

Individual Momentary Experiences of Neighborhood Public Spaces: Results of a Virtual Environment Based Stated Preference Experiment

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INTRODUCTION

It is recognized that a successfully designed public space can contribute to individuals' positive momentary experiences, health condition and further influence their subjective well-being. In Europe, more than 75% of the population lives in urban areas. With the increasing population migration to cities in the Netherlands and worldwide, both densification of real estate and maintenance of green public space are becoming increasingly important. The small-scale neighborhood green public spaces are the nearest type of public space individuals interact with on a daily basis. Psychological theories emphasize that momentary experiences encompass both cognitive (satisfaction) and affective (emotion) components. However, only a few studies have focused on the impact of design attributes of green in public spaces on both cognitive affective momentary experiences.

RESEARCH QUESTIONS

Q1. How do the green and design attributes influence individuals' momentary experiences in neighborhood public spaces?

Sub-questions: (1.1) Does the size of the neighborhood's small-scale green spaces matter the most for individual experiences, compared with other design and green elements? (1.2) Can the presence of other design and green attributes make up for the inadequacy of public space size to enhance individuals' experiences? (1.3) Can the space-saving approach, vertical greening, evoke positive experiences to the same degree as traditional green interventions (e.g., grass, tree)? Finally, (1.4) does heterogeneity exist in how attributes are experienced by individuals?

Q2. Are the cognitive and affective components aligned and can the momentary experience of public spaces be reduced to a single dimension of evaluation?

Materials and Methods

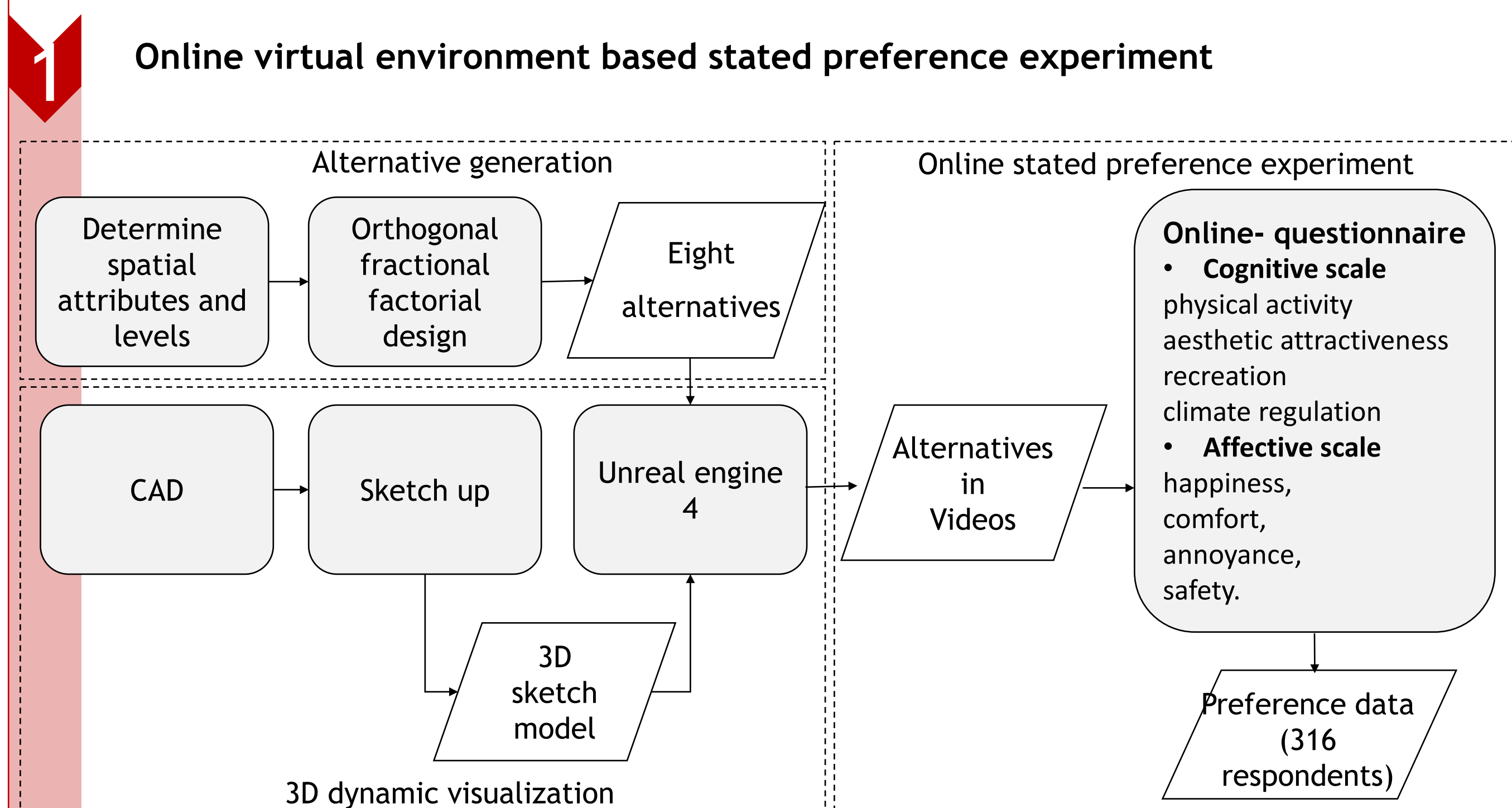


Figure 1. Screenshots of the Alternative 4 video at the 1st second (left) and the 30th seconds (middle), and the profile (right).

2 Data analysis
Factor analysis is used to test if satisfaction and emotions form one single dimension underlying the momentary experiences evaluations.
Latent class regression models are used to estimate the effects of green and design attributes on individuals' momentary experiences in neighborhood public spaces.

RESULTS

Three classes are identified with substantial heterogeneity regarding individual momentary experiences in public spaces.

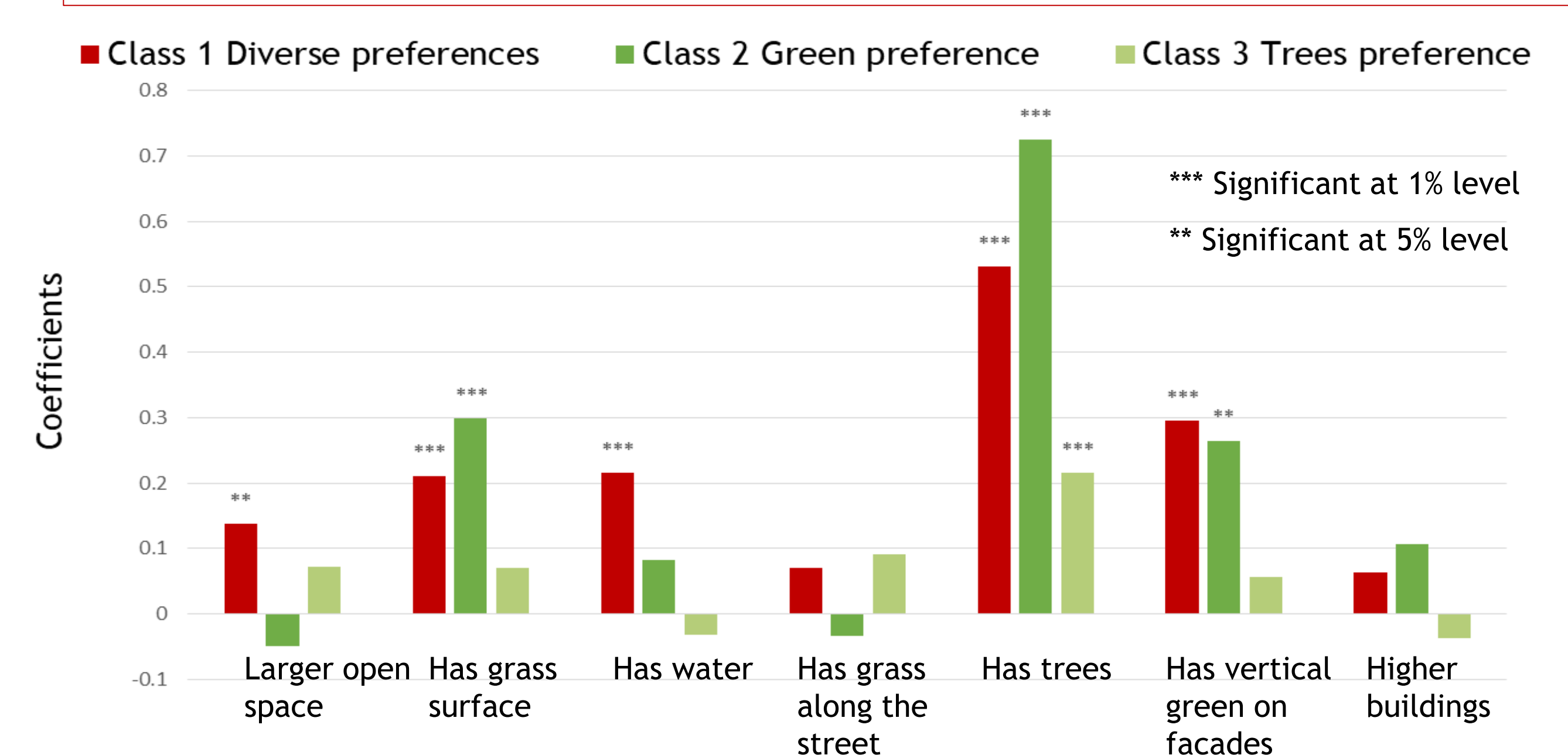


Figure 2. Clustered chart of coefficients of spatial attributes in the three latent classes model

51.5% Class 1 Diverse preferences

- Values trees as the most important element for momentary experiences.
- The only group that attaches importance to a large size of open space and the presence of water.
- More than 75% of individuals from this group live in strongly urbanized neighborhoods.

33.5% Class 2 Green preferences

- Has the highest percentage of people who have a private garden and the lowest level of satisfaction with life, green in the neighborhood and the city they live in.
- Positively experience public spaces with trees, grass ground surface, and vertical green.

14.9% Class 3 Trees preferences

- Has the highest base level of experience.
- However, of the attributes tested this group only assigns importance to the presence of trees for a positive experience of the public space.
- Has the highest base level of positive momentary experience and well-being.

The momentary experience of the neighborhood alternatives measured by the 4 satisfaction and 4 emotion scales, can be reduced to a single dimension of evaluation.

Grass surface, the presence of water and trees and vertical greening are found to be positively related to the individuals' experiences. The larger open space is only positively related to the momentary experiences in Class 1. The presence of grass along the street and higher buildings both show no statistically significant effect on people's experiences

Results suggest that an individual's satisfaction with his or her current situation (life overall and green in the living environment) has a positive relationship with the base level of momentary experiences an individual can have.

IMPLICATIONS

Our methodology can work as a participation tool for urban designers and policy makers to obtain information from a large group of individuals' momentary experiences of possible designs in a new or regeneration project before real construction.

PUBLICATIONS

Zhao, Y., van den Berg, P. E., Ossokina, I. V., & Arentze, T. A. (2022). Comparing self-navigation and video mode in a choice experiment to measure public space preferences. *Computers, Environment and Urban Systems*, 95, 101828.

Zhao, Y., van den Berg, P. E., Ossokina, I. V., & Arentze, T. A. (2022). Individual momentary experiences of neighborhood public spaces: Results of a virtual environment based stated preference experiment. *Sustainability*, 14(9), 4938.

