

Pedestrian pathways along Tunjungan Street, Surabaya: Investigating threshold space in the production of urban interiority

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received December 04, 2024 Received in revised form Nov. 18, 2025 Accepted January 15, 2026 Available online March 01, 2026</p> <p><i>Keywords:</i> Pedestrian ways Threshold space Tunjungan Street Surabaya Urban interiority</p> <p>*Corresponding author: Bramasta Putra Redyantanu Department of Architecture, Faculty of Civil Engineering and Planning, Universitas Kristen Petra, Indonesia Email: bramasta@petra.ac.id ORCID: https://orcid.org/0000-0003-0993-1234</p>	<p><i>This study seeks to investigate the functioning of pedestrian urban spaces as components of threshold environments, grounded in the theoretical framework of urban interiority. It addresses issues and phenomena associated with the use of pedestrian spaces, not solely as corridors for movement but as dynamic settings that accommodate diverse forms of urban social interaction. The research aims to clarify how threshold spaces operate as spatial mechanisms that enable social activities within the context of urban interiority. Utilizing a qualitative case study method, this research concentrates on the Tunjungan Corridor, a prominent street in Surabaya, to illustrate the ambiguous condition of the threshold between interior and exterior urban spaces as a unified spatial experience. The study involves mapping and drawing several segments of pedestrian space to demonstrate the emergence of threshold spaces as integral components of urban interiority. The findings offer a nuanced interpretation of the spatial operations of pedestrian environments as threshold spaces, examined through five principal elements: spatial design, spatial function, spatial definition, spatial structure (form and order), and spatial sequence. These findings contribute to a broader understanding of space design grounded in urban interiority and provide a reference framework for future spatial operations in pedestrian-oriented design.</i></p>

Introduction

This paper reflects on the notion of threshold space by translating it into a spatial operation within pedestrian environments to achieve urban interiority. Urban space represents a dynamic entity that continually evolves alongside social, cultural, and economic transformations. Tunjungan Street in Surabaya illustrates this process of urban evolution. Initially recognized as a prominent commercial corridor in 1899, the area experienced decline by the 1990s as consumer behavior shifted toward modern shopping malls, reducing the attractiveness of traditional retail

streets (Handinoto 1996). This condition reflects broader urban challenges in which poorly managed development transforms public spaces into what are often referred to as “lost spaces” (Poerbantanoë 1999). Patriajaya and Kusliansjah (2019) observe that Tunjungan gradually lost its pedestrian-friendly character due to modern planning approaches. Nevertheless, the corridor has been revitalized through strategic planning and community participation, allowing the street to reclaim its cultural significance (Oswan and Arifin 2013) while demonstrating the broader potential of urban regeneration.



Pedestrian pathways play a significant role in this transformation by functioning as active areas for social interaction. The pedestrian corridors of Tunjungan now generate interactions between interior and exterior spatial conditions, corresponding with Boettger's (2014) concept of Threshold Space. Boettger argues that "movement spaces" should be understood as more than transitional zones, as they have the capacity to cultivate collective experiences (p. 18). These spaces fluctuate between functional movement and moments of pause, highlighting the dual character of urban environments. Liz Teston (2020) extends this discussion by examining how blurred thresholds contribute to balanced human experiences. Public interiority, where activities normally associated with interior environments extend into public space, encourages outdoor activities that were previously confined indoors. Teston (2020) explains that porous thresholds encourage people to occupy public environments, thereby strengthening social interaction and contributing to the creation of human-centered settings. This integration reinforces the potential of Threshold Space as a dynamic interface between the built environment and human activity. Atmodiwirjo and Yatmo (2021) discuss urban interiority as a mediating condition between public and private domains that contributes to the formation of a collective identity. Shah (2021) argues that "interiority," traditionally associated with privacy, can be reinterpreted within public contexts. She proposes a design paradigm in which spatial boundaries become blurred, creating fluid environments that extend beyond conventional architectural limitations. Poot et al. (2018) further emphasize "urban interiority" as the expansion of private domestic qualities into the urban context, encouraging interdisciplinary innovation in spatial thinking. They introduce a framework of analytical "lenses" through which this concept can be examined, namely Time, Movement, and Transition.

Prasetyo and Fuad (2021) demonstrate how threshold spaces operate as transitional zones that influence patterns of interaction and orientation while generating continuity between environments. Corbo (2020) identifies four principal concepts: the integration of architectural and urban scales, the transformation of interiors into dynamic spatial fields, the blending of material and immaterial elements, and the development of adaptive design strategies. Attiwill (2019; 2024) further conceptualizes

urban spaces as laboratories for collective reflection and ecological connectivity. Cognetti and De Carli (2024) discuss how such spaces enable the exchange of knowledge while promoting inclusivity. Tedja, Hidayat, and Mariana (2023) emphasize their role within mixed-use developments, highlighting their contribution to mental well-being. Maheswari, Arvanda, and Kusuma (2019) underline the significance of permeability within transit corridors, where threshold conditions connect public facilities with their surrounding environments. Furthermore, Lucas and Nuraeny (2021) investigate temporary spatial configurations generated by street vendors, which blur spatial boundaries and stimulate dynamic interactions, thus requiring regulatory frameworks that balance public and private use. Several case studies provide additional evidence. Shah and Muro (2023) examine the Delhi Gate Bazaar, illustrating how flexible spatial boundaries can integrate public and private domains. Wiratmoko (2021) demonstrates how the alleyways of Glodok reveal interactions between traditional markets and contemporary design, sustaining cultural heritage. In another urban context, Darmawan and Widiartara (2021) investigate Cicendo Square and show how elements such as materiality, geometry, and seating arrangements encourage community participation, emphasizing the importance of thoughtful spatial design. Despite the growing body of discussion, the practical application of Threshold Space remains relatively limited. This gap highlights the need to further explore human-centered spatial interfaces that connect urban environments with everyday human activities. This research therefore examines the pedestrian pathways of Tunjungan Street as a case study for integrating Threshold Space within urban design. To achieve this objective, careful attention must be given to spatial function, design, definition, structure, and sequence, as proposed by Boettger (2014). This study aims to expand knowledge of Threshold Space grounded in urban interiority while offering design guidelines that may be applied to different spatial contexts.

Methods

To examine the pedestrian pathways of Tunjungan Street in Surabaya with particular

attention to the concept and construction of threshold spaces, a qualitative research approach was adopted. This approach included an extensive literature review of the concept of threshold space based on urban interiority, combined with comprehensive field observations to document the spatial characteristics of the site. The documentation process involved capturing photographs from interior viewpoints looking outward and from exterior viewpoints looking inward within areas identified as threshold space zones. These images were subsequently translated into parallel drawings to generate new perspectives for analyzing threshold spaces without blind spots, following the approach suggested by Lucas (2020). Sectional drawings were also produced to clearly illustrate the existing spatial conditions and the constructed threshold configurations.

These visualizations emphasized the ambiguous spatial boundaries within the site, demonstrating how interior spaces may extend outward and merge with exterior environments, thereby integrating urban exterior spaces into the interiority of urban life. The collected data were then identified and descriptively analyzed using Boettger's (2014) five parameters of threshold space: spatial function, spatial design, spatial definition, spatial structure, and spatial sequence. This analytical framework enabled a deeper understanding of the spatial and experiential dynamics involved. Finally, the results of the analysis were compiled into a table to serve as a set of design guidelines for designers seeking to create threshold spaces that contribute to urban interiority. This comprehensive approach not only reveals the spatial complexity of Tunjungan Street but also provides practical insights for urban planners and architects in designing dynamic and inclusive public environments, as illustrated in figure 1 and figure 2.

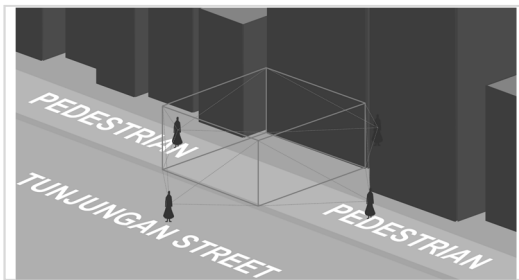


Figure 1. Documentation method from outside to inside Threshold Space

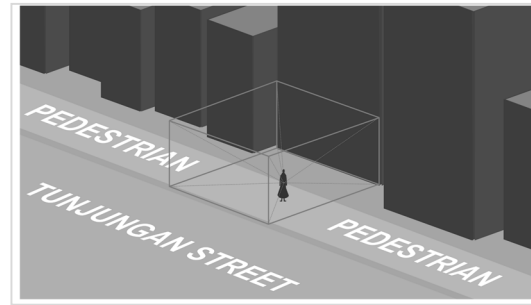


Figure 2. Documentation method from Inside to outside threshold space

Results and discussion

Tunjungan Street has undergone a significant transformation from a historic commercial corridor into a prominent locus of urban regeneration (Patriajaya and Kusliansjah 2019). Through the perspective of urban interiority, the street no longer functions merely as a physical circulation corridor but operates as a human-centered spatial environment that accommodates interaction, engagement, and collective urban experiences (Teston 2020). The pedestrian corridors integrate heritage architectural structures with flexible programmatic zones, thereby cultivating a shared sense of belonging within the public realm. Within this framework, public interiority utilizes transitional threshold conditions to dissolve the rigid boundaries traditionally separating private and public territories, enabling exterior urban spaces to function as communal social environments. By employing Boettger's (2014) five parameters of Threshold Space, this study investigates how the pedestrian corridors of Tunjungan Street reconceptualize public space as an extension of interior spatiality while prioritizing human-oriented experiential qualities.

Spatial function: Flexibility on commercial programming

The initial phase of this research involved a comprehensive field survey documenting building along the Tunjungan Street corridor, with particular attention to their spatial functions and programmatic configurations. This documentation served as an analytical foundation for identifying spatial characteristics that contribute to the formation of threshold conditions within the urban environment. Buildings were systematically categorized into

several functional typologies, including commercial, institutional, hospitality, and multifunctional uses. This classification reveals how varying programmatic structures influence spatial dynamics and their relationship with the surrounding urban fabric (table 1). The findings indicate that the functional and programmatic characteristics of buildings significantly influence their capacity to mediate spatial transitions between interior and exterior domains. Observations along the corridor reveal a range of architectural strategies used to construct threshold conditions, demonstrating how the intended function of a building shapes its ability to negotiate spatial continuity between interior environments and public pedestrian space.

Table 1. Spatial program on existing buildings on Tunjungan Street

Function	Program	Threshold space
Hospitality	Semi private	-
Bank	Private	-
Commercial	Semi private	-
Multifunction	Public	✓
Cafe	Public	✓
Restaurant	Public	✓
Institutional	Private	-
Empty building	-	-

From a spatial perspective, threshold conditions are more evident in buildings with programs that necessitate dynamic interaction between interior and exterior environments, such as cafés, restaurants, and multifunctional establishments. Conversely, buildings with more private or controlled programs, such as banks, schools, and certain retail facilities, tend to minimize or eliminate threshold spaces. This condition is primarily driven by security requirements, privacy considerations, and controlled access systems that reinforce a clear separation between interior spaces and the surrounding public realm. Certain functional requirements therefore produce architectural configurations that operate as spatial barriers, clearly segregating internal environments from external urban space and reducing the presence of threshold spatial elements. Consequently, this study intentionally selected buildings with varied programmatic typologies, including cafés, restaurants, and multifunctional facilities. The selected case studies include Paper Cup, Illegal, Pasaran Tunjungan, Ngastina, Coba Pho, and Zerogram.

Pasaran Tunjungan, Ngastina, Coba Pho, and Zerogram. This diverse set of buildings enables a comparative analysis of how different spatial programs influence the formation and characteristics of Threshold Space (figure 3).



Figure 3. Legends; (1) Paper Cup; (2) Illegal; (3) Pasaran Tunjungan; (4) Ngastina; (5) Coba Pho; (6) Zerogram

Spatial design: The dynamics of wall-floor-roof
 The identification of primary architectural components, walls, floors, and roofs, is fundamental to the formation of Threshold Space. Boettger (2014) emphasizes that these architectural elements can be strategically manipulated to generate transitional spatial zones that mediate between interior and exterior environments. Variations in wall transparency, extended roof overhangs, and floor treatments with different elevations or material textures can dissolve rigid spatial boundaries, facilitate interaction, and guide pedestrian movement. This study therefore investigates the architectural strategies employed by six selected buildings in shaping threshold conditions, thereby contributing to a deeper understanding of their role within both urban and architectural contexts.

1. Paper Cup (Hidden wall)

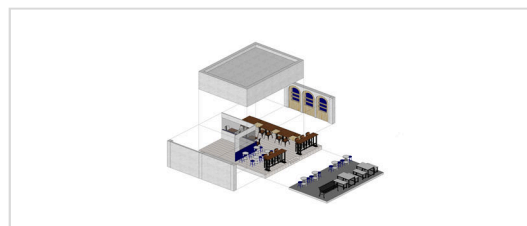


Figure 4. Exploded axonometric drawing of Paper Cup

The first building examined is Paper Cup (figure 4), which exhibits a distinctive spatial configuration extending beyond the pedestrian corridor and producing ambiguous spatial boundaries between interior and exterior domains. Although the building lacks a pronounced roof overhang and presents a noticeable level difference between the interior floor and pedestrian pavement, a threshold condition emerges through the implementation of a “hidden wall” that allows visual and spatial permeability. According to Poot et al. (2018), removing rigid boundaries between private and public territories enables architectural space to operate simultaneously within interior design and urban design domains, encouraging interdisciplinary spatial innovation. In this case, the hidden wall strategy invites pedestrians to visually engage with interior activities without physically crossing a strict architectural boundary. This spatial openness fosters a harmonious threshold condition in which the building and pedestrian corridor coexist as an integrated spatial system. The resulting spatial ambiguity produces a distinctive urban experience, reinforcing Darmawan and Widiyantara’s (2021) argument that subtle architectural interventions can significantly influence urban interaction.

2. Illegal (Blended materials)



Figure 5. Exploded axonometric drawing of Illegal

In contrast, the restaurant Illegal (figure 5) adopts a design strategy that maintains a relatively clear spatial separation between interior and exterior environments. However, the building employs material continuity that visually merges its interior surfaces with the pedestrian corridor, thereby extending the building’s spatial influence outward into the public realm. Corbo (2020) suggests that material continuity can create semi-enclosed spatial atmospheres that encourage users to occupy exterior areas as extensions of interior activities. Through this strategy, the sidewalk and adjacent street environment become integrated

components of the dining experience. The resulting spatial configuration fosters a sense of shared spatial ownership between private establishments and public urban space. This example demonstrates how architectural interventions can reshape public environments and enhance urban vitality through spatial adaptability and multifunctionality.

3. Pasar Tunjungan (Fluid boundaries)

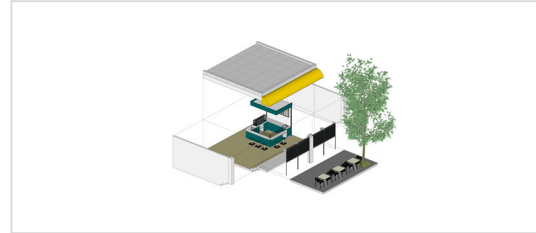


Figure 6. Exploded axonometric drawing of Pasar Tunjungan

Pasar Tunjungan (figure 6) functions as a multifunctional complex accommodating retail shops, cafés, restaurants, and recreational areas. The building utilizes rolling doors that remain open during operational hours, effectively eliminating the rigid boundary between interior and exterior environments. This architectural strategy demonstrates how spatial activity patterns combined with flexible architectural elements can generate threshold conditions that transform fixed spatial boundaries into fluid zones of interaction. In addition, the building reinforces cultural heritage continuity, consistent with Wiratmoko (2021). By continually negotiating the spatial relationship between private programs and public urban environments, these threshold spaces enhance both building functionality and the vibrancy of the surrounding urban landscape.

4. Ngastina (Expanded pedestrian pathways)



Figure 7. Exploded axonometric drawing of Ngastina

Ngastina Restaurant (figure 7) employs a spatial strategy that extends pedestrian circulation

areas into its outdoor dining environment while simultaneously projecting interior dining activities outward toward the public corridor. This design configuration produces a continuous spatial flow in which users move freely between interior and exterior spaces without encountering physical barriers. Open and unobstructed spatial arrangements strengthen visual and experiential connectivity between restaurant activities and the surrounding urban environment. As [Shah \(2021\)](#) argues, such strategies redefine public spaces as interior-like environments within urban contexts, generating fluid spatial systems that transcend traditional architectural boundaries.

5. Coba Pho (Perpendicular with path)

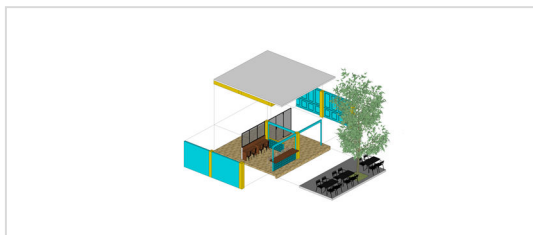


Figure 8. Exploded axonometric drawing of Coba Pho

Coba Pho Restaurant ([figure 8](#)) employs an architectural strategy that actively mediates interaction between its interior environment and the adjacent pedestrian corridor. The porous façade, incorporating a bar counter, facilitates perpendicular engagement between restaurant patrons and passersby, effectively dissolving the conventional separation between private and public realms. An extended canopy further amplifies this effect, generating a semi-sheltered transitional zone that blurs the threshold between interior and exterior spaces. This design approach operationalizes the concept of “interiority,” traditionally associated with privacy and enclosure, as a public-facing mechanism that invites social engagement and integrates the pedestrian corridor into the restaurant’s spatial domain ([Shah 2021](#)). The configuration demonstrates how deliberate manipulation of architectural elements can construct threshold spaces, balancing permeability with functional enclosure to enhance both the operational efficiency of the building and the vitality of the urban fabric. By seamlessly connecting interior activities with the external pedestrian environment, the design establishes a continuous spatial experience that influences human

movement, interaction, and orientation ([Prasetyo and Fuad 2021](#)). Through this integration of indoor and outdoor realms, Coba Pho exemplifies how contextually responsive architectural interventions can generate inclusive, interactive urban environments that enrich collective experiences and foster community cohesion via shared, dynamic spaces.

6. Zerogram (Reflecting pedestrian activity)

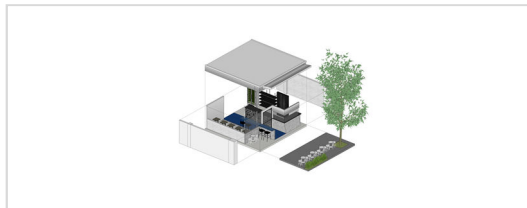


Figure 9. Exploded axonometric drawing of Zerogram

Zerogram Café ([figure 9](#)) establishes a strong visual relationship with the surrounding pedestrian corridor through the use of a reflective stainless-steel façade. The reflective surface mirrors pedestrian activity, visually extending the urban environment into the building interior and generating spatial continuity between architecture and the surrounding cityscape. Transparent glass walls further dissolve the distinction between interior and exterior domains, while an extended canopy shelters outdoor seating areas that function as transitional spatial zones. Through this integration, the café reinforces a shared sense of place and contributes to the liveliness of the street environment. This design strategy aligns with [Darmawan and Widiyantara’s \(2021\)](#) argument that materiality can play an essential role in shaping public spaces that encourage community participation.

Spatial definition: Urban object as spatial definition

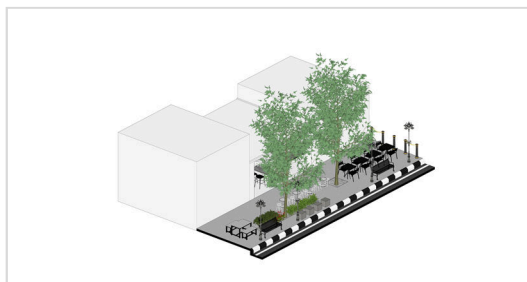


Figure 10. Object on Tunjungan pedestrian ways

Within the Tunjungan Street pedestrian corridor, urban objects embedded in the public realm play a pivotal role in shaping both architectural and social dimensions of urban interiority (figure 10). Following Teston (2020), these objects can be categorized as portable interiority or landscape interiority, each mediating the formation of threshold spaces. Temporarily deployable elements such as chairs and tables generate flexible, ephemeral zones that adapt to fluctuating user demands. Conversely, permanent features such as planters and trees maintain a continuous sense of interiority outdoors, extending the perception of “inside” into public space. Strategic deployment of these elements, whether linear arrangements of seating or aligned greenery, blurs distinctions between private and public realms, enhancing spatial versatility and inclusivity (Lucas and Nuraeny 2021). The integration of movable and permanent elements augments functional capacity, supports multiple urban uses, and fosters social interaction, strengthening collective engagement with the environment.

1. Portable interiority

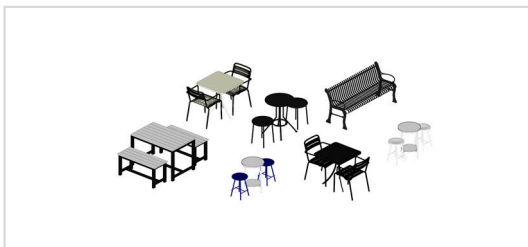


Figure 11. Portable interiority

Teston (2020) emphasizes that public spaces can emulate interior spatial qualities without being confined by conventional architectural enclosures. This public interiority is operationalized through portable interiority, movable furnishings or temporary installations placed strategically to support specific activities (figure 11). These elements offer high adaptability, enabling pedestrian areas to transform dynamically into outdoor cafés, rest zones, or event spaces in response to temporal demands. Lucas and Nuraeny (2021) highlight that such temporal objects are instrumental in creating threshold spaces that mediate between interior and exterior environments. In this context, portable interiority functions as a pivotal instrument in defining the transitional zone,

where urban interiority negotiates the relationship between the built environment and public life (Atmodiwirjo and Yatmo 2021).

2. Portable interiority



Figure 12. Landscape interiority

Landscape elements, including trees, planters, lighting, and bollards, contribute significantly to the construction of urban interiority by generating visually and experientially comfortable spaces. Trees and vegetation establish shaded, garden-like ambiances that moderate environmental conditions and support threshold formation, while street lighting enhances nocturnal interiority by creating intimate, luminous atmospheres. Strategically positioned landscape elements also act as spatial markers, guiding pedestrian movement and reinforcing connectivity between buildings and public thoroughfares (figure 12). Tunjungan Street demonstrates how such integration produces a multi-sensorial urban interiority, promoting inclusivity, comfort, and experiential richness (Teston 2020).

Spatial structure: Spectrum of the threshold

For most casual observers, the presence of threshold spaces along the Tunjungan Street pedestrian corridor may go unnoticed, as private and public realms are typically assumed to be clearly delineated by walls. However, the pedestrian environment of Tunjungan Street manifests a nuanced phenomenon that often escapes immediate recognition. Its design integrates diverse architectural and urban elements that obliterate rigid separations between public and private domains, constituting what urban designers and architects identify as threshold spaces. These areas function as transitional mediators, facilitating seamless movement between interior and exterior environments. For instance, in several buildings

(figure 13), the deliberate extension of built mass beyond property lines provides shelter while preserving openness, enhancing the interplay between the pedestrian realm and the built environment (Shah 2021).

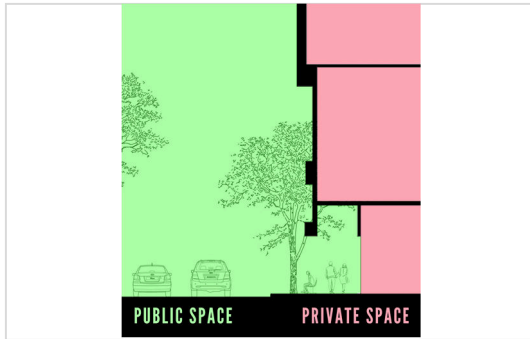


Figure 13. General definition of spatial boundaries

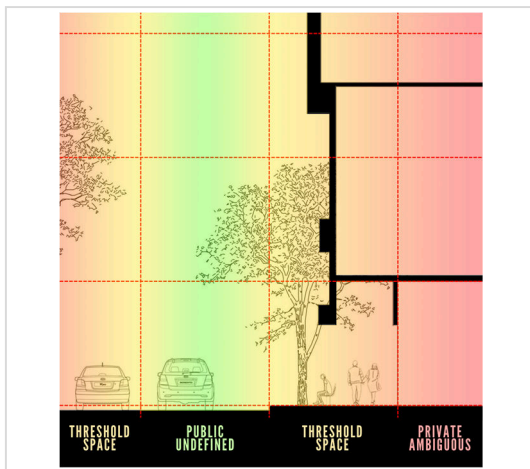


Figure 14. The dynamics of spatial spectrum of threshold space in urban interiority

The phenomenon of non-conforming building edges along Tunjungan Street underscores the reciprocal relationship between architecture and public space. Structures abutting the pedestrian corridor, in some cases exceeding formal boundaries, generate semi-enclosed, shaded environments that extend the notion of interiority into the public domain. This deliberate transgression, while apparently defying spatial regulations, enhances the experiential quality of public space, producing more concentrated and engaging spatial encounters. The interplay between architectural form and landscape interventions generates dynamic transitional zones, exemplifying threshold spaces. Tunjungan Street demonstrates that carefully modulated breaches of formal building limits can deliver

both functional and aesthetic advantages, fostering social interaction and enriching urban vitality (figure 14). Consequently, public areas, though loosely defined, maintain threshold functionality, enabling fluid transitions between private and public spheres, adapting regulatory frameworks to socio-cultural demands, and generating inclusive, dynamic, and human-centered environments while promoting continuous urban interaction.

Spatial sequence: Int between indoor and outdoor

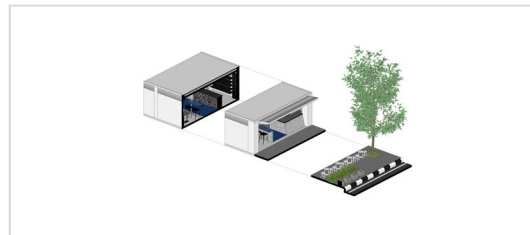


Figure 15. Exploded axonometric drawing of sequence constructed

The majority of buildings along Tunjungan Street, particularly restaurants, cafés, and multifunctional facilities, implement a three-tiered spatial sequencing strategy: exterior zone, transitional zone, and interior zone. A defining characteristic of these sequences is fluid continuity, where exterior spaces infiltrate interior zones and interior activities extend outward, resulting in an integrated spatial experience that merges interior and exterior realms. Such sequencing effectively obliterates conventional spatial demarcations, enabling dynamic user interactions across architectural boundaries. Shah (2021) asserts that this continuous spatial flow enhances user experience while fostering cohesive, inclusive arrangements that strengthen social connectivity and engagement among visitors (figures 16–17).

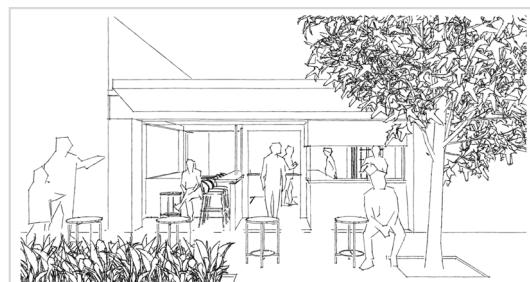


Figure 16. Sequence from the outside



Figure 17. Sequence from the inside

Threshold space as urban interiority design strategy

1. Spatial function:

Objective: Enhance the multifunctionality of pedestrian spaces.

Strategy: Integrate social interaction zones, resting areas, and cultural programming along pedestrian pathways. Accommodate diverse users with adaptable seating, performance spaces, and public art installations.

2. Spatial design:

Objective: Create aesthetically pleasing and functional pedestrian environments.

Strategy: Employ a variety of materials, textures, vegetation, and water elements to define activity zones. Incorporate ergonomic lighting, seating, and shading to enrich both comfort and sensory experience.

3. Spatial definition:

Objective: Clearly define the boundaries and uses of different pedestrian zones through objects.

Strategy: Apply visual cues such as pavement transitions, color variation, signage, and subtle barriers (planters, low walls) to delineate activity zones without impeding movement.

4. Spatial structure:

Objective: Organize pedestrian spaces in a coherent and logical manner.

Strategy: Configure the layout to support intuitive movement patterns, ensuring seamless transitions between functional zones. Implement a hierarchical network of primary and secondary pathways to facilitate orientation, accessibility, and connectivity to key nodes within the pedestrian environment.

5. Spatial sequence:

Objective: Craft a dynamic and engaging journey through pedestrian spaces.

Strategy: Arrange sequences to offer diverse experiences, ranging from quiet, contemplative zones to active, sociable areas. Introduce a rhythmic interplay of wide and narrow pathways,

open plazas, and intimate pockets to sustain visual interest and stimulate exploratory behavior.

This research underscores the multi-dimensional nature of urban elements that transcend singular functions. Pedestrian corridors, in particular, have the potential to evolve into threshold-driven destinations, where interior and exterior realms are integrated. Within the complexity of urban spatiality, interiority is not confined to enclosed interiors but serves as a tool to cultivate intimacy, engagement, and adaptability, promoting more fluid and human-centered interactions across the urban landscape.

Conclusions

When examined through the framework of urban interiority, Tunjungan Street exemplifies how pedestrian corridors can evolve beyond mere circulation paths to function as active urban destinations. By implementing Boettger's five parameters, spatial design, function, definition, structure, and sequence, these areas are transformed into dynamic social environments that dissolve the conventional boundaries between interior and exterior realms. While this study offers practical design guidelines for cultivating human-centered urban landscapes, its scope is constrained by a focus on a single commercial thoroughfare and the qualitative nature of its spatial documentation. Future investigations should broaden the analysis to include diverse urban typologies and integrate quantitative longitudinal assessments of user behavior and economic performance to substantiate the long-term efficacy and resilience of threshold space interventions.

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Author(s) contribution

Nathanael Nyoto contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Bramasta Putra Redyantano contribute to the research concepts preparation and literature reviews, data analysis, of article drafts preparation and validation.