Eye-tracking street users' visual exploration of buildings across the Western World
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ABSTRACT

People in western countries spend approximately 90% of their time indoors. This severely affects their health (WHO 2013; Klepeis et al. 2001). The health risks are exacerbated if people travel between indoor spaces by car or public transport. Buildings on streets specifically designed to create a human scale and connected with the street-space can potentially invite people to walk and enhance their engagement with their surroundings (O’Mara 2019; Ewing et al. 2013). Since the 1960s, influential empirical studies have raised awareness of the walkability of streets (e.g. Jacobs 2008) but reliable evidence on the effectiveness of applied design solutions remains scarce (Spanjar & Suurenbroek 2020).

This eye-tracking study focused on the visual ‘scanning’ of streetscapes and people’s appreciation of applied design principles. The aim was to gather together lessons learned from a variety of streetscapes in cities around the Western world (see fig. 1) and use them to inform the design of new developments in the Netherlands. Google Street View was used to select 19 images of streets in high-density environments with human-scale attributes in their façades and street-spaces (see fig. 2). They were presented in a randomized order in a laboratory setting to 40 participants, who viewed them for 5 seconds (see fig. 3). The participants’ visual explorative behaviour was recorded with advanced eye-tracking technology. A survey recorded their overall appreciation of the scenes and mouse-tracking collated their specific areas of interest.

The comparative analysis of the participants’ aggregated eye-fixation images together with the supplementary methods (see fig. 4) suggests that certain attributes for creating a human scale catch the eye in the first few seconds and are highly appreciated. These include the variety of a street’s façades, a street’s enclosedness, and the level of detail in the transition zone between the private ground floor and the public street (see fig. 5). Green features are particularly valued and might have important restorative qualities for people who spend most of their time indoors (Kaplan 1995; Ulrich 1984). Future research should focus on the design of façades and the street-space itself, taking people’s indoor lives and related stress levels as a starting point.

METHODOLOGY

Google Streetview Images

Eye-Tracking

Mouse-Tracking

Survey

CASE STUDIES - OUTPUT

State St, San Diego

The Avenue, Manchester

Alberni Street, Vancouver

NEXT STEP

The research is taken forward to investigate opportunities to enhance human-centered urban design through eye-tracking research where urban densification continues. For the Sensing Streetscapes project, we are seeking collaboration with researchers from the ANFA community to join forces and explore together new pathways of innovation.

REFERENCES


