

Developing a 360° built-environment assessment for urban research and planning practice

Author(s)

Suurenbroek, Frank; Spanjar, Gideon; Schramkó, Sába

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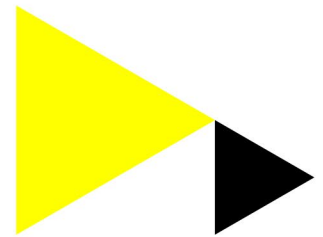
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Developing a 360° built-environment assessment for urban research and planning practice

Frank Suurenbroek¹, Gideon Spanjar^{1,2}; Schramkó, Sába¹

¹Amsterdam University of Applied Sciences (AUAS), Faculty of Engineering, Urban Technology

²Aeres University of Applied Sciences (AUAS)

The coronavirus pandemic highlighted the vital role urban areas play in supporting citizens' health and well-being (Ribeiro et al., 2021). In times of (personal) vulnerability, citizens depend on their neighbourhood for performing daily physical activities to restore their mental state, but public spaces currently fall short in fulfilling the appropriate requirements to achieve this. The situation is exacerbated by Western ambitions to densify through high-rise developments to meet the housing demand. In this process of urban densification, public spaces are the carriers where global trends, local ambitions and the conditions for the social fabric materialise (Battisto & Wilhelm, 2020). High-rise developments in particular will determine users' experiences at street-level. Consequently, they have an enduring influence on the liveability of neighbourhoods for the coming decades but, regarding the application of urban design principles, their impact is hard to dissect (Gifford, 2007).

Promising emerging technologies and methods from the new transdisciplinary field of neuroarchitecture may help identify and monitor the impact of certain physical characteristics on human well-being in an evidence-based way. In the two-year Sensing Streetscapes research study, biometric tools were tested in triangulation with traditional methods of surveys and expert panels. The study unearthed situational evidence of the relationship between designed and perceived spaces by investigating the visual properties and experience of high-density environments in six major Western cities. Biometric technologies—Eye-Tracking, Galvanic Skin Response, mouse movement software and sound recording—were applied in a series of four laboratory tests (see Spanjar & Suurenbroek, 2020) and one outdoor test (see Hollander et al., 2021). The main aim was to measure the effects of applied design principles on users' experiences, arousal levels and appreciation.

Unintentionally, the research study implied the creation of a 360° built-environment assessment tool. The assessment tool enables researchers and planners to analyse (high-density) urban developments and, in particular, the architectural attributes that (subliminally) affect users' experience, influencing their behaviour and perception of place. The tool opens new opportunities for research and planning practice to deconstruct the successes of existing high-density developments and apply the lessons learned for a more advanced, evidence-based promotion of human health and well-being.

Keywords: Well-Being, Biometric Monitoring, Streetscapes, Eye-Tracking, High-Density Environments, Evidence-Based Design

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