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• Paper / Proposal Title:

The impact of building façade characteristics on perceived values in various urban typologies. An experiment in virtual reality.

• Author(s) Name:

Aviv Shwartz & Dafna Fisher-Gewirtzman

• University or Company Affiliation:

Faculty of Architecture & Town Planning, Technion – Israel Institute of Technology.

• Abstract (300 words):

The effect of urban fabrics, building typology and the nature of building facades on pedestrian perception in four different case-studies was tested through a virtual reality experiment. The four environments are the Interlace in Singapore, sections in Manhattan, Venice and Barcelona. Each have different urban typology, densities, building heights and facades typology.

Participants were invited in small groups into a controlled visualization lab, where they observed videos simulating a tour through the four urban environments. All tracks were typical to each urban fabric: the same length and speed. 50 participants experienced the movement in a simulated environment including representation of the original facades. 21 participants experienced the movement in a volumetric environment with schematic facades. Participants in both groups rated their perception based on a structured questionnaire (including questions regarding the perception of security, desire to tour, openness, lightness, perceived density, boredom).
The subjects' responses to the different urban fabrics with the unique facades concluded with gaps between the desire to explore the environment and the positive perception it evoked: the simulated pedestrian walk in Singapore produces a very positive perception, but few participants wanted to tour it; Venice was marked as not pleasant, the most crowded, threatening and dark. At the same time, the most interesting and the most desired to be toured and even to reside in it. The facades in Barcelona encouraged the participants to explore the environment, perceived as brighter, more spacious, diverse, safe and more interesting. The gaps between the positive perceptions and the desire to explore the environment disappeared in environments without facades. More participants wanted to tour Singapore compared to Venice and even live there.

The experiment emphasized that urban typology, building morphology, as well as the building facades have a significant effect on the pedestrian perception in the urban environment and the various urban characteristics have an impact on pedestrian well-being. The experiment results highlight the characteristics that have a positive effect on pedestrian perceptions. These may contribute to improving existing and future urban environments.

• Author(s) Biography (200 words each):

Aviv Schwartz is a M.Arch student at the Faculty of Architecture and Town Planning at the Technion – IIT and serves as research assistant at Prof Fisher-Gewirtzman research lab for the past three years. He is currently working at Mana-Shinar architects, one of the leading Architecture and Urban Design offices in Israel. He graduated with honors B.Sc. in Architectural Sciences from the Technion. His final project addressed the problem of modern loneliness and the changes in the employment market that both characterize the Y Generation.

Dafna Fisher-Gewirtzman is an Associate Professor and the Chair of the Architecture program at the Faculty of Architecture & Town Planning at the Technion – IIT. She serves as Academic Director of the VisLab, the immersive virtual reality visualization laboratory. Over the years, she has been invited as a visiting lecturer at several international universities including ETH in Zurich, UCL, the Future City Lab at the National University of Singapore as well as a visiting professor at CUSP-NY.

Her research focus is on the field of visual analysis and simulation and development of novel, automated architecture design tools based on potential residents' perception of space, directed toward the development of sustainable built environments. In addition, she leads research in adaptive re-use architecture documentation and analysis.

Her research is financially supported by the Israel Science Foundation and JOY VENTURES. She is a UNESCO fellowship recipient and a laureate of the prestigious Yanai Prize for Excellence in Academic Education and the Henri Gutwirth Fund for the Promotion of
Research. Her work has been published in leading professional journals and presented in numerous international conferences and universities around the world.