



Aalto University

# CHILD-FRIENDLY ENVIRONMENTS

SPT-E5020 15.2

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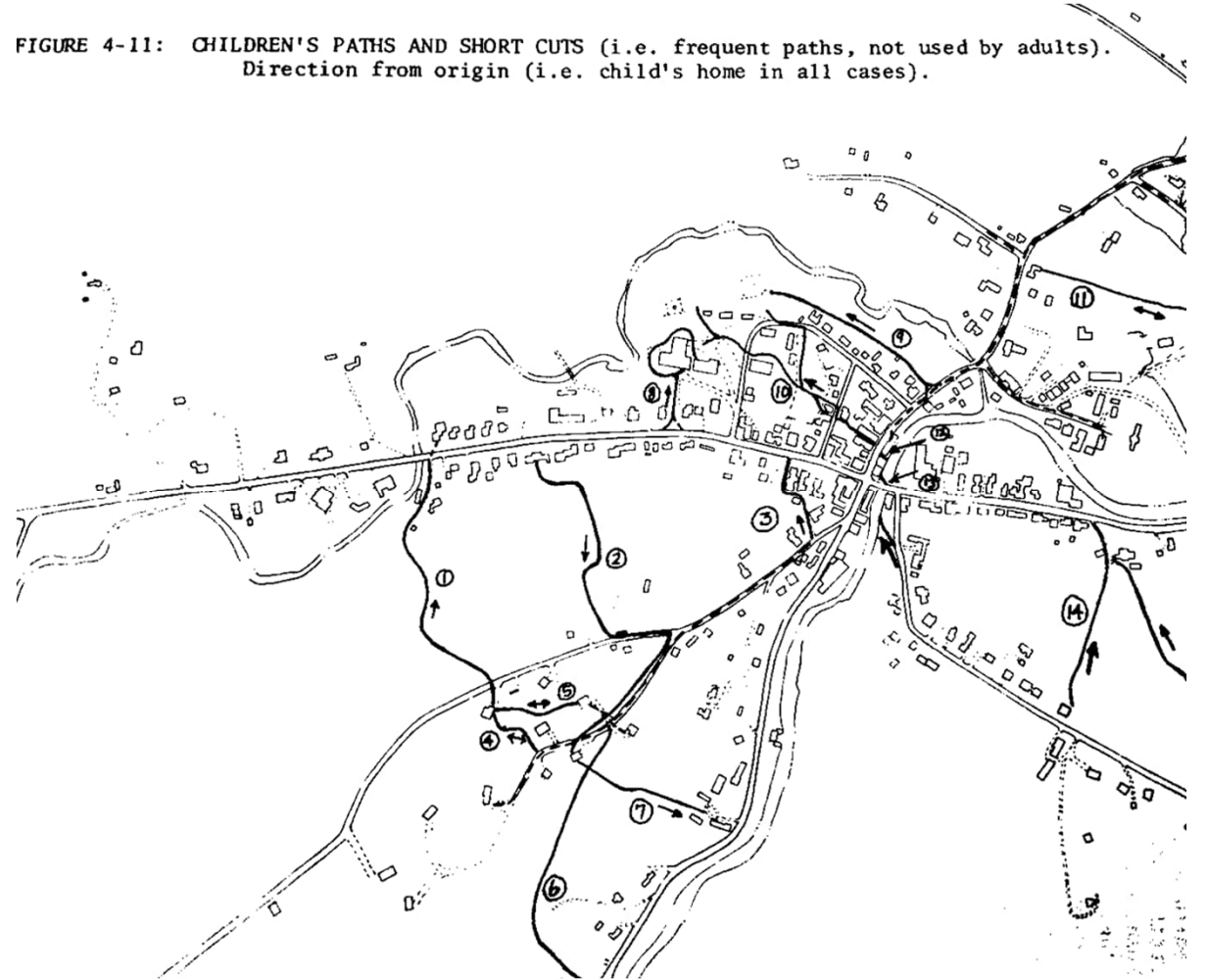
YOUR CHILDHOOD  
EXPERIENCES?

# Classic studies about environmental childfriendliness

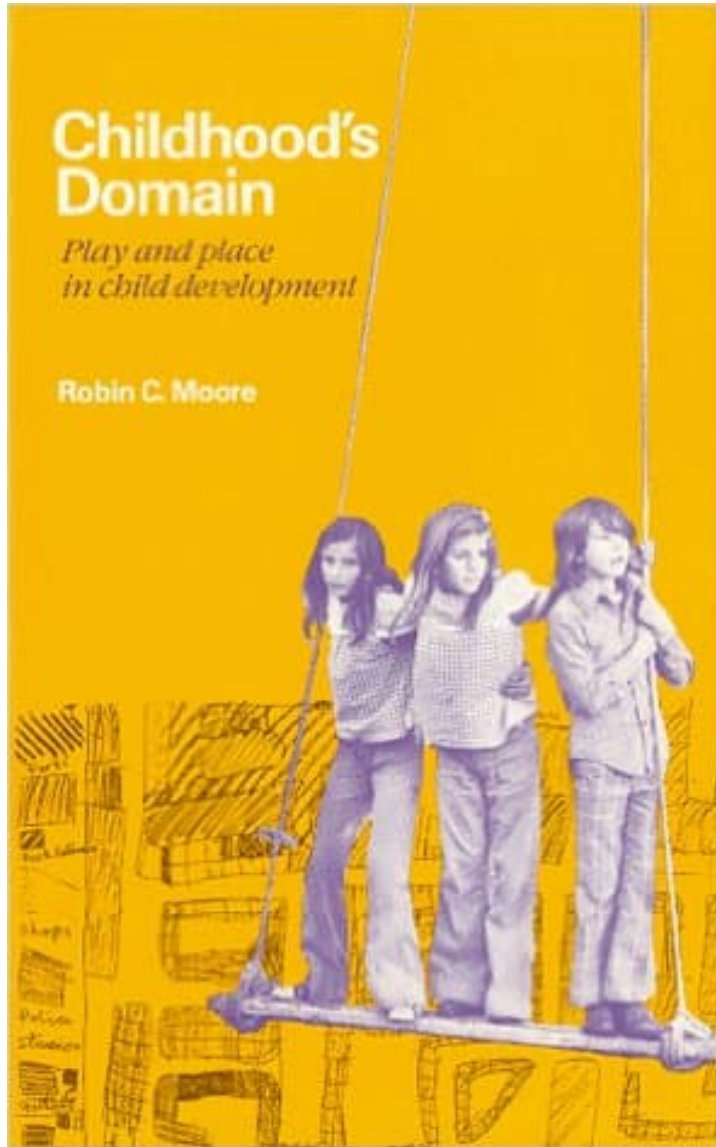
# ROGER HART (1979) CHILDREN'S EXPERIENCES OF PLACE



FIGURE 4-11: CHILDREN'S PATHS AND SHORT CUTS (i.e. frequent paths, not used by adults).  
Direction from origin (i.e. child's home in all cases).

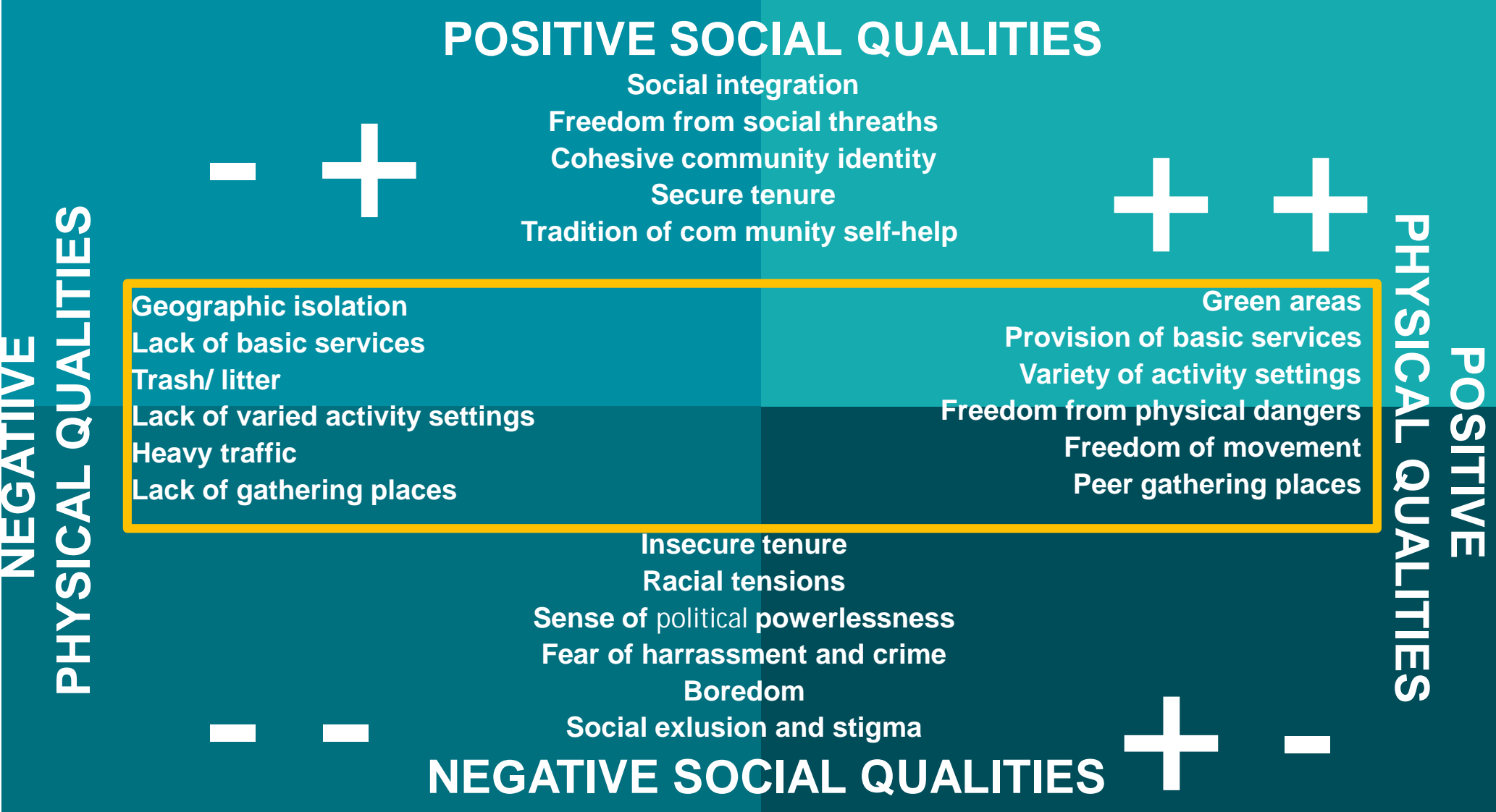


# ROBIN MOORE (1986) CHILDHOOD'S DOMAIN



<https://naturalearning.org/>

# Indicators of environmental quality defined by children



# FENCED CHILDHOOD?



# 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)

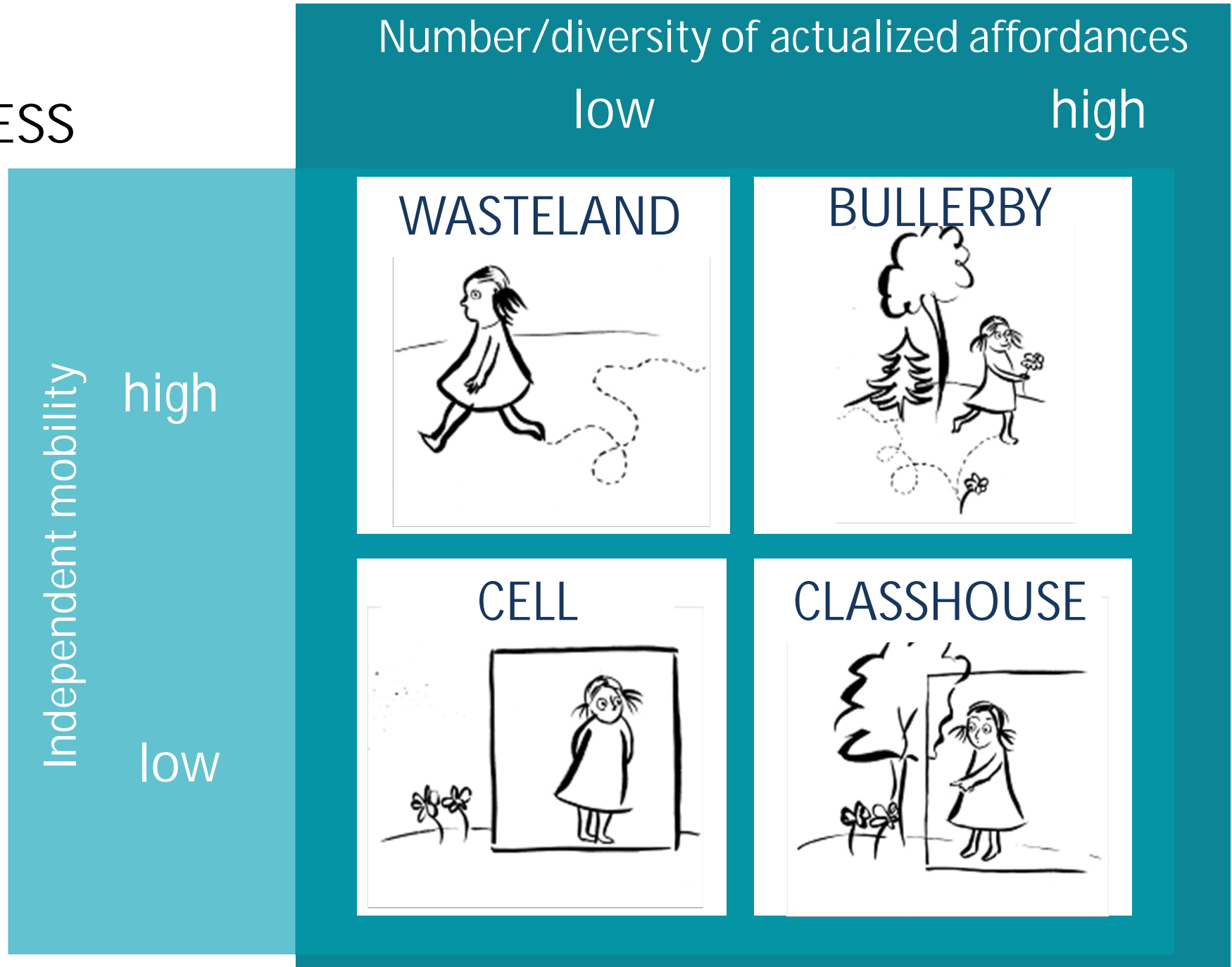
Mothers' working (Gershuny 1993)

Traffic jams (Bradshaw 1999)



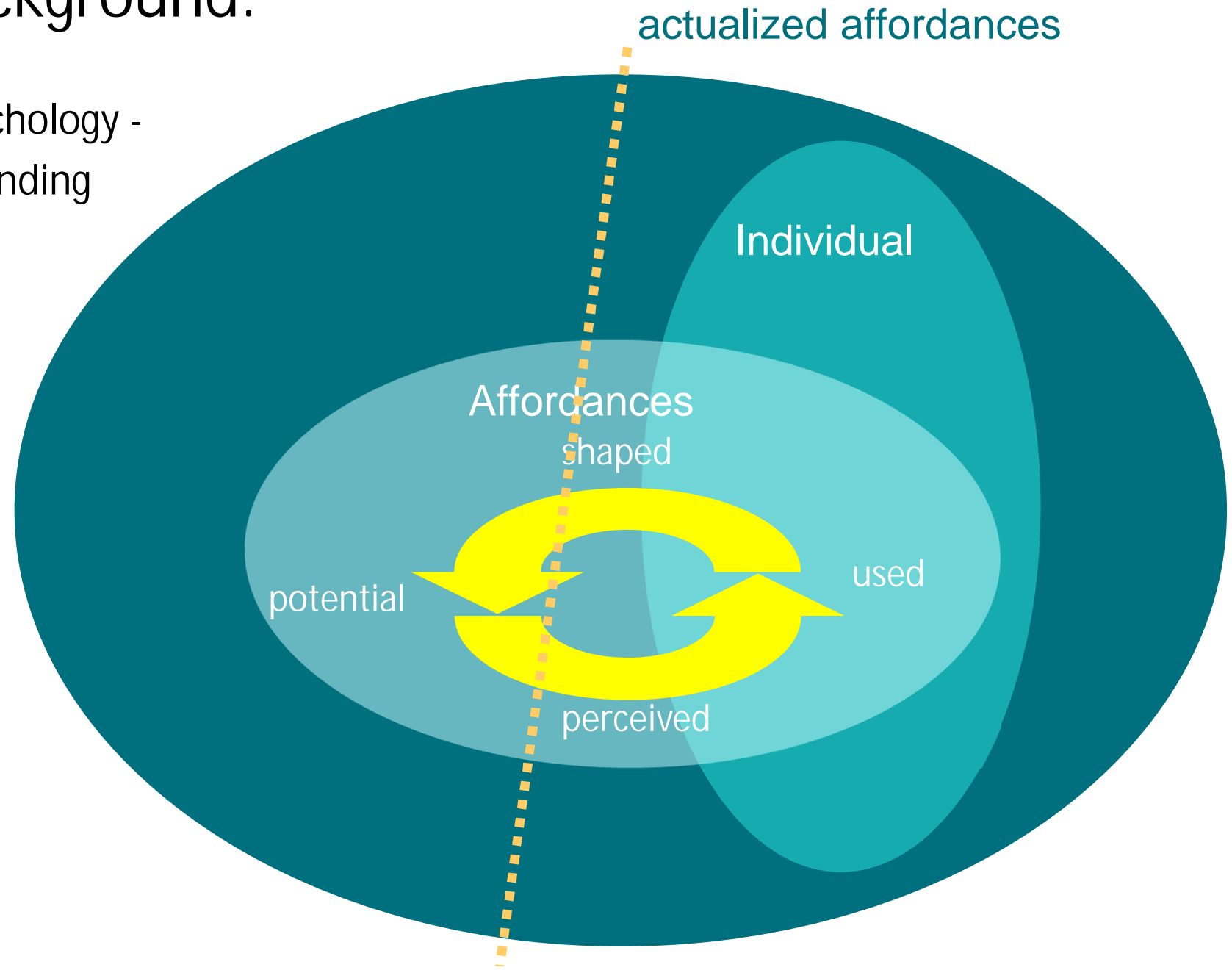
# ENVIRONMENTAL CHILD FRIENDLINESS

Kyttä (2003)

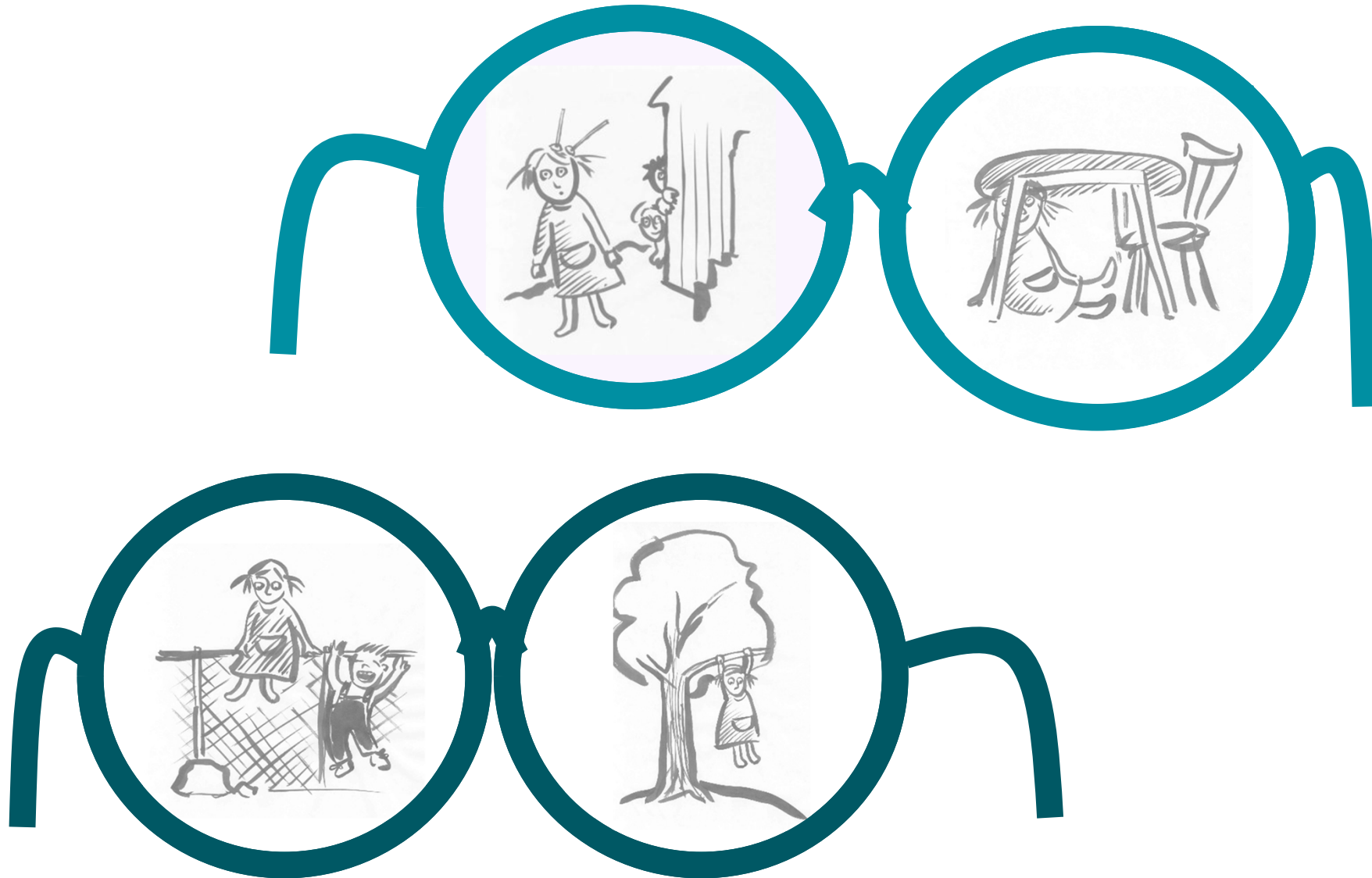


# Theoretical background:

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



# AFFORDANCE 'SPECTACLES'



# AFFORDANCES OF URBAN ENVIRONMENT



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



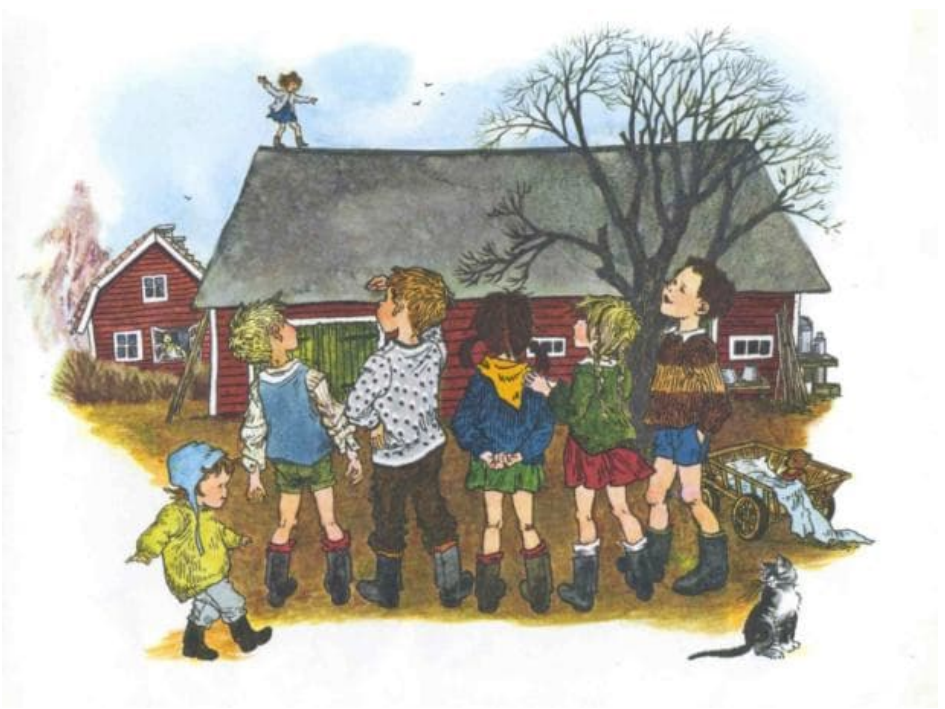


Affordances of every day life

Negative affordances: risks and dangers

# WHY BULLERBY?

according to Astrid Lindgren, Swedish writer



Social affordances

Duties as affordances





WASTELAND	BULLERBY
CELL	CLASSHOUSE

# CLASSHOUSE

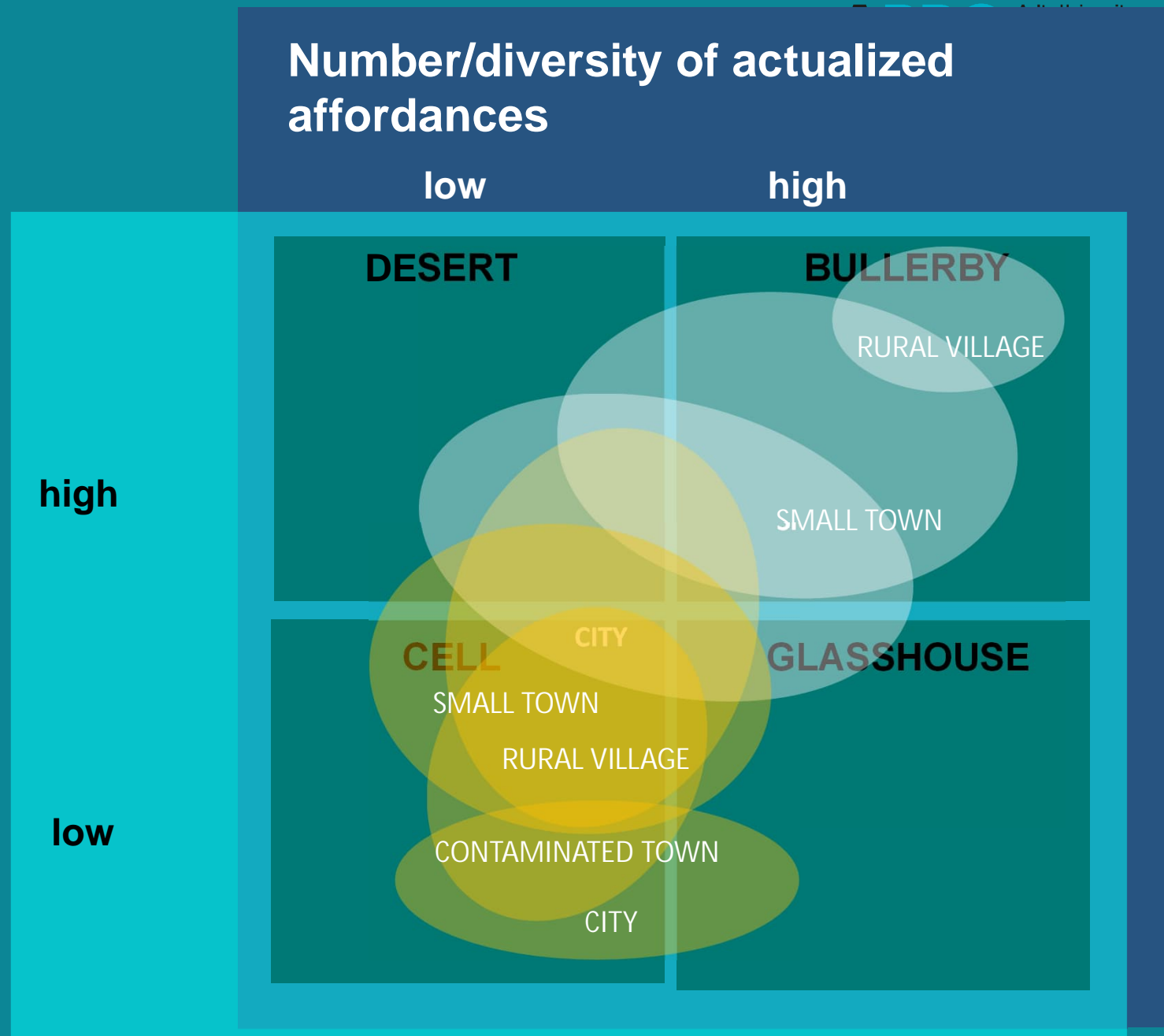
In spite of mobility restrictions, the environment appears as a rich source of affordances. The awareness of affordances can be based on second hand information.



# COMPARISON OF VARIOUS SETTINGS IN FINLAND AND IN BELARUS

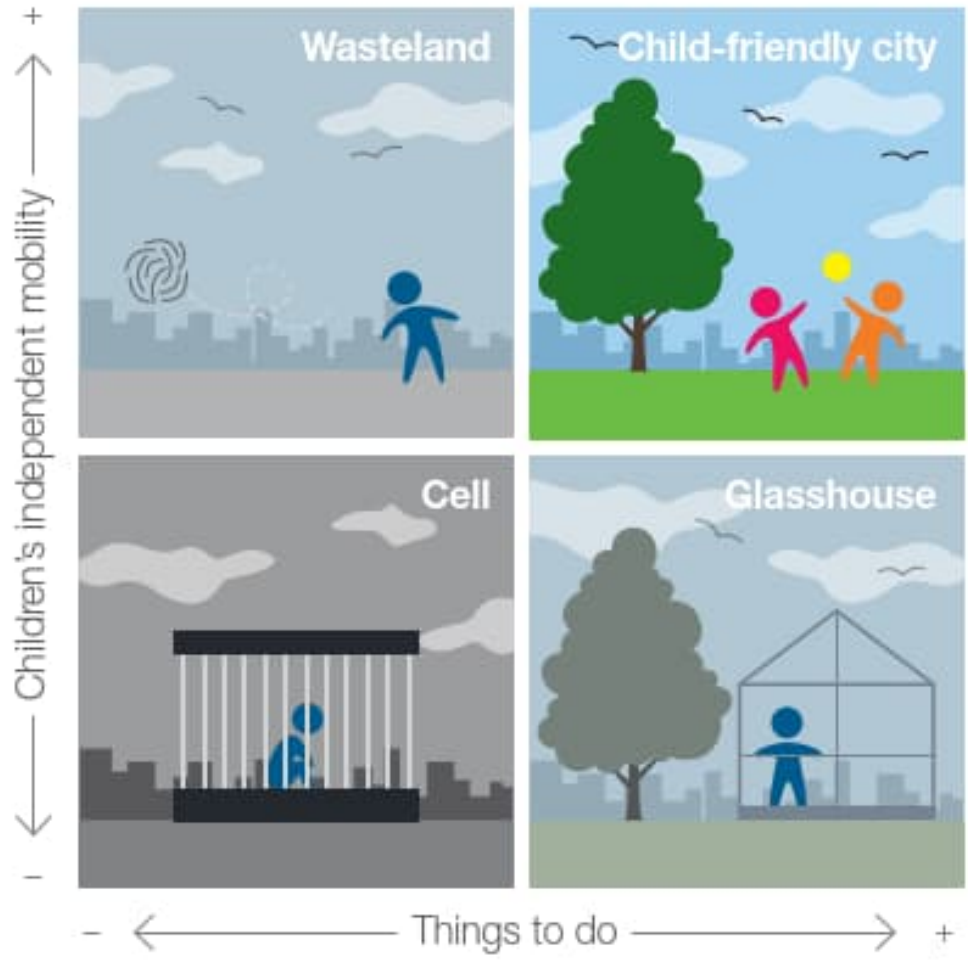
-  = FINLAND
-  = BELARUS

Indeendent mobility





# BULLERBY MODEL HAS BEEN USED TO ADVISE CHILD-FRIENDLY PLANNING AND DESIGN



2017

2021

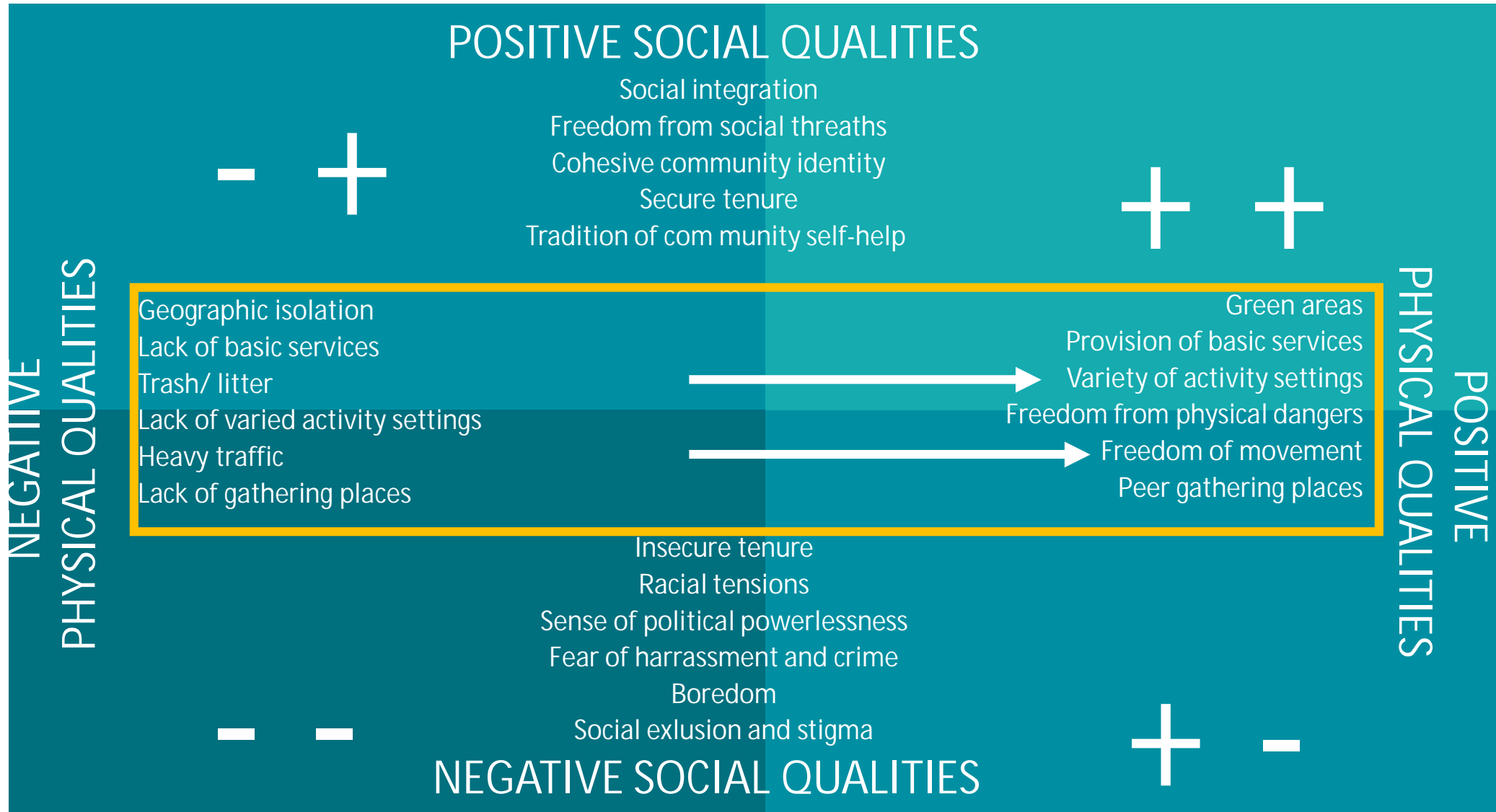
# A GENERAL MODEL FOR HUMAN-FRIENDLY ENVIRONMENT?

Accessibility of  
environmental  
resources

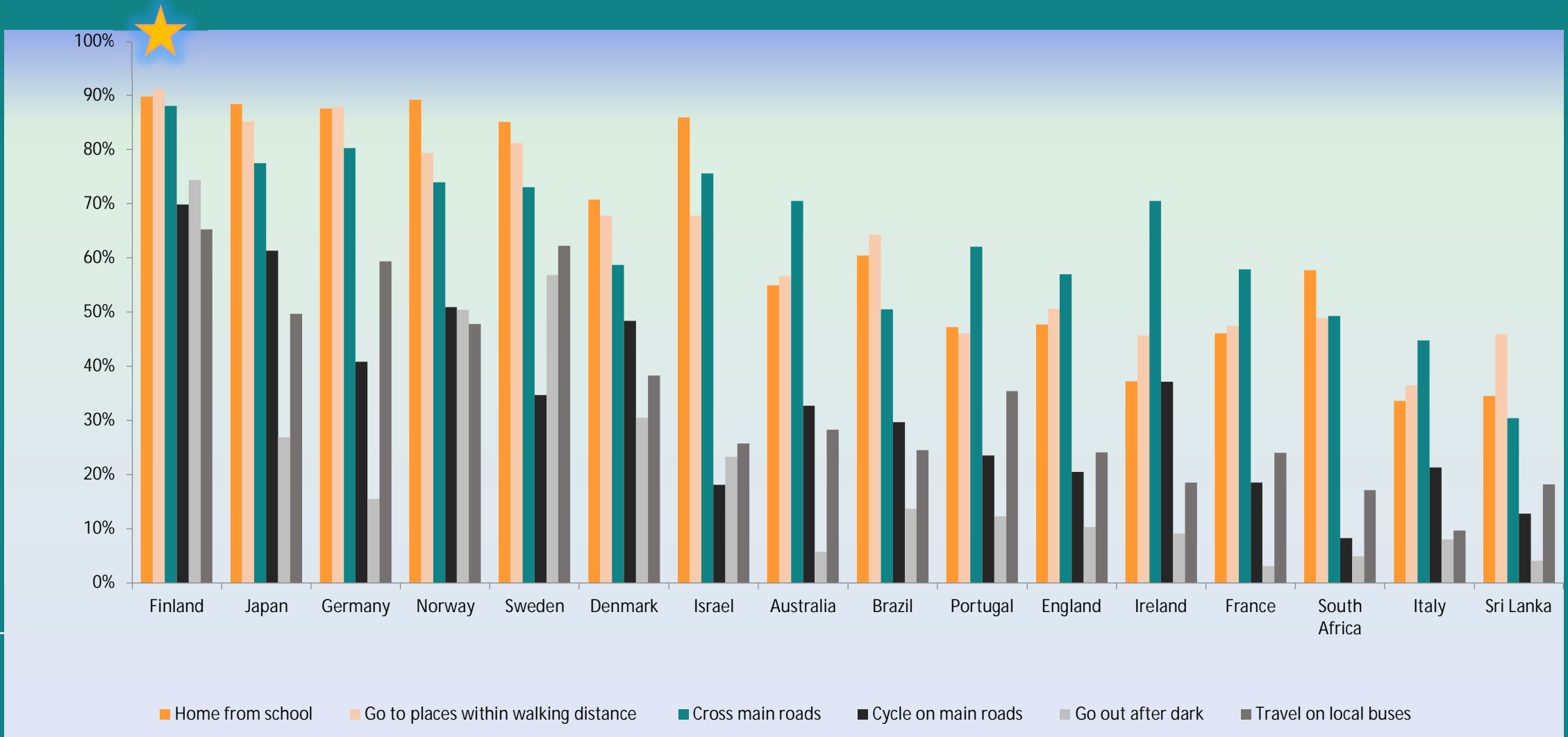


Diversity/amount of  
environmental opportunities

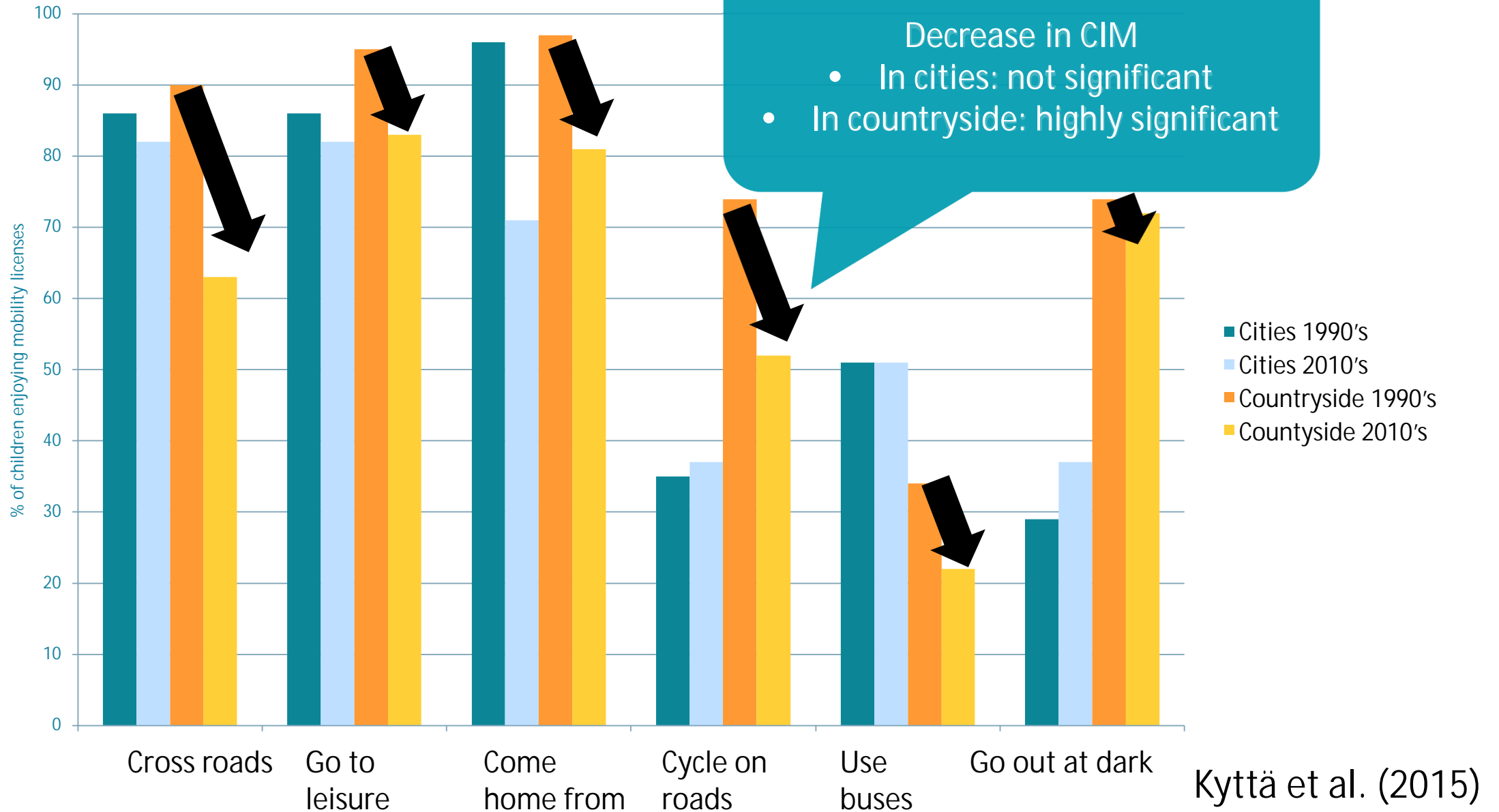
# INDICATORS OF ENVIRONMENTAL QUALITY DEFINED BY CHILDREN



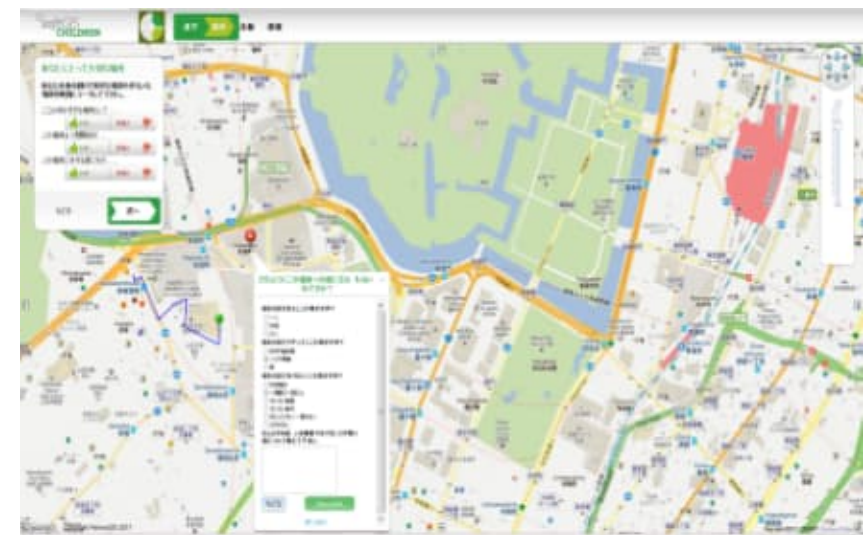
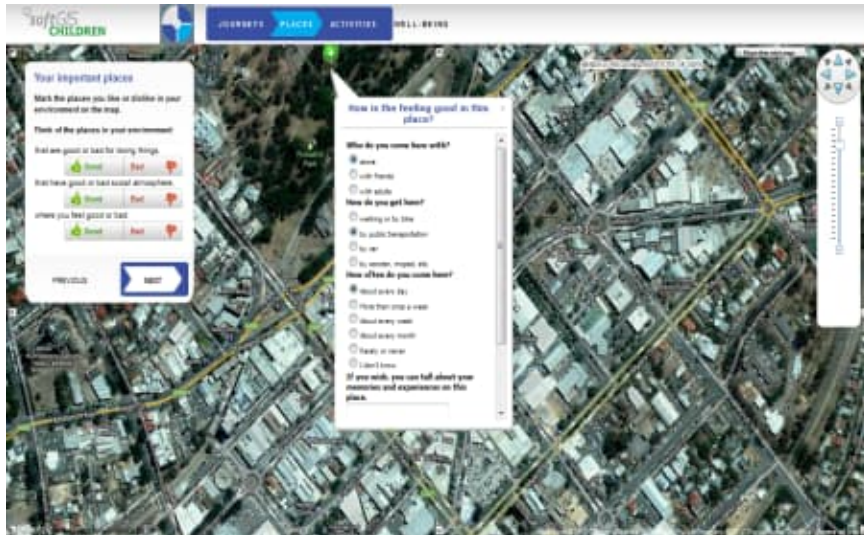
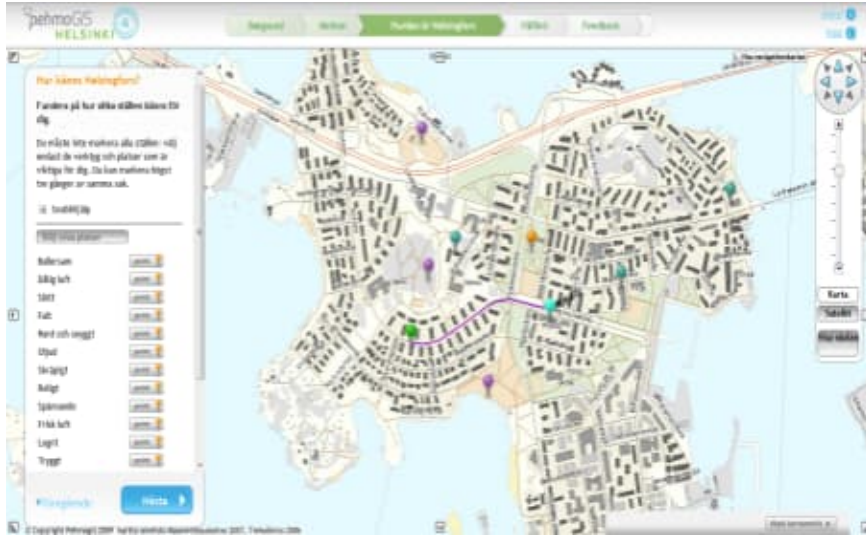
# FINLAND THE TOP COUNTRY IN CHILDREN'S INDEPENDENT MOBILITY!



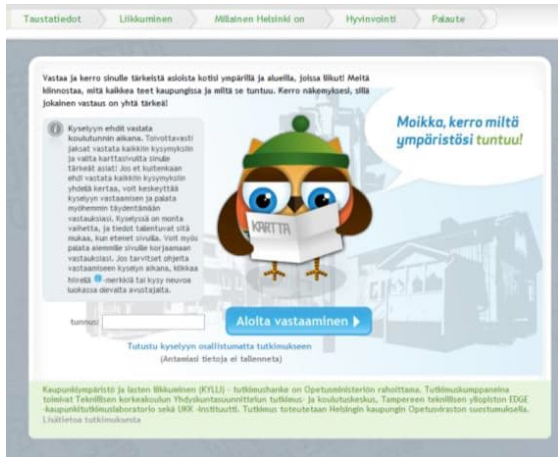
# THE DECREASE OF CHILDREN'S INDEPENDENT MOBILITY IN 20 YEARS IN FINLAND



# PLACE-BASED APPROACH IN CHILD-ENVIRONMENT STUDIES



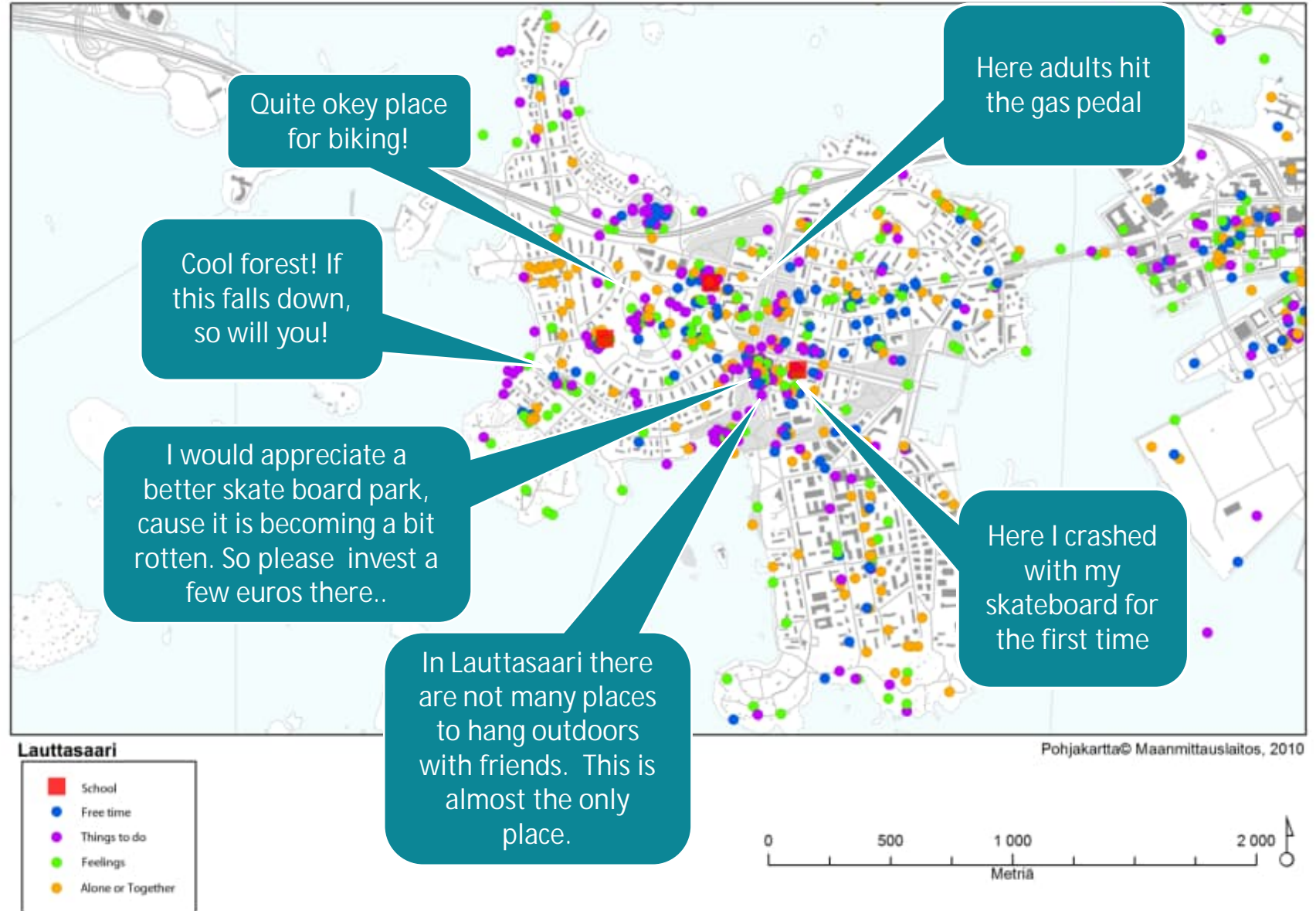
# CONTEXT SPECIFIC KNOWLEDGE FROM CHILDREN



**Kids out-survey in Helsinki**

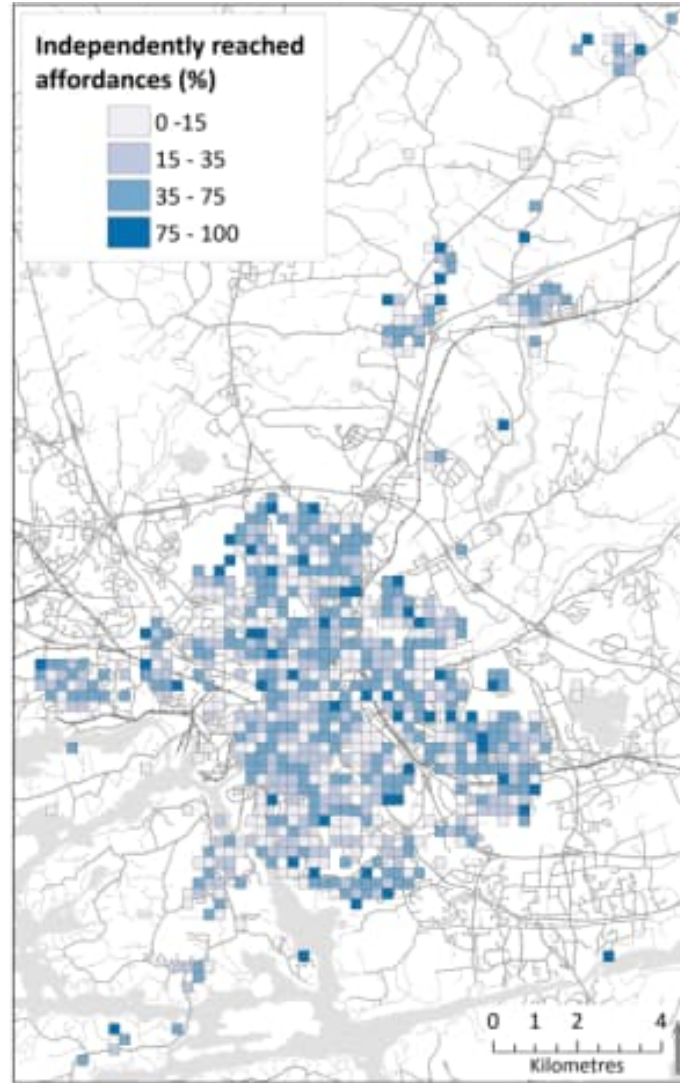
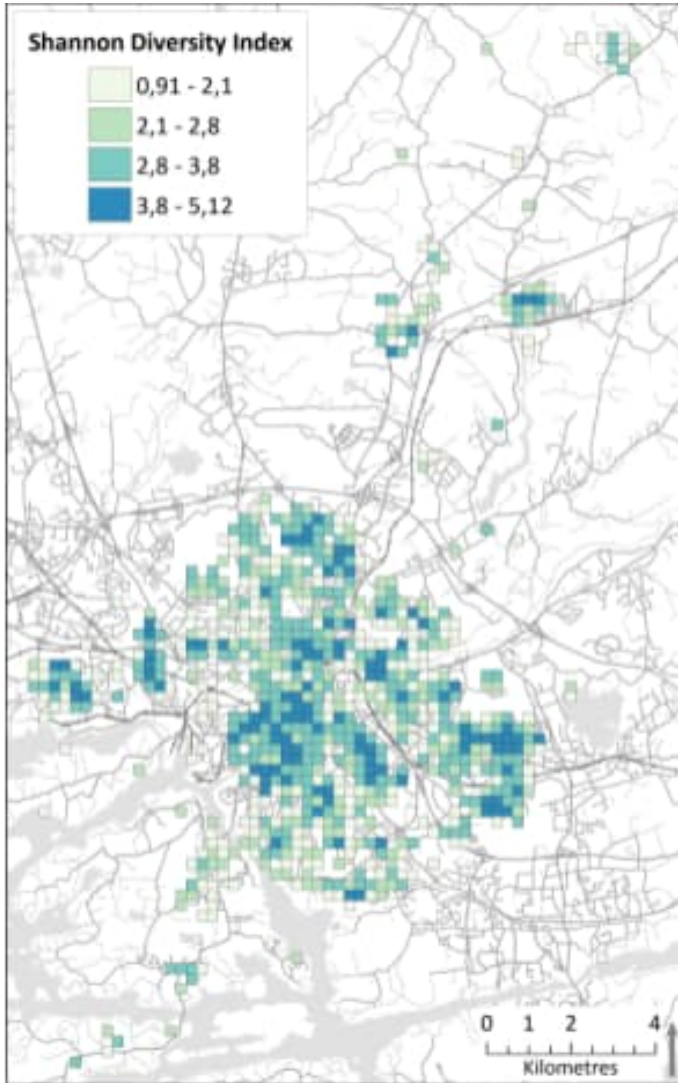
**1100 respondents**

Broberg, A. Salminen, S. & Kyttä, M. (2013) Physical environmental characteristics promoting independent and active transport to children's meaningful places. *Applied Geography*, Vol. 38, 43-52.

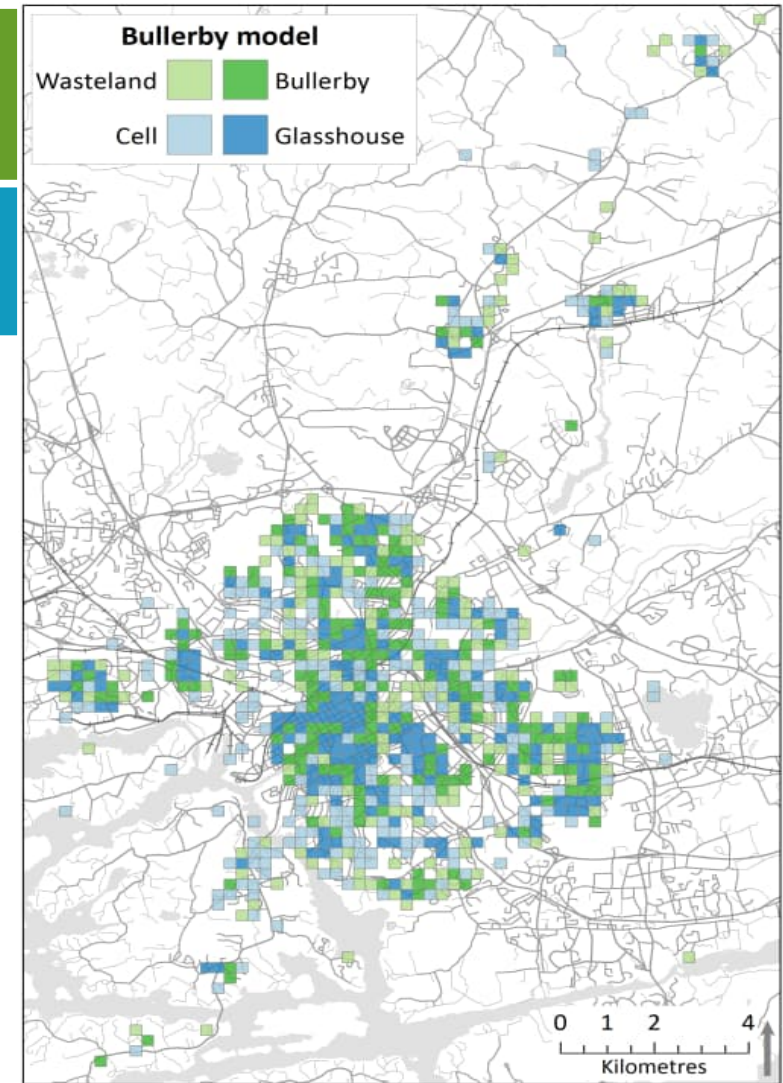


# GRID-ANALYSIS OF ENVIRONMENTAL CHILD FRIENDLINESS

Broberg, A. Kyttä, M. & Fagerholm, N. (2013) child-friendly urban structures: Bullerby revisited. Journal of environmental psychology., Vol 35, 110–120.



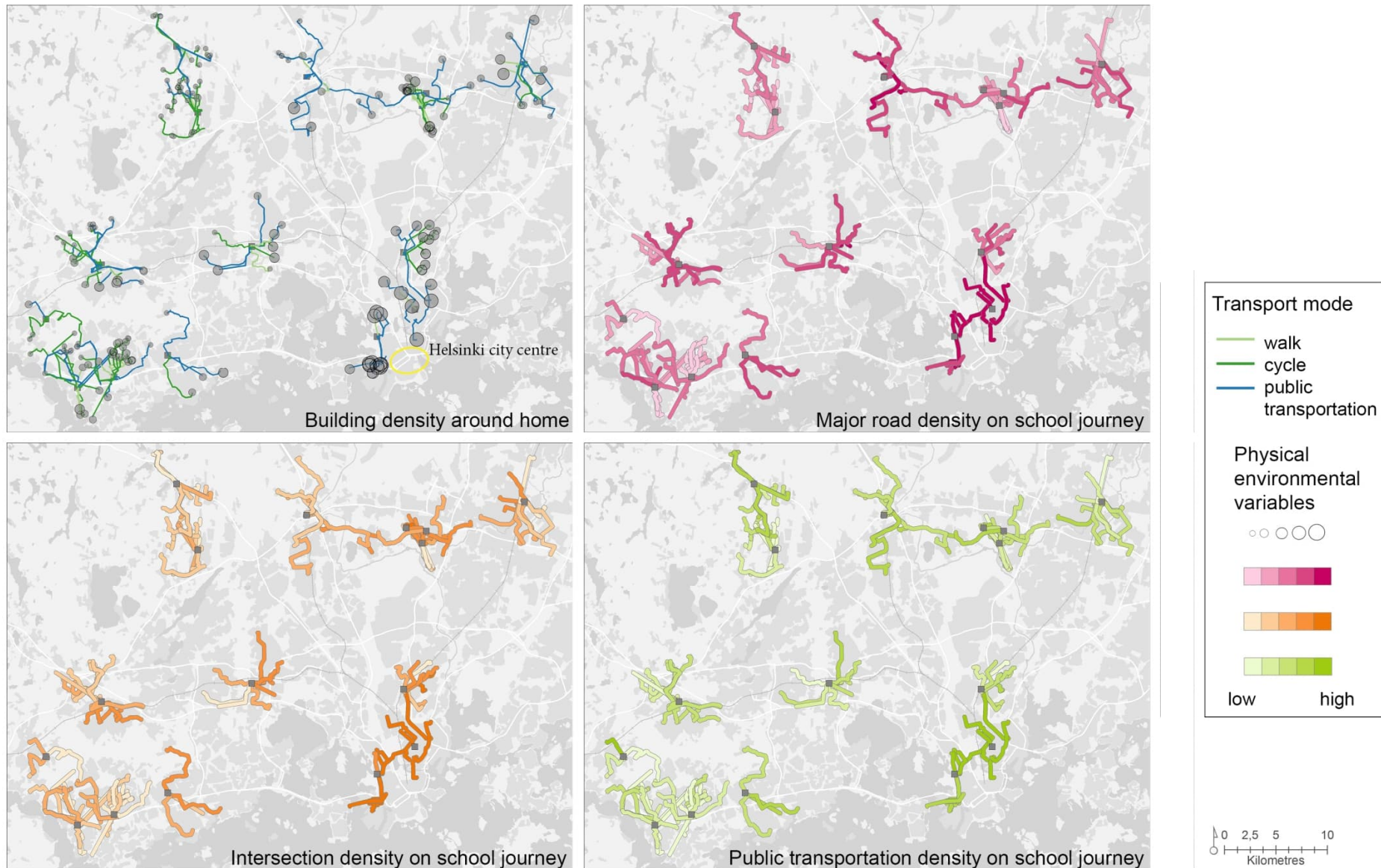
population  
density





# SCHOOL TRAVEL MODES & ROUTES

Broberg, A., Sarjala, S. (2015). School travel mode choice and characteristics of the urban built environment: The case of Helsinki, Finland. *Transport Policy* 37, 1–10.

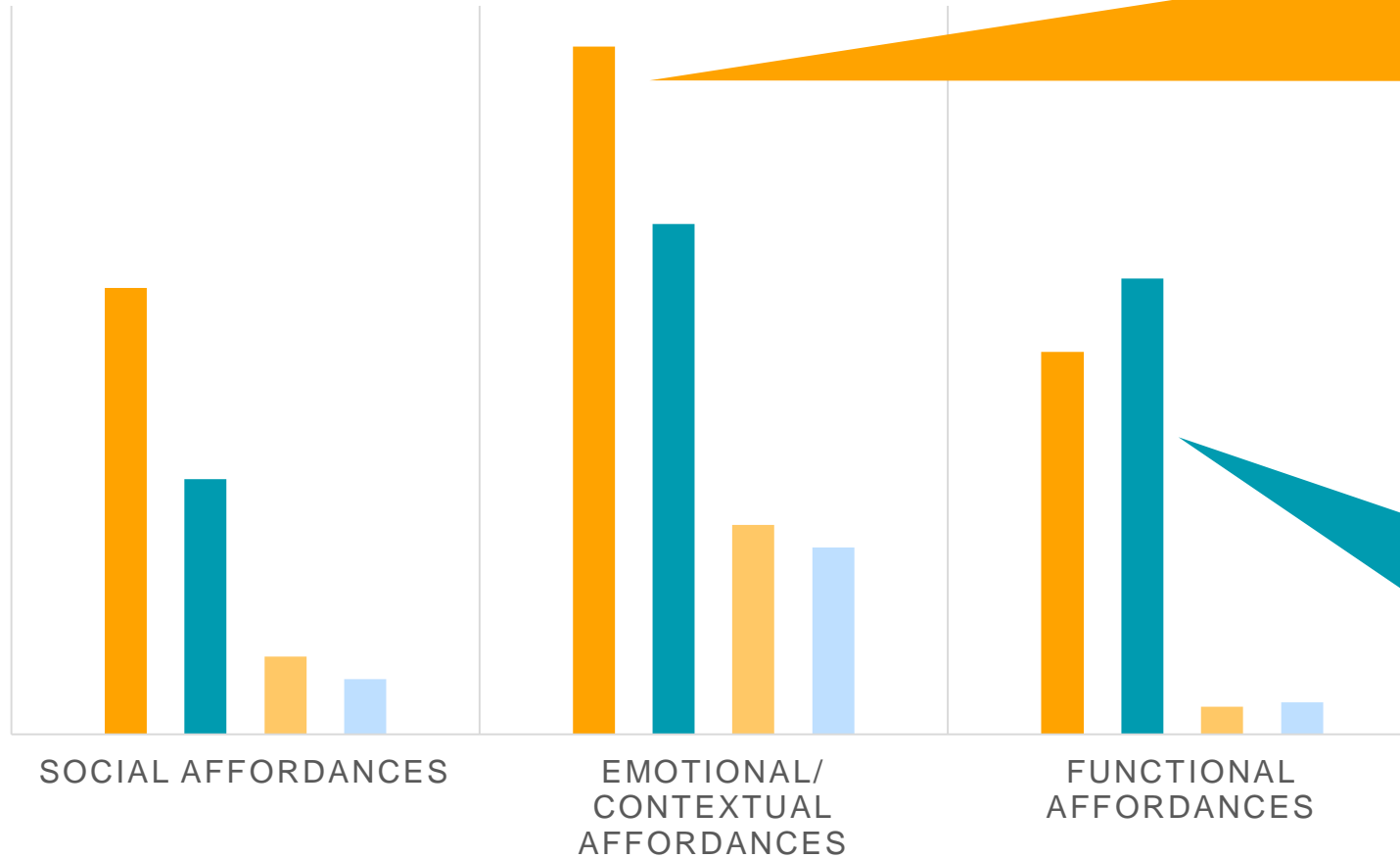




# FINLAND JAPAN COMPARISON

# CONTEXTUAL DIFFERENCES

3836 meaningful places with 13,264 affordances  
from Helsinki, Finland and Tokyo, Japan (Kytta et al, 2018)



## Finland

More positive affordances  
More social affordances  
More emotional/contextual affordances

## Japan

More functional affordances  
• Especially for recreational and competitive sports and games

■ Positive Finland   ■ Positive Japan   ■ Negative Finland   ■ Negative Japan

# THE LOCATION OF MEANINGFUL OUTDOOR PLACES

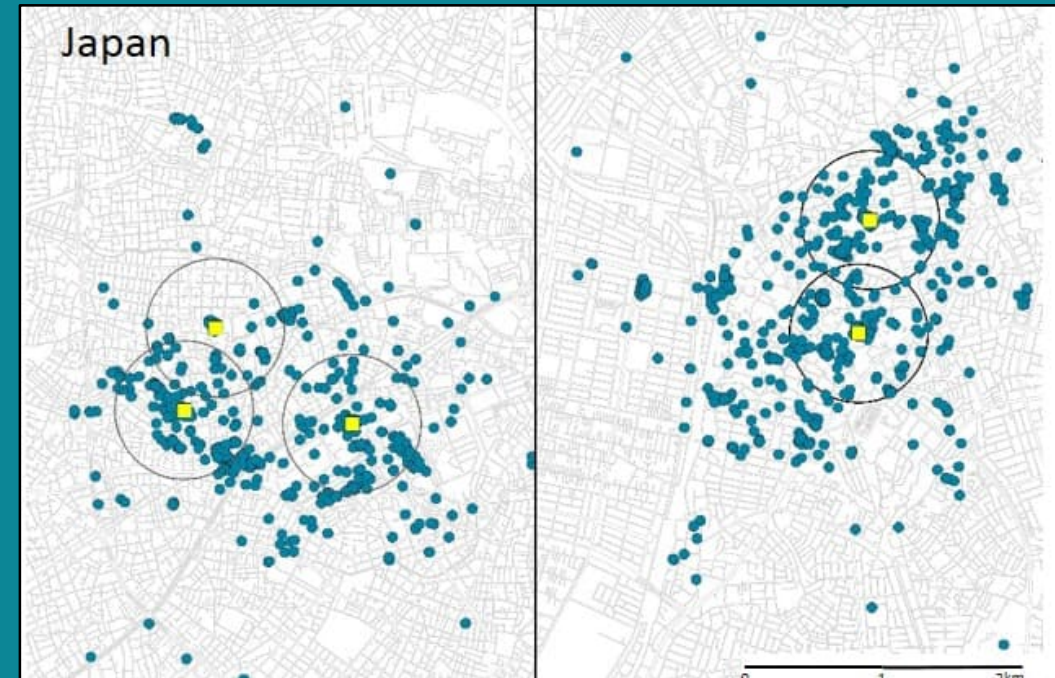
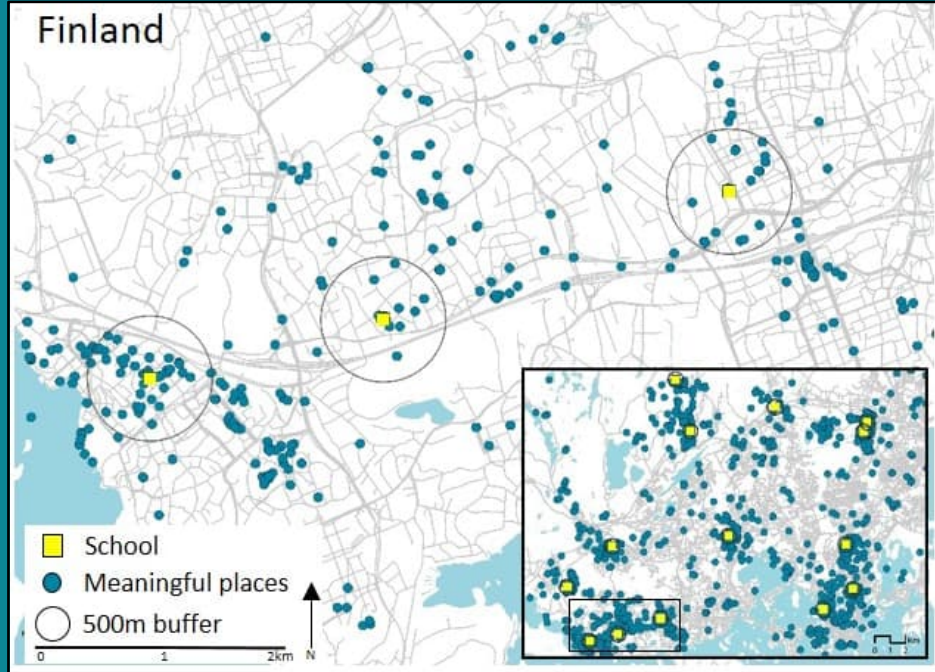
## Finland

- Average distance from home: 2,4 km
- 67% journeys made actively
- 7% with adults



## Japan

- Average distance from home: 1,1 km
- 91% journeys made actively
- 13% with adults
- Concentrated more around schools



# BEHAVIOR SETTINGS – CLUSTERS OF AFFORDANCES



*Behavior setting refers to a set of social codes of behavior in a given context (Barker 1968).*

*Here: Clusters of affordances that are identified by a group of children.*



# EXPERT AUDIT

– Classification of outdoor behavior settings by experts

Place function	Openness		Community		Land use
	Indoor	Outdoor	Child-specific	Shared	
Shopping mall	*			*	Commercial
Small shop	*			*	Commercial
Bookstore	*			*	Commercial
Game/DVD shop	*			*	Commercial
Karaoke	*			*	Commercial
McDonald's/Restaurant	*			*	Commercial
School	*	*	*		Educational
Cram school	*		*		Educational
Library	*			*	Educational
Field		*		*	Nature
Forest		*		*	Nature
Beach		*		*	Nature
River bank		*		*	Nature
Pond		*		*	Nature
Biotope		*		*	Nature
Sports hall	*			*	Recreational
Sports field		*	*		Recreational
Park		*		*	Recreational
Parking lot		*		*	Traffic
Street		*		*	Traffic
Train station	*	*		*	Traffic
Vacant lot		*		*	Other
Construction site		*		*	Other
Shrine/church	* (Fin)	* (Jap)		*	Other
		* (Jap)		*	Other
				*	Other
				*	Other

# BEHAVIOR SETTINGS IN HELSINKI AND TOKYO

In both countries:  
Outdoor settings shared with  
other user groups dominate

In both countries:  
Indoor and commercial  
settings perceived most  
positively, traffic areas most  
negatively

		The type of behavior setting			The share of positive and negative behavior settings		
		Finland <i>n</i> (%)	Japan <i>n</i> (%)	Difference between the countries	Finland <i>n</i> (%)	Japan <i>n</i> (%)	Difference between the countries
Openness	Indoor	30.9%	34.2%	n.s.	94.4%	91.3%	n.s.
	Outdoor	57.3%	58.2%		89.3%	75.0%	$X^2 = 23.4, df = 1, p = .000$
	Both	11.8%	7.6%		60.8%	78.9%	$X^2 = 16.5, df = 1, p = .000$
Communality	Shared	78.2%	83.5%	n.s.	92.0%	81.9%	$X^2 = 24.6, df = 1, p = .000$
	Child specific	21.8%	16.5%		65.9%	79.9%	$X^2 = 12.4, df = 1, p = .000$
Land use	Educational	22.9%	16.5%	$X^2 = 24.6, df = 5, p = .000$	65.1%	80.8%	$X^2 = 16.2, df = 1, p = .000$
	Commercial	21.9%	26.6%		96.0%	94.2%	n.s.
	Recreational	27.6%	30.4%		95.1%	91.2%	$X^2 = 9.1, df = 1, p = .003$
	Natural	22.9%	3.8%		95.1%	91.2%	$X^2 = 9.1, df = 1, p = .003$
	Traffic	3.8%	15.2%		95.1%	91.2%	$X^2 = 9.1, df = 1, p = .003$
	Religious	1.0%	7.6%		95.1%	91.2%	$X^2 = 9.1, df = 1, p = .003$

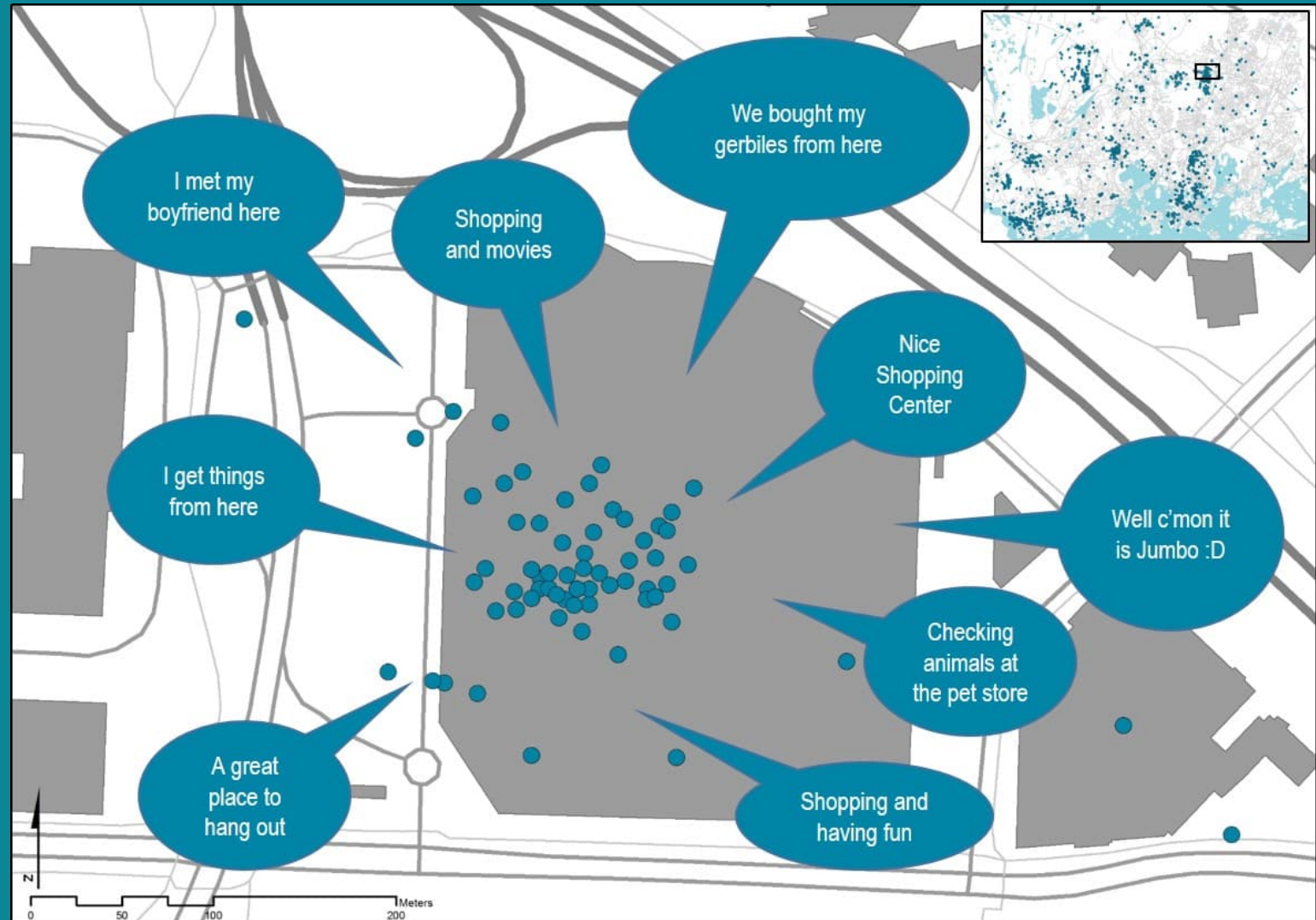
Japan: Commercial, recreational, traffic  
and religious settings more common  
Finland: Natural and educational settings  
more common

# EXAMPLE OF A BEHAVIOR SETTING: SHOPPING MALL

189

behavior settings in  
Helsinki and Tokyo

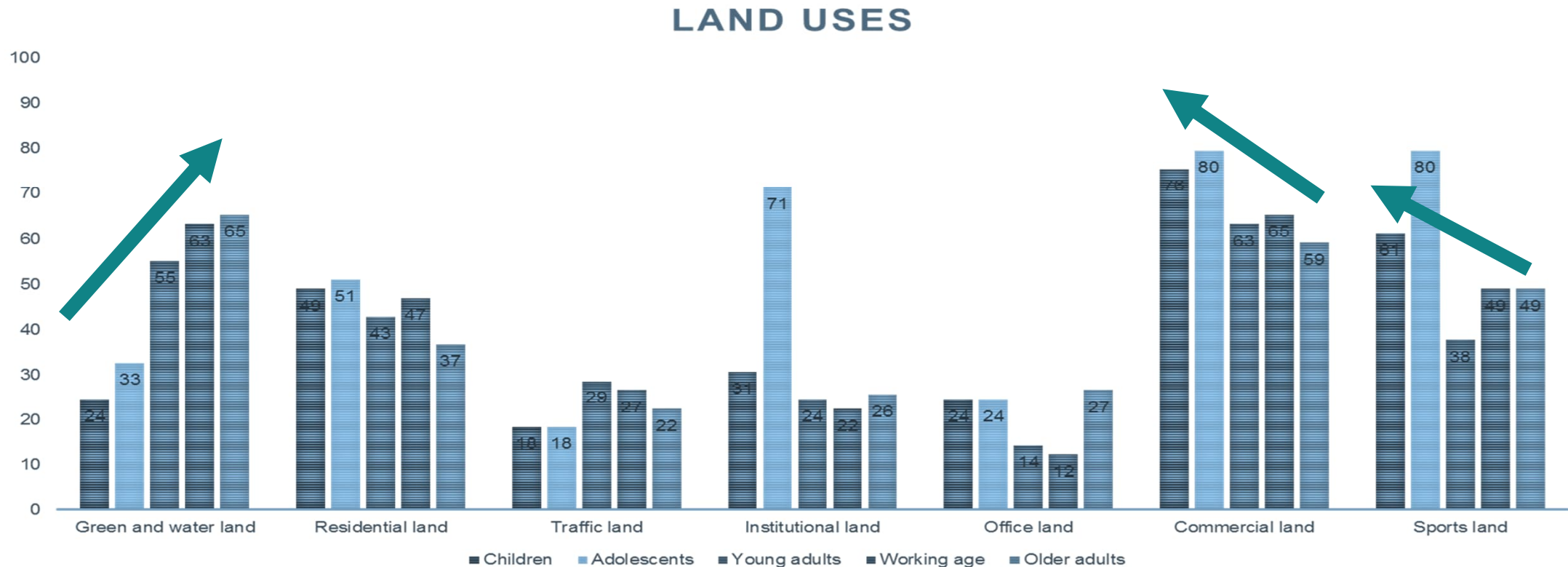
Here: a shopping  
centre in Helsinki





# WHERE ARE POSITIVE EXPERIENCES LOCATED?

Land use around positive place locations of various age groups (n~4000)  
(Laatikainen et al. 2017)



# PLACE-BASED DATA CAN BE INTEGRATED TO EXISTING SYSTEMS

Case: City of Lahti, Finland

**CHILDRENS' FOREST PROJECT**

- 59 day care centers
- Natural areas/places used in early childhood education
- Routes to places

ALOITUS PUNAKYNÄ LASKENTA LAHTI,Palomaki\_J

Näkymä Ajankohtaista

Valitse teema

Perusteema

Valitse näkyvät tasot

- Opaskartta
- Peruskartta MML
- Perusaineistot -
- Ympäristö -
- Maanlaiset johdot -
- Kiintopisteet ja karttalehdet -
- Aluejaot -
- Liikenne -
- Iris aineistot -
- Kaavoitustilanne ja suunnitelmat -
- Maisema- ja yhdyskuntarakenne -
- Suojelu ja kaupunkikuva -
- Asemakaava -
- Yleis- ja Maakuntakaava -
- Karttakyselyiden tulokset -
- Paikannukset Oma Lahti -illoista -
- Lähiluontokartoitus -
  - Lähiluontokartoitus, alueet
  - Lähiluontokartoitus, pisteet
  - Lähiluontokartoitus, viivat
- Kaivuluvat
- Työmaakohteet -
- Ortoilmakuvat, Viistokuvat -
  - Ilmakuva 2014
  - Ilmakuva MML
  - Ilmakuva 2011
  - Ilmakuva 2008
  - Ilmakuva 2005
  - Ilmakuva 2001
  - Ilmakuva 1997
  - Ilmakuva 1995
  - Ilmakuva 1986
  - Ilmakuva 1979

Sykekatu

Sykekatu

Päijät-Häme Regional Hospital

Saipausseikä Natural Area

Kanervä Day Care Center

Keskussairaalankatu

100 m

P 6764501.596 1 26476971.721 Wuppi 0.67 Trimble

# ONGOING RESEARCH FREERIDE



# FREERIDE

Children's independent & equal mobility and physical activity in a free public transport experiment in a city of Mikkeli (Finland)

- Objective activity measuring
- PPGIS surveys
- Ethnographic research





*Photo: Saarinen, 1956, Museovirasto.*

# THE PHD PROJECT OF VEERA MOLL

How children have been taken into account in the city planning of Helsinki?

1940-1950 Children were still moving around very freely, the institutionalization was in early stages, but traffic was growing fast and accident statistics were worrying. People were very concerned about the "idle" children of the streets.

1960-1980- decades included the building of the suburbs, where the traffic safety and local services were good and supported the independent mobility of children. Suburban living became a norm for the dwelling of families and developing the childfriendliness of the city centre was not in the agenda.

## PLANNING IDEALS DURING THIS ERA:

- Children's independent mobility (and mobility with friends) highlighted
- The discussion concerning urban childhood was problem focused: as if the right place for a child is still in the countryside!





Aalto University  
School of Engineering

# TWO DREAMS...

1. How environment supports the social wellbeing of children?
2. Child-friendly environment in the era of climate change?



# Thank you!



Some publications related to the topic:

Broberg, A. Salminen, S. & Kyttä, M. (2013) Physical environmental characteristics promoting independent and active transport to children's meaningful places. *Applied Geography*, Vol. 38, 43-52.

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

Fyhri, A. Hjorthol, R. Mackett, R. Nordgaard Fotel, T. & Kyttä, M. (2011) Children's active travel and independent mobility in four countries: Development, social contributing trends and measures. *Transport Policy*, Vol. 18, Issue 5, 703-710.

Kyttä, M. (2008) Children in outdoor contexts. Affordances and independent mobility in the assessment of environmental child friendliness. PhD thesis, Helsinki University of Technology. Available at: <http://lib.tkk.fi/Diss/2003/isbn9512268736/isbn9512268736.pdf>

Kyttä, M. (2004) The Extent of Children's Independent Mobility and the Number of Actualized Affordances as Criteria of a Child-Friendly Environment. *Journal of Environmental Psychology*, Vol. 24, Issue, 179-198.

Kyttä, M. (2002) The Affordances of Children's Environments. *Journal of Environmental Psychology*, Vol. 22, Issue 1, 109 - 123.

Kyttä, M. Hirvonen, J. Pirjola, I. Laatikainen, T. & Rudner, J. (2015) The last free-range children? Children's independent mobility in Finland in 1990's and 2010's. *Journal of Transport Geography*, 47, 1-12.

Kyttä, M. Oliver, M. Ikeda, E. Ahmadi, E. Omiya, I. & Laatikainen, T. (2018) Children as urbanites: Mapping the affordances and behavior settings of urban environments for Finnish and Japanese children. *Children's Geographies*, Vol 16, No 3, 319–332.

Laatikainen, T. Broberg, A. & Kyttä, M. (2017) The physical environment of positive places: Exploring differences between age groups. *Preventive Medicine*, Vol 95, S85–S91.

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, London.



# INDIVIDUAL WORK:

Write an essay about what you learned about urban experiences during the course. Did you learn something about your own urban experiences and behavior? You can freely concentrate to some, especially interesting aspects:

- Theoretically
- Thematically
- Empirically
- Finding links to planning and design
- Or: you may find your unique way to profile your individual work

The format of the final work is free. You can write a traditional essay but you can also use visualizations, images or make a blog, Podcast or video.

## DEADLINE?

**My suggestion: two weeks after the end of the course**

# GROUP WORK PRESENTATIONS

**Create a Power Point (or other format) presentation**

1. What were the clusters that you were working on?
2. What kind of analysis did you perform?
3. Are there links to the research literature?
4. The results: What did you find out?
5. How the results can be used in planning?
6. Are there suggestions that you can make?

## **The task:**

1. GIS-analysis or visualization
2. "On site" analysis & additional data collection
3. Historical analysis of the sites
4. Qualitative analysis
5. Improvement suggestions based on the place experiences by people

**TIME: 10 min/ group**

# NEXT TIME: FINAL MEETING!

The presentations will be between **12.15-14.00**

In the morning you will still have some time to:

- Practise your presentation
- Get feedback about it

I will be in the Zoom if you want to use this opportunity 😊