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THE EMERGENCE OF CHILDREN'S SPATIAL AGENCY IN HOME DESIGN

By Fauzia Rahman Mouri

Architects, the design professionals responsible for much of the built environment's development, from city designs to everyday small-scale objects, have significant influence over our daily lives. With rapid urban expansion, their role has evolved beyond that of "master builders" (Kahn, 1979), requiring a deeper understanding of how diverse users interact with spaces to meet contemporary needs and challenges. However, the perspectives of children, one of the key inhabitants of these spaces are often overlooked as stakeholders while designing (Dudek & Dudek, 2005; Freeman & Tranter, 2010) especially in home design. Despite researchers across disciplines increasingly acknowledging that children experience and interaction of space fundamentally being different from adults (Christensen & James, 2008; Punch, 2002), children remain excluded as participants in home design. Homes and neighbourhoods, where children spend most of their time (Hofferth & Curtin, 2005), are often designed based on adult-centric and consumer-driven priorities (Cook, 2004).

This research examines how middle-childhood children (ages 5–11) perceive and engage with spaces in and around their homes, contributing to a broader understanding of children's spatial needs in residential design. This study marks the initiation of a longitudinal research program designed to compre-

hensively examine children's spatial experiences across the entirety of the primary school age range. The selection of this age group ensures a balance between capturing diverse childhood experiences and maintaining coherence in spatial engagement. According to Piaget's theory of cognitive development (1971), this age range marks the transition from the preoperational to the concrete operational stage, during which children develop independent perspectives and construct an understanding of their environment based on personal experiences (Piaget & Inhelder, 1956).

By employing participatory methods such as drawing and discussions during workshop, the study captures children's spatial preferences, independent perspectives, and interactions within their immediate environment. Primary research question was: How do children envision their ideal or favourite spaces in and around their homes, and to what extent do their current living environments cater to these spaces? A workshop, conducted in a single neighbourhood in Dunedin, New Zealand, included a cohort of children, from which eight participants were selected by the research team. These eight children, meeting the age criteria of middle childhood (5-11 yrs), corresponding to the primary school level, formed the study's participant group. This natural participant pool ensured contextual consistency, reinforcing the validity of the insights obtained. The shared environment allowed for comparable spatial interactions while still reflecting individual differences in perception and use of space. While the findings are context-specific to a single neighbourhood, they provide insights into broader patterns of children's spatial engagement.

The research methodology focused on engaging children through creative and interactive methods, allowing them to express their ideas and preferences in a manner that feels natural to them. Through activities such as drawing and conversation, the study captured children's insights into the spaces they desire the most in and around their homes. Each child was provided with art supplies and invited to draw their favourite space in their home if they could design it. The drawing process took place in researchers presence, including engaging in conversations with them while they drew ensuring participatory explanation (Coates & Coates, 2006; Matthews, 1984). Additionally, audio was recorded with consent and field notes were taken during the workshop to document observations of participant interactions, body language, and other non-verbal cues. The researcher's role was to facilitate, observe, and document without leading or influencing their creative process. Necessary ethical approval was taken prior to conducting this workshop and maintained throughout the session.

Collected data were analysed using thematic analysis (Braun & Clarke, 2006) with the help of NVivo software, focusing on recurring themes on spatial pref-

erences, material culture, and sensory engagement. The drawings were examined for recurring patterns, and interpretations were cross-referenced with verbal descriptions. Thematic analysis began with the initial coding of recurring themes. Subsequently, these isolated codes were cumulated under broader themes, resulting in the synthesis of overarching categories. The study then used the structuralist perspectives on space perception and how affordances influence children's spatial interactions (Gibson, 2014) for further discussion on the results.

The children's drawings and discussions revealed several overarching themes contributing insights into how they perceive and interact with their surroundings. Contrary to the adult-centric emphasis on structured spaces (Dudek, 2012), children envisioned areas that blended functionality, play, and emotional comfort. While spatial perception varies across age groups, our analysis focuses on identifying broader recurring themes that emerge from the data, ensuring that key insights are not limited to individual differences but reflect common spatial preferences among children (figure 1,2,3). The findings are analysed through the lens focusing the interplay between the physical environment and children's subjective experiences.

Key findings included:

1. Action Affordance and Space Understanding

The children's drawings reflected their understanding of affordances, as proposed by Gibson (1977; Gibson, 2014), highlighting the functional possibilities offered by their environments. Their favourite spaces were often areas that allowed active engagement, e.g. running, climbing, or playing inside and outside home. These designs show how children perceive space not just as a physical setting and action based space (Massey, 2005), but as a medium for action and interaction, shaped by the opportunities it offers.

2. Material Culture and Spatial Affordance

Another interesting finding was that the children's ideas of their favourite spaces were strongly influenced by material culture (Brandow-Faller, 2018; Cook, 2004; Derevenski, 2005). Material culture refers to the physical objects, resources, and spaces that people use to define their culture, including tools, art, buildings, and everyday items (Tilley, 2006). Most participants included various objects in the spaces they drew, showing their understanding of enjoyable spaces is closely tied to objects and related activities (Figure 2, 3). This suggests a strong reliance on pre-existing material elements in shaping their spatial preferences.

3. Nature Beyond Material Culture

When navigated the children beyond material culture, most of the children (6 out of 8) shifted their desire for natural elements in their ideal designed spaces. Most children included some form of water as preference showing need for sensory and recreational affordances (Figure 1, 3). From this shift the research suggests that, in the absence of material objects, children's preferences drifted toward environments that offer exploratory and sensory engagement with nature.

4. Observation Without Authority

Another consistent theme was their desire to be near a certain territory within in the overlooking of their parents or guardians, emphasizing a need for security through proximity (Beckes & Coan, 2011; Gilly & Torre, 2000; Ometov et al., 2016). However, they also highlighted the importance of autonomy (Green, 2013; Green, 2018), expressing a clear preference for spaces free from adult-imposed rules. This finding underscores the balance children seek between observation for safety and the freedom to engage with their surroundings independently.

This research highlights the importance of emergence of children as active stakeholders in the design process, rather than passive users, to create spaces that genuinely meet their needs. It emphasizes the need to reimagine home environments as adaptable, interactive, and inclusive, moving beyond the purely functional, safety or aesthetic focus prevalent in mainstream architectural practice (Gehl, 2013; Lynch, 1964; Sedehi, 2024). By involving children in the design process, architects can gain valuable insights into their preferences for playful, functional, and adaptable elements, ensuring that spaces evolve with children rather than remaining rigid and function specific. This approach challenges traditional design considerations in homes, advocating for designs that respect children's agency and support their emotional and developmental well-being. For example, this inaugural study so far highlights children's need for a balance between autonomy and supervision—something often overlooked in adult-centric planning. By incorporating children's perspectives, designers can create playful spaces within neighbourhoods that allow parents to monitor their children from a familiar setting, ensuring both safety and independence. This example demonstrates how direct input from children can shape spatial planning in ways that better align with their lived experiences.

The paper aligns with the theme of Emergence by showcasing how mainstream architecture practise should consider children's spatial preferences according to children, not according to adults' perception of children's need for resi-

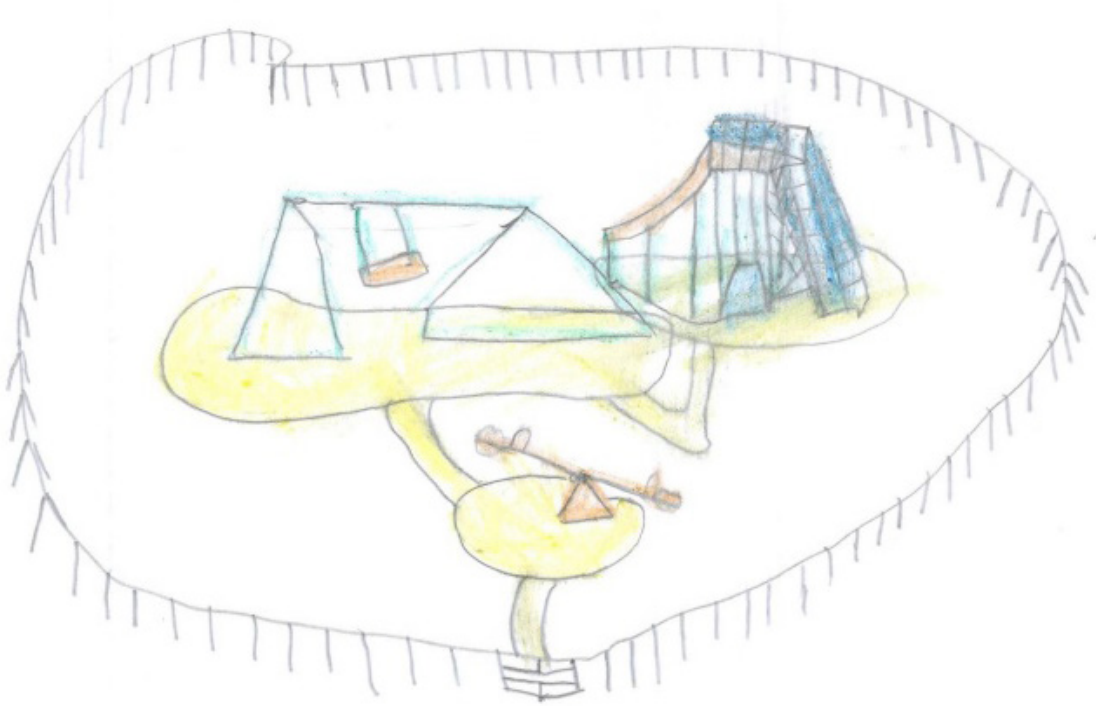

Figure 1. Participant's drawing showing playground. Image by Author

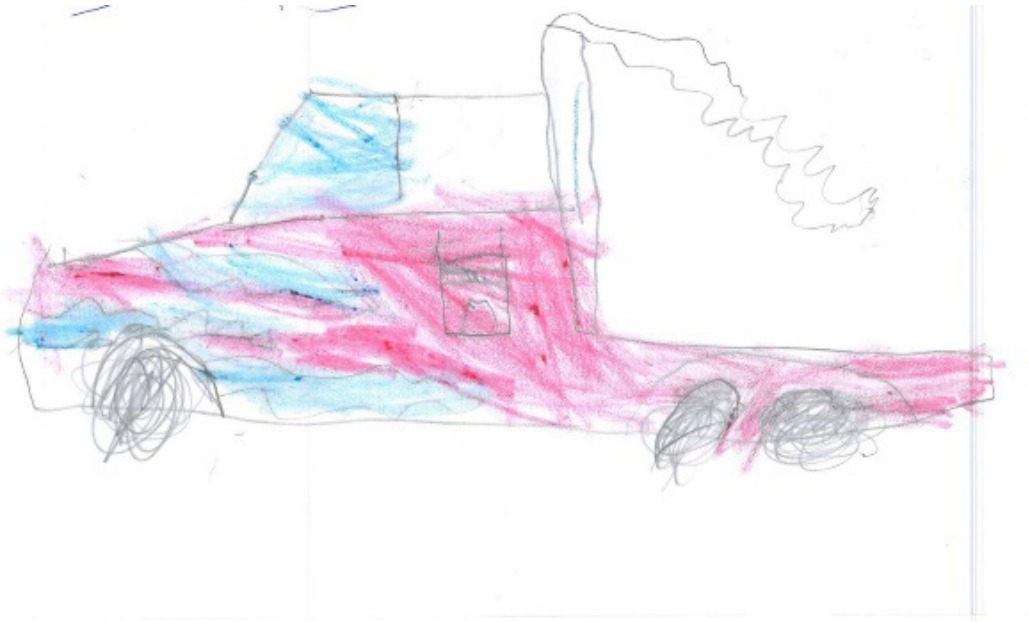

Figure 2. Participant's drawing showing toy. Image by Author

dential design. Children's perspectives disrupt conventional design narratives, offering alternative pathways for inclusive architecture promoting the emergence of design for children. Children, often perceived as passive occupants, emerge as active co-creators of spatial knowledge, reinforcing participatory design as an evolving paradigm. Emerging participatory methods that include children as stakeholders in design solutions, creates inclusivity and results in homes and neighbourhoods that better cater to children's needs. This study strongly advocates for the transformative potential of integrating children's voices into architectural practice to create more inclusive and adaptive living spaces in and around home.

Figure 3 (Left). Participant's drawing showing free play space inside home and playground outside home. Image by Author

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