



Aalto University
School of Engineering

Child-friendly environment



This lecture will be about environmental childfriendliness – the theme that has been studied quite a lot in environmental psychology.

Your childhood experiences?



First, think about your own childhood environments:

What kind of memories from various places do you have?

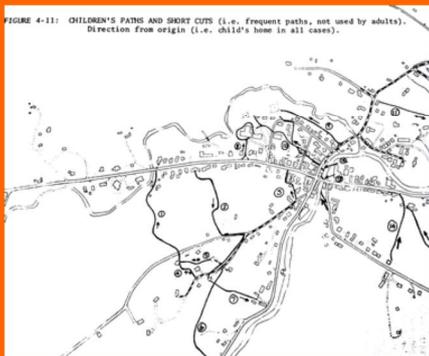
In this course we will concentrate on outdoor environments so, please take a moment to think about the outdoor places where you played as a child. What was your favourite place like? What did you do there? Who did you play with? How long time did you spend there? What places were the ones that you did not like? Why?

I am sure that your childhood place experiences differ a lot from my memories that are from the 1960's. But perhaps there are also similarities. I used to love playing home indoors and outdoors. We even had a whole doll house village with my sister. I do not have memories of urban childhood because I lived in a small village. Perhaps you do!

Classic studies about environmental childfreenliness:

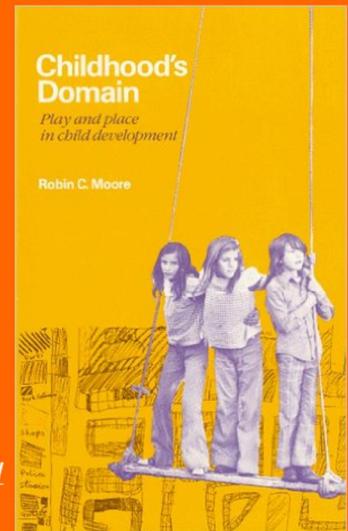


Roger Hart (1979) Children's Experiences of Place



Robin Moore (1986) Childhood's Domain

<https://naturalearning.org/>



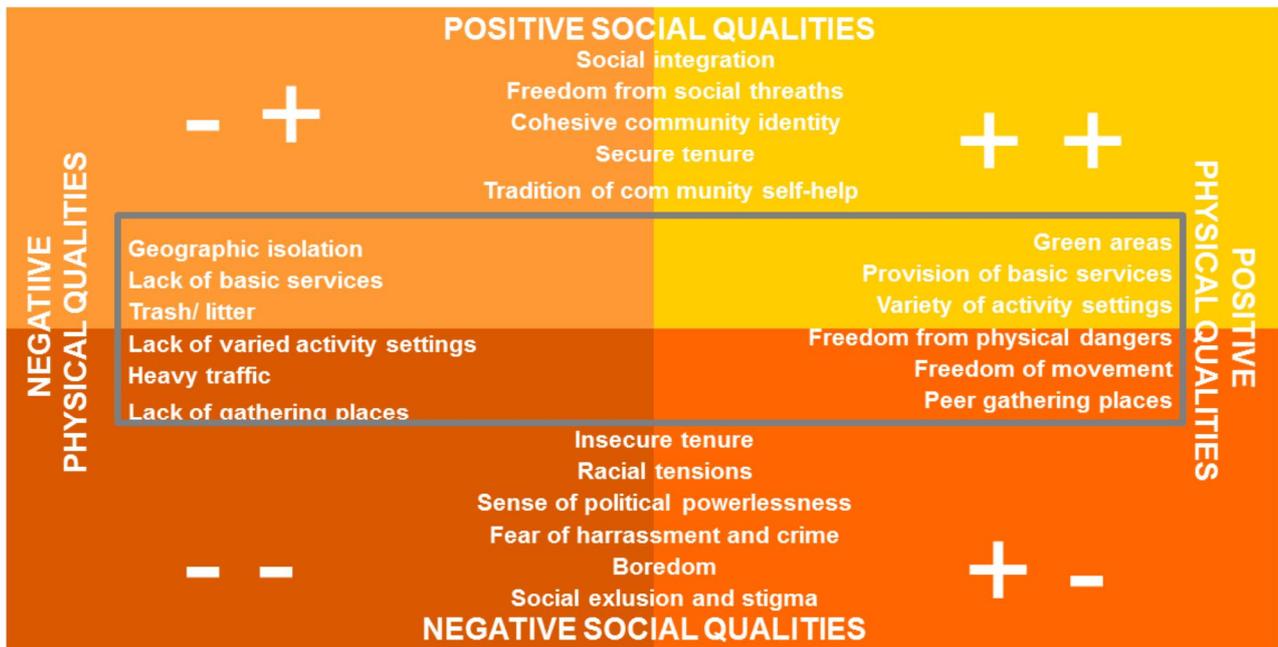
There are a few classic studies about the characteristics of child-friendly environments. Among them are the famous studies by Roger Hart and Robin Moore, who both did observational studies among children and young people. Both spent a lot of time living with children and using a variety of methodologies like cognitive maps, drawings and interviews. For both, observing children's play and use of space, was the main method to study environmental childfreenliness.

Roger Hart mapped, among other things, the routes that children used in the study site, New England US. Roger Hart works nowadays as a professor at the City University of New York and has also worked for UNISEF. Later his work has concentrated on children's participation, agency and rights.

Robin Moore classic study "Childhood's Domain" was realized in three different urban settings in Britain. He systematically listed for example children's favourite places and noticed that open spaces like parks, playgrounds and sport fields were the most often mentioned as favourite places by children. So, not surprisingly, Robin Moore's later work focused on the study of children's relationship with natural environment. He has established a network called "Natural Learning". Please visit their web pages if you are interested.

Indicators of environmental quality defined by children

Chawla 2002: Growing up in an urbanising world



When trying to define child-friendly environments, it may be best to ask the opinion of the true experts. Children themselves!

This was done in an UNESCO study in 2002 by Louise Chawla. She and her colleagues studied children in all continents, in 8 countries and asked children themselves to name the essential social and physical qualities of ideal environment. This study replicated a well-known study of Kevin Lynch from 70s.

The major finding of this study was that the criteria for environmental quality for children were surprisingly similar all around the world, in all counties and all continents. They had also remained about the same for 25 years. For us in this course, perhaps the most interesting are the criteria related to physical qualities that promote child-friendly settings, like green areas and peer gathering places.

Fenced childhood?



I also started to be concerned about the essential characteristics of childfriendly settings by the end of 90's.

I was wondering whether the children in the modern society are becoming a generation of safety-seat children, who get to know the outside world mainly by observing the changing scenery through the car window. Perhaps we tend to fence children off from everyday life when we try to protect them.

If they lack the possibility to independently move around and learn about environment, would they then miss to learn something essential about the physical environment? Can they ever become streetwise?

PROBLEMS CONNECTED TO CHILDREN'S MOBILITY RESTRICTIONS

INDIVIDUAL

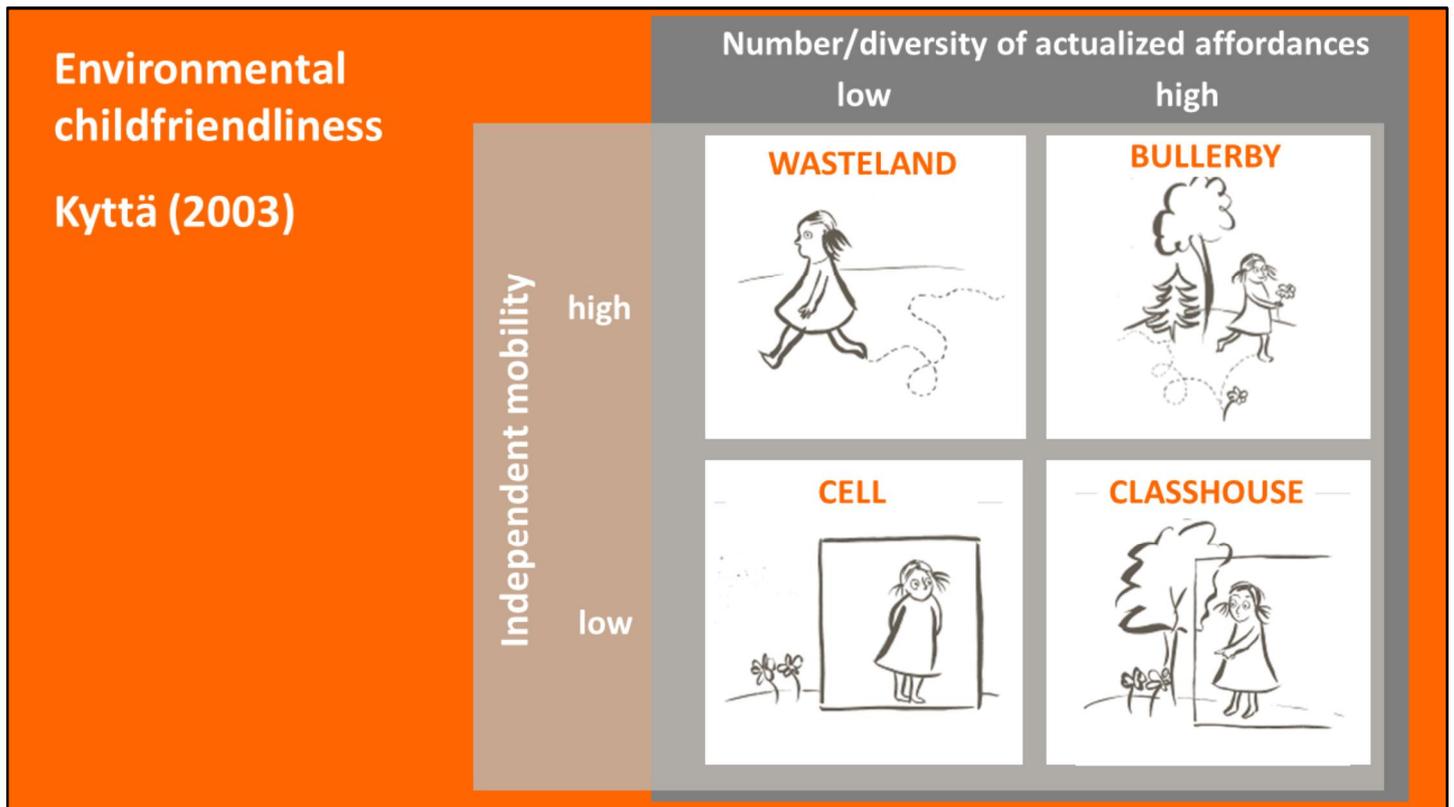
- Physical development (Hüttenmoser 1995; Amstrong 1993; Davis & Jones 1996)
- Social development (Prezza et al 2001)
- Cognitive development (Biel & Torell 1977; Blades 1989; Rissotto & Tonucci 2002)
- Emotional development (Kong 2000; Corbishley 1995)

SOCIETAL

- Time used for chauffeuring (Tillberg Mattson 2000)
- Mothers' working (Gershuny 1993)
- Traffic jams (Bradshaw 1999)

I knew from the research literature that when the independent mobility of children is very restricted, severe problems both in individual and societal levels can appear. These include problems in physical, social, cognitive and emotional development of children as well as societal problems like the increasing time and energy used for chauffeuring children by car.

Recently, the connections between physical health and environment, that promotes physical activity has raised a lot of research interest. The increasing numbers of obese children and problems connected to sprawl are common problems in many parts of the world.

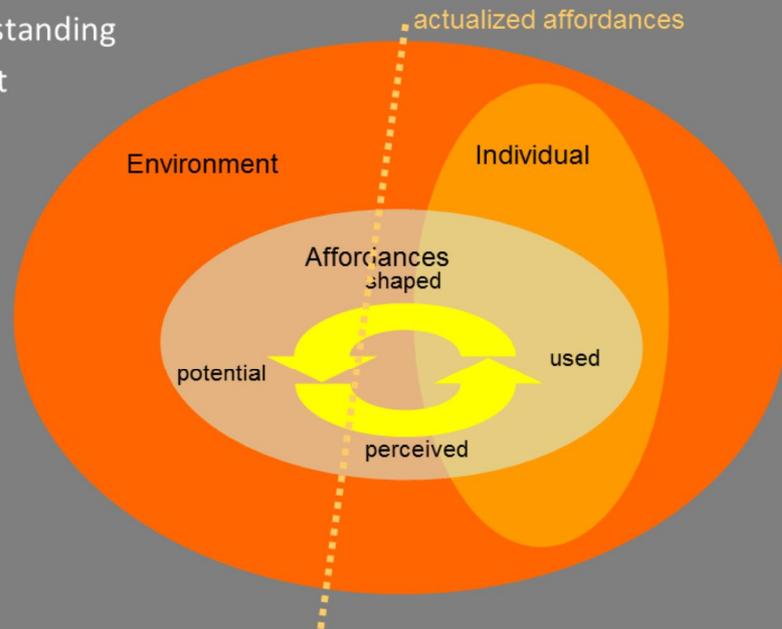


In my dissertation in 2013, I developed my own model for environmental childfriendliness. The degree of children's independent mobility and the number of actualized affordances were the basis of my model and in my mind the two central criteria of child-friendly environment.

The combination of these two levels produce four different, HYPOTHETICAL types of environment: I named them WASTELAND; BULLERBY; CELL and CLASSHOUSE.

Theoretical background:

Gibson's ecological psychology -
a nondualistic understanding
of persons-in-context



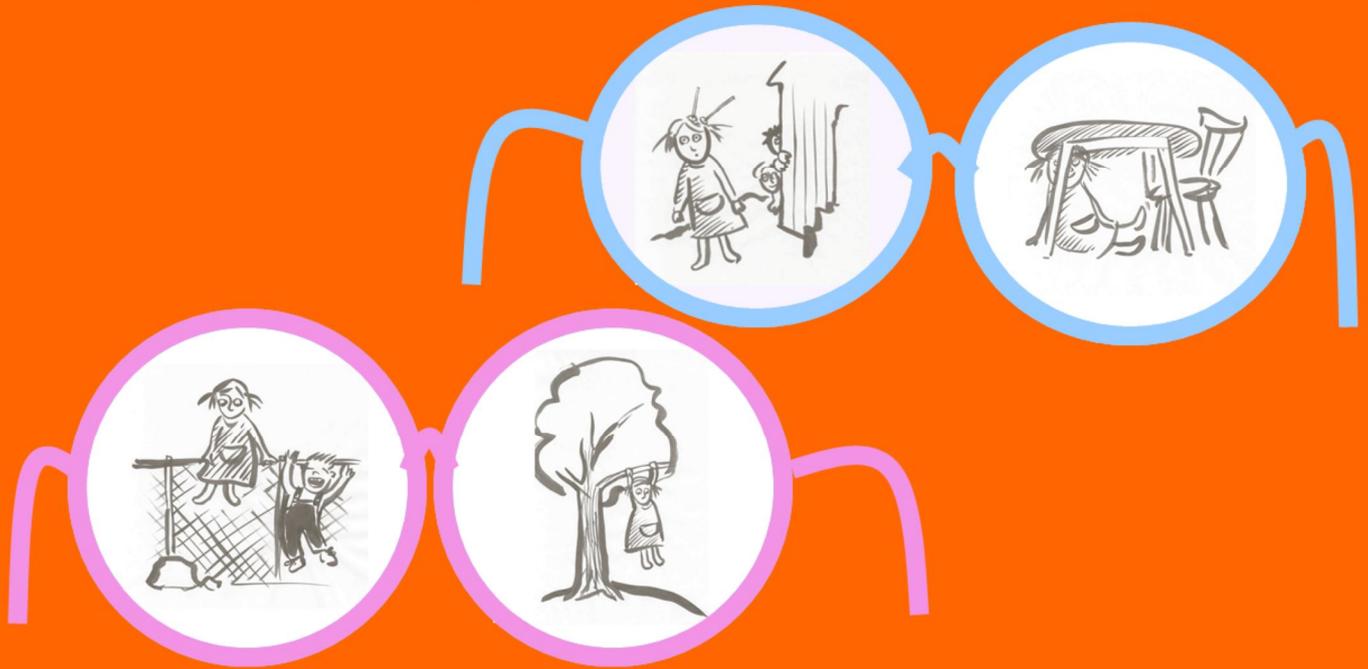
Before telling a bit more about this typology let me comment about the dimension that you might wonder and the new word affordances.

To study children's relationship with everyday environment I needed a proper theory. James Gibson's ecological perceptual psychology and its key concept 'affordances' was a good candidate for such a theory.

Affordances refer to the possibilities of the environment that is revealed by an acting individual with unique physical, mental and social qualities. I with my unique physical capabilities and dimensions perceive environment relative to my corporality. I perceive environmental possibilities in a unique ways, utilize some of those possibilities and perhaps even shape environment and create new affordances.

The seemingly paradox that affordances are on the one hand properties of the actual environment with physical existence and on the other hand they belong to the subjective reality of individuals can be solved if the POTENTIAL affordances are distinguished from ACTUALIZED ones.

Affordance 'spectacles'



Each of us perceive the affordances of the environment in a unique way and in each situation differently.

Where environment affords running, climbing or skiing or which places allow war play, being noisy or being in peace and quiet is always defined differently for each individual in each situation.

So, we all wear our individual affordance spectacles that depend on our physical characteristics, experiences and ongoing intentions.

The affordances of urban environment



Here, for example, my colleagues child explores the affordances of the city of Melbourne. For the two-year-old Aarni the urban environment is full of affordances, possibilities for action that open up for this size of an individual with the kind of physical abilities and interests of a two-year-old boy. For me, an adult with different corporal dimensions, former experiences and different interests, the city would open up as a very different set of possibilities.

Please notice that the affordances of urban environment for children are not restricted to the settings designed specifically for children. Children are very creative findings possibilities for activities. Nearly all elements of urban settings can be used for play if we do not restrict the actualization of all these possibilities.

WASTELAND	BULLERBY
CELL	CLASSHOUSE

WASTELAND

Possibilities for independent mobility reveal only the dullness of the environment.

For example

- sleepy suburb
- asphalted school yard



Wasteland represents the situation where children enjoy high degree of independent mobility but however the perceived affordances remain few. Living environments that are too dull such as sleepy suburbs can be of this kind.

I don't believe that wastelands are a common type of children's environment because children can be very creative in finding interesting things to do.

WASTELAND	BULLERBY
CELL	CLASSHOUSE

BULLERBY

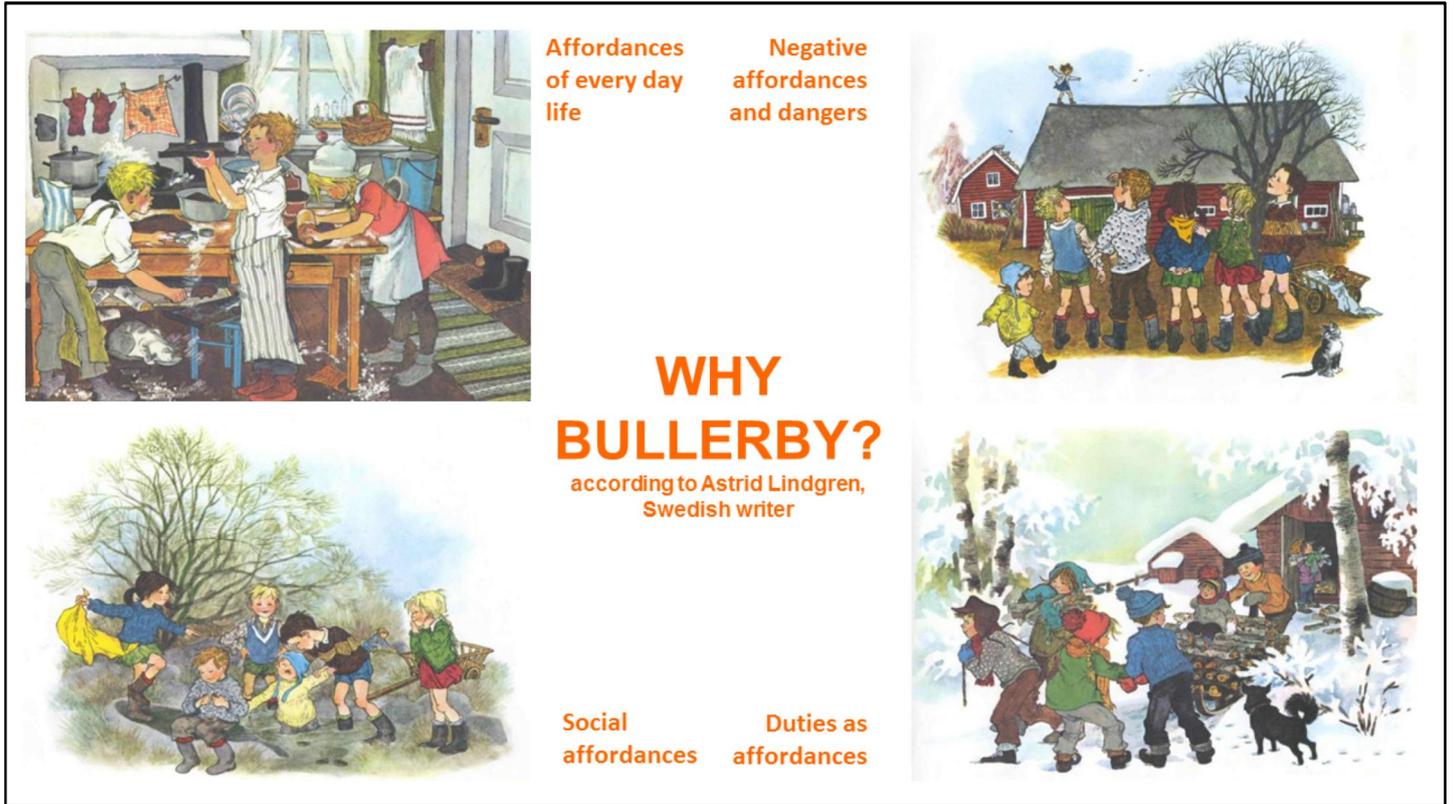
Possibilities for independent mobility reveal many affordances. The actualization of affordances motivates further exploration and mobility in the environment.

Any environment where children are allowed to be a part of every day life



In the ideal case that I call BULLERBY, possibilities for independent mobility reveal many affordances, which motivates the child for further exploration. So, a positive circle appears: the more freedom the children have to explore the environment, the more often they find interesting affordances.

Any living environment can be of this type, if children are not fenced outside the everyday life.



Let me briefly explain why I chose this funny name 'Bullerby' to represent the ideal situation.

Bullerby is Swedish and can be literally translated as a 'noisy village'. Swedish writer Astrid Lindgren, who is very popular in Scandinavia and a mother of Pippi Longstocking and other loved characters, also wrote about BULLERBY.

In the noisy village children are an elementary part of everyday life, they have important roles in the community, tasks to do and can freely enjoy the possibilities of the village. They can also gradually get familiar with the negative affordances, dangers. Taking risks and testing one's skills is an essential part of children's activities. To become streetwise, the children cannot be overly protected.

With labeling the ideal situation BULLERBY, I do not want to claim that only a traditional rural village can be child-friendly. Urban environment can also include children as active actors. I just did not find a better name.

WASTELAND	BULLERBY
CELL	CLASSHOUSE

CELL

Due to mobility restrictions, children cannot find the affordances of the environment. The ignorance of affordances tends to decrease the motivation to explore and move around.



In the cell type of the environment, the eyes of children do not open for the numerous possibilities of the environment, whether they exist or not. This is the most negative circle.

WASTELAND	BULLERBY
CELL	CLASSHOUSE

CLASSHOUSE

Inspite of mobility restrictions, the environment appears as a rich source of affordances. The awareness of affordances can be based on second hand information.

- Urban environment?
- Too 'polished' environment



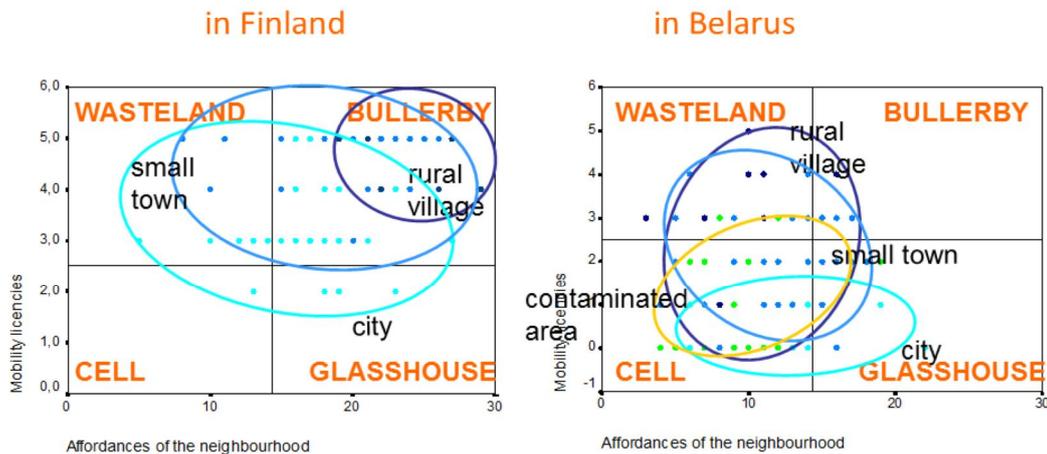
Finally, CLASSHOUSE can be the most common type of children's environment at least in the future, I am afraid.

Despite the mobility restrictions, children are able to perceive environment as a rich source of affordances, BUT they cannot reach them independently.

The awareness of affordances can be based on the view from the safety seat or be based on second hand information. Television and internet can be more important source of environmental information than personal experience.

Results

The covariance of independent mobility (mobility licences) and the actualized affordances in different contexts



NOW: let's look what happens if we test my model empirically. I collected data in Finland and Belarus and used various methods like interviews, Questionnaires and diaries.

I expected that BULLERBY and Cell types of environment would dominate in the data. This was because my theoretical approach combined the perception and action tightly together.

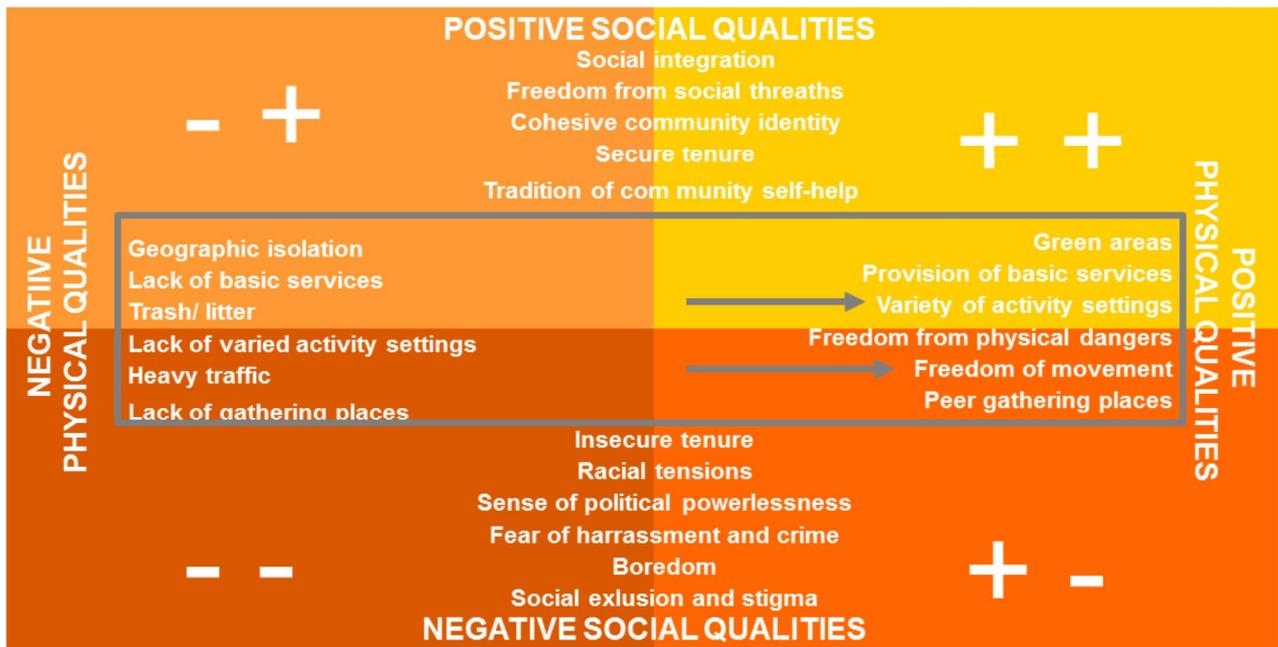
That did happen!

I found that Finnish children were living most often in Bullerby environments - actually in 79 % of the cases. In rural village all children were living in Bullerby setting but also in the city Bullerby was a very common type of the environment.

In Belarus, Bullerby represents only 8 % of the children's environments. Desert, Cell and Classhouse dominated there. Closest to the Cell environment was the area in Belarus that was contaminated by the Tsernoby nuclear power station accident.

Indicators of environmental quality defined by children

Chawla 2002: Growing up in an urbanising world

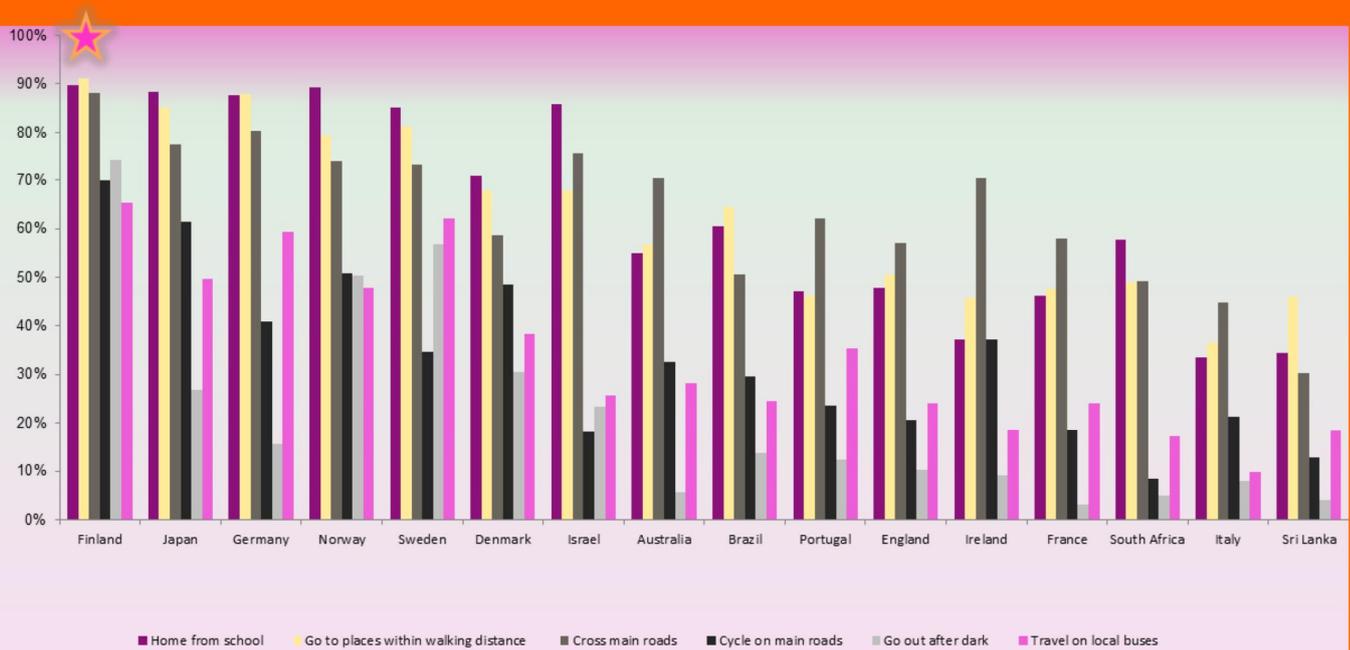


My model concerning child-friendly environment may appear as a rosy picture from Scandinavia. Freedom of movement and variety of activity settings were, however, among the central criteria also in Chawla's model. I think these two aspects are among the most fundamental when defining child-friendly environments.

You remember that Chawla's study concluded that the criteria for child-friendly settings are surprisingly similar everywhere in the world. I interpret this to be a result of children's corporality that is not different anywhere: children are same flesh and blood everywhere and even now in the modern world.

Please think about the aspects that you remembered about your own childhood. Are they among the criteria mentioned in this table?

Finland the top country in children's independent mobility!

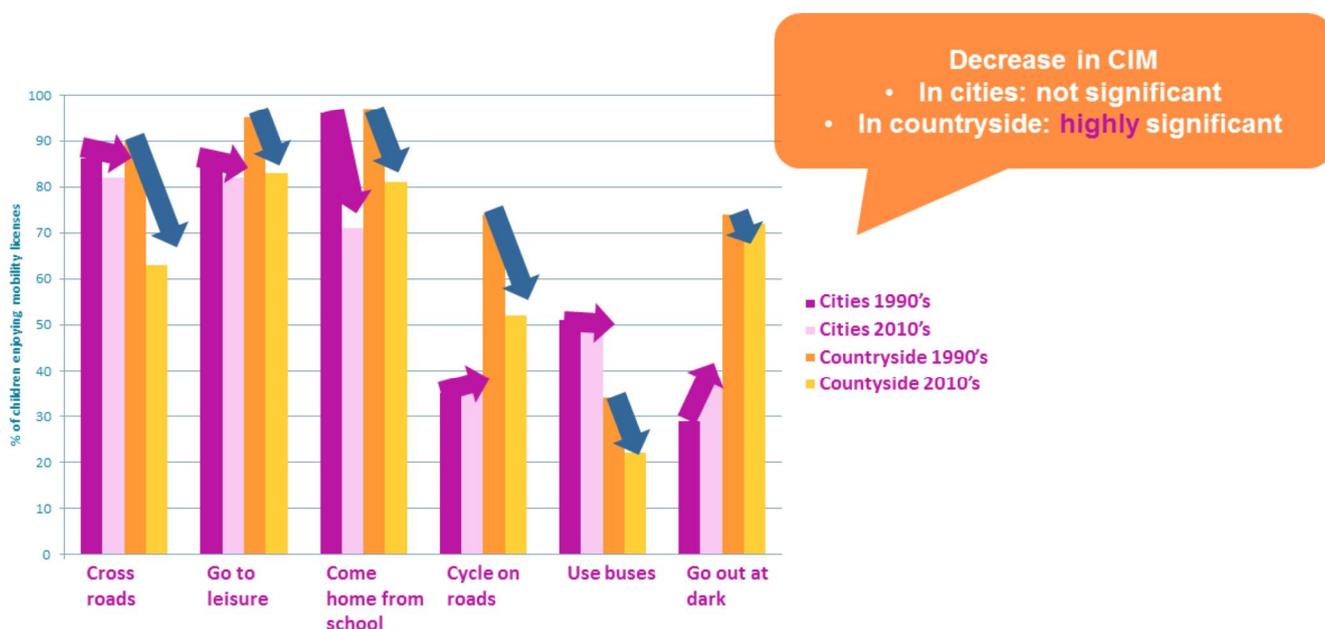


After my dissertation we have continued to study environmental childfriendliness in several research projects.

Among them is an international comparative study among 16 countries. This study compared children's independent mobility in different countries around the world. Independent mobility was here studied as a set of permissions for mobility by parents. These are called mobility licenses.

According to this study Finnish children enjoyed highest independent mobility of all 16 countries.

The decrease of children's independent mobility in 20 years in Finland

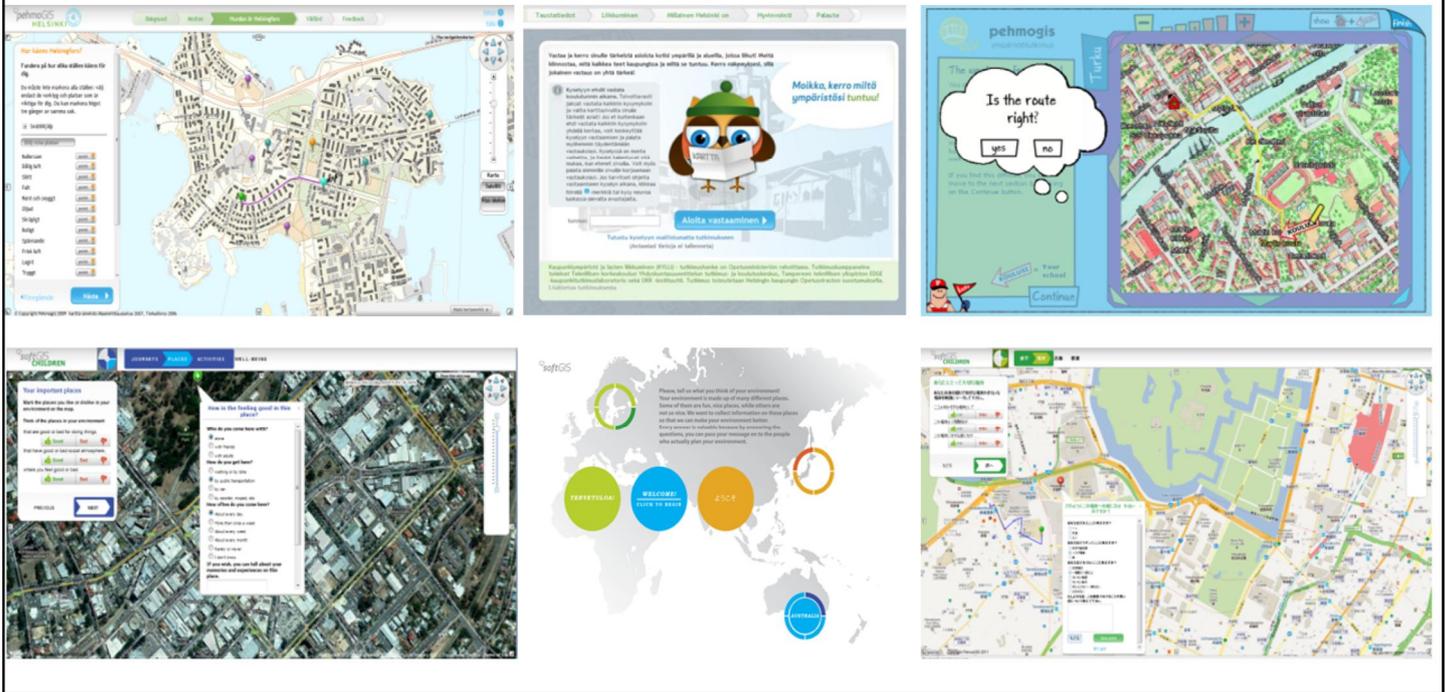


However, children's independent mobility has decreased also in Finland during the last two decades. This I was able to verify when I compared the current situation with data that I had collected for my dissertation in 1990's. The comparison revealed that in city settings the decrease in children's independent mobility was not significant – in some dimensions it instead improved. In contrast, the decrease in children's independent mobility was highly significant in the countryside.

I can think of at least two reasons for this finding: the school network has been cut down. For this reason more and more children in countryside are transported to school by car. If children learn to use car during their daily school journeys, their skills for independent mobility may not develop.

Another potential explanation is that urban lifestyle dominates even in rural settings. Among families with children this can mean that organized activities become an important part of daily life. Families end up spending a lot of time transporting children to judo and balett lessons although they locate far away. At the same time children's eyes do not open the possibilities of immediate surrounding, the affordances of the forest in the back yard. This can be paradoxical if the families have moved to countryside because of closeness to nature and childfriendly environment.

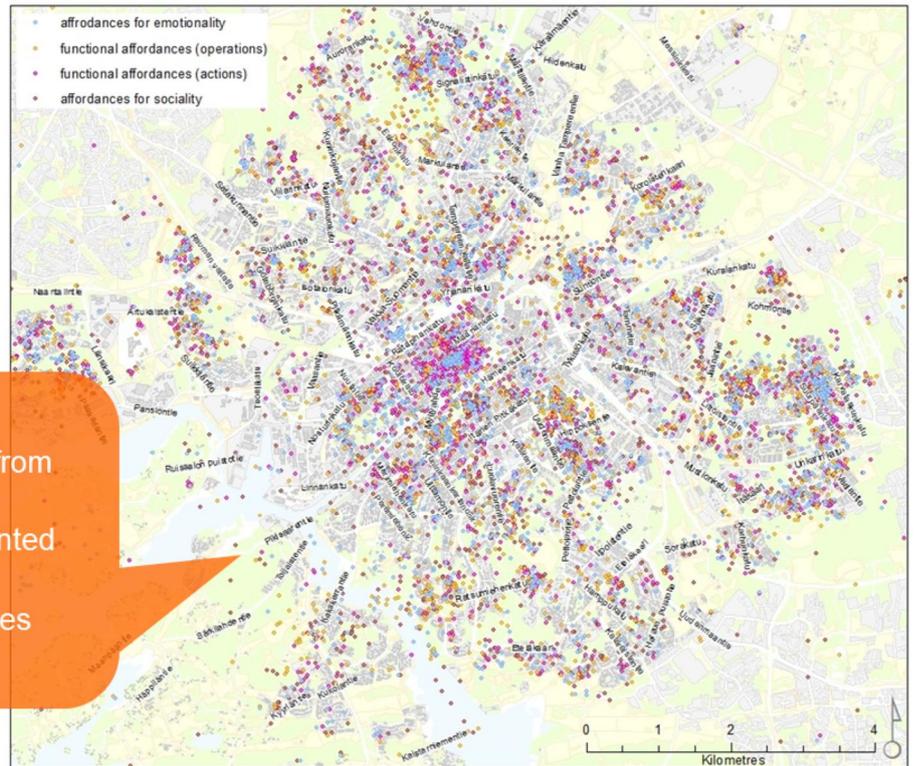
softGISchildren studies



We have also had many research projects where childrens affordances have been mapped. Here we have used the softGIS methodology, that we have developed.

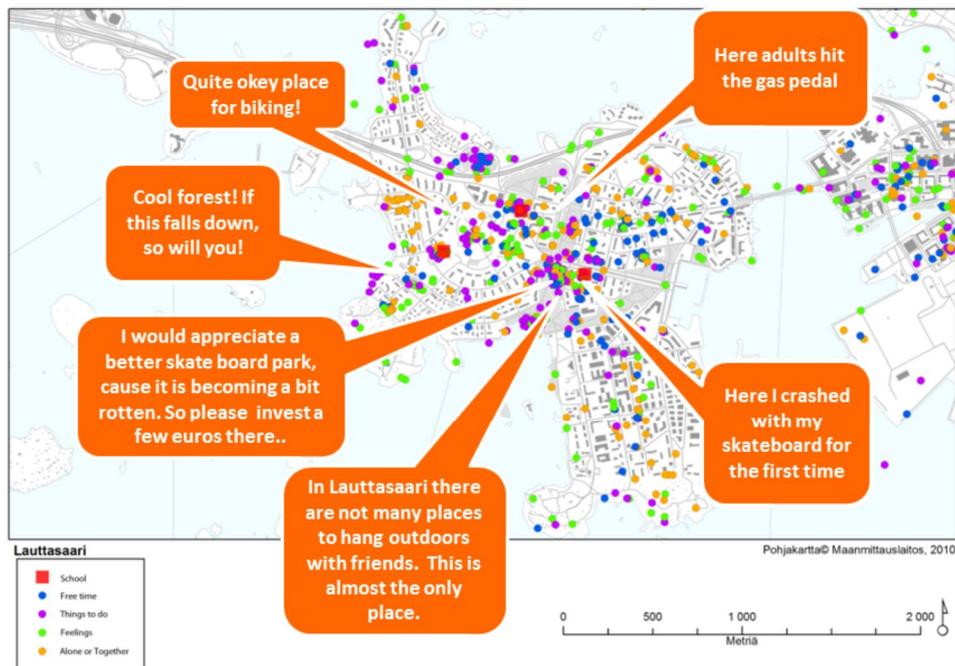
The childfreeness of the city of Turku

- 1863 children from 54 schools
- 12 343 pin-pointed affordances
- 5735 little stories



For example, in the city of Turku nearly 2000 children marked on the map the functional, social and emotional affordances.

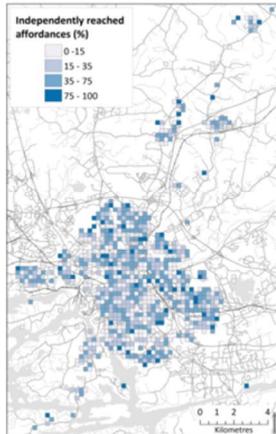
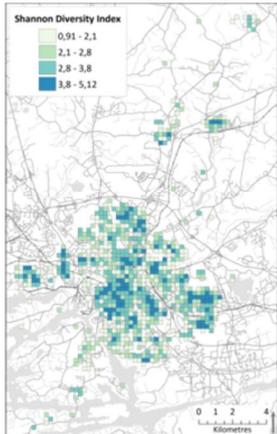
Context specific knowledge from children



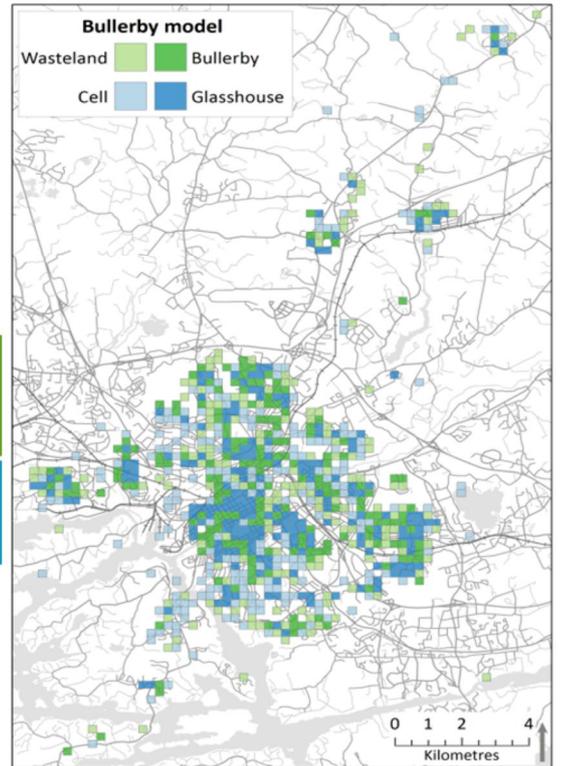
Similar context-specific knowledge from children has been gathered here in Helsinki. According to our studies, children aged from 10 upwards have little difficulties mapping places that are meaningful for them. Here you can see how the children living in Lauttasaari have commented their surroundings.

Environmental childfriendliness a la Bullerby model

Broberg, A. Kyttä, M. & Fagerholm, N. (2013) Child-friendly Urban Structures: Bullerby Revisited. *Journal of Environmental Psychology*, Vol 35, 110–120.



126 inh./ha	240 inh./ha
108 inh./ha	244 inh./ha
population density	



Finally, we have come back to the Bullerby model – now with using a bit more elegant methodology. With the place-based approach we were able to study the various levels of environmental childfriendliness in different parts of Turku. When we analyzed the various types of setting of the Bullerby-model, we noticed that the grid cells that represented Bullerby-type were rather densely built urban areas.

A model for human-friendly environment?



Researchers studying the characteristics of child-friendly settings argue often that these criteria can be used as a touchstone for a human friendly environment more generally. What is good for children is good for us all. Do you think this makes sense?

Well, I do think so, at least partly. If you think about the basic aspects of child-friendly settings presented in my Bullerby model, for example, can you think that an environment that provides a lot of diverse opportunities for inhabitants and these resources are equally accessible for all, this kind of setting is human friendly? If so, then we could, at least in principle, compare the human-friendliness of various urban settings based on this simple two-axis format. This idea we can talk more during our contact session...

Until then BYE!