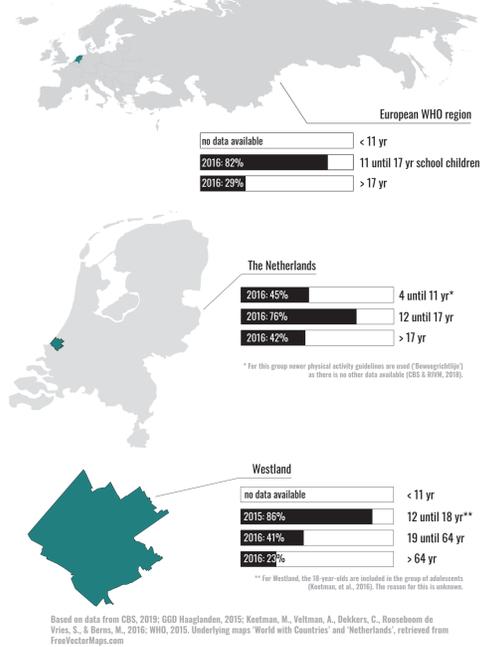


Urban Design for Physical Activity

An exploration of the use of quantitative statistics to determine the role of the urban design of public space in stimulating adolescents to be more physically active in Westland, the Netherlands

Problem Although physical activity can be seen as a crucial component of human health, a large share of the adolescent population is too inactive. Large share of adolescent population is too inactive



Benefits of physical activity for adults and children

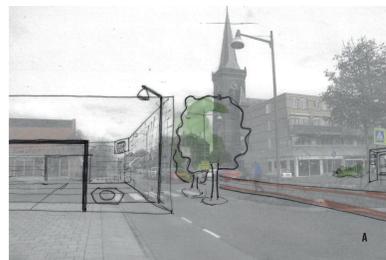
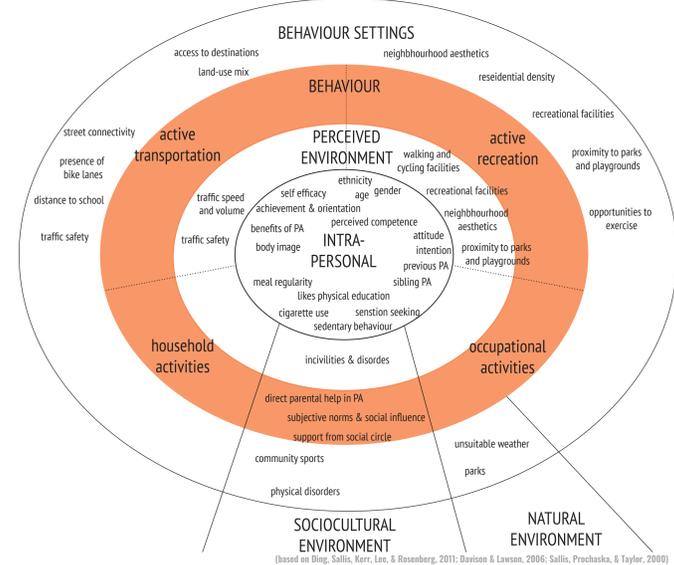
Symptoms of depression
Coronary heart disease
Breast cancer
Diabetes
Colon cancer



High blood pressure
High blood sugar
Overweight
Muscle strength
Bone structure
Overweight / Body mass index
Fitness

(based on Gezondheidsraad, 2017, p.17; WHO, 2010)

Literature Review A high variety of variables influencing (adolescent) physical activity behaviour shows the complexity of behaviour. Ten spatial attributes are selected to use in the survey.



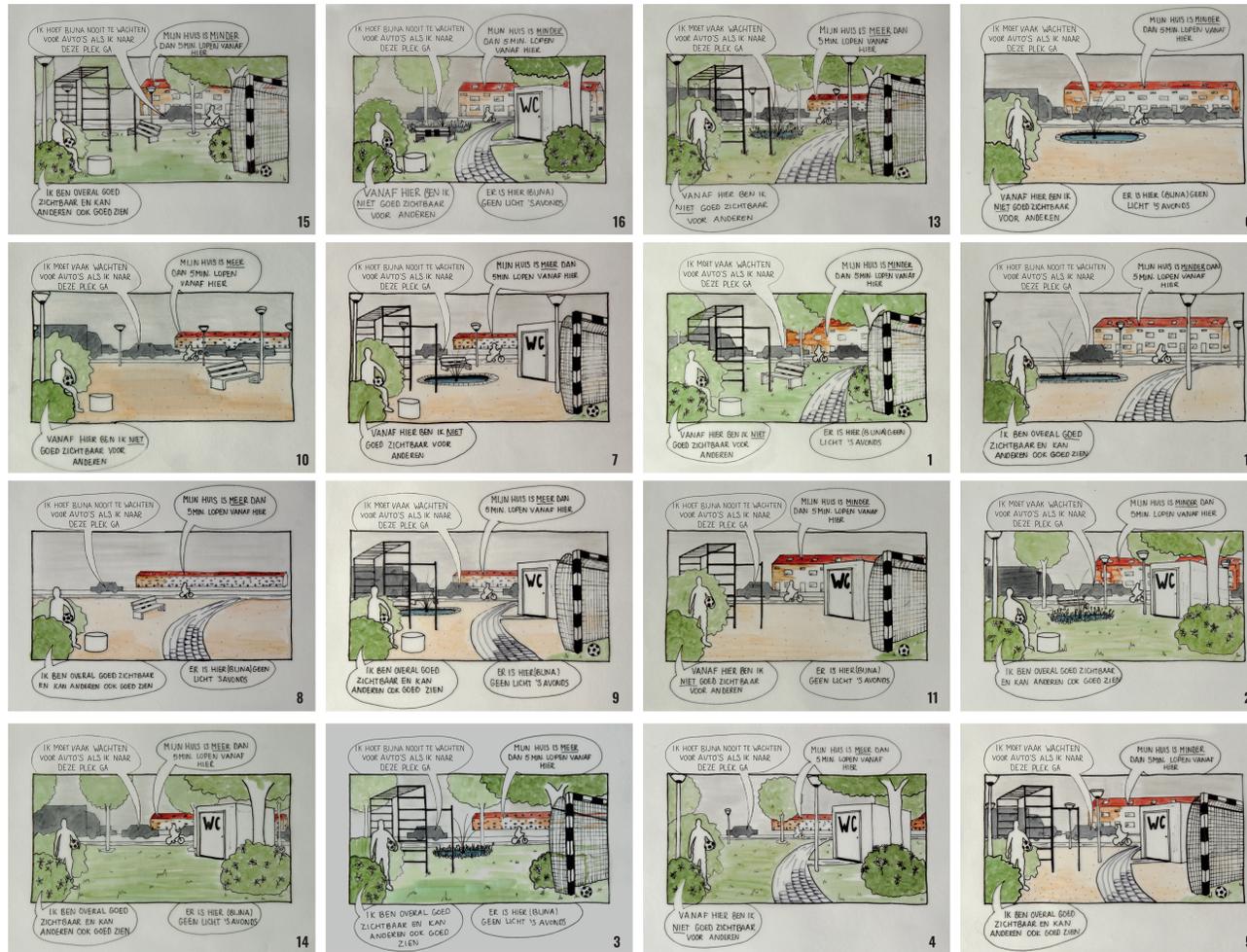
add multifunctional sports field close to community center



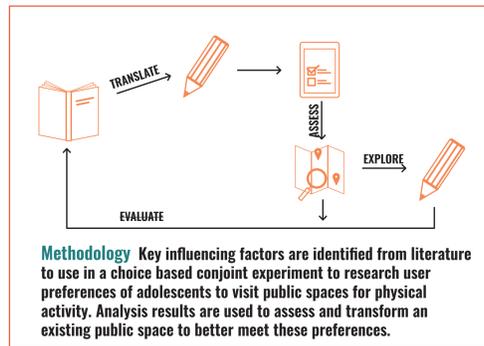
adding green space to make attractive and a destination



road has same appearance as rest of the square



Research by Design Translation of influencing spatial characteristics from literature into representation of public space to use in the choice based conjoint experiment.

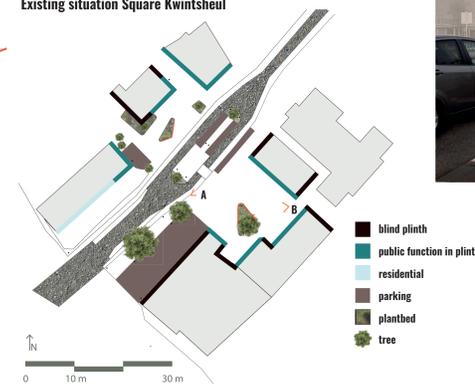


Main Research Question How can the public space in Westland, the Netherlands, be adapted to better meet the spatial demands of adolescents for physical activity behaviour?

New situation Square Kwintseul



Existing situation Square Kwintseul



Transformation of Public Space Decrease negative impact of the barrier road and increase (variety) of opportunities for adolescent physical activity behaviour.

Choice Based Conjoint Experiment Five out of ten spatial attributes are expected significantly important to visit public spaces to be physically active according to the respondents.



Presence and variety of vegetation



Presence of opportunities for physical activity



Absence of physical barriers to wait for



Proximity to home within walking distance



Presence of lighting

Attribute	Level	β
Rhosquared		0.225
Vegetation	little to no green and little variety	-0.403*
Opportunities for physical activity	little to no opportunities to be active	-0.368*
Physical barriers	only small roads alongside the public space (no waiting time)	0.255*
Proximity	home is further away than a 5 minute walk	-0.169*
Lighting	the entire public space is well-lit	0.152*
Water	water features present	-0.125
Secluded areas	people are visible throughout the entire public space	0.097
Paths	paths only around the public space	0.0617
Seating	seating facilities absent	0.0492
Toilets	public toilet facilities present	-0.0133

(β-coefficients of each attribute with corresponding attribute level. * p < 0.1)

Assessment of Public Space The predominantly paved square lacks the most important spatial attributes for physical activity completely. The road divides the two parts, being a separating barrier.



Conclusion

- 1 | Choice based conjoint analysis is a valuable method to create quantitative input for urban design on user preferences.
- 2 | Choice based conjoint analysis determines what spatial aspects are important, urban design determines how they are embedded in the local context.
- 3 | New and existing urban fabric require different approaches to transform space to better meet spatial demands for physical activity.