



Aalto University
School of Science
and Technology

Urban Environments and Physical Activity of School Journeys Among Children in City of Turku, Finland

*"When I walk from school to home,
it is easy to breath and there are no
human voices.*

*Normally I am there alone –
I only hear the voices of the birds."*

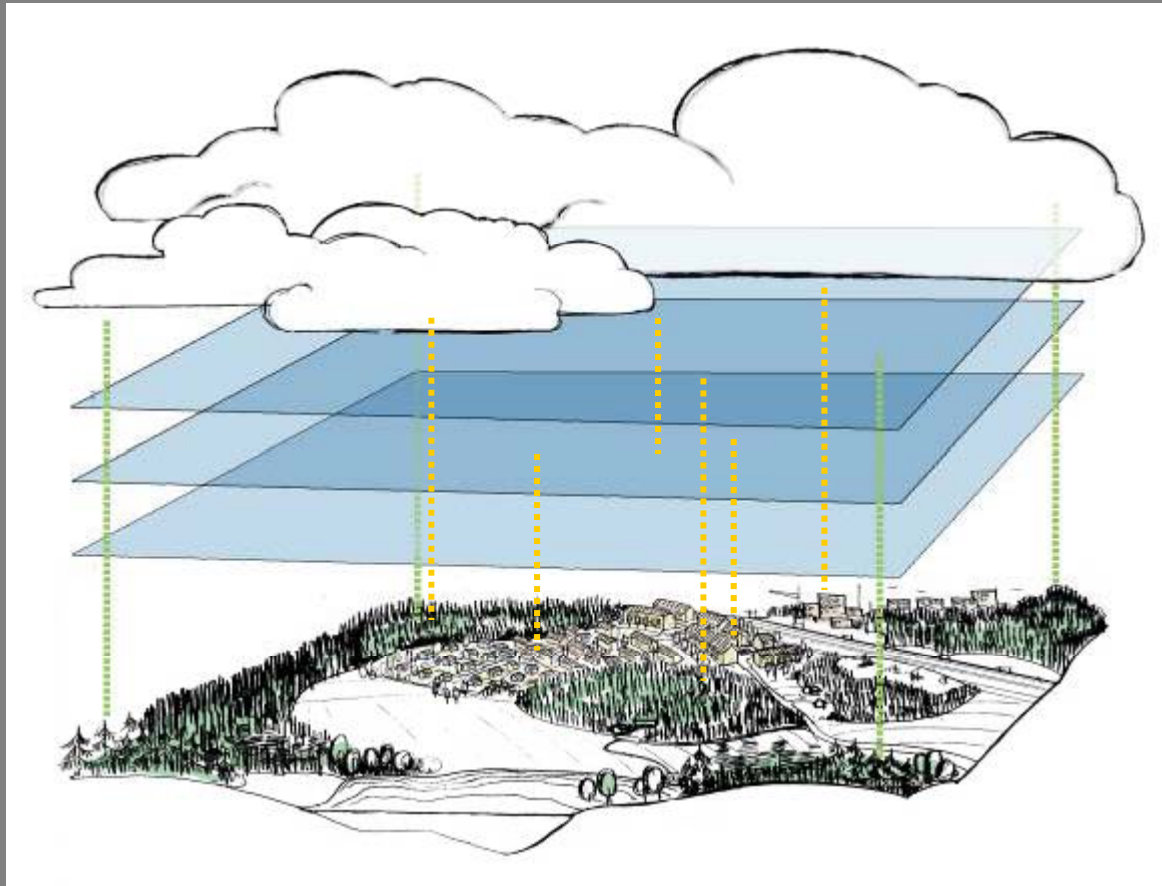
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Figure: Sirkku Huisko

The 'soft' GIS

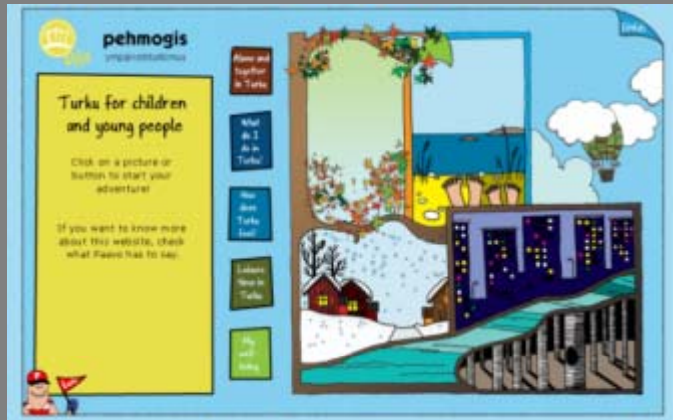
Developing a GIS-based method
for studying the environmental experiences locality-based



a new layer into the Geographic Information System

softGIS methods

8 Finnish cities/towns
over 8000 participants



softGISChildren



softGISsafety



softGISChildren



Cities of Helsinki and Espoo



City of Järvenpää



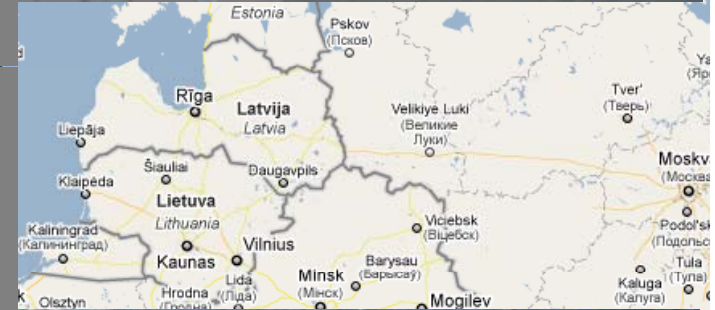
City of Nurmijärvi



City of Mäntsälä



City of Kerava



City of Turku

softGIS - Study in 2008-2009

n = 1836

5 graders (10-11 years)

7 graders (13-14 years)

51 % boys, 49 % girls

200 mi

softGIS method for children and young people

www.pehmogis.fi/turku



pehmogis
ympäristötutkimus

Turku for children and young people

Click on a picture or
button to start your
adventure!

If you want to know more
about this website, check
what Paavo has to say.



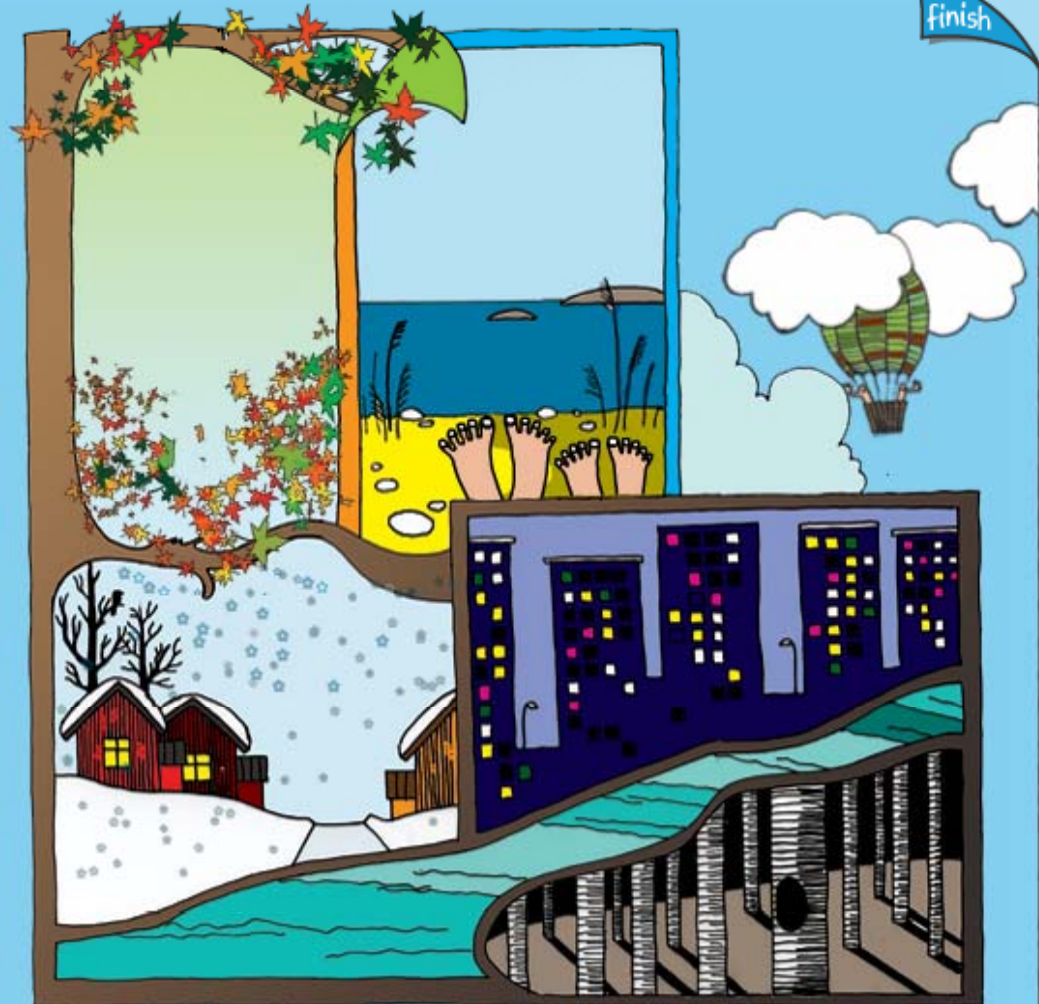
Alone and
together
in Turku

What
do I
do in
Turku?

How
does
Turku
feel?

Leisure
time in
Turku

My
well-
being



The contents of children's softGIS

Alone and together in Turku

Affordances for sociality

Clark & Uzzell, 2002; Kyttä, 2003

What do I do in Turku?

Functional affordances (operations)

Kyttä, 2003, 2004; Heft, 1988

How does Turku feel?

Affordances for emotionality

Miettinen, 2006

Leisure time in Turku

Functional affordances (actions)

My well-being

Wellbeing and health

WHO's questionnaire

Mobility

Hillman et al. 1990

1. How are you mostly going to school this week?

I go to school...

- On foot
- By bicycle
- By bus
- By car
- Other: _____

I go home from school...

- On foot
- By bicycle
- By bus
- By car
- Other: _____

2. Is there something on your way to school that bothers you or scares you?

- Cars
- Mopeds or scooters
- Cyclists
- Walking alone
- Grown-ups
- Older children or young people
- Dogs or other animals
- Darkness
- I don't know
- Other: _____

3. I'm allowed to go alone...

- To school
- Home from school
- To my hobbies
- Outside after dark
- On bicycle
- On public transport
- To cross big streets
- I don't know

Continue

Background information

pehmogis
ympäristötutkimus

Finding your home
You should be able to see your school on this map.
First, use the small map to find the area where your home is, then drag the house shown below to where your home is.
Next find your home - either a map of all of Turku or the one showing the centre of town - and drag the house shown below to where your home is.
Use the arrows on the sides of the map to move in the direction you want to go. Use the + and - buttons to zoom in or out on the map.

Legend:
[House icon] = Your home
[Arrow with 'KOULUSI'] = Your school

Hot Air Balloon Survey:

Please tell us this first:

Your age: years old

Your gender: girl boy

What kind of house do you live in:

a one-family house a block of flats a terraced or semi-detached house

Does your family have a car? yes no


Pick your school from the drop-down menu:

Continue

Map Labels: Yliopistonmäki, MÄNTYMÄKI, TALLBACKA, PAATTINEN, MOISIO, RUNGOMÄKI, HALINEN, KESKUSTA, RUIS-SALO, HARITTU, SATAVA, KOKKOLA.

Buttons: show, finish

The affordances for emotionality




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ympäristötutkimus

How does Turku feel?

Think about how different places feel to you. You can mark each place on the map up to 3 times. Click on the ball, drag it over the map and let go. When you have finished marking,

- unsafe
- boring
- bad air to breathe
- noisy
- dirty
- dangerous
- dark
- beautiful
- clean
- exciting
- good air to breathe
- ugly
- safe
- calm
- quiet
- a good place to be
- my own!

Continue



Turku
Center

The perceived well-being



pehmogis
ympäristötutkimus

finish

Well-being survey

Your height and weigh What is your opinion of your health?

Height cm

Weight kg

- It is
- very good
 - quite good
 - average
 - rather bad
 - I don't know

Is there something that stops you from moving

- no
- yes, what:
- I don't know



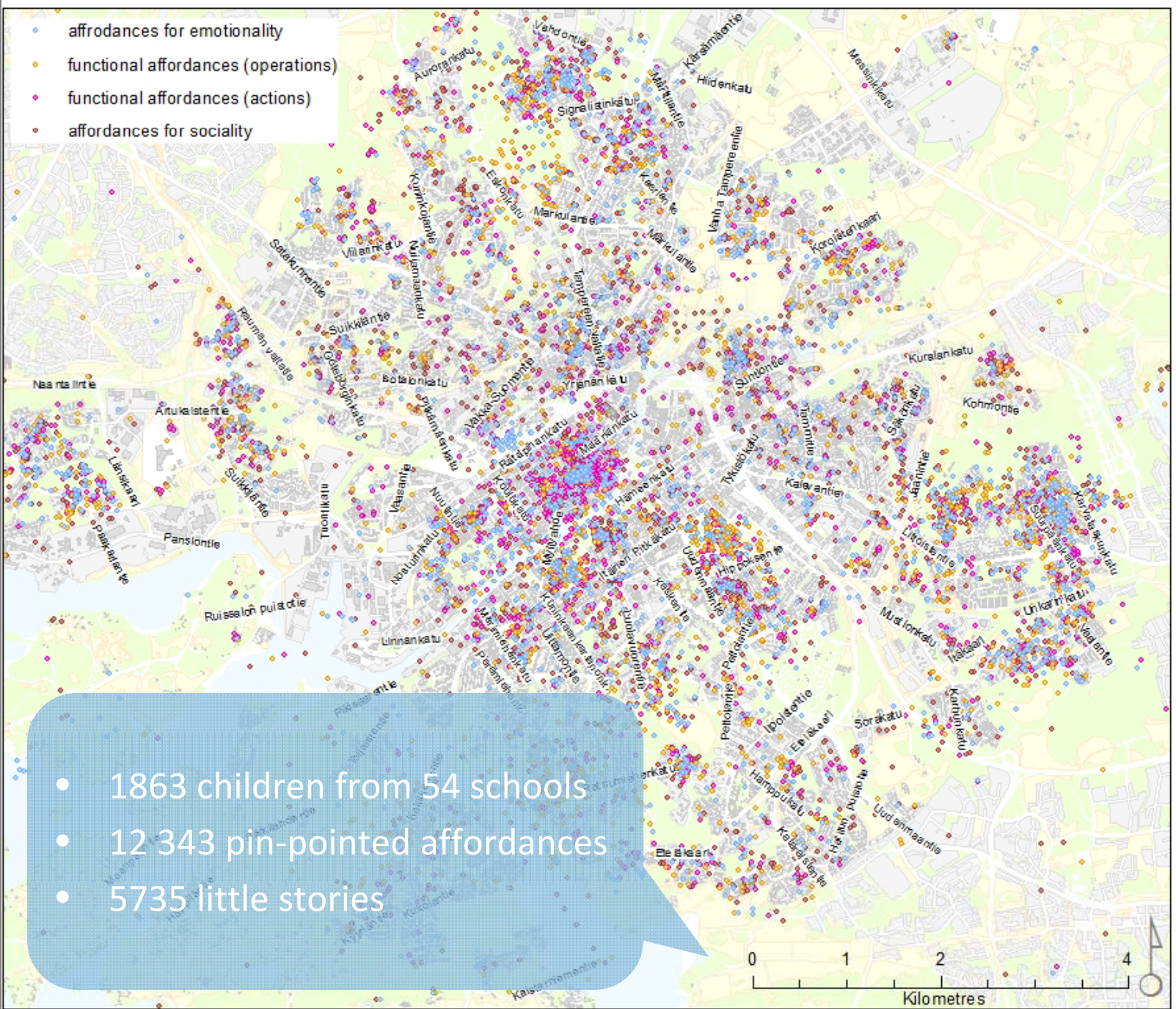
During the past SIX MONTHS, have you had any of the following symptoms and how often? Please answer each question.

	Seldom or never	About once a month	About once a week	Almost every day	I don't know
Neck or shoulder pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Low back pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Abdominal pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being strained or nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being irritated or angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having difficulties in sleeping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Headache	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being tired, weak or feeling faint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue



The data gathered in Turku



Child-based analysis

URBAN STRUCTURE VARIABLES

- Density
- Green structure
- Proportion of children



EXPERIENTIAL/ BEHAVIORAL FACTORS

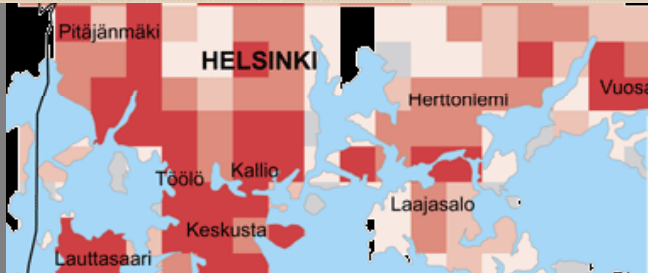
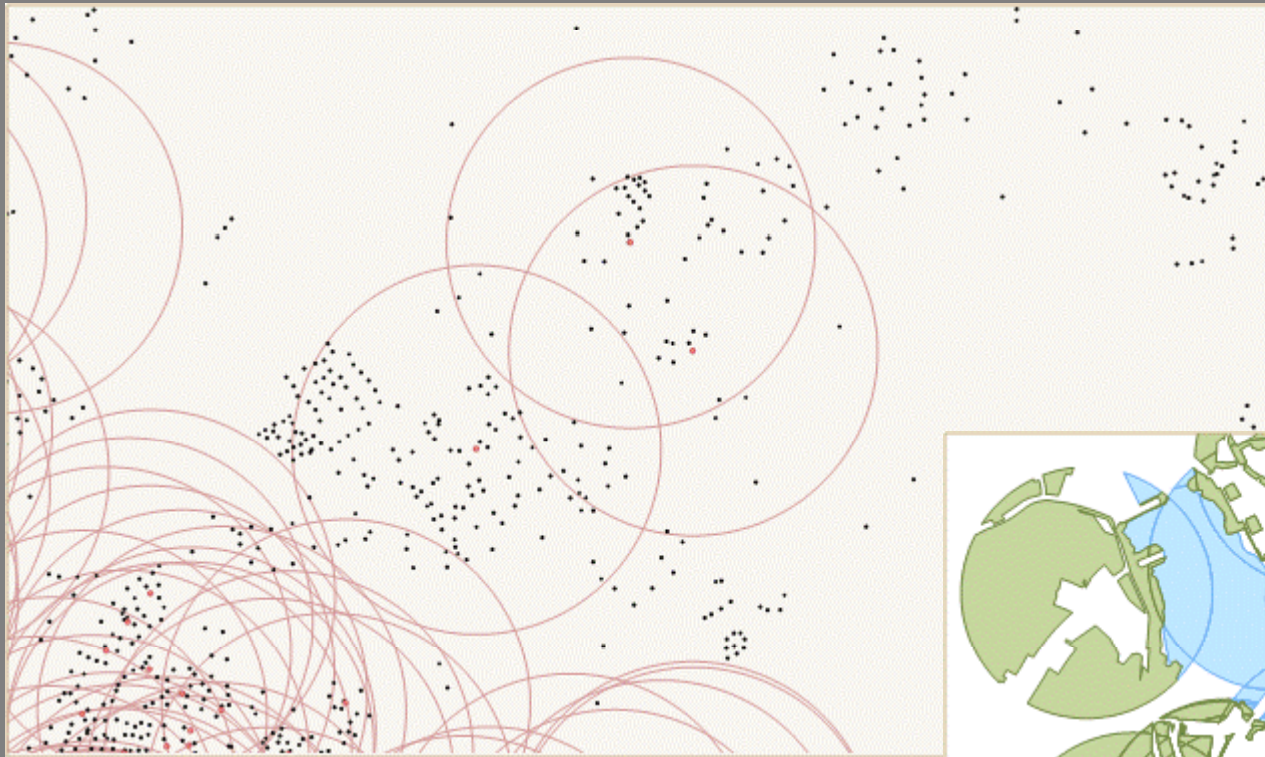
- Mode of school journeys
- Mobility licences
- Distance to affordances
- Diversity of affordances
- Perceived dangers
- Preference index

HEALTH & WELL-BEING

- BMI
- Daily symptoms
- Perceived health

The individually sensitive analysis of urban structure

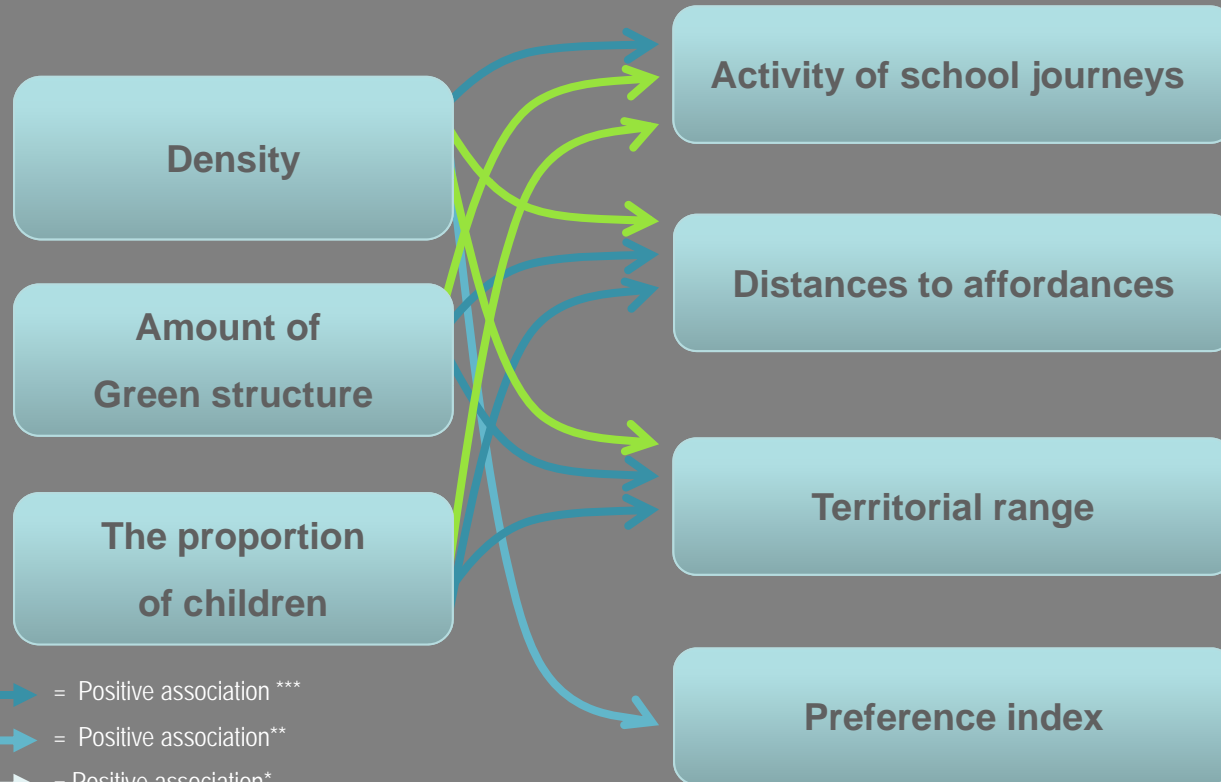
(500 m buffer around inhabitant's home)



Urban structure & children's experiences and behavior

URBAN STRUCTURE VARIABLES

EXPERIENTIAL & BEHAVIORAL FACTORS



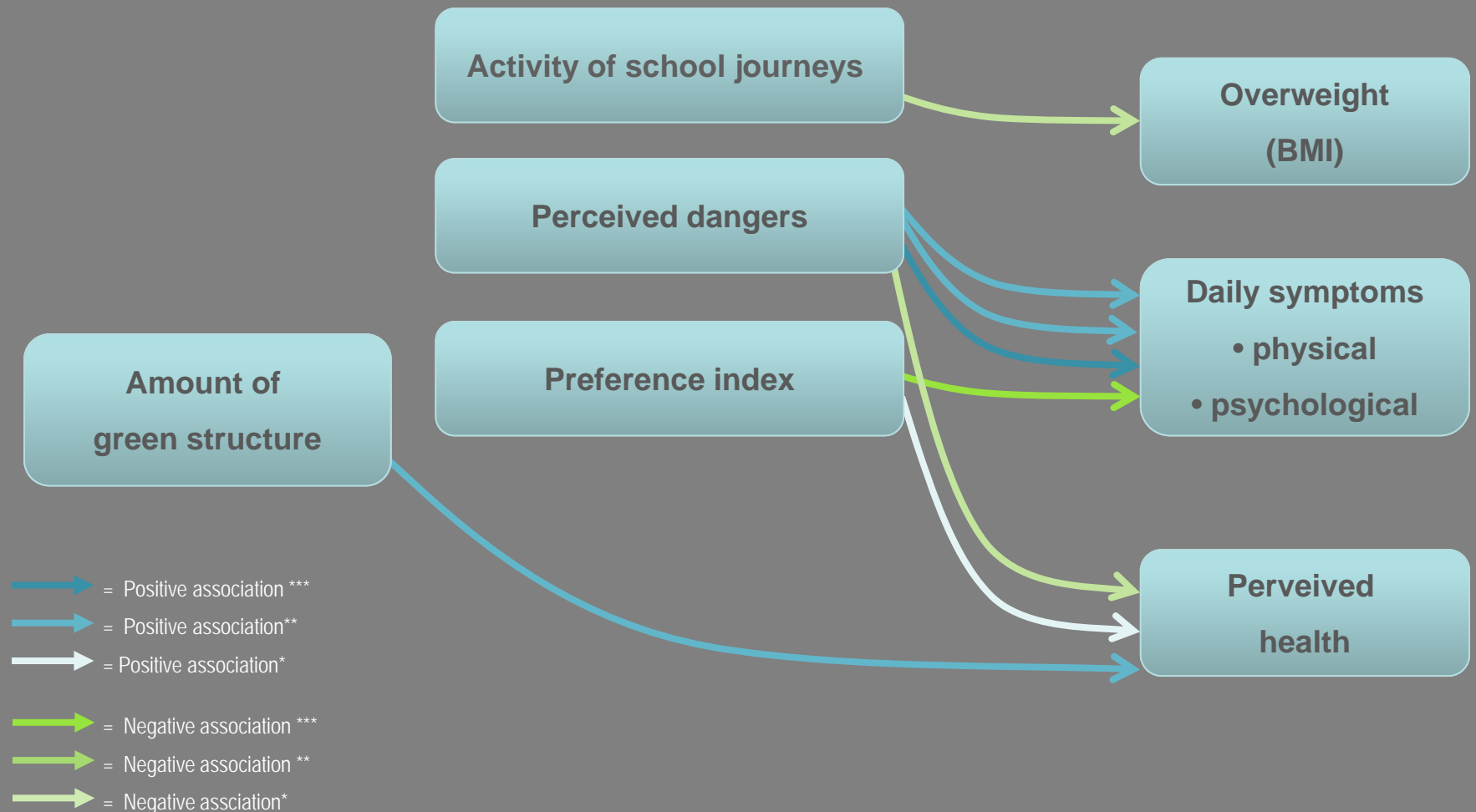
- = Positive association ***
- = Positive association **
- = Positive association *
- = Negative association ***
- = Negative association **
- = Negative association *

Factors that predict perceived health and wellbeing

URBAN STRUCTURE VARIABLES

EXPERIENTIAL & BEHAVIORAL FACTORS

PERCEIVED HEALTH & WELLBEING



Affordance-centered statistical analyses



The denser the immediate surroundings of an affordance are (50 m buffer) the likelier it is that the place is reached independently

The amount of population around an affordance increases the degree of liking especially on affordances for sociality.

The amount of green space around an affordance increases the degree of liking especially on affordances for emotionality.



ENVIRONMENTAL
CHILD FRIENDLINESS
(Kyttä, 2003)

Actualized affordances

low

high

Independent mobility

high

WASTELAND



BULLERBY



CELL

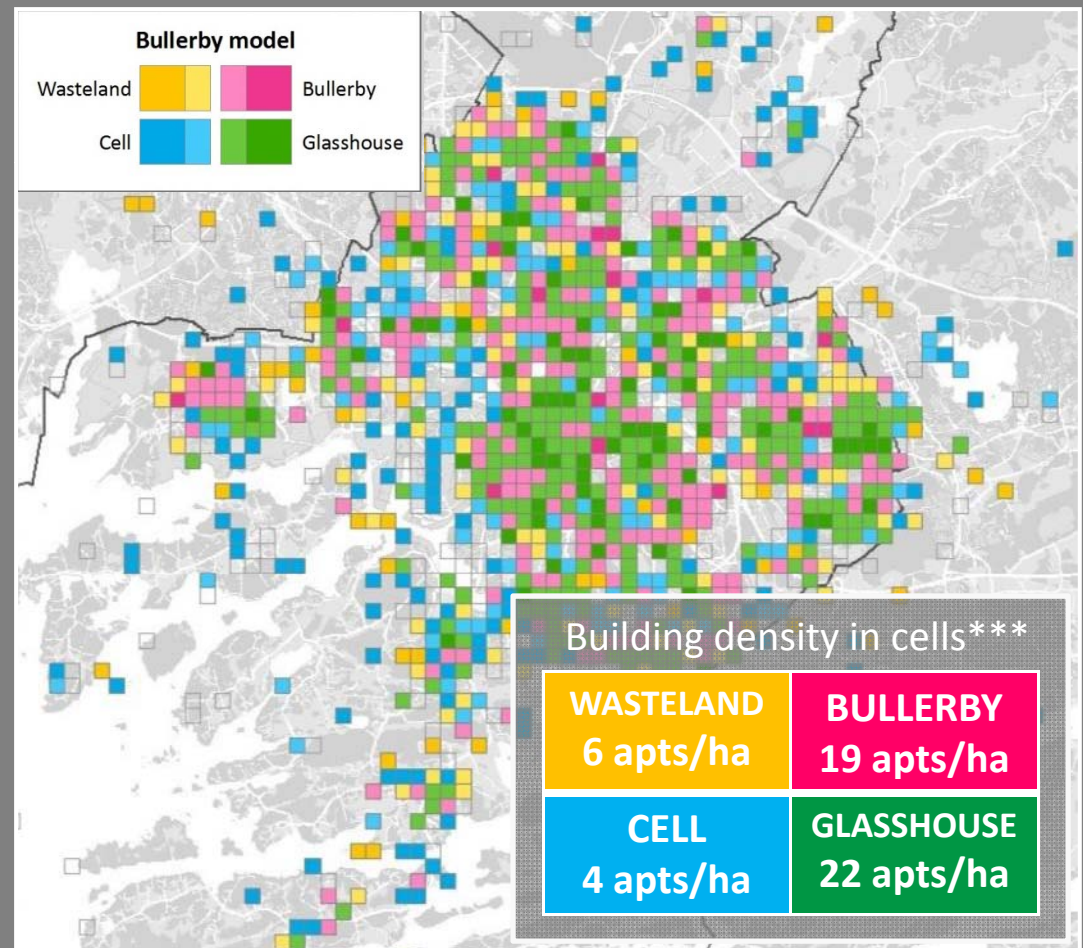
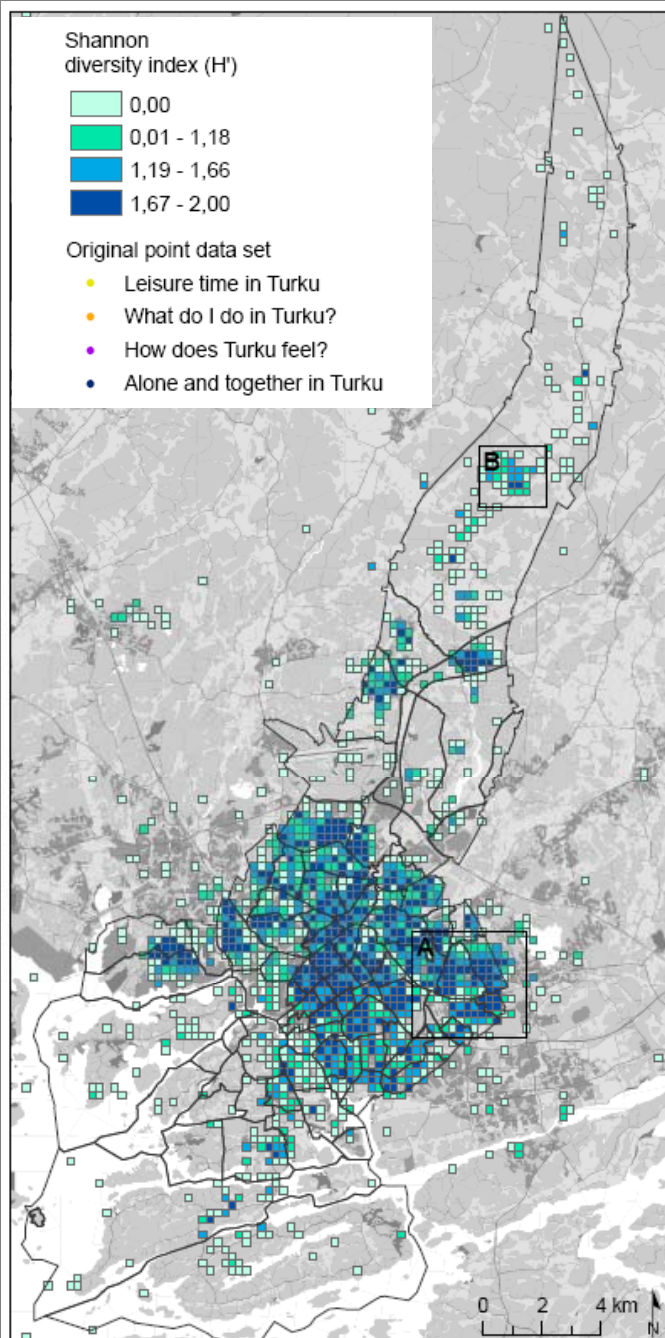


GLASSHOUSE



low


The environmental childfriendliness of various parts of Turku



Now: A study in the city of Helsinki 2009-2010

The image shows two overlapping screenshots of the PehmoGIS Helsinki website. The top screenshot displays a map of Helsinki with a navigation menu at the top: "Liikuminen", "Millainen Helsinki on", "Hyvinvointi", and "Palautte". A sidebar on the left contains a "Koti" (Home) section with instructions: "Merkitse kartalle kotisi sijainti. Voit merkitä kartalle vain yhden kodin... Jos sinulla on useampi koti, valitse se, jonka tunnet tärkeimmäksi." Below this are two numbered steps: "1. Lähellä [-] tai loittona [+] ja liikuta kartta hiirellä raahaamalla oikeaan kohtaan." and "2. Valitse alla oleva Koti-työkalu ja klikkaa karttaa kotisi kohdalla." A "Koti" button with a house icon is visible. A speech bubble above the owl character says "Hyvin kelottu!". The bottom screenshot shows a zoomed-in view of the map with a speech bubble that says "Vipinää hiiren ja kohteet kartalle!" and "KATSO OHJE ►". Below the map is a sidebar with the heading "1. Taustatiedot" and "ympäristön arvio". It contains a "Lorem Ipsum" section with the text: "Voit merkitä kartalle suojeltavia, kohennettavia tai poistettavia kohteita sekä merkitä talojen, viheralueiden tai reittien lisäyksiä ympäristöön." Below this are three interactive options: "Säilytettävä kohde" (marked with a scissors icon), "Kohennettava kohde" (marked with a mobile phone icon), and "Poistettava kohde" (marked with a trash can icon). Each option has a corresponding colored pin icon (grey, pink, and red respectively).

Children's everyday mobility,
health & urban structure
six neighbourhoods in Helsinki
www.pehmo.fi/helsinkilapset

A young child with dark hair, wearing a bright yellow hooded raincoat over a dark shirt, is looking upwards with an open mouth as if speaking or shouting. The background is a faded, grey-toned photograph of a modern multi-story building with large windows. A blue speech bubble with rounded corners points from the child towards the right side of the image. The text inside the bubble is white and italicized. The overall scene is set against a dark grey background on the right side of the image.

*Wouldn't it be something if my
small voice would make
a difference in the planning of
my environment!*

Thank
you!

The softGIS-team

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Mikko Johansson, IT specialist

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