Using Neuroscience and Experiential Anatomy in Architectural Design: Recent findings regarding organic and rational drawing

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1. ABSTRACT

This research demonstrates that architects and other designers can use experiential understanding of the brain deliberately to influence the characteristics of their drawings and design products. The human brain has three levels: the brainstem and cerebellum control evolutionary activities such as respiration and organ function, the limbic (mammalian) system processes emotions and memories, and the neocortex plans and performs higher cognitive functions. Architectural sociologists Galen Cranz and Leonardo Chiesi, building on insights from medical researcher Jader Tolja and founder of Body-Mind Centering Bonnie Bainbridge Cohen, have tested the idea that the brainstem and limbic system can be activated through experiential anatomy to stimulate a distinct type of creativity in drawing and design (Cranz and Chiesi, 2014). Drawings produced after stimulating the neocortex with simple arithmetic, and those produced after stimulating subcortical parts of the brain (the brainstem and limbic system via the kidney) evidenced theoretically predicted differences in drawing qualities. Small, straight, two-dimensional drawings morphed into large, curvilinear, three-dimensional drawings of the same objects. The earlier study with a sample of 200 in seven trials used drawings of handles and lamps, but architects wanted to know if the differences would hold at the building and urban scales. Accordingly, following the same research design, this replication study compares and contrasts sets of drawings of buildings and urban squares produced by 30 subjects in two trials.

The drawings are coded by independent researchers (Rushton and Rosen) for line quality (curved or straight), size (smaller or larger image), and three-dimensionality (shading, perspective), and number of depictions of nature (birds, trees, flowers, sun, water). The same differences are observed at the architectural scale as at the product scale.

“Experiential anatomy” somatics, and neuroscience have direct implications for teaching architectural design, and for promoting creativity in general. Further, this research on the power of accessing organs through somatic experience gives new meaning to the term “organic” architect. If consciousness can influence design, the design of an object, room, or place may also affect users’ consciousness. This is probably assumed by designers, and neurological evidence is a welcome confirmation. Finally, this research suggests that creating with the subcortical brain may facilitate relational or ecological thinking by instigating deepened users’ consciousness. This is probably assumed by designers, and neurological evidence is a welcome confirmation. Finally, this research on the power of accessing organs through somatic experience gives new meaning to the term “organic” architect. If consciousness can influence design, the design of an object, room, or place may also affect users’ consciousness.

2. REFERENCES


3. AUTHOR BIOS

Dr. Galen Cranz, Professor of Architecture at UC Berkeley, is a sociologist, designer, and certified teacher of the Alexander Technique (a system of body-mind-postural education). She studies the social-cultural components of environmental design, including how the body meets the environment, a new subject she has called Body Conscious Design. She provided a critique of the practice of chair sitting from a somatic point of view in The Chair: Rethinking Culture, Body, and Design. She also studies post-occupancy effects of designs on users, the role of urban parks, and taste as a communication process in design.

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