Decoding Urban Spatial Complexity through Ethnographic Mapping

Anutorn Polphong* and Supayada Praditvaitayakorn

Faculty of Architecture, Rangsit University, Pathum Thani, Thailand
*Corresponding author, E-mail: anutorn.p@rsu.ac.th

Abstract

Traditional urban analysis often overlooks the informal and ephemeral layers that define the identity of historic districts. This paper presents a spatial ethnography of Bangkok's historic core—specifically Yaowarat, Songwat, and Talat Noi—positioning the methodology as both a method and a medium to extract latent data and decipher the districts' complex, multilayered cultural fabric. Adopting a methodology grounded in Kevin Lynch's Image of the City, the research documents a collaborative workshop in which participants mapped the urban landscape through personal journeys and multisensory observation. While the inquiry was catalyzed by the theme of the foodscape, the resulting data reveal deeper layers of architectural artifacts, spatial practices, and sociocultural behaviors. By tracing these "hidden stories," the study documents otherwise invisible dynamics and provides a vital catalog of cultural assets. This catalog identifies critical qualitative parameters and variable that prioritizes the city's actual social complexity over its formal surface, thereby informing more adaptive urban design and planning decisions. These findings are synthesized into a map that establishes a "new image" of the city, defined by the intensity of its sensory experiences. By identifying "sensory landmarks," this map uncovers hidden layers of district identity and cultural richness, revealing a new way of seeing the city with significant potential for future development. Ultimately, the paper suggests that more inclusive governance models and resilient public spaces can be achieved by prioritizing lived experience and diverse social activities, offering a roadmap for urban design rooted in the city's actual social complexity.

***Keywords*:** *Spatial Ethnography, Multisensory Mapping, Adaptive Urbanism, Cultural Landscape*

1. Introduction

Traditional urban planning and design have long relied on top-down, quantitative methodologies to analyze the city, such as land-use mapping, zoning regulations, and geometric spatial analysis. While these techniques are essential for managing formal infrastructure and large-scale growth, they frequently overlook the ephemeral, lived experiences and informal layers that define the identity of the historic urban fabric. A significant shift toward a more human-centered understanding of the environment was introduced by Kevin Lynch in his seminal work, The Image of the City (1960). Lynch argued that the "legibility" of an urban space depends on how its users perceive and organize their surroundings into mental maps. By identifying five primary physical elements of; paths, edges, districts, nodes, and landmarks, Lynch provided a systematic methodology for creating an "image of the city" that prioritizes physical perception as a means of understand urban form.

Building upon this perception-based framework, this paper presents a spatial ethnography based on collaborative workshop between Rangsit University and Universitas Islam Indonesia titled "RSU x UII: Sustainable Urban Foodscapes," which challenged participants to explore Bangkok's historic core, focusing on the Yaowarat, Songwat, and Talat Noi districts. This early commercial hub has evolved alongside the city's shifting tides While it is now globally recognized for its vibrant food culture, the area contains deeper layers of activity and historical transformation that remain largely unexplored. As a vital space for cross-cultural exchange and community dynamics, this historical core possesses an informal resilience that is often overlooked by traditional urban analysis, which tends to prioritize permanent physical structures over lived experience. The study focuses on these three interrelated districts, each having a unique historical background that dictates its current spatial and social metabolism. Yaowarat functions as the primary residential and commercial heart for Bangkok's Chinese community and has evolved into a global destination where

traditional Chinese cuisine blends with modern lifestyles. Songwat, originally established as a logistical river port hub following the Great Fire of 1906, has transitioned from a district of spice-laden storefronts into a contemporary creative enclave. Completing this triad is Talat Noi, a neighborhood defined by a distinguished lineage of craftsmanship and over 200 years of ethnic diversity. Its architectural landscape ranges from ancient shophouses and historic mechanical workshops to an emerging layer of galleries, cafes, and artisan boutiques.

In 2026, Songwat and Talat Noi have emerged as the dual engines of Bangkok's creative tourism. While these districts are economically and historically interconnected, their lived reality is composed of "hidden stories"--- the informal spatial practices, social behaviors, and makeshift adaptations that sustain local life. To uncover these dynamics, this research employs a methodology grounded in Lynchian theory but expanded through multisensory ethnographic mapping. By recording spatial qualities across five dimensions--- sight, smell, taste, noise, touch, and mood--- and evaluating them through a Weighted Intensity and Importance Scale, the study moves beyond formal physical analysis. The resulting documentation provides a vital catalog of cultural assets, offering a set of qualitative parameters that reveal layers of sociocultural behaviors often invisible to traditional planning. These insights can inform future urban design that respects the invisible dynamics of the historic city.

This catalog functions as a set of qualitative parameters for future urban design and planning decisions. This paper argues that by prioritizing lived experience and recognizing the complexity of informal urban dynamics, more inclusive governance models and resilient public spaces can be developed. The resulting "hidden stories" offer a roadmap for urban design rooted in the city's actual social complexity and sensory experience, rather than its formal surface.

2. Objectives

1. To document "hidden stories" through multisensory ethnographic mapping of Bangkok's historic urban fabric.
2. To synthesize mapping data into a structured framework for evaluating qualitative user experiences.
3. To identify key parameters within complex urban environments that inform adaptive and inclusive urban design and planning.

3. Materials and Methods

The methodology is divided into two primary phases: 1) a workshop and ethnographic mapping phase, focusing on sensory data collection and the generation of spatial diagrams; and 2) a spatial ethnography summary and analysis, which synthesizes these diagrams into structured urban parameters. This dual approach establishes a robust framework for extracting and analyzing the "hidden stories" within the district's complex urban fabric.

3.1 The Workshop and Ethnographic Mapping

The first part of the methodology focuses on the intensive collection of primary data through a collaborative workshop between Rangsit University (RSU) and Universitas Islam Indonesia (UII) titled "RSU x UII: Sustainable Urban Foodscapes." Spanning four days, the workshop engaged 46 students, including 18 architecture students from RSU and 28 students from UII with backgrounds in architecture, civil engineering, and environmental engineering. These participants were organized into multidisciplinary groups of 7-8 members to foster diverse perspectives.

A defining factor of this phase was the "fresh eyes" approach. For the majority of participant, including the Thai cohort who primarily resided outside of Bangkok, this was their first in-depth encounter with the study area. This lack of prior familiarity enabled a unique and raw cross-cultural recording of the urban fabric, as participants responded to immediate sensory stimuli without the bias of long-term familiarity.

Proceedings of RSU International Research Conference (RSUCON-2026)

- **Day 1: Data Collection**. This initial phase comprises three primary activities designed to ground the participants in the local reality (Figure1).
    - **Introductory Lecture:** This session establishes a comprehensive understanding of the historical and theoretical frameworks defining Yaowarat, Songwat, and Talat Noi.
    - **Preliminary Research:** Students conduct initial desktop research to identify potential nodes and landmarks, allowing for strategic planning prior to site entry.
    - **Site Visit and Stakeholder Engagement:** Groups conduct field visits to gather primary data across five sensory dimensions: sight, smell/taste, sound, touch, and mood. The observed subjects ranged from physical signage and products to ephemeral behaviors and social interactions, documented through photography, video, sound recordings, and physical artifacts. Crucially, students engaged with key stakeholders to understand district heritage management, including visits Baan Trok Tua Ngork (Yaowarat), Bean Café (Songwat), and Vanich House (Talat Noi).
- **Day 2: Route Mapping & Sensory Documentation**. Participants conducted sensory walks, meticulously recording spatial qualities across the five identified dimensions. These observations were immediately layered into ethnographic mapping diagrams (Figure 2), serving as a primary visual medium to document the "hidden stories" and informal dynamics that define the district's character. Beyond the static graphical representation shown in the figure, the dataset was augmented by dynamic media, specifically sound recordings and video footage.
- **Day 3: Data Synthesis & Visualization**. Groups analyze and synthesized the raw information from their mapping diagrams. The objective was to translate isolated data points into a cohesive narrative, building a "collective view" that visually articulates the hidden stories and user experiences discovered during the fieldwork (Figure 3).
- **Day 4: Presentation and Review.** The final results are presented to a panel. This session facilitated a critical evaluation of the findings, enabling the validation of hidden layers of information and fostering discussing of their implications for urban design parameters (Figure 4).

Figure 1 Activities from Day 1 of the workshop including lecture, desk research and site visit

Figure 2 Data gathered and represented in the form of draft ethnographic map

Figure 3 Ethnographic map reorganized to represent and express a collective view

Figure 4 Presentation and review session, where students share their findings

3.2 Spatial Ethnography Synthesis and Analysis

The second part of the research moved from field documentation to an analytical synthesis, occurring as a post-workshop process. In this stage, the subjective experiences and "hidden stories" captured in the students' maps were extracted and translated into a structured framework to evaluate qualitative user experiences. To achieve this, the analysis was carried out in three distinct steps:

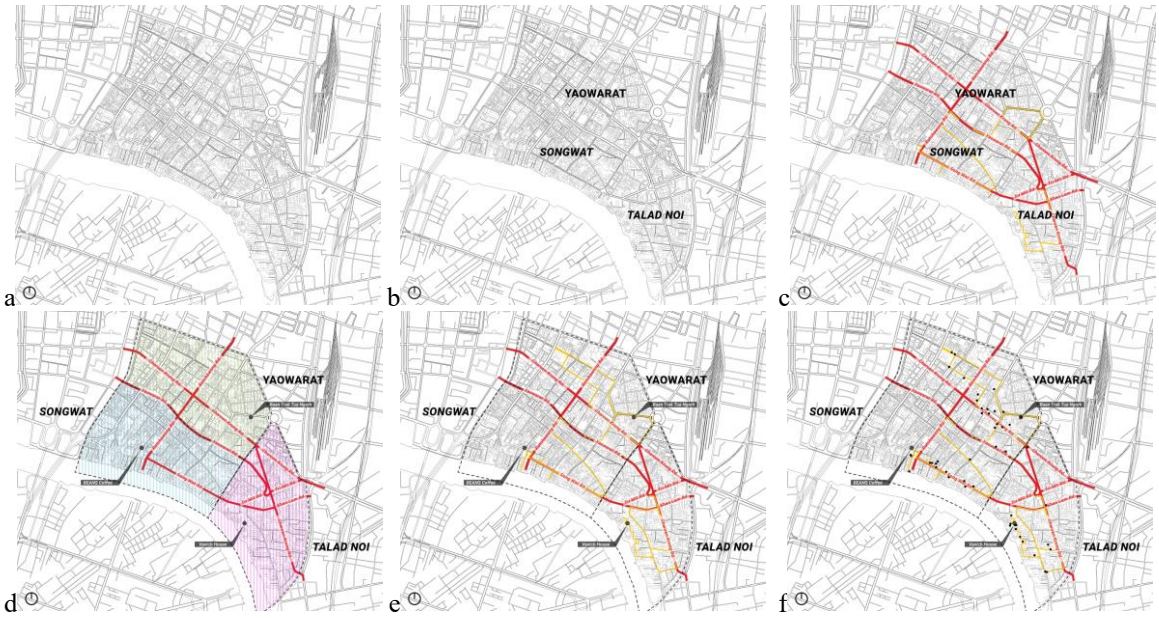

Figure 5 Layers of information embedded in the urban form a) existing urban form, b) initial district, c) "Main Path" in relation to the district, d) defined "District", "Edge" and "Node" for the study, e) "Hidden Path" and its relation to the "Main Path", f) newly identified "Landmarks" locations

- Step 1: Structural synthesis

The first step involved consolidating the individual ethnographic maps produced during the workshop to identify underlying patterns and relationships between sensory data and the urban context. To systematize this analysis, the research revisited Kevin Lynch's Image of the City, utilizing his five elements: district, path, edge, node, and landmark, not as static definitions, but as

operational parameters divided into "Controlled" (fixed by the researchers) and "Uncontrolled" (observed by the students) variables:

- **District:** Aligned with Lynch's definition of a "medium-to-large section of the city," the study treats Yaowarat, Songwat, and Talat Noi as distinct areas that blend into a continuous urban fabric. However, for the purpose of this research, the spatial boundaries were adjusted to define specific zones of investigation:
  - **Yaowarat District:** Defined as the area north of Yaowarat Road, extending along Charoen Krung Road up to Luang Road.
  - **Songwat District:** Encompasses the area surrounding Songwat Road and the block immediately south of Yaowarat Road.
  - **Talat Noi District:** Retains its traditional neighborhood boundaries, extending to Song Sawat Road to the northeast.
- **Path:** This element is interpreted as a dual-layered system:
  - **The Main Path:** This refers to the historic arteries where primary commercial and social activities occur. These paths functioned as the structural anchor for the research design; researchers utilized them to center the study areas, ensuring that the "Edge" conditions spatially encompassed these central spines.
  - **The Hidden Path:** This represents the actual trajectories navigated by the students during fieldwork. Unlike the fixed Main Path, these routes reveal organic movement patterns and localized points of interest, often deviating from the formal grid to uncover hidden connections and "desire lines" within the urban fabric.
- **Edge**: The edge conditions were established relative to the Main Paths to delineate the specific scope of student investigation. By creating a manageable frame around the central arteries, these edges established a clear, controlled boundary for the study.
- **Nodes**: Nodes are defined as specific stakeholder locations visited during the initial field immersion (e.g., Baan Trok Tua Ngork, Bean Café, Vanich House), acting as fixed anchor points within the dynamic urban fabric.
- **Landmarks:** These are the specific sensory findings identified by students. In this research, they are treated as dynamic variables representing the "hidden stories"—the sights, smells, and sounds that function as the true navigational anchors of the neighborhood.

- Step 2: The Catalog of Cultural Assets

The second step focused on redefining these observed "Landmarks" into a Catalog of Cultural Assets (Table 1). The findings were categorized through the five sensory lenses: sight, smell/taste, sound, touch, and mood (Figure 6). A critical refinement during this analytical stage was the spatial localization of data. It was determined that sensory observations recorded in the ethnographic maps that lacked a specific, identifiable location could not be included in the final catalog. To interpret the remaining data, the research developed a systematic evaluation framework using a Weighted Intensity and Importance Scale (0–5) (Table 2). Each sensory marker identified in the diagrams was analyzed based on two distinct criteria:

- **Intensity of Expression:** The perceived strength of the sensory stimulus within the urban environment.
- **Importance of the Factor:** The significance of the sensory stimulus in relation to the district's identity, cultural heritage, or "social metabolism."

By systematizing these ephemeral observations, such as localized movement patterns and makeshift spatial adaptations, this phase effectively transformed invisible, subjective dynamics into stable qualitative variables for urban analysis.

- Step 3: Visualization of Hidden Layers

The final step involved reinterpreting the Catalog of Cultural Assets into a comprehensive graphical representation (Figure 7). Using the data processed in Step 2, the study generated a new map that visualizes the "hidden layers" of information (Figure 8). By placing the reinterpreted landmarks and their associated intensity values back onto the spatial plan, this new map expresses the density, distribution, and relationships of sensory inputs, effectively making the invisible urban atmosphere visible for urban design and planning applications.

Figure 6 Process of data are extracted, synthesis, rearrange to create a catalog of cultural assets

Table 1 Example of a catalog of cultural assets of which an extracted information from an ethnographic mapping from Group1: Yaowarat

Category	Feature	Sight	Smell & Taste	Noise	Touch	Mood & Feeling
Food	Plaeng Nam Road	Narrow street, stalls, bakeries, dim sum shops, neon lights flare	"Corridor of flavors," dim sum, baked goods	Clatter and movement	Trickle of passers-by in a narrow space	Quiet by day; lively at night
Food	Yaowarat Road	Glowing desserts, fish maw soup, skewers, and bright stalls	Sweet, smoky, and spicy; fish maw soup, seafood, noodles, fruits	Bustle of vendors; sizzling sounds	Squeeze of the crowd hitting the street	Energetic; the street "comes alive"
Ambience	Street Atmosphere	Glowing gold shops, blue, pink, and red neon signs	Scent of sizzling oil	Clatter of woks; voices from every corner of the world	Traffic squeezing past shophouses	Shifting with time; a "vibrant open kitchen"
Building	Green Cafe	Small green shophouse, timber frame, red floor, ceiling fans, yellow corner	Traditional cafe flavors (implied)	(Quiet compared to the main road)	Timber frames and red flooring textures	Traditional life; contrast of old and modern

Building	Baan Trok Tua Ngork	Green shutters, potted plants, narrow street, framed by taller buildings	(Not specified)	Quiet elegance	(Not specified)	Calm; a reminder of Bangkok's past
Building	I'm Chinatown Mall	Wavy copper facade, modern shops, bright stalls.	Heavy scent of durian	Bustle of visitors and vendors	A/C cooling; chilled drinks	Modern backdrop; lively Chinatown scene
Building	Shanghai Mansion	Red lanterns, tiled roofs, symmetrical window grids, heritage architecture	High-end dining (implied)	Bustling rhythm of Chinatown outside	Merging heritage architecture with concrete	Elegance of "Old Shanghai"; heritage-inspired

Table 2 Importance values assigned to each condition expressed from Group1: Yaowarat

Category	Feature	Sight	Smell & Taste	Noise	Touch	Mood & Feeling
Food	Plaeng Nam	4	4	3	2	4
Food	Yaowarat	5	5	4	2	5
Ambience	Atmosphere	5	3	5	2	5
Building	Green Cafe	4	0	0	3	3
Building	Baan Trok	3	0	1	0	4
Building	I'm Chinatown	4	4	2	4	3
Building	Shanghai Mansion	5	0	2	2	5

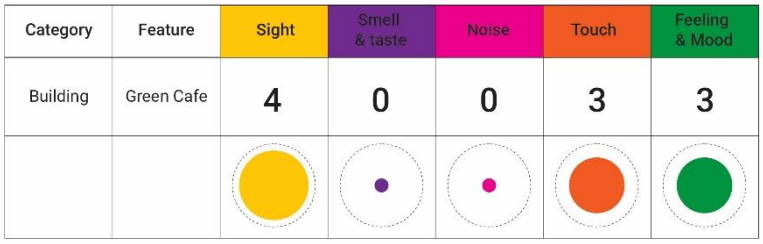

Figure 7 Visual encoding of qualitative sensory data, using color and shape to represent data type and intensity level

Figure 8 Ethnographic map showing locations intensity of cultural assets overly onto the existing main paths and urban form

4. Results and Discussion

The application of the multisensory ethnographic mapping framework revealed that the "image" of Bangkok's Old Town is profoundly defined by the intensity of its sensory experiences. A primary finding revealed a new typology of "sensory landmarks" which constitute a unique and previously hidden dimension of the district's character. As illustrated in the Yaowarat dataset, the highest intensity scores were consistently assigned to ephemeral markers such as "Atmosphere" and "Food" rather than formal buildings. This suggests that district identity is constructed through sensory phenomena, such as the medicinal scent of herbs, the rhythmic sound of metal hammering, or the organized congestion of street food carts—all of which surpass visual architectural features in significance.

This shift in importance from the physical to the sensory is most evident when comparing the formal "Main Paths" to the "Hidden Paths" navigated by participants. While main roads serve as high-intensity corridors for visual and auditory stimuli, hidden alleyways function as the district's social capillaries, hosting intimate community interactions and high emotional "mood" intensity. These informal paths act as critical nodes of cultural preservation that remain largely invisible to formal urban analysis. Ultimately, this

framework successfully transforms "hidden stories" into stable qualitative variables that can inform more adaptive, inclusive, and resilient urban design strategies.

To advance this methodology toward a more rigorous planning tool, several structural refinements are proposed, including the standardization of data collection through precise GPS recording and the use of pre-formatted digital catalog tables to prevent data loss. Furthermore, establishing granular scoring criteria for the 0–5 scale would mitigate observer bias and enable a more objective interpretation of the urban fabric. While the short fieldwork duration may have overemphasized immediate, high-intensity stimuli over subtler historical memories, this framework successfully transforms "hidden stories" into stable qualitative variables that can inform more adaptive, inclusive, and resilient urban design strategies.

5. Conclusion

This research set out to decode the urban spatial complexity of Bangkok's Old Town through the lens of multisensory ethnography. By shifting the analytical focus from physical form to lived experience, the study successfully documented the "hidden stories" of Yaowarat, Songwat, and Talat Noi, synthesizing them into a structured Catalog of Cultural Assets.

The findings confirm that the identity of these districts is not anchored solely in static heritage structures, but in the dynamic interplay of sensory activities, particularly the "foodscape" and informal social behaviors. The use of the Weighted Intensity and Importance Scale proved effective in translating subjective qualitative data into actionable urban parameters. The analysis further demonstrates that the chaotic, high-intensity sensory environments often labeled as "disorderly" are, in fact, the primary drivers of the district's social metabolism and economic resilience.

Ultimately, this paper argues that adaptive urbanism in historic contexts must extend beyond visual preservation. Future urban design and planning decisions should incorporate sensory mapping as a standard diagnostic tool. By recognizing "smell," " sound," and "mood" as critical forms of urban infrastructure, planners can develop more inclusive governance models that protect not only physical structures, but also the vibrant, intangible atmosphere that defines the Old Town a living heritage site.

6. Acknowledgements

The authors express their sincere gratitude to Parisa Musigakama from Faculty of the Architecture, Rangsit University, for initiating this collaborative platform and to the entire teaching team from Universitas Islam Indonesia (UII) for their invaluable cooperation and support throughout the "RSU x UII: Sustainable Urban Foodscapes" workshop. Special thanks are due to Ohm Panatkool and Supradith Chitagon for their critical role in shaping the workshop's initial direction and guiding the student fieldwork. Finally, the authors acknowledge the 46 student participants whose enthusiastic engagement made this research possible.

7. References

Lynch, K. (1960). The Image of the City. Cambridge, MA: MIT Press.
Venturi, R., Scott Brown, D., & Izenour, S. (1972). Learning from Las Vegas. Cambridge, MA: MIT Press.
Lucas, R. (2016). Research Methods for Architecture. London: Laurence King.
Debord, G. (1955). Introduction to a Critique of Urban Geography. Les Lèvres Nues.
De Certeau, M. (1984). The Practice of Everyday Life. Berkeley: University of California Press.
Whyte, W. H. (1980). The social life of small urban spaces. The Conservation Foundation.
McLean, K. (2012) Emotion, Location and the Senses: A Virtual Dérive Smell Map of Paris. In Proceedings of the 8th International Design and Emotion Conference, London