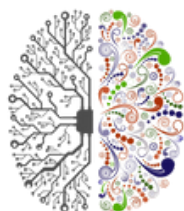
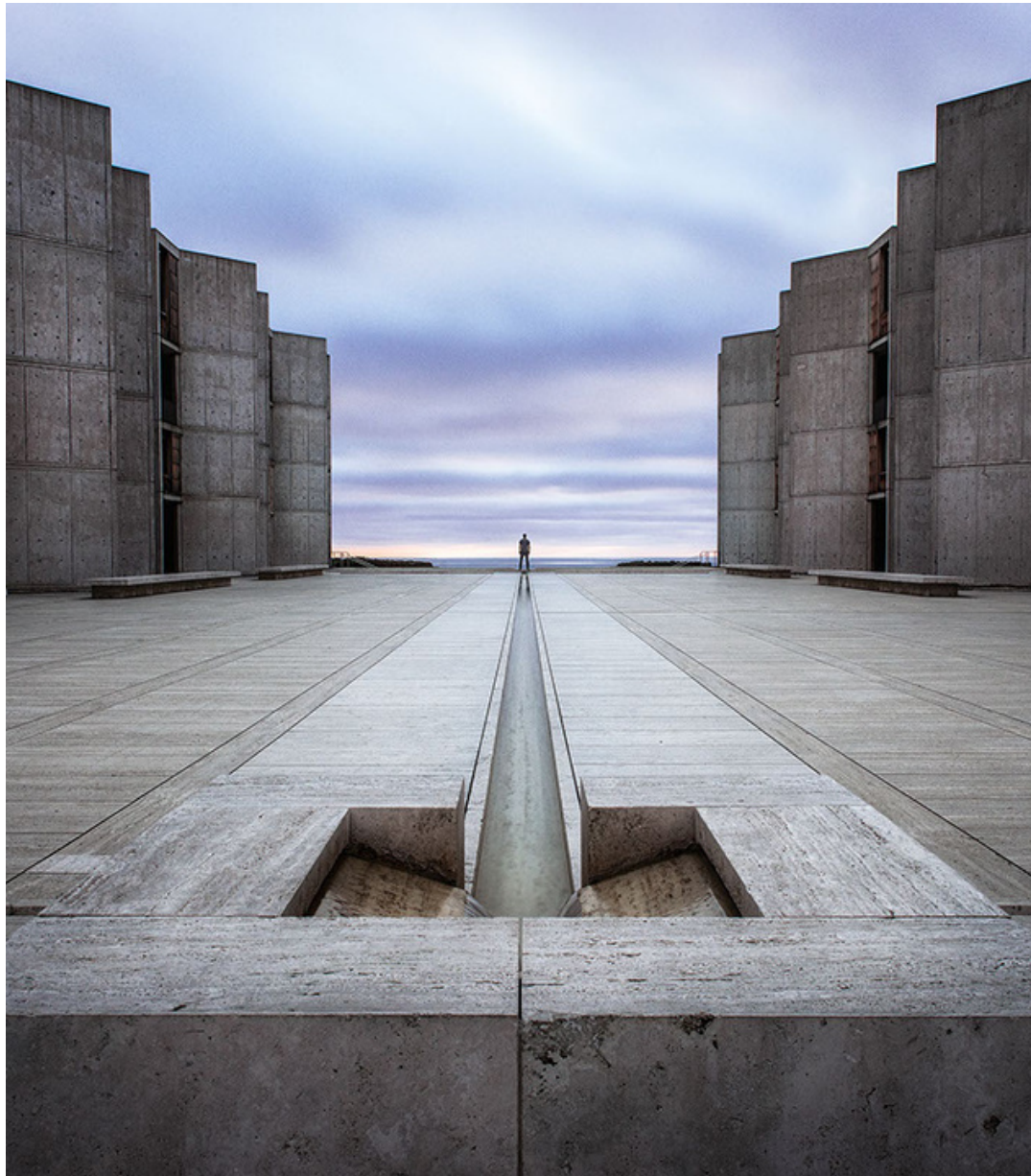


THE ACADEMY OF NEUROSCIENCE FOR ARCHITECTURE

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First Impressions: Conscious and Nonconscious Responses to Atmospheric Primes in Architectural Space

Elisabetta Canepa¹ Zakaria Djebbara² Kutay Güler³ Luca Andrighetto⁴

Irene Schiavetti⁵ Andrea Jelić⁶ Bob Condia⁷

¹ University of Genoa | Kansas State University (elisabettacanepa@ksu.edu), ² Aalborg University (zadj@create.aau.dk),

³ Kansas State University (guler@ksu.edu), ⁴ University of Genoa (luca.andrighetto@unige.it),

⁵ University of Genoa (irene.schiavetti@unige.it), ⁶ KU Leuven (andrea.jelic@kuleuven.be), ⁷ Kansas State University (condia@ksu.edu)

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Abstract

— Introduction

Humans are complex “biological, psychological, socio-political being[s]”¹ that designers find hard to comprehend.² On one hand, our *conscious behaviors* reveal us as unique creatures — genetically determined and constantly influenced by the affordances embedded in our environment;³ on the other, our *nonconscious behaviors* are more comparable among themselves.⁴ Architecture is a full-body activity made authentic through its atmosphere, which is the essence of affective qualities we feel in our surroundings, touching us on nonconscious, preconscious, and conscious levels.

— Hypothesis

Understanding the existence of nonconscious perception is challenging: some studies claim to evince it by showing that unseen primes can affect behavior and elicit much more than motor responses.⁵ We hypothesized distinct atmospheric conditions prime our emotional experience of space in different ways, acting on two phases: atmospheres arouse our first impressions (*resonance*) and then modulate our affective involvement (*attunement*) if particularly relevant for the perceiver. The continuum of nested primes, where some atmospheres are more affording than others, emotionally tints our experience as we move through consecutive spaces (cf. the concept of serial dependence).⁶

— Aim

We performed a physiological signal-based experiment with a series of differently lit corridors (via luminosity and color), assuming light as a primary *generator of atmosphere*.⁷ We aimed to see *whether* and, if so, *how* the preceding corridor’s atmosphere primes the impressions of the subsequent room. First impressions are profound and informative events: humans are great at extracting meaningful information from complex scenes with only a glance and without examining each detail. Both science⁸ and architecture⁹ praise the extreme speed through which *first impressions* arise:¹⁰ it is crucial for our interactions with the physical world.

— Methodology

Through *resonance* — that is, through their nonconscious somatic reactions and with (or without) the conscious experience of the felt emotional state — individuals *perceive* the presence of a particular architectural atmosphere. To understand the circular interaction between atmospheric affordances, the subject’s bodily resonance, and their affective appraisals, we combined insights from the first-person perspective (self-report questionnaires) with a third-person perspective (measures of autonomic nervous system activity). Each experimental session was composed of four corridor iterations, randomly presented and freely walkable in virtual reality.

All iterations had the same layout (Figure 1), formed of a corridor connecting two rooms. We tested 82 participants (43 women). Participants entered room A and ran a relaxation exercise allowing us to collect baseline data; then they opened the first door and walked along a 5-meter corridor, following a natural pace; going through the second door, participants accessed room B, where they browsed an art installation before replying to a questionnaire (virtually simulated). After answering the queries, they returned to the starting point A.

Rooms A and B never changed, whereas each corridor changed light intensity and color. We tested four variations: a bright corridor, an amber corridor, a blue corridor, and a dark corridor (Figure 2). If we can detect any difference in participants' first impressions (conscious or merely nonconscious) of the same ending room, this data would indicate the corridor's atmosphere resonated with their sensibility to prime and affect their emotional engagement with the subsequent space.

We analyzed first impressions as *emotions* (somatic components, nonconsciously developed) and *feelings* (conscious appraisals of the emotional experience). We monitored emotions through the autonomic measure of physiological arousal (electrodermal activity, heart rate, and skin temperature) and evaluated feelings through self-report assessments of subjective arousal.

— Paper presentation

We study atmosphere as a *priming condition* for our spatial experiences. The priming potential of atmospheres is a deep-rooted intuition among designers, and we wish to consolidate experimental evidence. We hypothesize participants' resonance with the corridor's atmosphere might prime them to emotionally perceive the final room in a different manner. Our ANFA presentation illustrates the general theoretical framework, the tested protocol, and the gathered results. This experimental paradigm proposes a strategy to locate and measure atmospheres, the dimension of the ineffable par excellence for architectural experience. It explains how resonance unfolds our innate predisposition to be emotionally affected by the external world.

Figures

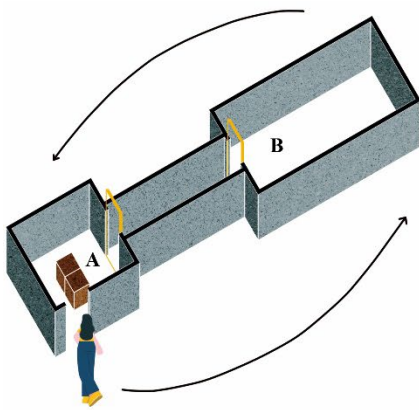


Figure 1: Experiment diagram © Resonances, 2023

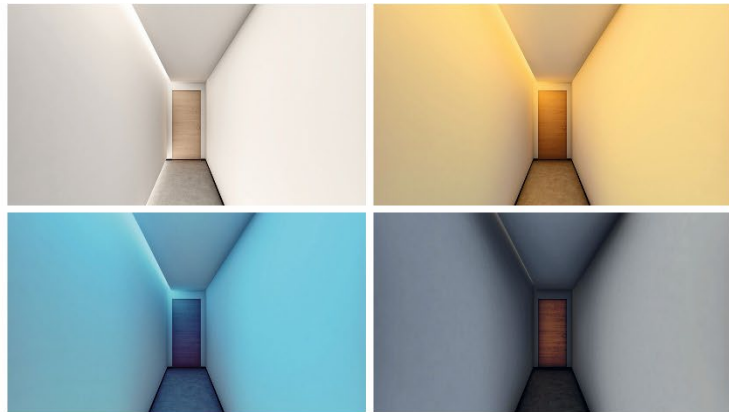


Figure 2: Atmospheric corridors © Resonances, 2023

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