"There's kind of a wall I have to stay inside of": A Qualitative Understanding of Children's Independent Mobility Range, Destination, Time and Expansion

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Abstract

Children's independent mobility (IM) is profoundly connected to their healthy development and wellbeing, and plays a critical role in promoting their further territorial expansion in their neighborhood. In this paper, we explore perspectives of Canadian children aged 10-13 years on their IM in their neighborhood, using interpretive description analysis. This paper discusses three themes yielded from the children's data: 1) their perceived boundaries for their IM range, 2) utilized places for their IM destinations, and 3) temporal boundaries on their IM created by curfews and check-ins. Our iterative process of data triangulation allowed us to expand beyond the identified themes and original frameworks towards a novel conceptualization of children's territorial boundary expansion in the context of IM development.

Keywords: independent mobility, territorial boundaries, utilized places, children's curfews, qualitative research methods

Introduction

Contemporary children tend to be more supervised and have limited access and permission to public spaces without adult supervision compared to children in previous generations (Bhosale, Duncan, & Schofield, 2017). This shift is well documented in the last few decades as literature has consistently indicated a decrease in children's independent mobility (IM)—the ability of children to play, walk or cycle without adult supervision (Hillman, Adams, & Whitelegg, 1990). This downward trend in children's IM is concerning because of its critical influence in promoting and affording active play and physical activity, which are deeply connected to children's psychological and mental health and well-being (Brussoni et al., 2015; Marzi, Reimers, & Demetriou, 2018; Schoeppe, Duncan, Badland, Oliver, & Curtis, 2013).

For that reason, research examining determinants of children's IM has intensified (Brussoni et al., 2020; Lee et al., 2015), particularly within the framework of the ecological model (Bronfenbrenner, 1986). For example, studies have examined the influence of built environments (Sharmin & Kamruzzaman, 2017), natural environments (Little & Derr, 2020), social and community environments (Wolfe & McDonald, 2016), family environments (Qiu & Zhu, 2017), and individual parent and child factors (Brussoni et al., 2020). It is now well understood that individual factors need to be considered holistically as a piece of a puzzle in the broader context in which each child is situated (Crawford et al., 2017; Foster, Villanueva, Wood, Christian, & Giles-Corti, 2014; Lambert, Vlaar, Herrington, & Brussoni, 2019; Marzi & Reimers, 2018).

To facilitate research on children's IM, Marzi and Reimers (2018) proposed four IM indicators: license, range, destination, and time. This taxonomy of IM indicators provides an analytical framework that helps to clarify which aspects of children's IM are being discussed. IM *license* describes the permissions parents grant their child (e.g., crossing major roads), although this may not portray a child's actual IM. IM *range* reflects a child's actual (or close to) independent territorial range. IM *destination* describes places a child could go and access independently. Finally, IM *time* indicates the time a child spends independently outside of the home.

Conceptual Model: Children's Territorial Range and Expansion

Moore's (1986) seminal work on children's territorial ranges and expansion has advanced the way children's IM was examined. Moore recognized that "every child has several overlapping ranges that reflect various social and psychological constraints in space and time" (p. 17), and proposed that children first start exploring the "habitual range" of places immediately around their home that are accessible for daily use. Children then move beyond the habitual range to the "frequented range," which is less accessible and bounded by physical and social constraints such as busy roads and curfews. The frequented range tends to expand naturally with age and availability of suitable modes of transportation (e.g., bicycle) and older peers with whom to travel, in child-friendly environments. Finally, the "occasional range" emerges depending on a number of factors, including a child's personality, degree of parentally granted IM, the availability of suitable modes of transportation and travelling companions, and the presence of destinations of

interest. Occasional places are typically geographically distant and spotty (from a child's perspective), and explored only as part of special expedition, which defines the child's ultimate territorial frontier. However, as children expand their boundaries and become more mobile, occasional places become frequented and could be absorbed into the frequented and habitual ranges.

According to Moore's (1986) territorial expansion model, children expand their territorial boundaries through two interlocking processes—range growth and range development. Range growth happens when a child discovers a new place, marking a new ultimate frontier. However, actual range development occurs when a child finds the newly discovered place interesting or necessary to visit regularly, hence, making it a meaningful place. Moore's concepts of territorial range and expansion have been utilized in a range of research examining children's IM. However, there is a lack of a clarity as to how these concepts translate into a practical sense. In the current paper, we sought to explore children's perspectives on their IM in their neighborhood. Specifically, we considered the IM of children between 10 and 13 years in the context of the three IM indicators—range, destination and time (Marzi & Reimers, 2018). Ultimately, we aimed to describe an underpinning process whereby children's territorial expansion occurs.

Methods

The data were derived from a larger mixed-methods study, *The State of Play: Socio-Ecological Perspectives on Children's Outdoor Play* (Han et al., 2018), investigating 10-13-year-old children's perspectives on their independent outdoor activities. The overarching aim of this larger study is to understand the ecological factors (Bronfenbrenner, 1986) that influence children's independent outdoor play and mobility, and how they impact children's mental and physical health (Han et al., 2018). Below, we describe methods used exclusively for the analysis performed in the current paper.

Study Setting and Neighborhoods

Following ethics review and approval by the University of British Columbia and Children's and Women's Health Center of British Columbia Research Ethics Board, children between the ages of 10 and 13 were recruited in three neighborhoods in Metro Vancouver, Canada between April 2016 and June 2018. These neighborhoods were purposely selected to safeguard sufficient variability and diversity of neighborhoods and study populations. Area 1 represents an urban neighborhood with a high population density, located close to downtown Vancouver. Area 2 is a residential area of mixed of single- and multi-family homes, situated at the base of a mountain. It is close to nature in that almost half of the neighborhood consists of recreational, green spaces or protected areas (Statistics Canada, 2017). Area 3 is a topographically flat suburban neighborhood with a mix of single- and multi-family homes that, among the three study areas, has the lowest population density in general yet the highest density of population under 15 years old (Statistics Canada, 2017). As a way to link children's neighborhoods to their participant ID, the first number of participant IDs represents the neighborhood in which they resided.

Participants

Through various recruitment strategies (e.g., social media, word of mouth, poster and flyers), we recruited 105 children who participated in the study—35 from each of the three selected neighborhoods. We selected children between 10 and 13 years old because typically, children begin to significantly broaden their territorial space during this age range (Moore, 1986). This trend clearly coincides with their transition from primary to secondary school (Schoeppe et al., 2013) and the onset of growth spurts (Carrascosa et al., 2018), mostly within the boundaries of parental permission (Stone, Faulkner, Mitra, & Buliung, 2014). In addition, this age range is evidenced to be a critical period where increasing independence and engagement with peers rather than parents/family are witnessed (Christensen, Mikkelsen, Nielsen, & Harder, 2011). Purposive sampling ensured equal representation for age group, gender, and IM range granted by parents. The mean age of the sample was 11.4 years, and 48.6 percent were female. The sample was predominantly Caucasian (65.7 percent), followed by Asian (12.4 percent). Eligible children spoke, read and understood English and had at least some IM granted in their neighborhood, as confirmed by their parent. For more demographic information, see Table 1.

Table 1. Children's demographic characteristics

Child variables		Total (N=105)
Age	10	26 (24.8%)
	11	28 (26.6%)
	12	26 (24.8%)
	13	25 (23.8%)
Gender	Male	51 (48.6%)
	Female	53 (50.4%)
	Other (Genderqueer)	1 (1.0%)
Race	Caucasian	69 (65.7%)
	Asian	13 (12.4%)
	Mixed (Caucasian-Asian)	9 (8.6%)
	Other	14 (13.3%)
# of children in household	1	22 (21.0%)
	2	56 (53.3%)
	3	21 (20.0%)
	≥ 4	6 (5.7%)
Median household income (net)	Vancouver (Area 1)	$56,908
	North Vancouver (Area 2)	$69,610
	Richmond (Area 3)	$61,397

Data Collection

Each participating child met twice with the researcher team member(s). During an initial meeting, one of the research team members visited the participant's home to explain the study and study logistics, and obtained participant assent/consent.

Children were asked to provide their demographic information and draw a map of their neighborhood. On the interview day, each child was invited to take the researcher(s) on a tour of their neighborhood using their map drawing as a guide. This go-along interview method was suited to our study as it could reduce the researcher-participant power dynamic by staying in the child's familiar milieu and letting them steer the interview (Carpiano, 2009). The go-along interview lasted 45-60 minutes and was audio-recorded. During the interview, children were equipped with a digital camera and were asked to take photos of places that were important to them. To garner children's perceptions towards their territorial boundaries in the context of their IM, the researcher(s) asked a series of semi-structured interview questions and prompts, such as "How far from home are you allowed to go without your parent(s) or another adult around? Do you ever go past that point?"

Analytical Strategy

Children's interviews were transcribed verbatim and de-identified, and then were entered into NVivo 10™ for coding. Anonymized visual data (i.e., photos were stripped of identifiable details such as street names and faces were blurred)—were also included in the transcripts, and researcher field notes were linked to each participant. We used children's narratives as the primary source of analysis while their map drawings (Sobel, 1998) and photos (Harper, 2002) served as reflexive and representational tools that aided the participating children to better construct and express their perceptions. We used these multiple datasets in an effort to triangulate and better represent and deconstruct children's realities.

We used the interpretive description analysis method to generate a deeper understanding of children's realities (Thorne, 2013). This analytical method, underpinned by various methodological traditions such as grounded theory and ethnography, provides flexibility whereby researchers can use existing frameworks while not being entirely bound by them (Thorne, 2013). In our analysis, we identified themes using the constant comparative analysis technique of grounded theory (Michael Bloor & Fiona Wood, 2016). This iterative process of categorizing and comparing between themes and patterns was useful for constructing a deeper level of understanding of children's perceptions of their IM. Privileging children's voices, we explored their narratives, map drawings and photos in relation to the questions of: "Do the children play differently when supervised?" "What are the children's developmental changes in IM and outdoor play over time?" And, "What are boundaries the children think they have?" We then explored the identified themes within the ecological model (Bronfenbrenner, 1986).

Within the interpretive description analysis tradition, we constantly questioned and challenged ourselves as to the meaning of these themes. This was to ensure credibility through data triangulation (e.g., are these accurate interpretations of the participants' meanings?), and authenticity (e.g., are different voices/perspectives represented?) of the findings (Creswell & Poth, 2018). We shifted our working interpretive frame as new interpretations emerged. This iterative process of inductive reasoning allowed us to expand beyond the identified themes and original frameworks towards a novel conceptualization.

Results

Our results are organized into three themes representing children's 1) perceived boundaries, 2) utilized places, and 3) curfews and check-ins. These correspond with Marzi and Reimer's IM indicators—range, destination, and time, respectively. IM license (i.e., parental permission) did not emerge as a separate theme because it permeates throughout the results, making it impossible to discuss it in isolation. Themes are interrelated and work together, and often extend into other themes; yet, each theme also provides unique points of discussion.

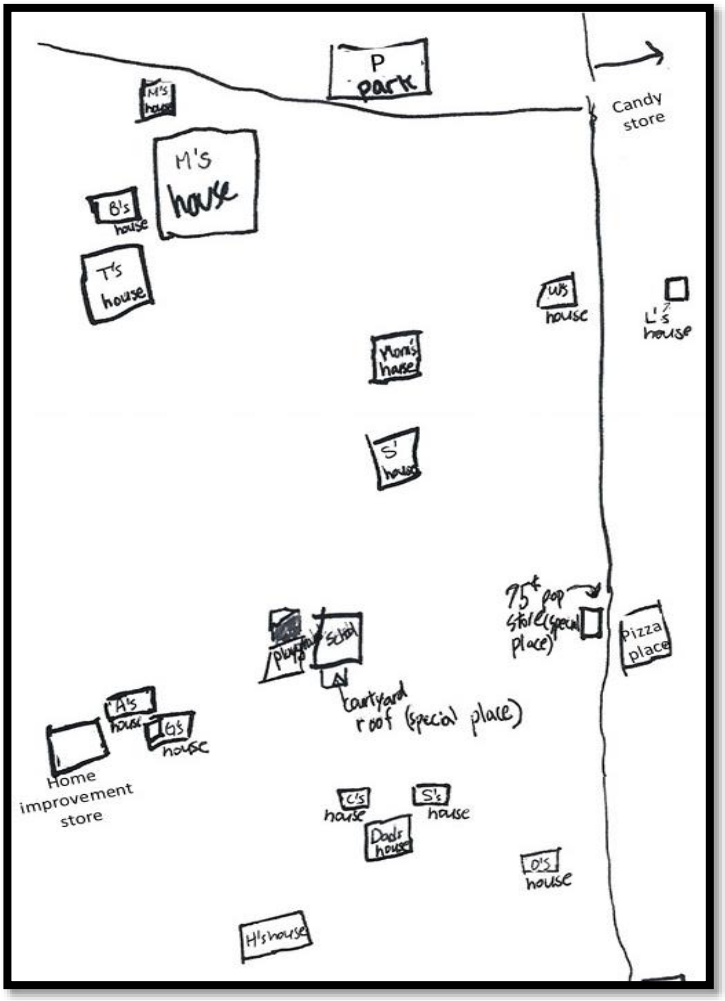
Children's Perceived Boundaries: Their IM Range

Most children had clear perceived boundaries in their neighborhood, which is a loose territorial range they were allowed by their parents and felt comfortable to roam independently. The actual size of perceived boundaries varied for each child largely by age and granted license of IM, ranging from their "backyard" [PID2020: an 11-year-old girl] to "up to the U.S. border" [PID1010: a 13-year-old boy]. Children's perceived boundaries reflected children's as well as their parents' perceived safety in their neighborhood, over and above parental assessment of children's ability to exercise mature and independent judgment. Specifically, the general sense of safety of different pockets of their neighborhood was assessed and guided their boundary-setting. As a 13-year-old boy from Area 1 [PID1011] claimed, he "knows where is a good place for [him] to be and where's not."

Children's perceived boundaries were typically bordered by physical environment characteristics such as major roads, depicting children's and their parents' fear of traffic as a main concern. For example, an 11-year-old boy's [PID1014] perceived boundaries were bordered by four arterial roads, reflecting his parents' fear of traffic. His narratives and map drawing (Figure 1) portrayed his perceived boundaries:

> *…because my parents have this rule where I can be wherever, I can be like a lot of places but as long as it's inside the boundaries…. there's like kind of a wall I kind of have to stay inside of. Like there's [N Street] that I can't go by myself….*

Figure 1. PID1014's map drawing



In addition to major roads, children's perceived boundaries were also delimited by other apparent physical restrictions such as water, dead-ends, constructions and wilderness. Children tended to avoid areas such as deep park trails, woods or unkempt fields that were associated with sightings of dangerous wild animals: coyotes (PID1009, PID1018, and PID3001) cougars (PID2002), bears (PID2003 and PID2014), and racoons (PID2014, PID3003, PID3004 and PID3013). When children (and/or their parents) recognized the possibility of becoming lost in these areas, and that they may not have the necessary skillset to find their way home, these places were considered out-of-bounds. An 11-year-old girl [PID2001] described the trails that she was not allowed to go on (Figure 2). Her narrative presented her parents' fear of their child becoming lost on the trails:

> *In these trails, I'd love to go there, but too many trails that cross around, so they [parents] really don't want us [PID2001 and her younger sibling] to get lost so they wouldn't [let us go in there]. If we stayed in like the first trail and like 10 meters far from the entrance we would be allowed, but if we*

> *went to take a walk, they wouldn't let us. I think. I've never asked but I'm probably sure they would not let us.*

Figure 2. Park trails entrance (photo taken by PID2001)

Another critical determinant of children's perceived boundaries was the "sketchiness" of areas, primarily in terms of social environments. Sketchy areas were usually connected to public consumption of alcohol and drugs, which could be accompanied by unpredictable and aggressive behaviors (e.g., fighting). This was prominent in children's interviews and map drawings of Area 1, such as those of PID1021, a 12-year-old boy who shared an experience that led him to decide to stay away from H Street:

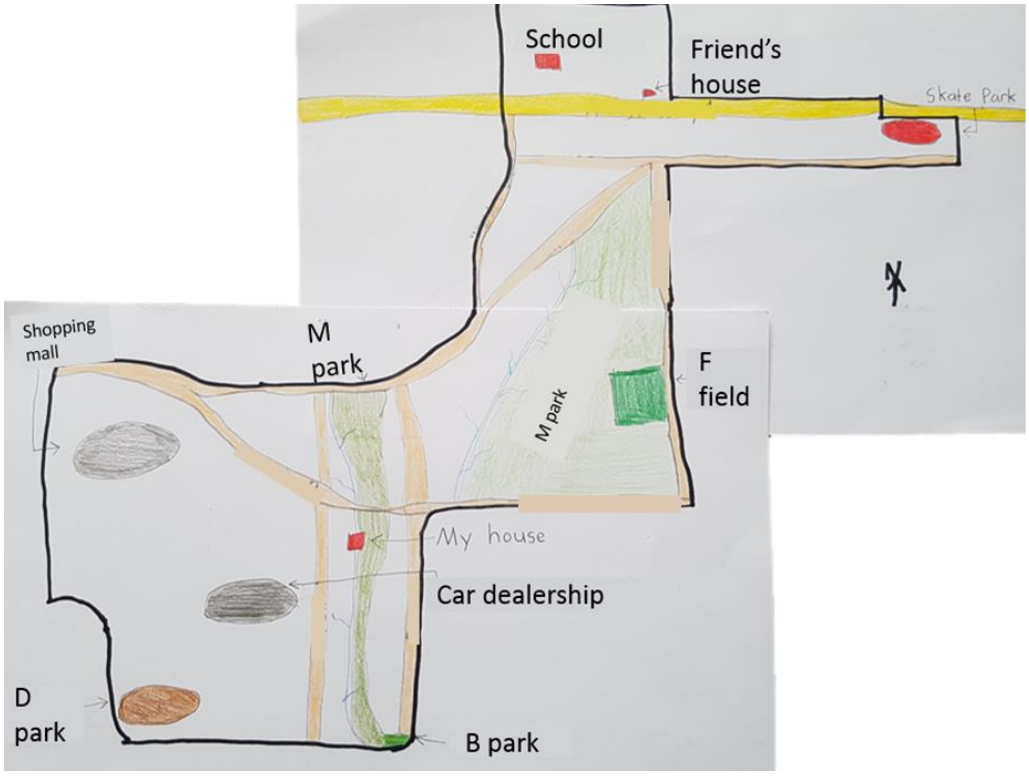
> *1021: I wouldn't go to [H Street] because that's where all the people go to sell drugs*
> *Researcher (R): So places that in your head are associated with selling drugs, you don't go there?*
> *1021: Because most people there are either high and they try to chase you… from experience. It's not the best place to be.*

The perimeters of some children's perceived boundaries were not regularly shaped. The map drawing (Figure 3) of an 11-year-old boy [PID2027] portrayed all the places he used in his neighborhood (discussed further in the following section),

including a skate park, which he marked and narrated as a very special and regularly visited place. His fondness for this skate park was reflected on his map where he deliberately extended his perceived boundaries in a protruding shape in the far upper right corner in order to include the skate park.

> *So, these circles and labeling things um, so important to me, is probably [friend]'s house and my house and the skate park…. I was always traveling to [friend]'s house or to the skate park with him.*

Figure 3. PID2027's map drawing



Children's Utilized Places: Their IM Destinations

While children's perceived boundaries offered a general set of directions and perimeters, their utilized places were destination-based. Their narratives included more specific descriptions of and instructions for how to get to those destinations. Referring back to the participants' maps in Figures 1 and 3, these children's perceived boundaries featured multiple specific *utilized* places to which they could go—i.e., their house, school, friends' houses, and special places such as the 75¢ pop store or skate park. PID1014's interview contextualized "his places" in the neighborhood and the unique emotions he felt towards these places:

> *Important places are probably… well you're already at my mom's house right now and then there's [friend 1]'s, which is, well it's not too important. I go there like once a month? [Friend 2]'s like right across the alley, so might as*

> *well just not, not avoid him. Then there's school, we go there every day…. And then of all my special places—the courtyard roof because I'm the only kid in the school who can actually climb up onto the courtyard roof. So, yeah.… There's the pharmacy, which is just a couple blocks. Because they sell pop 75 cents there and I normally go there once or twice a week just because it's so cheap.*

Children's mobility had a myriad of terms and conditions—heavily guided by their parents' sense of safety. There were thorough terms and conditions ascribed to each utilized place to which a child could travel independently—depending on "where the child was going," "who the child was travelling with," "the nature of activities involved," and so forth. A 10-year-old girl [PID1007] was usually not allowed to cross a major road, but could do so to get to her friend's house only if she went straight to her friend's house and took a pre-defined route:

> *1007: And with [friend]'s house just inside here we are allowed to go on the sidewalk but we're not allowed to go past her window which is right here.*
> *R: Without an adult?*
> *1007: Yeah and we can cross the street where [friend] is but we can't go like in this area, we can't go, like we can't cross the street this way but we can only go to [friend]'s house this way and only the sidewalk here and then inside on the playground area.*

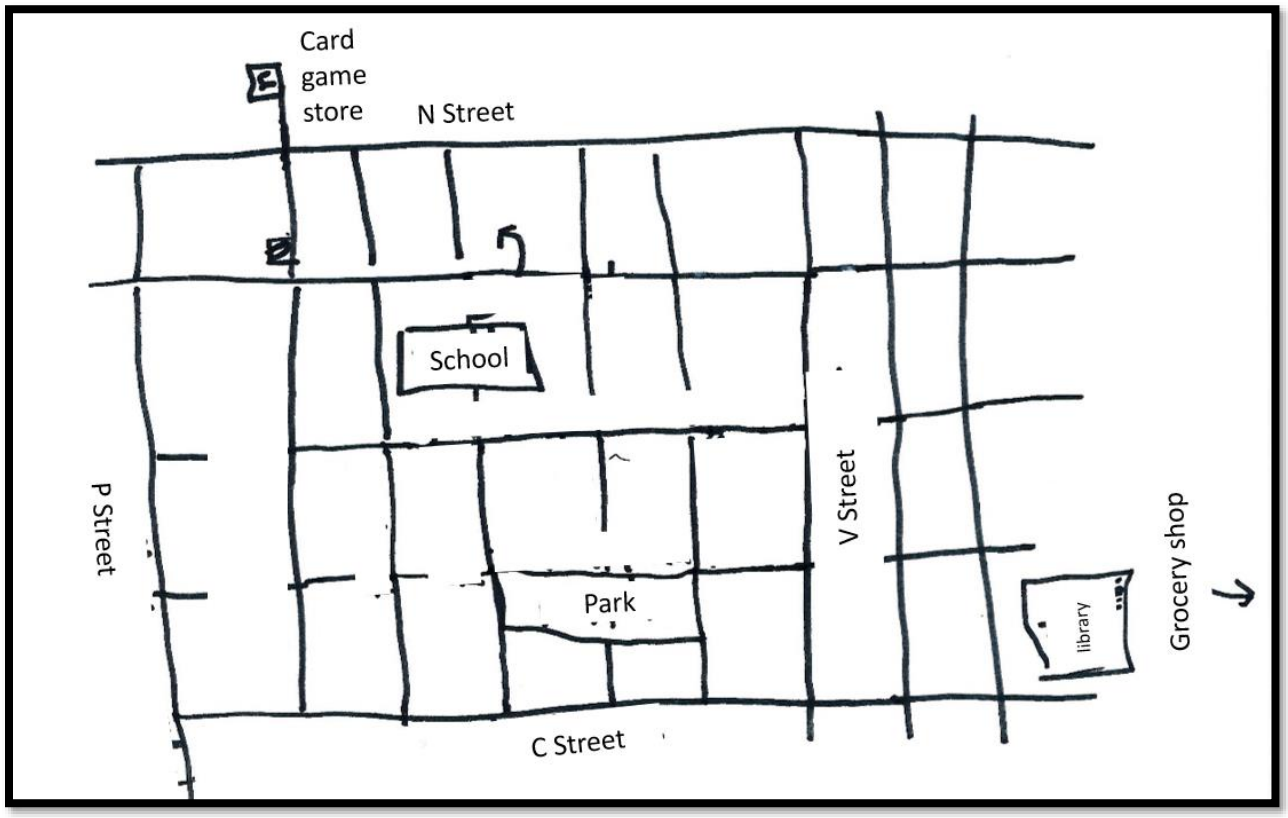
These terms and conditions could be revised or terminated at any time. For example, a 10-year-old boy [PID2009] was no longer allowed to play out in the courtyard without supervision since "a little incident [where] I ate from a stranger's candy. I thought it was poison so I spat it out."

If children felt that there were sufficient utilized places (i.e., physical and social affordances) within their perceived boundaries—such as their school, friends' houses, parks—they expressed little desire to go beyond their current boundaries. As a 10-year-old boy [PID2008] stated, "…there's really nothing past those points [on his map]." However, it is important to note that children sometimes chose to take an active role in assessing, revising or coming up with their own terms and conditions to get to a place of their interest. An 11-year-old boy [PID1008] described his expedition to travel to his favorite card game store. His placement of the card game store at the top left corner in his map drawing (Figure 4), past N Street—his eastern boundary—illustrated the child's mental distance to this place. While his narrative implied his discomfort around crossing N Street and being unclear about his parents' approval, PID1008 had decided to cross the street to get to this utilized place with his friends:

> *R: Are you allowed to cross [N Street] by yourself?*
> *1008: Well, I guess maybe, but I don't really go around [N Street], but there's this place called [name of shop] and it's a card game store thing. It's a card game store basically and we go down there sometimes for tournaments because me and my friends, we play Pokémon which is a card*

game thing. Yeah and so we go down there a bit sometimes. But I, I'd say I don't really go around [N Street].

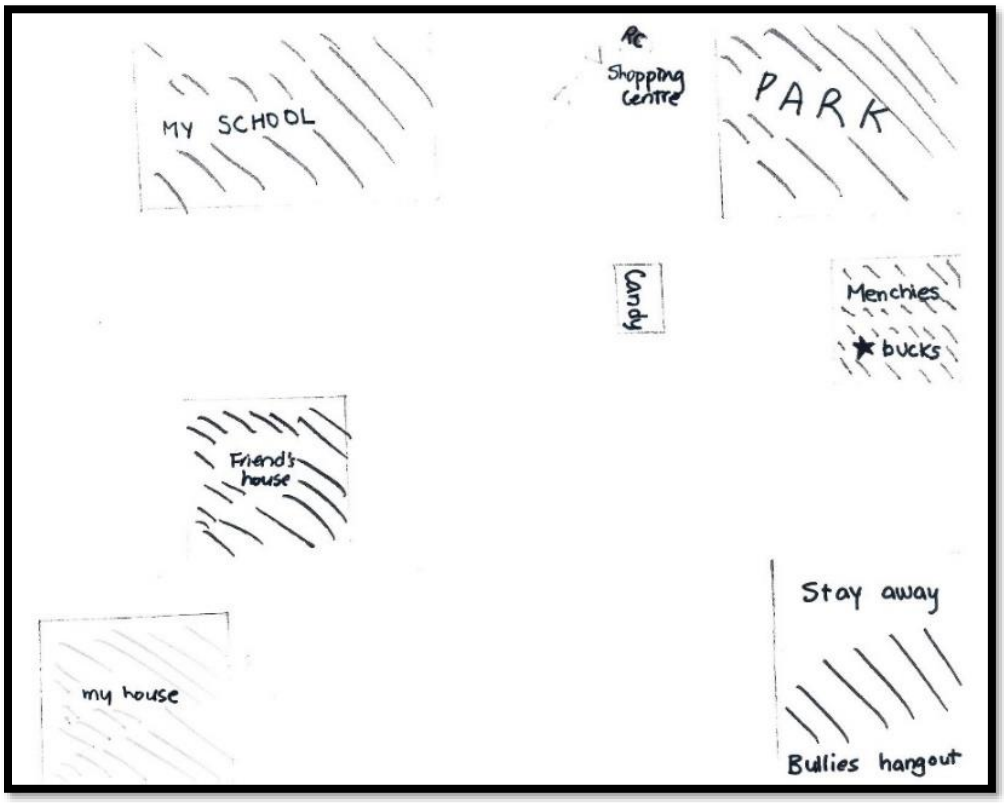
Figure 4. PID1008's map drawing



Sometimes avoidance of a certain place emerged from a source that was not easy for adults/foreigners to notice. A 12-year-old girl [PID3009] described a corner in her neighborhood which she labelled as the "Bully's Hangout" on her map (Figure 5). Her narrative exemplified how an apparently nice and safe corner in a quiet neighborhood could be perceived as a place to stay away for a child who did not identify with or hang out with a given group of peers:

R: This one, 'the Bully's Hangout – stay away.' Which park area is this?
3009: It's not really a park, so, here you can probably see it from here…. In the trees there is a little area section inside that, where all the trees have been cleared and there's like a rope swing, and, I mean I really haven't seen… I know that normally people who I don't like or normally don't hang out with do go there. A lot of people say oh that's where people do drugs and stuff like that, so I normally try to avoid it.

Figure 5. PID3009's map drawing



Children's Curfews and Check-Ins: Their IM Time

In addition to the IM indicators in range and destination, children's narratives also revealed the temporal aspect of their IM. The most clearly limiting temporal determinant was darkness. This time limit—often implemented as a curfew—could significantly reduce or even nullify any IM granted. A 11-year-old girl [PID1015] described that "…like twenty minutes after dark at least she [her mom] would like me to come closer." When asked how far she was allowed to go independently, a 12-year-old girl [PID3032] explained:

> *3032: Well, I set boundaries for myself, so I can't go anywhere like all the way down there to Garry, because usually I'll have to be home by 4:30. And then if I go all the way down to Garry and come back, it'll probably be around 5:00 or something.*
> *R: Okay. So, you kind of have a time limit set by your parents so you give yourself the distance?*
> *3032: Yeah.*

Most of children seemed to be comfortable with this temporal limit, as it was not fun to be outside because "…no one's out really after 9:45 because it's like just too dark and everyone's already going inside because they're tired" [PID3011, a 13-year-old boy]. That said, many of children seemed to be aware of how the essence of places could change across time. A 10-year-old girl [PID2020] described:

> *R: And how do you feel about playing outside after dark?*
> *2020: I never do that because I feel scared of the dark, especially when I'm alone, so I don't… I feel like… I think that everybody, like all the boogeymen —that's what my mom used to call them, used to come out at night and that's when everything bad happened, so yeah.*

For younger children at least, the notion of a "boogeyman" lurking at night—an idea implanted by the parents—seemed to provide sufficient reason for staying inside. Interestingly, for older children, the "boogeymen" took a more concrete form and become actualized as "sketchy people," "drug-dealers," "teenagers," and "bullies." This was exemplified in PID3017's quote and map drawing (Figure 5), provided above. This 12-year-old girl continued explaining her preference of staying inside after dark:

> *Because I can't see everything, and it's like dark and mostly older teenagers play outside or just like walk around. And some people aren't the nicest, so I don't really want to be outside when other people that are like older high school kids are hanging around.*

Another element of children's temporal IM was checking in with their parents at regular intervals. A 13-year-old boy [PID3011] explained how the check-in system worked in his family:

> *Yeah, I don't think they'd worry about me going outside. Or most of the time it's like, 'Come check back every half-hour or so.' Unless, if they only know that I'm going outside, not to like the Village or school or anything.*

This check-in system indirectly imposed limits on the distance children could wander. Yet, cell phones often provided a convenient way of checking in and obtaining subsequent time extensions remotely. This was a privilege mostly afforded by the older children as younger children were less likely to own a cell phone. A 10-year-old girl [PID1001] who was not allowed to go to the library without letting her parents know, expressed how having a cell phone would make it easier for her to communicate with her parents without having to physically return home as "they don't let me go there [the library] without some like communicating with them which is annoying because I still don't really have a phone."

Discussion

Within a loose set of perceived boundaries, children explored previously unknown and insignificant space and turned elements of it into their utilized places if they saw the merit. Considering Moore's (1986) concept of children's territorial ranges, participating children's perceived boundaries fell somewhere between *frequented* and *occasional* ranges—primarily guided by the physical and social environments; the children's utilized places encompassed *habitual* and *frequented* ranges with a myriad of explicit yet dynamic terms and conditions. This is because children's utilized places were destination-based, specifying actual places children could access and use; therefore, they tended to be accompanied by more fine-print rules

(mostly imposed by parents but children could also participate in this process) than perceived boundaries. In other words, once a child began identifying a utilized place as a tangible destination, children and their parents imbued it with specific terms and conditions that were in constant flux across time, circumstances and contexts. Notably, in this study, children's perceived boundaries tend to be broader and cover more ground than their actual utilized places. This finding confirms the main purpose of perceived boundaries as setting a loose mental geographical frame for children to navigate within, which resembles Moore's (1986) occasional range that "defines the child's ultimate territorial frontier" (p. 16).

A crucial aspect of utilized places is that they are deeply emotionally invested, and operationalized in the context of children's subjective everyday experiences imbued at each destination (Massey, 1994). For example, children's destinations were linked to their everyday practicalities (e.g., PID1014 finding a store that sold soda pops cheaper than other convenience stores) and emotions (e.g., PID1014's sense of pride at being the only kid who could climb up a roof in the school's courtyard). Children's understanding of how places are being constantly reconstructed, contested and negotiated (Massey, 1994) within different microcultures in their neighborhood was also reflected in our data. As Thomson and Philo (2004) argued, children developed the knowledge and awareness of different microcultures in their neighborhood through micro-conflicts they may have with others. These interactions and relationships are tied to complex emotions and feelings, which could be difficult for adults to notice at first as these notions are intricately meshed with and influenced by children's own everyday subjective experiences and interpretations. Some children expressed an overall sense of aversion towards sketchy areas but also demonstrated awareness of how the same place in a neighborhood could have different affordances and meanings for different people and groups (Badland et al., 2015) and might vary depending on the time of a day. As such, children appeared to mentally partition the neighborhood, attributing different groups of people to different areas at different times of day to strategically locate places to avoid. Some children in our study adequately demonstrated their complex and nuanced understanding of their environments and abilities as an active and competent negotiator—skills that are seldom recognized or acknowledged by parents (Valentine, 1997).

We noted no substantial gender differences. Regardless of gender, children seemed to follow the same process of boundary expansion and presented similar trends of perceived boundaries and utilized places. More specifically, children's gender appeared to have minimal impact on setting their perceived boundaries; rather, their boundaries seemed to be heavily reliant on their age and characteristics of the physical and social environments. In addition, within the same age group, girls and boys had similar levels of IM granted and territorial range covered in their maps. Both boys and girls included fairly similar territorial extents and compositions in their map drawings. This interpretation corroborates Thomson and Philo's (2004) findings that children between 8-9 years who participated in their study did not appear to find their spaces gendered.

Participants in our study ranged from age 10 to 13, and the results indicate that older children tend to have larger perceived boundaries and more utilized places. Children across all ages and genders included their friends' houses on their map drawings. However, older children tended to include more stores and fast-food restaurants than their younger counterparts, consistent with previous research indicating expanding IM freedom with age (Christensen et al., 2011; Matthews, 1987).

Pervasive across all three neighborhoods were concerns with traffic, limiting children's perceived boundaries. However, other determinants of perceived boundaries varied based on the neighborhoods' social and physical environments. For example, in the most-urban neighborhood (Area 1), limitations were due to the perceived sketchiness of the area, evidently resulting from its socio-economic characteristics. Children from the less-urbanized areas (Areas 2 and 3) based their perceived barriers on their fears of dangerous wild animals (e.g., cougars, rats, bears, racoons, coyotes) and the presence of natural barriers (e.g., water, wilderness, farmland).

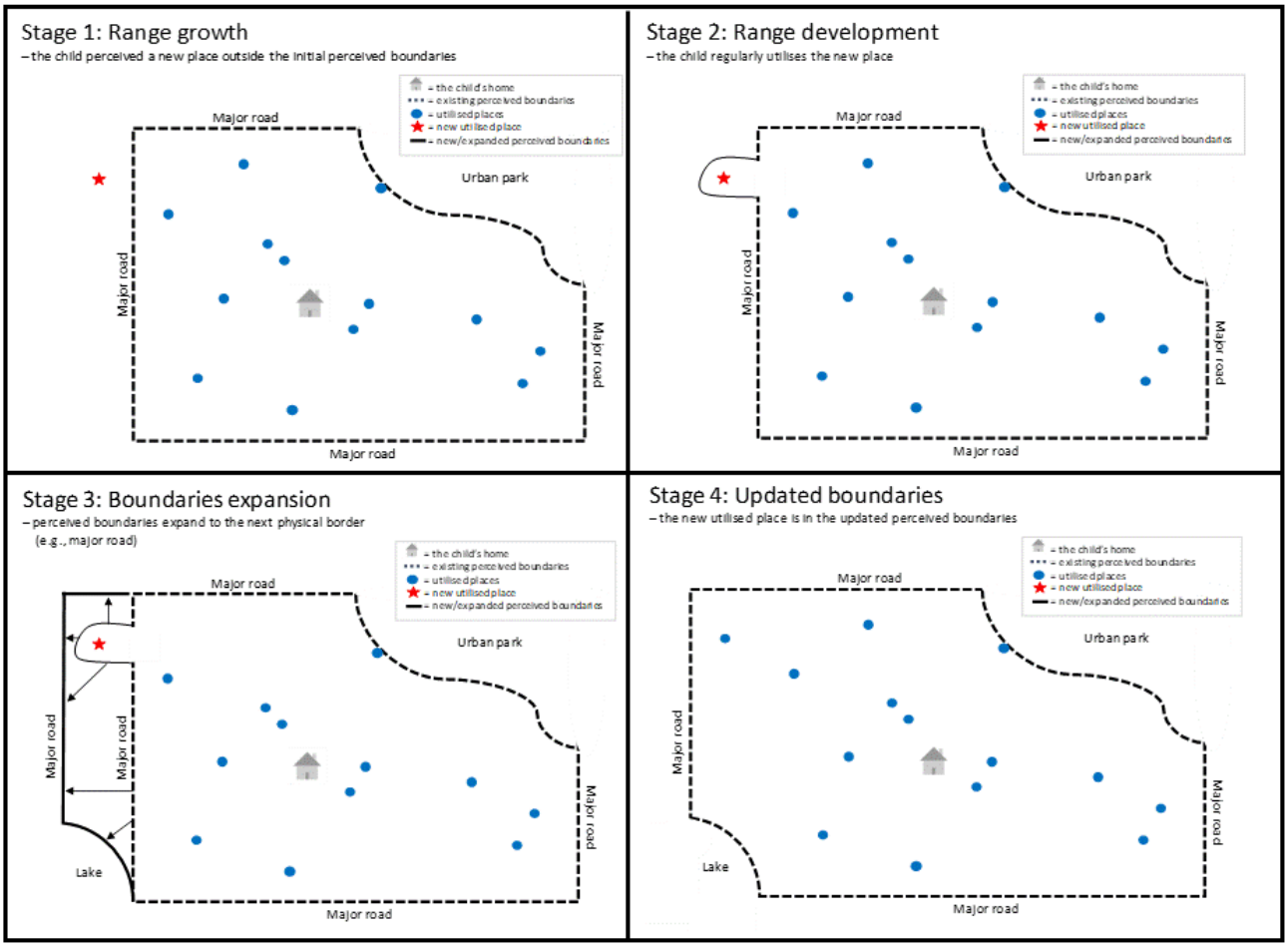
In our analysis, we adopted Marzi and Reimers' (2018) IM indicators to better situate Moore's (1986) concepts of children's territorial range and expansion into a practical sense. While Moore's concepts of territorial range seemed to primarily focus on the distance a child can travel independently, our analysis proposes that territorial range is significantly destination-based, and contains aspects of both IM range and destination. In the context of understanding children's IM, our data yielded novel insights into the three distinct yet interrelated indicators of children's IM. It is important to reiterate that these indicators of IM would be challenging to realize without parentally granted license for IM. The primacy of parental permission in children's IM is discussed in a separate paper from the State of Play study (Brussoni et al., 2020). Also evident in our results was how children's subjective everyday experiences of utilized places were framed by their general perceived boundaries and time limits. This illustrates how these indicators work as part of a larger system that governs children's IM and ultimately guides their subsequent territorial expansion.

Children's Territorial Growth and Development: Their IM Expansion

When children discovered destinations outside their current perceived boundaries, these utilized places had the potential to yield a territorial expansion, if children found them interesting or needed to access them. In these instances, children were willing to travel beyond their comfort zone to these destinations of potentiality, a concept that corresponds to Moore's (1986) range growth. This type of episodic expedition (i.e., range growth) was necessary to give children the opportunity to make these new places *theirs* by regularly visiting them (i.e., range development). These newly discovered "farthest" points from home afford them a safe space where they could consider opportunities for further expansion of their perceived boundaries. Our findings corroborate Moore's argument that boundary expansion happens through the interconnected process of range growth and development—more specifically by accumulating new frequented places.

The triangulation of our data suggests a process of children' territorial expansion in the context of IM development, extending from Moore's (1986) concept of range growth and development (Figure 6). As presented in children's neighborhood maps in this paper, each of the children's utilized places was initially nested within their broader perceived boundaries, which were typically in a neat shape of a box. When a new destination outside the existing perceived boundaries is discovered and regularly visited, range growth would happen at the destination level (stage 1 in Figure 6). This stage is well depicted in multiple neighborhood maps produced in this study (e.g., PID1014's candy store (Figure 1); PID1008's grocery shop and card game store (Figure 4); PID3009's shopping center (Figure 5)). Once the child has regularly frequented the new destination, range development occurs (stage 2 in Figure 6), which resembles PID2027's map that includes the skate park (Figure 3). Subsequently, when they have absorbed this new place as *theirs*, an expansion of *perceived boundaries* occurs when the child identifies the outermost layer of borders (e.g., major roads) near the newly added place (stage 3 in Figure 6) as their ultimate frontier (stage 4 in Figure 6). In reality, a perceived boundaries expansion process would seldom be as straightforward as presented in Figure 6, and could involve not only expansion but also (temporary) contraction.

Figure 6. Children's Territorial Expansion – IM Development



The process of children's boundary expansion happens through constant negotiation. Children's utilized places are in constant flux and often unclear. This ambiguity and fluidity of a place or an area affords an infinite potentiality for children's territorial expansion (or contraction), when they are given the chance of filling in the blanks or updating information. While it is tempting to see children's utilized places as their *real* boundaries (i.e., destinations to which they actually go independently and regularly), their perceived boundaries play a critical role in their territorial growth and development—which grants children a sense of freedom and independence. This was possible due to the fluid and loose quality of the perceived boundaries that allowed more flexibility and personal discretion as to where they *believed* they could go. For instance, if children were happy with their current perceived boundaries (e.g., size, affordances), the idea that they could be *wherever* they wanted to be within their perceived boundaries seemed to suffice in providing a sense of freedom and independence for children—more so than their actual utilized places.

Limitations

This study was conducted in mostly middle-class neighborhoods in Canadian urban and suburban settings. We made extensive attempts to recruit and include families from a variety of socioeconomic and cultural backgrounds, but our participants were predominantly middle- and upper-middle-class Caucasians (Han et al., 2018). Hence, our findings might have limited relevance and relatability to other Canadian contexts (e.g. different socio-economic status, rural settings), let alone other parts of the world. This is a known limitation of qualitative research as its focus is to gain a deeper understanding of a certain sub-population or a phenomenon, rather than to generalize its findings to a wider context (Leung & Loo, 2017). However, future research should investigate these concepts in diverse contexts, adopting culturally relevant recruitment strategies and methods to enable participation of more socioeconomically and culturally diverse children, particularly as there is evidence that IM differs among children from different cultures (Crawford et al., 2017; Green & Lliaban, 2020).

Conclusion

Expanding territorial boundaries involves more than physical and territorial breakthrough. Children need to be physically, cognitively, as well as emotionally ready for expansion to feel ready to take the risk of being in an unfamiliar environment (Dweck, 2000). Evidently, territorial boundary expansion (Moore, 1986) comes naturally as children's cognitive and physical capacities develop (Carrascosa et al., 2018; Schoeppe, Duncan, Badland, Oliver, & Browne, 2014), often accompanied by parents' trust in children's capabilities. However, the process by which expansion happens is important on its own, as it denotes not only territorial expansion, but also a sense of freedom and independence, which influences children's sense of agency (Hilppö, Lipponen, Kumpulainen, & Virlander, 2016). Our proposed process of children's territorial boundary expansion is novel. We see the potential of this model in supporting innovative research into children's territorial expansion and IM development, such as examining the types of places/destinations that lead to children's boundary expansions, or the influence of built environments in supporting or impeding children's boundary expansions.

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