Proceedings of the 4th International Conference on Interdisciplinary Humanities and Communication Studies
DOI: 10.54254/2753-7064/2025.30115

The Right to Be Seen: How Observing Children's Behavior Can Inspire More Inclusive Community Architecture

Xing Liu

School of Fine Arts, South-Central Minzu University, Wuhan, China
liu_xing_arch@126.com

Abstract. In rapidly urbanizing contexts, children's visibility and participation in public spaces serve as critical indicators of intergenerational equity. This study focuses on a high-density historical community in Wuhan, China, and investigates by observing and tracking the daily activities of children aged 0 to 12. By analyzing 36 valid behavioral trajectories and 104 stopping points, we find that children are actually creative space experts: they will take the initiative to explore the urban environment, naturally gather in those " life-oriented nodes" and play spontaneous and even a little "rule-breaking" games, which are often clever responses to the surrounding environment. A special case of "wilderness-style" free play further shows that those spaces in the community with no fixed gameplay and a little adventure are very important for children's growth. The results show that observing children's behavior can be a scientific design method and provide a basis for creating an inclusive and child-friendly urban renewal project. Three design strategies are proposed: micro-scale "urban acupuncture" transformation around daily facilities; Optimize the school route into a continuous experience corridor; Under the guidance of risk assessment, some controllable "adventure" environments are added. This research finally provides a low-cost, replicable "behavior–space" analytical framework and a practice-oriented design toolkit, which helps to create a child-friendly and inclusive community architecture.

Keywords: children, community, environmental behavior, affordance, inclusive design

1. Introduction

The urbanization process all over the world has profoundly changed the production of public space. However, children's everyday experiences are often overlooked, as urban spaces are primarily designed to facilitate adults' commuting and consumption activities. In the community, children's "visibility" is not only related to their safety and health; It is more closely related to the fairness and justice of our city and the equality between different generations. This right has been written into "United Nations Convention on the Rights of the Child (UNCRC)", especially Article 12 (the right to express views freely in all matters affecting the child) and Article 31 (the right to leisure and play) [1]. Therefore, understanding how children use and perceive the environment around them has become the key first step for us to build a truly inclusive and supportive community.

This study focuses on the Tan Hualin community in Wuchang District, Wuhan. It is a dense urban area, with Tan Hualin Street in the north, Liangdao Street in the south, Zhongshan Road in the east

DOI: 10.54254/2753-7064/2025.30115

and Deshengqiao Street in the west. The site and its surroundings are home to six kindergartens, three primary schools, as well as several middle schools and universities, creating a unique environment with high-density educational resources and a rich tapestry of daily life facilities(Figure 1). This specific locale, as detailed in the initial field trip, provides a fertile ground for observing the environmental behaviors of children, offering a robust sample of daily routines and interactions.

The main goal of this research is to, based on empirical behavioral observation, map out the travel paths and ecological system of stopping points used by children in the community's public spaces. By doing so, it aims to identify the key environmental factors that influence children's accessibility, their propensity to stop and linger, and their opportunities for play. Ultimately, the study discusses the significance of these findings, which can help people to build more friendly community environment and design better public spaces.

The paper is arranged as follows: following this introduction, a literature review will establish the theoretical foundation. Then, the research methodology and data collection process will be detailed. The core part of the paper will show the main findings and analysis, and then a discussion session will turn these findings into design and policy suggestions, explain its contribution to different fields, and also point out the limitations of the research. Finally, a conclusion will summarize the key insights and suggest directions for future research.

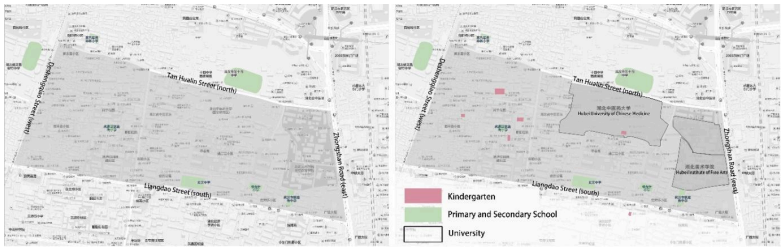

Figure 1. The site and its surroundings

2. Literature review

The discourse on child-friendly environments has unfolded within a multidisciplinary framework. It is widely acknowledged in academia that children's rights, as advocated by the UNCRC, are not merely abstract legal principles but should be translated into a tangible "spatial right" [2]. This implies the right for children to be seen, to participate, and to influence their urban public space. Environmental psychology offers critical tools to understand how children exercise this right, notably Gibson's theory of "affordances," which reveals that children's actions are active responses to the potential opportunities for action in their environment [3]. However, research also consistently shows that "Children's Independent Mobility" (CIM) has been steadily declining worldwide due to concerns over traffic and social risks [4], significantly diminishing their opportunities to engage with environmental affordances. Sociological theories further frame community public space as a vital "third place" beyond the home (first place) and school (second place) [5], where children continuously "produce" their own informal learning and social settings through everyday practices like walking, lingering, and playing [6].

Despite this robust theoretical foundation for child-friendly design—spanning from macro-level urban governance to micro-level risk-benefit assessments [7]—a significant research gap persists. The majority of existing studies either focus on suburban contexts in Western, low-density communities, whose spatial patterns differ vastly from the high-density urban fabric of China, or they concentrate on evaluating designated, formal play spaces (e.g., parks, playgrounds). There

DOI: 10.54254/2753-7064/2025.30115

remains a relative scarcity of empirical, micro-scale research on how children, within the specific socio-cultural context of China, utilize "informal" spatial elements for their daily activities in spatially constrained, mixed-use, and vibrant old neighborhoods. This study, therefore, aims to fill this gap through systematic behavioral observation. It seeks to uncover the concrete links between children's spontaneous behaviors and the physical environment in a high-density built-up area, thereby providing frontline evidence to support an inclusive community renewal strategy genuinely rooted in local, everyday life practices.

3. Research design and methodology

This study adopts a qualitative, observation-based case study methodology, aiming to gain an in-depth understanding of the complex relationship between specific physical environments and children's spontaneous behaviors. Through a detailed case analysis of the Tan Hualin community in Wuhan, the research seeks to construct a complete evidence chain from behavioral observation to spatial analysis, and further to design translation.

3.1. Case study site selection

The selection of the Tan Hualin community as the research site was based on three core considerations. First, the typicality of the built environment. This area is a classic example of a high-density, mixed-use old urban center in China. Its spatial morphology is complex and diverse, featuring major urban roads, narrow backstreets and alleys, semi-open courtyards, and informal corner spaces, providing a rich sample for observing children's behavior in various types of spaces. Second, the high visibility of the child population. As mentioned in the introduction, the site is surrounded by numerous kindergartens and primary schools, ensuring a high frequency of child activity available for observation during specific time periods (especially during school commute times). Third, the richness of daily-life facilities. The site is replete with daily amenities such as traditional food markets (often referred to locally as “wet markets”), breakfast stalls, small shops, and bus stops. These "life-oriented nodes" constitute important destinations and social catalysts along the daily paths of residents (including children), making them ideal locations for observing interactions. The scope of the study is clearly defined as the community area enclosed by Tanhualin Street, Liangdao Street, Zhongshan Road, and Deshengqiao Street.

3.2. Data collection: behavioral observation and tracking

The core data for this study were collected through "Naturalistic Observation," specifically employing the "trailing" method to non-intrusively track individual children or small groups.

Observation Periods: Data were collected over two typical weekdays and one weekend in June 2025, totaling approximately 15 hours of effective observation time. The observation periods covered early morning school commutes (7:30-10:00), afternoon dismissals (15:30-18:30), and free activity times on the weekend, in order to capture children's behaviors in different contexts.

Observation Subjects: The subjects were divided into two main groups: young children aged 0-6 (usually accompanied by parents or grandparents) and primary school students aged 6-12 (some traveling independently). Researchers randomly selected subjects at several key nodes within the community (e.g., school gates, main alley intersections). To adhere to research ethics, researchers maintained a safe distance from the subjects, made no direct contact or interference, and ensured that all recorded data were anonymized.

DOI: 10.54254/2753-7064/2025.30115

Recording Method: Researchers used pre-designed "Behavioral Maps" as the recording tool. A new map was used for tracking each child (or group). On a base map of the community, the researcher traced the subject's route in real-time and used a standardized symbol system to mark their stopping points. At each stopping point, the following information was recorded in detail: (1) duration of the stop; (2) primary behavior (e.g., waiting, eating, socializing, playing); (3) interaction partners (e.g., peers, parents, strangers, or other elements); and (4) the physical environmental elements that triggered the behavior (e.g., a step, a puddle, an interesting storefront). Photography and quick sketches were used to supplement the recording of key scenes.

After three days of observation, a total of 48 behavioral trajectories were recorded. After excluding invalid data due to loss of subject or excessively short paths, 36 valid trajectories were ultimately obtained for analysis.

3.3. Data analysis

The data analysis process was divided into three steps, designed to transform the raw observational records into spatially insightful findings:

Data Transcription and Visualization: All hand-drawn behavioral maps and recorded notes were digitally transcribed using software (CAD or PS etc.). The 36 valid trajectories were all overlaid onto a single community base map to create a "Child Activity Heat Map," visually revealing the overlap of paths and the concentration of activity nodes(stopping points). Concurrently, the 104 observed stopping points were precisely marked on the map.(Figure 2)

Classification and Coding of Stopping Points: The 104 stopping points underwent qualitative content analysis. A coding system was established based on the recorded children's behaviors and environmental elements. For instance, stopping points were functionally categorized as "life service points" (e.g., buying a snack), "social interaction points" (e.g., talking with an acquaintance), and "spontaneous play points" (e.g., playing on steps). By statistically analyzing this classification, the study identified which types of spaces were more likely to attract children to linger.

Behavior-Space Correlation Analysis: This step combined the visual maps with the qualitative coding. The analysis focused on why children chose specific paths (e.g., why a particular alley was preferred over a main road) and how the physical attributes (i.e., "affordances") of specific stopping points supported particular behaviors. For example, through comparative analysis, it was revealed that a roadside open space with shade, seating, and proximity to a small shop was more conducive to prolonged stays and social interaction among children than an empty plaza. In this way, strong correlations were established between "specific space types" and "specific behavioral patterns."

Through this systematic methodology, the study ensures the logical coherence and credibility from a vivid field observation to a rigorous academic conclusion.

4. Findings and analysis

Through the systematic analysis of 36 valid behavioral trajectories and 104 stopping points, this study reveals the spatial usage patterns and behavioral preferences of children in the high-density built environment of the Tan Hualin community. The findings indicate that children are not passive travelers moving through an adult-dominated space; rather, they are active agents who constantly interpret, select, and creatively utilize the "affordances" of the environment.

DOI: 10.54254/2753-7064/2025.30115

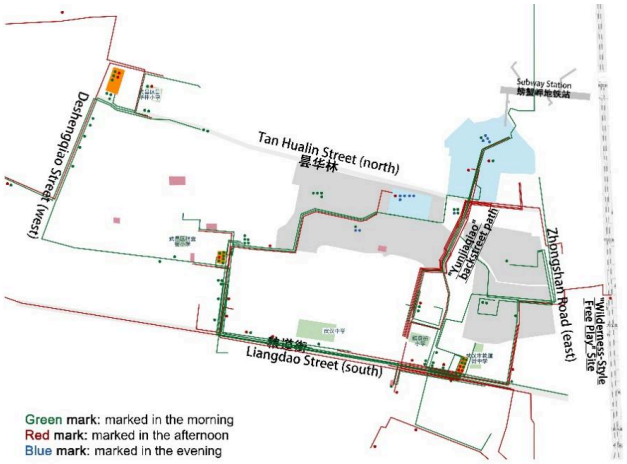

Figure 2. Child activity heat map

4.1. The behavioral logic of children's path selection in the community

The "heat map" generated by overlaying the 36 behavioral trajectories shows that children's community path choices exhibit a complex network feature, coexisting with "arteries and capillaries." The logic behind their choices is mainly driven by three factors.

First is the efficiency-oriented selection of shortcuts. A significant finding is the high-frequency use of the "Yunjiaqiao" backstreet path. Although Liangdao Street to the south is wider, children—especially primary school students—generally choose to take this narrow backstreet, which has less motor vehicle interference and connects several life-oriented nodes, as a shortcut to and from school. This indicates that in children's cognitive maps, "safety" and "directness" outweigh the formal hierarchy of roads. They accurately calculate the shortest walking distance, demonstrating a high degree of goal-orientation.

Second is the life-oriented path deviation. Children's paths are not always the shortest distance between two points but are often "bent" by the daily-life facilities along the way. For example, a typical after-school route might extend from the school gate first to a stationery store, then detour to a snack stall, before finally heading home. These life nodes act like magnets, attracting path deviations and turning the children's community traversal into a continuous process of "exploring-consuming-socializing," rather than a singular act of transportation.

Third is the experience-oriented micro-path choice. At a more micro scale, children's path selection demonstrates a pursuit of sensory experience. They tend to walk along the side of the street where buildings provide shade during the summer, and they deliberately choose paths with railings so they can slide their hands along them as they walk, or step on pavement with special patterns. This confirms that the physical qualities of the environment—light and shadow, materials, boundaries—directly influence children's path decisions. The path itself becomes the destination of the experience.

4.2. The spatial ecology and behavioral decoding of stopping points

This study identified and coded 104 stopping points, the analysis of which reveals a "stopping point ecosystem" centered around children's daily lives. These points can be classified into three functional categories: Life Service Points (44%), Spontaneous Play Points (30%), and Social Interaction Points (26%).

DOI: 10.54254/2753-7064/2025.30115

Life Service Points are the most predominant type, mainly including breakfast stalls, wet markets, bus stations, small shops, stationery stores, and package pickup stations. These nodes are the intersections of children's daily lives and the community's economy. Here, children's behaviors are primarily "waiting" (for parents to shop) and "consuming" (buying snacks). It is noteworthy that these commercial activities provide "legitimacy" for children's lingering, making their "presence" in public space feel natural. The steps of these shops and the open spaces at their entrances consequently become informal social and play venues.

Spontaneous Play Points are a core finding of this study, and almost none of them are "playgrounds" in the traditional sense. These points include community fitness equipments, the bases of public sculptures, street-side steps, shop entrance ramps, parking lot barriers, and even a puddle after the rain. These ordinary urban furnishings and spatial elements are full of "affordances" in the eyes of children: fitness equipment is creatively used for climbing and swinging, sculpture bases become natural stages, and steps are excellent social bleachers. This ability to "gamify everyday objects" is a core manifestation of children's spatial creativity.

Social Interaction Points often overlap with the previous two categories. For example, under the shade of trees, within pergolas, at spots with railings to lean on, or at the entrance to the market, children meet classmates, neighbors, or family members and engage in brief exchanges. These spontaneous social interactions form an important part of a community's social capital, and providing small, comfortable spaces for people to linger—spaces with seating or places to lean, shade, and good visibility—is a key physical prerequisite for facilitating these interactions.(Figure 3)

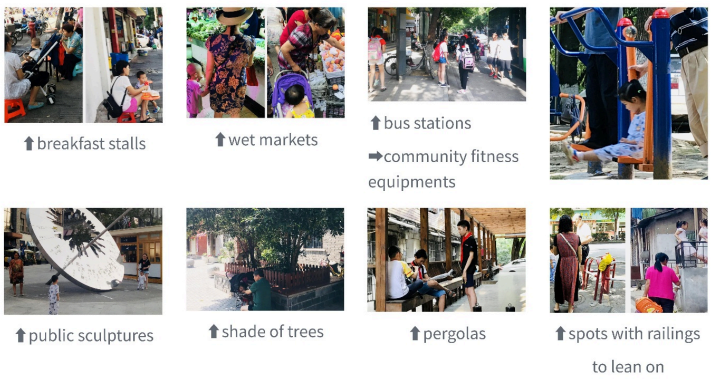

Figure 3. Typical stopping points photos

4.3. "Transgression" and "wilderness": the emergence of informal play

In addition to the regular behaviors mentioned above, the study also captured two special and inspiring play patterns.

The first is "Creative Transgression." This refers to children intentionally or unintentionally breaking the conventional use of a space. For example, using anti-climb railings as a balance beam, playing hopscotch with stone bollards intended to block parking, or chasing each other along the edge of a building's shadow. These actions challenge the adult-imposed spatial order but are also a testament to children's ingenuity in expanding play possibilities within limited spaces. It reveals that spaces that are overly regulated and functionally singular are "boring" for children.

The second is "Wilderness-Style Free Play." In a derelict railway area on the edge of the community, children were observed engaging in longer, more exploratory play. Here, there was no adult supervision, and the environmental elements (gravel, weeds, rails) were "rawer" and more

DOI: 10.54254/2753-7064/2025.30115

"uncertain." Children engaged in activities such as chasing, hiding, and collecting stones and plants. This case is extremely valuable as it highlights the importance of "informal," even slightly "wild," spaces for child development in highly planned cities. They provide precious opportunities for learning risk assessment and independent exploration, which is precisely what the "risk-benefit assessment" theory advocates. The existence of such spaces is a necessary supplement to an urban environment that is often overly "sanitized" and "safety-proofed."(Figure 4)

Figure 4. “Wilderness-style free play” site

5. Discussion

Through a micro-empirical analysis of children's behavior in the Tan Hualin community, this study not only maps the spatial usage of a specific group but, more importantly, provides frontline evidence for rethinking the meaning of "child-friendliness" in the context of high-density urban renewal. These findings have profound implications for community architecture, urban planning policy, and related academic theories.

5.1. Translating findings: implications for inclusive community architecture and public space design

The core value of this research lies in "translating" children's spontaneous behaviors into concrete design and governance strategies.

First, Anchor micro-renewal with "life-oriented nodes" in an acupuncture-like approach. The research indicates that what most attracts children are not isolated, large-scale playgrounds, but rather small, charming "life-oriented nodes" that are closely integrated with daily life, such as the entrance to a local market or the steps in front of a breakfast shop. This suggests that the construction of child-friendly communities should not be large-scale "hard projects" of demolition and construction, but rather a form of micro-renewal that "slips into the night with the wind, moistening things silently." For example, adding an interesting bench outside a small shop, paving a patch of ground next to a market with special textures, or designing a simple interactive installation near a bus stop. Such "acupuncture-like" interventions are low-cost, effective, and can be genuinely integrated into the community's daily life network.

Second, Systematically optimize children's community experience from a "path" rather than a "place" perspective. Children's community life is fluid, and their experiences are continuous. Therefore, the design focus should shift from static "children's spaces" to dynamic "children's paths." The three logics discovered in this study—"efficiency shortcuts," "life-oriented detours," and "experience-based micro-routes"—provide a direct basis for optimizing the design of "school

DOI: 10.54254/2753-7064/2025.30115

routes." A child-friendly school route should not only be physically safe but also stoppable, playable, and explorable. This means designers need to pay attention to every element along the path: shop windows, building facades, street pavement, even the form of railings and the species of trees. This calls for a holistic "Street Design" mindset that transcends property lines.

Third, Embrace "risk-benefit assessment" and prudently provide "informal" and "wild" spaces. The discovery of the "derelict railway" case powerfully challenges the current trend of over-sanitizing and over-designing urban spaces. It confirms that "risk" and "uncertainty" are vital nutrients for children's growth and play. This does not mean creating dangerous environments, but rather integrating the concept of "Risk-Benefit Assessment" into design. Designers and managers should consider: Can we create "adventure playgrounds" in the "leftover" spaces of the community, such as vacant lots pending construction or areas around abandoned structures, that allow for climbing, running, and contact with natural materials (soil, sand, weeds)? The design of these spaces should be low-intervention and unstructured, granting children the right to “finish” the space themselves. This calls for a new spatial ethics—one that recognizes the value of “messiness” and “incompleteness.”

5.2. Interdisciplinary contributions and theoretical dialogue

The findings of this study also engage in effective dialogue with several theoretical fields. First, it provides localized evidence from China's high-density built environment for the theory of "Affordances." The research shows that children are highly creative in discovering affordances, capable of transforming the most mundane urban furniture into play props. This suggests that architects should consciously pre-set rich affordances in their designs, creating multi-functional, interpretable elements rather than single-function facilities.

Second, the "life-oriented nodes" and "spontaneous play points" identified in the study can be seen as a children's version of the "Third Place." These spaces are key venues for children to build peer culture and learn social interaction rules outside of home and school. This study enriches the application of the "Third Place" theory in the field of childhood studies through tangible spatial analysis.

Finally, methodologically, this study demonstrates a clear, low-cost, and replicable path of "behavioral observation to spatial analysis." In the current context that emphasizes "Evidence-Based Design," this method of transforming qualitative observations into spatial design criteria has direct practical reference value for architects, urban designers, and community planners.

5.3. Limitations of the study and future prospects

This study also has some limitations. First, due to the limited observation time, it could not fully cover the impact of seasonal changes on children's outdoor behavior. Behavioral patterns under the warm winter sun may differ from those on a summer evening. Second, the study primarily focused on children's behavioral manifestations (what they do) and did not delve into the subjective feelings and motivations behind their actions (why they do it) through methods like interviews. Lastly, as a single case study, its conclusions should be applied with caution when generalizing to other types of communities (e.g., newly built commercial housing complexes, suburban communities).

Future research could be deepened in several ways: long-term, cross-seasonal observations could be introduced to build a more comprehensive database of children's behavior; participatory methods such as interviews and drawings could be combined to explore children's inner worlds, complementing behavioral observation with cognitive research; and by comparing children's

DOI: 10.54254/2753-7064/2025.30115

behavioral patterns across different types of communities, future studies could explore the specific impacts of the built environment (e.g., floor area ratio, green space ratio, road network density) on children's independent mobility and play patterns, thus providing more universally applicable guiding principles for broader urban planning.

6. Conclusion

This study, taking "the right of children to be seen" as its starting point, provides empirical evidence for understanding the real-world interactions between children and the urban built environment through a systematic observation and analysis of children's spontaneous behaviors in the high-density, old neighborhood of Tanhualin, Wuhan. The core conclusion of this research is that children are not passive recipients of spaces planned by adults. Instead, as active spatial practitioners, they exhibit a complex logic of path selection based on efficiency, daily-life convenience, and sensory experience. They creatively transform ordinary, informal elements within the community—such as steps, ramps, tree shade, and street corners—into vibrant "third places" for play and social interaction.

The key contribution of this research lies in its translation of these micro-behavioral insights into a set of actionable and more inclusive community renewal strategies. It argues that child-friendly design should not solely focus on building isolated, standardized playgrounds. Rather, it should shift towards a more systematic and integrated way of thinking: activating "life-oriented nodes" that are integrated with daily life through "acupuncture-like" micro-renewals; holistically designing daily routes like school paths into "accessible, stoppable, and playable" experiential sequences from the perspective of path continuity; and prudently introducing the concept of "risk-benefit assessment" to preserve or create "informal" spaces within the community that allow for exploration and moderate challenges.

Ultimately, this study demonstrates that observing children's behavior is a crucial, evidence-based pre-design research method. By listening to the spatial needs that children "voice" with their feet and bodies, we can better create communities that are more inclusive, just, and vibrant, not only for children but for residents of all ages. This is not only a response to the spatial dimensions of the UN Convention on the Rights of the Child but also a persistent pursuit of human-centered spatial quality amidst the process of rapid urbanization.

Acknowledgements

This research was funded by the Fundamental Research Funds for the Central Universities (Humanities and Social Sciences), Grant No. CSZ24028.

References

[1] UNICEF UK. (2019). Summary of the UN Convention on the Rights of the Child. UNICEF UK. https://www.unicef.org.uk/wp-content/uploads/2019/10/UNCRC_summary-1_1.pdf
[2] Holloway, S. L., & Valentine, G. (Eds.). (2000). Children’s geographies. Routledge.
[3] Gibson, J. J. (1979). The ecological approach to visual perception. Houghton Mifflin.
[4] Shaw, B., Bicket, M., Elliott, B., Fagan-Watson, B., Mocca, E., & Hillman, M. (2015). Children’s independent mobility: An international comparison and recommendations for action. Policy Studies Institute.
[5] Oldenburg, R. (2001). Celebrating the third place: Inspiring stories about the “great good places” at the heart of our communities. Marlowe & Company.
[6] Lefebvre, H. (2004). Rhythmanalysis: Space, time and everyday life (S. Elden & G. Moore, Trans.). Continuum.
[7] Ball, D. (2019). Playgrounds—risk, safety and children's play. Routledge.