

Awe-Inducing Interior Space: Architectural Causes and Cognitive Effects

HANNA NEGAMI

Urban Realities Laboratory, Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada
hnegami@uwaterloo.ca

COLIN ELLARD, Ph.D.

Urban Realities Laboratory, Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada
cellard@uwaterloo.ca

I. EXTENDED ABSTRACT

Recent work applying a Darwinian perspective to religious monumental architecture (RMA) has argued that by eliciting awe, churches and other RMA structures foster religious openness and facilitate social cohesion (Joye & Verpooten, 2013). Other recent work has found that feeling awe increases both belief in supernatural control (Valdesolo & Graham, 2014) and spiritual intention among people who are religious or spiritual (Van Cappellen & Saroglou, 2012). These findings led us to ask whether religious building designs might capitalize on such effects to promote or facilitate religious feeling. In order to elucidate how church interiors elicit awe and otherwise shape affective and cognitive processes, we investigated how built spaces induce awe. Specifically, we developed a rating scale for the measurement of physical properties of interior spaces in order to determine which architectural properties in an interior space can predict a sense of awe (Study I). The scale was used to measure 24 architectural properties of 60 different interior spaces. Participants then viewed these 60 pre-rated images and reported their affective response to each. Their emotion ratings showed a predictive relationship between architectural properties and elicited emotion. Properties reflecting size, age, contour, and ornament significantly predicted a feeling of awe. The results from Study I guided the selection of stimuli for Study 2, in which we explored the effects of visually priming participants with photographs of high and low awe-inducing architectural interiors on time perception and spirituality, as well as the effects of priming participants with photographs of religious and non-religious building interiors on participant religiousness. Feeling awe led to an overestimation of time in a time-estimation task, confirming earlier findings that feeling awe expands one's sense of time (Rudd, Vohs, & Aaker, 2012). This work establishes an initial understanding of cognitive processes underlying affective and social responses to the environmental cues of church interiors.

2. REFERENCES

- Joye, Y., & Verpooten, J. (2013). An exploration of the functions of religious monumental architecture from a Darwinian perspective. *Review of General Psychology*, 17(1), 53-68.
- Rudd, M., Vohs, K.D., & Aaker, J. (2012). Awe expands people's perception of time, alters decision making, and enhances well-being. *Psychological Science*, 23(10), 1130-1136.
- Valdesolo, P., & Graham, J. (2014). Awe, uncertainty, and agency detection. *Psychological Science*, 25(1), 170-178.
- Van Cappellen, P., & Saroglou, V. (2012) Awe activates religious and spiritual feelings and behavioral intentions. *Psychology of Religion and Spirituality*, 4(3), 223-236.

3. AUTHOR BIO

Hanna Negami is a doctoral candidate in cognitive neuroscience in the Department of Psychology at the University of Waterloo, and is a member of Dr. Ellard's Urban Realities Lab. Her research focuses on how the aesthetics of our immediate environment shapes our cognition and behavior. In addition to researching awe as induced by built environments, she also explores, from a cognitive perspective, how people perceive and interact with public and private spaces.

Colin Ellard is a cognitive neuroscientist in the Department of Psychology at the University of Waterloo, and the director of its Urban Realities Laboratory, which focuses on research at the intersection of experimental psychology and architectural and urban design. Ellard conducts research on the human response to built spaces both using simulations in immersive virtual reality and in real settings using field methods. In both streams of his research, Ellard combines traditional psychological methods with data from psychophysiological sensors to develop rich characterizations of the interplay between an individual and their surroundings. In addition to his basic research, which he has published in peer-reviewed journals for 30 years, Ellard contributes to the public discussion of urban and architectural design through his work with museums and the media, and through his books aimed at a general audience (*You Are Here*, Doubleday, 2009; *Places of the Heart*, Bellevue Literary Press, 2015).