Design for 'Place': Emotional Design of Urban Furniture with 'Culture Ecology Society' Collaboration

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Abstract: In the process of global urbanization and sustainable development, urban public spaces face dual challenges of cultural identity dissolution and ecological and social efficiency deficiency. As a key public interface, existing urban furniture design research is difficult to systematically respond to the complex demands of "locality" reshaping due to the theoretical disconnection of cultural, ecological, and social dimensions. To fill this gap, this article innovatively couples emotional design, local theory, and sustainable design through critical literature review and theoretical deduction, constructing a three-dimensional collaborative urban furniture design framework of "culture ecology society". The core of this framework lies in expanding and establishing emotional design (instinct, behavior, and reflection) as a core transmission mechanism, effectively connecting cultural memory inheritance, ecological environment friendliness, and social community construction, thereby redefining urban furniture from a functional "facility" to an "emotional medium" and "flexible governance tool" that carries local spirit and promotes sustainable development. This study not only provides an integrated analytical tool and practical paradigm for urban furniture design, but also contributes to a interdisciplinary design philosophy that emphasizes humanistic care and systematic thinking for the sustainable renewal of a wider range of living environments.

Keywords: Emotional Design; Urban Furniture; Local Characteristics; Sustainable Design

1. Introduction: Towards Integration - Theoretical Demands for Emotional Design of Urban Furniture

The wave of globalization, while accelerating the flow of capital, technology, and culture, has also triggered a profound urban spatial crisis: cultural homogenization in the public sphere. This not only means the convergence of visual features, but also fundamentally manifests as the failure of local memory carriers and the dissolution of cultural identity. The United Nations Educational, Scientific and Cultural Organization has long warned that a large number of historic districts have lost their uniqueness due to improper updates, and the failure of public landscape and facility design to carry and translate local culture is one of the key issues . In this context, contemporary urban renewal goes beyond simple physical reconstruction and is entrusted with multiple missions of optimizing social functions, enhancing environmental quality, and cultural continuity [1] . Urban furniture, as the material interface closest to daily life in public spaces, should transform its role from a passive "facility" to an active "cultural medium" and "emotional hub", thus establishing a sustainable balance between efficiency and characteristics, modernity and tradition [2] .

However, upon examining current academic research and practice, urban furniture design is facing significant theoretical disconnection and practical difficulties. Firstly, a large amount of exploration is still confined to the traditional categories of functionalism and formal aesthetics, focusing on materials, craftsmanship, and visual styles, but failing to deeply reveal their profound implications as complex social and cultural ecosystems [3] . This often leads to designs being disconnected from local context, community life, and ecological environment, becoming standardized products that are universally applicable. Secondly, although the concept of sustainable design is deeply rooted in people's hearts, its application in the field of urban furniture often tends to lean towards the dimension of technological rationality, such as material recycling and energy-saving

technology, while relatively neglecting the core dimension of "cultural sustainability" that maintains local spirit, as well as the potential effectiveness of design in promoting social equity and community cohesion [4] . Furthermore, the theory of emotional design provides a powerful analytical tool for connecting people and things, but its classic three-level model of "instinct behavior reflection" is mostly applied to product design. However, how to connect collective memory, local identity, and social interaction at the scale of public space has not yet been fully expanded and integrated in theory [5] .

Existing research presents a "divide and conquer" pattern: either focusing on the modern translation of regional cultural symbols, or on the integration and application of ecological technologies, or on the social processes of community participation. Although these directions have their own value, they often go deep within a single dimension and lack a theoretical framework that systematically links culture, ecology, and society. This fragmented state makes it difficult for urban furniture design to fully respond to the complex demands of reshaping local place spirit in the context of globalization, and also limits its potential as a lever for promoting inclusive and sustainable development.

Therefore, the core purpose of this article is to carry out a theoretical integration and construction work. Attempting to inquire: Can and how can an integrated theoretical framework be constructed, using emotional design as a key adhesive, to systematically connect and activate the cultural, ecological, and social dimensions in urban furniture design? To answer this question, this article will first critically examine the limitations and potential of relevant theoretical lineages; Subsequently, an innovative "culture ecology society" three-dimensional collaborative urban furniture emotional design framework is proposed and elaborated, demonstrating how emotional design serves as the core mechanism to establish a dynamic and symbiotic connection among the three; Finally, through theoretical examples, clarify how this framework provides new analytical tools and practical paradigms for understanding and shaping "flesh and blood" and locally rooted public spaces. This study aims not only to fill a key gap in current design theory, but also to contribute a design philosophy that combines humanistic warmth and systematic thinking for sustainable future urban renewal.

2. Theoretical Disconnect: The Dimensions of Objects, People, and Fields are Fragmented in Existing Research Paradigms

2.1 Limitations of "Things": Lack of Symbols and Flat Narrative in Urban Furniture Research

Existing discussions on urban furniture have mostly failed to go beyond its material scope as a "facility" or "object". The research focus has long been on physical properties such as formal aesthetics, material craftsmanship, ergonomics, and functional configuration. For example, a large amount of literature is devoted to exploring the selection of durable materials or the addition of intelligent functions. This research approach ensures the fundamental utility and physical quality of urban furniture as a 'thing', but it severely simplifies its cultural and social roles. Urban furniture is seen as a static object that is viewed and used, and its agency as a cultural symbol carrier and social interaction medium is overlooked. The result is that design practice often stops at superficial stylized decorations or simple pasting of symbols, failing to deeply explore and translate the unique historical memories, collective narratives, and spiritual values of the place, resulting in a lack of profound "narrative" connections between furniture and the place, ultimately becoming a background prop for silence **(as shown in Figure 1 and Figure 2).**

2.2 Limitations of "Human": Individual Focus and Collective Blind Spot in Emotional Design

The emotional design theory represented by Donald A. Norman's "instinct behavior reflection" three-level model provides a classic framework for understanding the interaction between users and products [6] . However, this model originated in the field of product design, and its analytical unit is essentially the instantaneous psychological reactions and interactive experiences between individual users and isolated objects. When this paradigm is directly transplanted into the complex social theater of urban public spaces, its limitations are exposed. Urban furniture is not facing abstract 'users', but communities that carry a

common history, shared memories, and collective identity. The Norman model is good at handling whether a chair is comfortable and tempting (instinctive layer) or whether a trash can is easy to throw (behavioral layer), but it is difficult to effectively explain how a set of chairs can evoke shared memories among neighborhood residents or how a lighthouse sculpture can unite the collective identity of the town (collective dimension of the reflective layer). Limiting emotional design to individual psychological experiences results in its inability to fully respond to the most critical emotional demands in public spaces - the shaping of place attachment and cultural identity.

Figure 1. Street Lights Attached to Wulin Square in the 1980s
(Image source: Sohu https://m.sohu.com/)

Figure 2. In 1958, Workers Installed Streetlights on Thedam Crest Road of the Thirteen Tombs Reservoir
(Image source: Qianjiang Evening News https://www.thehour.cn)

2.3 Limitations of "Field": Technological Rationality and Humanistic Deficit in Sustainable Design

In the current mainstream discourse, the goal of sustainable design is greatly narrowed down to technical management of the "environmental footprint". Its core paradigm is to pursue a closed-loop material and energy cycle through technological tools such as life cycle assessment (LCA), low-carbon material application, and energy efficiency optimization.

This technology driven rational model is undoubtedly crucial for alleviating ecological pressure. However, it simplifies' sustainability 'into a computable and optimizable engineering problem, resulting in a profound' human deficit '. A street lamp made solely of recycled plastic with zero energy consumption, if its design is out of place with the context of the historical district it is located in, and even weakens the uniqueness of the place, may be unsustainable in the cultural dimension, as it accelerates the dissolution of local identity. Similarly, if a design project only focuses on ecological indicators and does not promote community participation through the design process, nor does it reflect social equity and inclusiveness in the results, then it is also fragile in the social dimension. The true sustainable 'field' should be a community of ecological balance, cultural continuity, and social health. However, the current discourse on sustainable design that emphasizes technology and materials clearly lacks attention to the latter two dimensions.

George Korha pointed out in his "Forms of Art" that works of art are media that carry cultural and social significance [7] . Similarly, urban furniture is not only a physical facility, but also a carrier that reflects the city's history, cultural characteristics, and social values. Taking Basil Spencer's "The Red Telephone Booth" as an example, its design goes beyond the basic function of public communication, deeply embedding the social history and collective identity of Britain through concise and powerful geometric forms and strong visual symbols, becoming a symbol of memory and urban culture for a generation **(as shown in Figure 3 and Figure 4).** Examples such as street lamp posts in New York, portable bookshelves in Tokyo, street seats in Paris, bicycle parking racks in Amsterdam, and seats in the background of the Sydney Opera House all confirm that urban furniture can surpass utilitarianism through unique forms, materials, and spatial arrangements, becoming an important component in shaping urban cultural identity and symbolizing social structure. As pointed out by architectural anthropologist Amos Rapoport, elements in the built environment, including street facilities, are nonverbal "symbols" that convey information about social structure, cultural values, and historical levels through form, material, and location [8] .

Figure 3. Red Telephone Booth Renovation on London Streets
**(Image source: China Daily website author. badu. com)**

Figure 4 Movie "Paddington Bear" Poster
(Image source: movie. mtime. com)

2.4 Conclusion of This Section: Towards a Systematic Integration of "Things, People, and Fields"

After critically reviewing existing research on urban furniture, emotional design, and sustainable concepts, it can be found that the current academic discourse presents a clear "divide and conquer" pattern. Different disciplines and theoretical paradigms often delve deep into their respective dimensions, but fail to effectively establish a coherent dialogue and integration, resulting in the disconnection of the three core elements of "things", "people", and "fields" in design theory and practice.

The second report in the series on the construction of new urbanization: focusing on urban transformation and promoting sustainable development emphasizes that urban transformation requires the implementation of various strategies to promote environmental protection and low-carbon progress [9] . In the process of urban renewal, the mode should not be singular and cannot rely solely on large-scale demolition and reconstruction. It is necessary to pay attention to effectively protecting historical buildings, traditional residential areas, and industrial relics to maintain the cultural foundation of the city [10] . However, in the process of urban renewal, there is a common phenomenon of standardization, which leads to similarities in appearance and function among cities, a lack of local characteristics, and a failure to carry out personalized design. Famous geographer Duan Yifu's theory of locality emphasizes the importance of a sense of place, which refers to people's emotional identification and cultural experience of a specific place. Cities and buildings should not just be external physical spaces, they carry the history, culture, and way of life of the place, and are a reflection of the sense of place. " If urban furniture [11] . is not harmonious with the urban public space environment landscape, it cannot become an organic part of the urban spatial image, and cannot fully play the role of urban furniture in creating and constructing the landscape environment Local design [12]. It can make urban space more in line with residents' living needs and cultural habits, enhancing a sense of place and belonging [13] (F**igure 5)**. Therefore, it is necessary to adhere to the design principle of "one city, one product, one village" in urban renewal, ensuring that each city can reflect its unique cultural and historical characteristics in the renewal process .
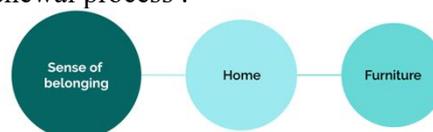
F**igure 5. Schematic Diagram of Urban Furniture Construction (self-Made by the author)**

Therefore, in the design process, it is necessary to pay attention to the sustainability of the following aspects: firstly, the sustainability of technological innovation: improving the interactivity of urban furniture to provide more personalized services. Secondly, the sustainability of aesthetics and culture: incorporating local cultural characteristics into the design, combining traditional elements with modern design, creating urban furniture with regional characteristics and a sense of history, and enhancing citizens' cultural identity. Thirdly, the sustainability of emotions and functions: ensuring that urban furniture meets both aesthetic needs and emotional expression, enhancing the multifaceted functionality of urban furniture. Only by transforming the "memory of things" into a readable and resonant design language can we anchor the cultural coordinates of a place in the wave of globalization .

In summary, existing research in the interdisciplinary field of urban furniture has fallen into a triple isolation dilemma: the study of "things" has lost its cultural soul and social

dimension; The understanding of 'human' is limited by individual psychology and has not risen to collective emotions; The pursuit of "field" is obsessed with technical performance and forgets cultural and social foundations. This "divide and conquer" pattern makes it difficult for design practice to cope with the complex challenges of local existence in the era of globalization. Therefore, the urgent task of theoretical development is to break down barriers and construct a systematic framework that can organically connect "objects as cultural symbols and narrative carriers", "people as collective memory and identity constructors", and "fields as ecological cultural social composite systems". This framework should not be a simple theoretical superposition, but rather a core 'adhesive' to activate the dynamic symbiotic relationship between the three. The following text will argue that emotional design, after being reinterpreted and expanded in dimensions, can precisely play this key role and become the core hub connecting culture, ecology, and social sustainability.

3. Emotional Pivot: A Design Framework Connecting Cultural, Ecological, and Social Dimensions

3.1 Interpretation of the Connotation of Core Three Dimensions

This framework believes that a truly sustainable and vibrant urban furniture design must simultaneously respond to and integrate the following three interrelated dimensions:

Cultural Dimension: Symbols, Memory, and Identity

This is the spiritual core of locality. The cultural dimension focuses on how urban furniture becomes a material translation of local knowledge and a spatial anchor for collective memory. Its core connotation includes: a symbol system (such as local totems, patterns, colors, and shapes), which is the external language of culture; Memory layering (such as traces of historical events, folklore, and customs) is the depth that time endows a place with; Identity recognition is the ultimate goal of design, which is to strengthen individuals' sense of belonging to the community and collective cultural consciousness through perceptible cultural expression. This dimension requires the design to shift from "decoration" to "narrative", making furniture a readable "local text".

Ecological Dimension: Circulation, Adaptation, and Symbiosis

This is the physical foundation and ethical boundary of design practice. The ecological dimension emphasizes that urban furniture should follow the laws of the natural system, and its connotation goes beyond the simple application of "green materials", covering: material cycle (advocating the on-site regeneration and utilization of waste, forming a closed loop from "resources" to "products" and then to "resources"); System adaptation (designing to respond sensitively to local climate, terrain, and ecological conditions, such as utilizing natural ventilation, rainwater collection, etc.); Symbiosis of life (treating human facilities as part of the ecosystem, promoting biodiversity, such as providing a habitat microenvironment for pollinating insects and birds). This dimension requires design to shift from "taking" to "giving back", achieving mutual benefit between artificial objects and the natural environment.

3.2 Social Dimension: Participation, Equity, and Governance

This is the process guarantee for realizing the design value. The social dimension focuses on how design activities themselves and their outcomes shape social relationships and spatial rights, which includes: community participation (transforming residents from passive recipients to common designers and builders, ensuring that designs reflect real needs); Spatial equity (focusing on whether the design benefits groups of different ages, abilities, and backgrounds, promoting inclusivity); Flexible governance (the design and maintenance process of urban furniture as a public good can serve as a platform for cultivating community self-discipline, negotiation, and collective action). This dimension requires the design to shift from "granting" to "empowering" and activate the intrinsic motivation of the community.

3.3 Emotional Design as an Integration Mechanism

The three dimensions of culture, ecology, and society are not automatically interconnected, and their synergy relies on a key transmission mechanism - emotional design after dimension expansion. Norman's three-level model of instinct, behavior, and reflection is reinterpreted here as a dynamic process that activates the

three dimensions.

Instinctively activating cultural perception and ecological care: establishing sensory attraction in the first place through unique material tactile sensations (such as recycled local materials), visual language derived from local colors, or modeling that simulates natural forms. This kind of attraction is not only related to aesthetics, but also directly evokes intuitive goodwill and appreciation for local characteristics (culture) and natural textures (ecology).

Behavioral layer catalyzes social interaction and ecological practice: by designing behaviors that encourage use, touch, play, and even shared maintenance. For example, a public seat that requires collaboration among multiple people for use (social interaction), or a flower garden that combines relaxation and rainwater collection functions (ecological practice). Smooth, interesting, and meaningful behavior can transform abstract social and ecological concepts into tangible experiences.

The reflective layer consolidates cultural identity and promotes sustainable action: this is the key to elevating individual emotions into collective rationality and value recognition.When users interpret the local stories behind furniture through the first two levels (cultural identity), experience the wisdom of resource recycling (ecological identity), and feel a sense of belonging to community co creation (social identity), they will have a desire to protect and continue these values from within. The emotional resonance of the reflective layer is the fundamental driving force behind long-term sustainable behavior.

Therefore, emotional design plays a dual role as a "glue" and "catalyst" in this framework, transforming cultural symbols into tangible experiences, ecological ethics into touchable behaviors, and social ideals into participatory and shareable processes.

4. Interpretation of Framework: Theoretical Contributions and Methodological Implications

4.1 Core Theoretical Contribution: an Integrated Design Epistemology

The primary value of this framework lies in providing an integrated design epistemology that fundamentally responds to the theoretical "divide and conquer" pattern pointed out at the beginning, and establishes new value coordinates for urban furniture design practice.

A system connection model of "object human field" has been constructed: the framework successfully integrates the previously fragmented "study of objects" (functional aesthetics), "study of humans" (individual emotions), and "study of fields" (technological ecology) into a dynamically interconnected system. It reveals that the ultimate value of urban furniture does not lie in any isolated and optimal single dimension, but in its ability as a hub to effectively stimulate positive interaction and collaborative gains among culture, ecology, and society. This breaks the situation in urban furniture research where culture, technology, and social discourse operate independently, providing a systematic lens that can simultaneously examine the effectiveness of design at the material, meaning, and relational levels, allowing researchers to analyze the completeness and bias of existing cases.

Redefining the public value of "emotional design": This framework elevates emotional design from a technique for enhancing "user product" satisfaction to a systematic methodology for constructing a deep connection between "citizen place". It systematically explains how the three levels of instinct, behavior, and reflection serve as the transmission chain of "emotion meaning action", transforming abstract cultural symbols, ecological ethics, and social concepts into tangible, interactive, and internalized experiences. This transforms emotional design from an experience optimization tool in the private domain to a core mechanism for cultivating the spirit of sustainable places in the public domain.

Established the pillar position of "cultural sustainability": the framework clearly elevates the "cultural dimension" (symbols, memory, identity) to an equally core position as the ecological and social dimensions. It strongly argues that 'sustainability' without cultural continuity and identity support is fragile and unsustainable, as the dissolution of local spirit will ultimately undermine the emotional foundation that people cherish and protect the place. This viewpoint provides a solid theoretical support for transcending the common "technological rationality bias" in current sustainable design.

4.2 Methodological Implications: Multidimensional Tools from Analysis, Generation to Evaluation

This framework has derived a set of actionable methodological systems, providing a new "grammar" for design research and practice, pointing out innovative paths, and reshaping the role of designers.

Analysis and diagnosis: This framework provides a stable triangular pivot for evaluating any urban furniture project. Does design strengthen narrative or lead to fragmentation in the cultural dimension? Does it promote cycling or exacerbate metabolism in the ecological dimension? Has it promoted inclusivity or solidified segregation in the social dimension? This multidimensional diagnosis can reveal the deep logic behind the success or failure of design.

Path innovation: The framework reveals that the most efficient innovation often stems from a keen exploration of the correlation points between the three dimensions. It guides design thinking from "linear solution" to "system creation". For example, a practice of "waste artisticization" that simultaneously links ecological cycles (materials), cultural narratives (translation), and social participation (co creation) has a comprehensive effect far greater than isolated technological solutions. This requires designers to conduct a "triple baseline survey" in the early stages, actively seeking the "innovative intersection" of cultural, ecological, and social elements.

Reshaping the role cognition of designers: Within this framework, the role of designers is bound to undergo profound changes. They are no longer just creators of form or technical solvers of problems, but must become translators of local culture, integrators of ecological wisdom, and collaborators of social processes. Its core work lies in ingeniously constructing and stimulating the transmission chain of "emotion meaning action", thereby activating sustainable field vitality through material intervention .

5. Conclusion

This study focuses on the core contradiction between cultural homogenization and sustainable development needs in urban public spaces under the context of globalization, that is, how to resist the wave of cultural homogenization and reshape profound "locality" while pursuing sustainable development goals. Through critical reflection and interdisciplinary integration of existing theoretical limitations, this article constructs and demonstrates an innovative emotional collaborative framework of "culture ecology society". This framework is not only a systematic breakthrough in the current design theory that commonly exists in the state of dimensional fragmentation, but also attempts to provide an integrated paradigm for urban furniture design that combines humanistic warmth, ecological rationality, and social insight.

The core theoretical contribution of this framework is reflected in three interrelated levels: firstly, it expands the paradigm of emotional design theory. By creatively transforming Norman's three-level model of "instinct behavior reflection" from an analysis of individual interactions between "users product" to a systematic transmission mechanism that connects collective emotions and memories between "citizens place". Secondly, it re anchors the value coordinates of sustainable design, elevating for the first time "cultural sustainability" - the continuation of local memory, the translation of symbols, and the strengthening of identity - to a theoretical pillar that emphasizes both ecological and social sustainability. Thirdly, it redefines the essential role of urban furniture, elevating it from a functionalist "public facility" to an "emotional interface" and "flexible governance tool" that carries local spirit, activates ecological awareness, and consolidates community consensus.

This framework does not provide a universal "universal template", and its vitality is rooted in profound "local" thinking. It candidly reveals the inherent tension that may exist between cultural protection, ecological friendliness, and social equity goals. Its core value lies in making these multidimensional value conflicts transparent and placing them at the center of design decisions, thereby guiding creative trade-offs and collaboration, and preventing design from being dominated by any single dimensional logic. The deepening of future research can be carried out along the paths of tool construction, long-term effect tracking, and cross theoretical dialogue, in order to continuously verify, enrich, and develop its theoretical connotation and practical boundaries.

Ultimately, this study goes beyond the discussion of specific design techniques and aims to advocate a complexity oriented design philosophy: true sustainability must be built on perceptible emotional connections. Excellent urban furniture should become a deeply woven medium for cultural context, ecological wisdom, and social relationships. It enlightens us that in the micro scale material intervention, there is a potential to respond to the grand era proposition - that is, to achieve the true "landing" of sustainable value in concrete places through emotional language that can be felt, touched, and resonated, thus laying an indispensable theoretical foundation and practical guidance for building a city future that combines identity, vitality, and resilience.

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