CULTURE, NEUROSCIENCE, AND DESIGN

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Does our culture influence how we process sensory information and the sorts of spaces where we live our best lives?

Neuroscientists have shown that it does and designers can increase user wellbeing by applying what these researchers have learned about culture and place-based experiences.

Studies have linked how the physical environment is experienced to parameters of national culture identified by Hofstede, Hofstede, and Minkov (individualist or collectivist, accepting of power distance or not, masculine or feminine, tolerant of uncertainty or not, long- or short-term orientation, indulgent or restrained) (2010).

Scientists have also tied national culture to preferred physical environments. Neuroscience indicates that curvilinear elements are significantly more likely to be preferred by people from more collectivistic cultures, while people from more individualistic ones find angular shapes significantly more attractive than people from collectivistic ones do, for example (Zhang, Feick, and Price, 2006).

Designing for preferences is important because when the space we're in aligns with them, our mood is more likely to be positive (Veitch, 2012), which has beneficial implications for problem solving, creativity, socializing with others, and health, for example (Fredrickson and Branigan, 2005; Isen, 2001; Isen et al. 1985; Segerstrom and Sephton, 2010).

In addition, neuroscientists, including Park and Huang (2010), have linked neural function and culture: "there is limited evidence that cultural experiences affect brain structure and considerably more evidence that neural function is affected by culture, particularly activations in the ventral visual cortex – areas associated with perceptual processing." Chiao and Immordino-Yang (2013) report that "culture appears to shape neural processing by influencing the process by which a visual stimuli is perceived, encoded and recognized."

The design of public spaces that are iconic among particular populations can be used to illustrate how place form should recognize and respond to users' national cultures.

Science-Derived Design Culture Links, Using Hofstede's Framework

Individualistic-Collectivistic	repercussions for conformity/expressing individuality, expectations of time alone, attention to nonverbal messages, affinity for rectilinear or curvilinear elements, preference for freestanding homes, willingness to share, probability of entertaining at home or not, likelihood of changing environments
Tolerance of Uneven Distribution of Power	relates to differential amenities provided
Masculine-Feminine	links to attention to quality of life and concern for the planet
Tolerance of Uncertainty	ties into need for rules, in design process and otherwise; also attention to cleanliness and opportunities to relax and acceptance of novelty
Long- or Short-Term Orientation	relates to concern for convenience, respect for tradition, focus on investment payoff
Indulgent-Restrained	affects perceived freedom to enjoy life

Example Countries
(classification information from Hofstede, Hofstede, and Minkov, 2010)

The Netherlands
(indiv, low PD, fem, weak uncert avoid, LTO, indul)

United Kingdom
(indiv, low PD, masc, weak uncert avoid, midTO, indul)

United States of America
(indiv, low PD, masc, weak uncert avoid, STO, indul)

China/Hong Kong
(coll, high PD for China, mid range PD for Hong Kong, masc, weak uncert avoid, LTO, rest)

Sweden
(indiv, low PD, fem, weak uncert avoid, mid TO, indul)

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