Child-friendly urban structures: Bullerby revisited

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ABSTRACT

Definitions of environmental child friendliness offer broad criteria that are not easy to study or assess. We suggest that due to this broadness, these definitions have produced surprisingly few attempts to evaluate how child-friendly various types of physical environments are. The purpose of this study is to analyse how the structure of the built environment contributes to environmental child friendliness. We define child friendliness by two central criteria: children's possibilities for independent mobility and their opportunities to actualize environmental affordances.

We study how built environment qualities condition environmental child friendliness in place-based ways by asking children and youth in Turku, Finland, to tell about their meaningful places and their mobility to these. The data consists of over 12,000 affordances, localized by the respondents. This experiential and behavioural place-based knowledge is combined with objectively measured data on residential and building density, and quantity of green structures.

Moderate urban density seems to have child-friendly characteristics such as an ability to promote independent access to meaningful places and the diversity of affordances. We find that affordances situated on residential areas are likely to be reached alone, whereas access to affordances situated in densely built urban cores is less independent. The proportion of green structures is not associated with independent access. The diversity of affordances is highest in areas that are densely populated and not very green. Green areas are important settings for doing things, and green structures around emotional affordances increase the likelihood of liking the place significantly.

Combining children's place-based experiences with information derived from objective measurable qualities of the physical environment provides a valuable methodological contribution to studies on environmental child friendliness, and the two proposed criteria of child friendliness are supported by this study. There is no one environment that is child-friendly, but different environments have different uses and meanings.

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1. Introduction

The research literature offers an abundance of definitions concerning environmental child friendliness, where the criteria for child friendliness are often relatively broad and not easy to study and assess (see Chatterjee, 2005; Horelli, 2007; Schulze & Moneti, 2007). These different definitions of environmental child friendliness have produced surprisingly few attempts to evaluate the child friendliness of various types of physical environments or to study the structural variables of the urban fabric that contribute to this matter. We argue that it may — at least partly — be due to the abstractness, broadness and vagueness of these definitions.

To deepen the understanding of urban characteristics promoting environmental child friendliness, a more focused and operationalizable definition of environmental child friendliness is needed. The Bullerby model by Kyttä (2008) is one candidate for such an approach. According to this assessment model, environmental child friendliness can be defined by two central criteria: children's possibilities for independent mobility and their opportunities to actualize diverse environmental affordances.

The Bullerby model is a theoretical tool for assessing the child friendliness of various settings. In this article, we propose an approach where the model is used to study how specific, built environment qualities condition environmental child friendliness in place-based ways. Our target in this paper is to combine both children's experiential and behavioural place-based knowledge

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with objectively measurable, place-based characteristics of specific settings.

1.1. Definitions of child-friendly environments

The research literature offers an abundance of definitions concerning environmental child friendliness. Themes like safety, available green space, variety of activity settings, independent mobility possibilities, active socialization or "neighbourliness", and integration of children into decision-making processes are often included as essential criteria of environmental child friendliness (Freeman & Tranter, 2011; Haider, 2007; McAllister, 2009). These kinds of broad, extensive criteria are also the basis of the work of the international network of Child Friendly Cities promoted by UNICEF. The Child Friendly City Initiative (CFCI) encourages local governments to make decisions that are in the best interests of children and promote children's rights to a healthy, caring, protective, educative, stimulating, non-discriminatory, inclusive and culturally rich environment (Malone, 2001; Riggio, 2002; Schulze & Moneti, 2007).

An example of a more systematic definition of environmental child friendliness embedded in both substantive and procedural theories of a good environment is produced by Horelli (2007). The resulting definition includes 10 normative dimensions: (1) Housing and dwelling, (2) Basic services, (3) Participation, (4) Safety and security, (5) Family, peers and community, (6) Urban and environmental qualities, (7) Provision and distribution of resources and poverty reduction, (8) Ecology, (9) Sense of belonging and continuity, and (10) Good governance. When children in different countries were questioned about their thoughts on the dimensions in the definition of environmental child friendliness by Horelli (2007), only a few of these themes were brought up by the children themselves. Safety and security, urban and environmental qualities, and basic services were among the sets of criteria relevant to children in Finland (Haikkola, Pacilli, Horelli, & Prezza, 2007) and in Sweden (Nordström, 2010). When queried about these same dimensions, Italian children mentioned urban and environmental qualities and basic services in accordance with the Finnish and Swedish children, but they did not mention environmental safety (Haikkola et al., 2007). These findings resonate interestingly with the earlier results of the *Growing Up In Cities* project (Chawla, 2002), where the provision of basic services, the variety of activity settings, and the freedom from physical dangers were also among the factors that children from six continents and eight different countries indicated as primary indicators for a child-friendly environment. In addition to these three themes, green areas, freedom of movement, and peer gathering places were also important positive physical qualities of a child-friendly environment.

Chatterjee (2005, 2006) also finds the definitions of child friendliness to be too broad and suggests that a child-friendly city can only be studied as a disaggregation, made up of a number of child-friendly places that children have a friendly relationship with. She proposes a new theoretical concept of place-friendship that she bases on a review of the literature on childhood friendship. Based on the six dimensions of place-friendship, Chatterjee offers a working definition of child-friendly places in a child's everyday environment, where these places:

1. provide opportunities for children to develop an attitude of care for places that children love and respect;
2. promote a meaningful exchange between child and place through affordance actualization in places;
3. offer opportunities for environmental learning and developing environmental competence through direct experience in places;
4. allow children to create and control territories and protect these territories from harm;

5. provide privacy experiences and nurture childhood secrets; and
6. allow children to express themselves freely in place.

While we find Chatterjee's conceptualization interesting, it still seems to be relatively difficult to operationalize. In her dissertation, Chatterjee (2006) questioned children in New Delhi about their important places. Based on the data acquired from children, she concludes that rather than having three separate dimensions concerning activities of children in relatively constraint-free places, dimensions number four and six ('creating and controlling territories' and 'freedom of expression in place') could be included under the higher level construct of 'meaningful exchange with places', which introduces children to the affordances outdoors. She thus proposes limiting the dimensions to four. Similarly, in their recent study on Iranian children, Ramezani & Said (2012) interviewed children about their important places using the place-friendship framework and investigated whether the dimensions can be reduced in number based on the data obtained on children's relations to different places. Their finding was that the six dimensions of place friendship could be reduced to the following three: meaningful exchange with place, learning and gaining competence through place experience, and having a secret place. Meaningful exchange with place was seen as in parallel with the actualization of affordances in place (Ramezani & Said, 2012) and also represented the dimensions concerning the freedom of expression, care and respect for the place, and creating territories. What we find interesting in these two projects using Chatterjee's definition of child-friendly places is that the actualization of various affordances seems to be central criteria for children's friendly relationship with a place when defined by children themselves.

Another critical view towards the abstractness of definitions of child-friendliness has been aired by Whitzman, Worthington, and Mizrachi (2010). They analysed how different Child-Friendly City (CFC) initiatives in Australia have supported physical and social transformations towards the institutionalization of children's right to the city. They see children's independent mobility (in other words, children's possibility to autonomously explore the public space) as children's right to the city. In seven governments, they reviewed plans on a general level and on lower level policies that deal with young people. They revised these plans and policies in regard to six elements: whether the plan (1) recognized children as an interest group; (2) recognized children's right to all public space, not only those designed for children; (3) provided achievable targets, strategies and implementation mechanisms; (4) was integrated into health and land-use planning; (5) included training for administrators in child rights; and (6) had planners trained in interacting with children. Interestingly, their policy scan showed the narrow extent to which land-use planning policies were integrated with CFC initiatives. The language or concepts of CFC were not in use in the high-level plans governing land use and development. Children were not mentioned as a specific group, but rather in many implicit examples, they were assumed to belong in specific places designed for children. Whitzman et al. (2010) concluded that even if Child-Friendly Cities are a promising practice in its focus on the children's right to independently roam the public space, there are still difficulties in moving from the social and health planning perspective that has informed these initiatives towards impacts on land-use planning policies and practices.

1.2. Bringing the physical environment into the discussion

There are a few studies that evaluate environmental child friendliness empirically, either on the neighbourhood, community or city level. Among them are comparative studies by Kyttä (2002,