information, and pedestrian flow); a semi-structured interview guide (lasting 20–40 minutes, focusing on questions such as the interpretation of the artworks’ meaning, cultural associations, and perceptions of the connection between Hengqin and Macau); and video documentation (multiview photography as a visual archive).

The study employed purposive sampling to include local residents of Hengqin, Macau residents working or living in Hengqin, visiting tourists, and professionals involved in public art planning. After obtaining informed consent, the interviews were recorded and transcribed into a text of approximately 80,000 words. To ensure validity, a triangulation approach was adopted: behavioral and perceptual data collected through field observations, the subject’s interpretations derived from in-depth interviews, and textual analysis of signage, design descriptions, and planning documents were cross-verified. This method effectively mitigates biases stemming from any single data source and enhances the credibility of the research findings.

3. The spatial landscape and symbolic characteristics of Hengqin public art

3.1. Main distribution regions and spatial types

The spatial distribution of Hengqin’s public art landscapes is characterized by a “single-core, multiple-axis, and tiered-layer” pattern. The five types of spatial zones—core cultural nodes, commercial and residential spaces, transportation and waterfront spaces, theme parks and cultural/tourism spaces, and ecological leisure spaces—each serve distinct functional purposes (**Table 1**). Hengqin’s urban public art landscapes are primarily distributed across these five key spatial categories, collectively shaping the region’s unique urban cultural identity.

Table 1. Spatial type distribution of Hengqin public art landscapes

Spatial Type	Representative Projects	Core Features	Cultural identity function
Core Cultural Nodes	Hengqin Cultural and Arts Center; Hengqin Tianmu Quintai	Iconic landmarks, international awards, and multifunctional complexes	Symbolic anchor point for regional cultural identity
Commercial and residential spaces	Wanxiang World, Lijun Pangdu Plaza, Macau New Neighborhood, Xiangzhoubu	Cultural consumption, cross-border communities, and traditional reenactment	Cultural negotiation in everyday life scenarios
Transportation waterfront space	The Tianmu River shoreline, the Flower Sea Corridor, the Rowing Park Passenger Terminal Sculpture Group, the Hengqin Port, and the Passenger Terminal	Linear networks, ecological aesthetics, temporary events	Physical experience and the formation of collective memory
Themed Cultural and Tourism Space	Changlong Ocean Kingdom, Star Life, Lion Gate Entertainment World	IP-driven, immersive experience, and commercial operations	Entertainment-oriented cultural perception and emotional consumption
Ecological Leisure Space	Mangzhou Wetland Park, Erjing Bay Wetland Park	Ecological science outreach, nature education, and low-intervention design	Ecological ethical identity and environmental awareness

3.2. Topic-related and forms of existing public artworks

3.2.1. Topic-related

The public artworks in Hongqin showcase two core themes with distinct expressions. Firstly, the dialogue and symbiosis of Chinese and Western cultures. For instance, Li Jun’s Panguo Square is based on the Portuguese Manueline style and incorporates elements of Lingnan veranda architecture, becoming a concrete symbol of the deep integration of Macau and Guangdong cultures. Secondly, the dual empowerment of cultural inheritance and innovation. For example, the “Thousand Peaks and Green Colors” exhibition of Yue Kiln blue and white porcelain presents a complete sequence from traditional inheritance to contemporary innovation. These two themes support each other and precisely respond to the positioning of cultural integration and innovation development in the cooperation zone, making public art an important carrier for showcasing the regional cultural attributes.

3.2.2. Formal aspects

The presentation forms of public art in Hengqin transcend singular modes of expression, showcasing a diverse range of approaches—from traditional to contemporary, and from static displays to dynamic interactions—thereby achieving dual enrichment in both spatial experience and cultural communication:

The coexistence of static symbols and dynamic devices: On one hand, projects such as the Macau New Neighborhood integrate traditional cultural symbols organically into architectural details and environmental

planning, creating tangible, static cultural landscapes that subtly reinforce regional cultural identity; on the other hand, the interactive installations featured in the Green Skyline Project leverage the triple attributes of art, functionality, and engagement to break away from the conventional paradigm of passive viewing, transforming once monotonous public spaces into participatory social hubs that facilitate immediate interaction between art and the public.

Temporary festive events as a dynamic supplement: Various distinctive festival events—such as the Capheng Lifestyle Festival and the Macau–Hengqin Art Market—infuse the city with dynamic, living cultural content through flexible formats including temporary artistic installations, live performances, and cultural markets. These approaches not only overcome the expressive limitations inherent in permanent landscapes but also, through their cyclical and participatory nature, integrate public art into everyday life, establishing a comprehensive supply system that combines permanent landmarks with temporary events and further enriching the diverse expressions of public art in Hengqin.

Overall, the thematic dimension of cultural convergence and innovative preservation complements the formal aspect of static symbols and dynamic experiences; this synergy not only precisely aligns with the regional positioning of the Hengqin Guangdong–Macau Deep Cooperation Zone but also resonates with the evolving trends in contemporary public art, positioning public art as an important vehicle for showcasing regional cultural essence and bridging diverse communities.

4. Construction and application of a two-tier framework for cultural identity construction

4.1. Design perspective: A strategic framework for transitioning from visual translation to identity construction

Based on an analysis of the spatial configuration and symbolic characteristics of Hengqin’s public art landscapes, this paper proposes a three-tiered progressive design strategy framework: Visual Translation → Emotional Resonance → Identity Construction. Visual Translation refers to the process of transforming policy discourse and cultural symbols into perceivable material forms; this constitutes the foundational layer upon which public art fulfills its cultural functions. Many artworks in Hengqin have successfully completed this phase—for example, through the extraction of ocean wave motifs, the visual borrowing of Portuguese tile paintings, or the spatial use of Lingnan qilou architectural elements. However, survey findings indicate that most artworks stop at this stage. Emotional Resonance requires artworks to transcend mere surface-level formal decoding; instead, they should engage the audience emotionally through narrative, interactivity, or the creation of contextual environments, transforming symbols from “objects to be viewed” into “experiential spaces.” Identity Construction, in turn, leverages this ongoing emotional resonance to prompt the audience to re-examine or adjust their relationship with the local context, facilitating a psychological shift from “the landscape of the other” to “our own landscape.” The current weakest link in Hengqin’s public art practice lies precisely in these latter two stages.

4.2. Audience side: Operationalization of the P-I-I (Perception–Interpretation–Identification) analysis model

In alignment with the design-side framework, this paper proposes a P-I-I three-tier analytical model suitable for audience-side evaluation. P (Perception) refers to the audience’s direct reception of an artwork’s formal

attributes; its measurement indicators include visual appeal, spatial accessibility, and formal recognizability. I (Interpretation) denotes the audience’s process of decoding the artwork’s cultural significance; its measurement indicators include symbolic familiarity, cultural background relevance, and meaning clarity. I (Identification) refers to the emotional belonging and identity affirmation formed by the audience based on perception and interpretation; its measurement indicators include local attachment, cultural pride, and group belongingness. The P-I-I framework constitutes a hierarchical psychological chain: without perception, there can be no interpretation; and without interpretation, deep identification is unlikely to emerge. A key finding from the survey is that audiences exhibit high perception but shallow interpretation of explicit symbols (e.g., Portuguese-style patterns or fishing net motifs), whereas their perception and interpretation of metaphorical expressions (e.g., the “integration” concept conveyed through abstract sculptures) are both weak—this finding precisely underscores the diagnostic value of the P-I-I model.

4.3. Paradigm distinction between analytical and design frameworks

Analysis Framework: namely the “Perception–Interpretation–Identification” (P-I-I) model. This framework operates on the audience side, serving researchers as a cognitive scaffold for observing, coding, and interpreting empirical data, thereby elucidating how cultural identity in public art landscapes is constructed (Figure 1).

Design Framework: namely “Visual Translation – Emotional Resonance – Identity Construction.” This framework represents the design dimension; it serves practitioners as an operational tool for refining and optimizing strategies, helping to determine how public art landscapes should be designed to foster identity.

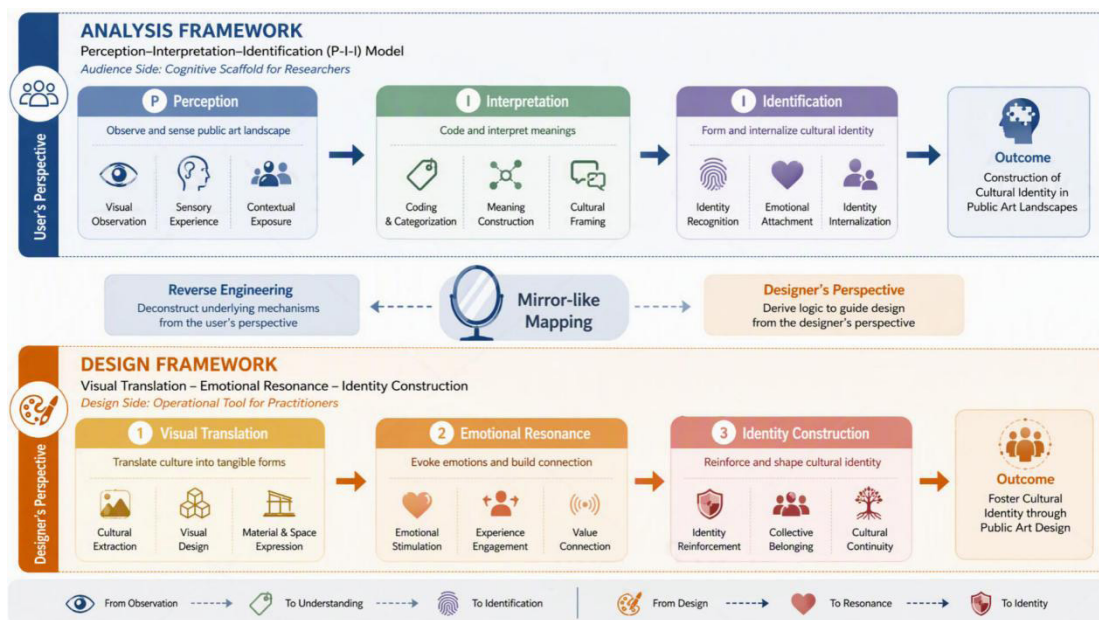


Figure 1. Dual framework and mirror mapping relationship

The relationship between the two is not one of parallel substitution, but rather a mirror-like mapping: the analytical framework represents a form of “reverse engineering” of the design framework. While the design framework derives its logic from the “designer’s perspective,” the analytical framework deconstructs the underlying mechanisms from the “user’s perspective.”

5. The evaluation logic of cross-border public art

Using the Hengqin Guangdong–Macau Deep Cooperation Zone as a case study, this paper employs fieldwork and theoretical sampling to systematically analyze the spatial configuration and symbolic characteristics of public art landscapes within a cross-border context. Building upon this analysis, the study constructs a dual-layered theoretical framework: a design-oriented “Visual Translation – Emotional Resonance – Identity Construction” strategy framework and a recipient-oriented P-I-I (Perception – Interpretation – Identity) analysis model. The research reveals three core findings.

5.1. Hengqin’s public art sector is currently undergoing a critical transition from formal integration to emotional integration

Strong policy support has rapidly propelled public art forward in terms of both quantity and spatial reach, creating a clearly defined “point–line–area” framework. However, most works remain confined to the realm of visual translation; the mere accumulation of symbols has not yet been effectively translated into the audience’s emotional engagement or sense of identity. The coexistence of high accessibility at the perceptual level and a disconnect in meaning at the interpretive level has become the most prominent structural challenge today.

5.2. Perception does not equal agreement, and the visual fusion of symbols does not equal the sharing of meaning

An embedded P-I-I model analysis of representative cases—such as the Fishery Village Memory Sculpture Series and Lijun Pangdu Square—reveals that concrete symbols tied to everyday life memories are more likely to complete the full chain—from perception to interpretation to identification—whereas abstract, metaphorical expressions driven by official intent often falter at the interpretation stage. There is a significant divergence in how audiences in Macau SAR and mainland China decode the same symbol: the former benefit from a familiar architectural vocabulary that facilitates smooth decoding, while the latter tend to remain at a superficial level, merely perceiving the exotic allure. This finding holds direct implications for cultural integration practices under the “One Country, Two Systems” framework: the prerequisite for integration is not the juxtaposition of symbols, but the sharing of meaning.

5.3. The P-I-I model provides a practical evaluation tool for cross-border public art initiatives

This model breaks down the audience’s psychological journey into measurable, three-tiered dimensions; it not only enables the diagnosis of the communication effectiveness of existing artworks but also provides proactive guidance for the planning and design of future public art projects—by integrating an assessment of the ability to decode diverse audiences into the creative process itself, rather than addressing such needs only after the artwork has been completed.

From a practical perspective, the management authorities of the cooperation zone can integrate the P-I-I model into the full lifecycle management of public art projects, establishing a three-tiered evaluation mechanism comprising “pre-design assessment – post-completion acceptance assessment – operational phase tracking assessment.” For proposed artworks, the design proposals must clearly outline the expected pathways for engagement at the perception, interpretation, and identification layers; for existing artworks, regular audience surveys should be conducted to identify any gaps or discontinuities across the various stages

and to make timely adjustments as needed.

Acknowledgments

The authors gratefully acknowledge the Hengqin Guangdong-Macau Deep Cooperation Zone Bureau of Affairs for facilitating the fieldwork, and all interview participants—including local residents, Macau residents, visitors, and professionals—for their valuable time and insights. Special thanks go to the supervisor and research team members for their constructive guidance and support throughout the writing process.

Funding

This work was supported by the 2025 Guangdong Provincial Department of Education Young Innovative Talents Program (Philosophy and Social Sciences) under Grant No. 2025WQNCX108, and funded by Zhuhai College of Science and Technology. The project is entitled “Construction and Application: A Study on Urban Public Art Landscapes in the Guangdong-Hong Kong-Macau Greater Bay Area from the Perspective of Cultural Identity.”

Disclosure statement

The authors declare no conflict of interest.

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