



# Human behaviour and cognition of spatial experience; a model for enhancing the quality of spatial experiences in the built environment



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## ABSTRACT

This paper takes an interdisciplinary approach to find out what makes the experience of spaces different and how can it be enhanced? Based on a literature review this paper draws on cognitive theory to provide a model for enhancing quality of spatial experiences. The model has three stages: encouraging, enabling, and enclosing. The model asserts that in every enhanced spatial experience the audience gets encouraged at the outset by a variety of strategies such as persuasion, designing for meanings, and including concepts in design. The audience must be then enabled by special means, such as immersive and interactive capabilities of the environment along with its security and safety attributes, to get involved with the spatial experience. Consequently, the experience shifts towards a cognitive level at the enclosing stage, focusing on emotion and engagement. To compose this model, at the very beginning, essential components, dimensions, and elements of experience were identified and defined. Seven selected experts were then informed and asked to decide on the priority of the experience's elements. Finally, selected elements were employed to propose the model for enhancing quality of spatial experiences in the built environment. The proposed model is then followed by an example that clarifies how the film industry could apply the model to enhance the quality of spatial experience in the built environment of a movie theatre.

## 1. Introduction

Given that a large majority of an individual's time is spent in built environments, the need for a greater understanding of human response to environmental stimuli inextricably links design to scientific research. The promise is that architects and scientists will collaborate more to determine what we build and why it will enhance the human experience (Chong, 2009, x).

There exist architectural spaces where one instantly feels comfortable, welcomed, and safe. There also exist architectural spaces where one immediately feels uncomfortable, hostile, and threatened, although architects try to make better spaces and experiences for people (Franz et al., 2005; Suri, 2003; Evans, 2003; Canter and Lee, 1974). What makes these spaces different? Is it the space or the experience of space that makes these differences? If an experience relating to space that involves people in a certain activity within a context be called a spatial experience, is it possible to suggest a model for enhancing the quality of such experience?

To answer these questions, architects take an integrative approach and view a design from several perspectives, such as behavioural,

social, cultural, and technical. For instance, in architecture, Vitruvius, 1999 architectural discourse on Impact (venustas) and the Environmental Design Research Association research into the nature of people's experiences of spaces and places as well as more technical research on circulation and workflow explored several aspects of spatial experiences. Yet, experience design (XD) as a newly recognized approach has never been integrated into design as a part of the solution to architectural problems (Shedroff, 2009). Perhaps, a part of the problem is that architects are not aware enough of the research in experience design (Shedroff, 2009, 2001; and Diller et al., 2005) interaction design (Nodder, 2013; and Anderson, 2011) and user-centred design (Weinschenk, 2011; Lidwell et al., 2010; and Norman, 2005; Stanton and Baber, 1998). This problem leads to a knowledge gap between experience design and architecture. While some literature dispersedly suggest sets of clues for an experience, these clues have not been subjected to empirical research in a built environment with an architectural perspective (Knutson et al., 2007). This gap may cause architects to apply a merely theoretical and intradisciplinary approach to an interdisciplinary problem that needs to be studied empirically. The result of such an improper approach most often is inelegant problem-

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solving strategies and design solutions (Franz et al., 2005).

This paper takes an interdisciplinary approach to identify and define essential components, dimensions, and elements of experience based on a literature review. This will be followed by analytic hierarchy process (AHP) that relies on theory and practice. Moreover, brain-writing will be applied by the authors to generate ideas and suggest a model for enhancing the quality of spatial experiences in the built environment based on the findings.

## 2. Theory

To reveal the underlying mechanism of human experience several researchers viewed the human experience and made theories about it (Baradaran Rahimi, 2014; Fogg, 2009; and Knutson et al., 2007). Even though research exists, experience design, as an emerging field of knowledge, has not been sufficiently engaged with spatial aspects of the experiences in the built environment. For the goal of suggesting a new model to enhance the quality of spatial experiences similarities and overlaps of existing models must be studied. However, to make such a new model pertinent to architecture deeper understanding of experience and its essential components, dimensions, and elements still seems necessary.

### 2.1. Related works

In a model developed by Fogg (2009, 40), it is explained that ‘for a person to perform a target behaviour, he or she must (1) be sufficiently motivated, (2) have the ability to perform the behaviour, and (3) be triggered to perform the behaviour’. In his model, Fogg approaches the experience design from a behavioural perspective. Yet, Fogg’s model does not define or discuss application in a specific architectural context. This makes his model general in context. Moreover, the model seems to be more about encouraging people to perform a certain behaviour. One question that needs to be asked, however, is what happens in coercive situations? Should coercion be considered as a kind of motivation? This makes Fogg’s model very specific in application. Fogg’s model lacks the architectural perspective and suffers from being too general in context and too specific in application.

A second model by Baradaran Rahimi with an insight into architecture and experience design asserts that for a person to get a target socio-cultural experience, ‘he or she must become sufficiently motivated and be situated in the right context as effective actuation begins the interaction’ (2014, 174). His model is fundamentally about enabling people to go through an experience in certain architectural contexts and more specifically focuses on its socio-cultural aspects. It touches upon spatial experiences in the built environments such as museums. However, it does not explain the whole spatial experience, and only targets its socio-cultural aspects.

A third model by Knutson et al. (2007) presents a holistic model for user experience including seven factors, orderly, benefit, accessibility, convenience, utility, incentive, trust, and environment. According to this model, these factors perform in a hierarchical manner with four major components: (1) expectations and perceptions, (2) the consumer’s experience, (3) value, and (4) satisfaction. This model is mainly about enclosing what seems important to people in an experience while doing a common activity. Using a large sample of users, this study made a valid empirical contribution to the field. However, it views the experience at a very end level, more from a customer’s perspective with less attention to earlier levels and designer’s perspective.

A closer look at these three models, conveyed an interesting idea to the authors of this paper. Fogg’s model concentrates on encouraging people; Baradaran Rahimi’s model focuses on enabling people in the context; The model of Knutson et al. looks at enclosing important aspects for people while doing an activity or going through an experience. What if encouraging, enabling, and enclosing be viewed as stages of a

new model to enhance the quality of spatial experiences? To reach this goal, a deeper understanding of experience and experience design was necessary.

### 2.2. Spatial experience and essential components of experience

As Volo, 2009, (110) cites from the Oxford English Dictionary, an experience is “[t]he fact of being consciously the subject of a state or condition, or of being consciously affected by an event.” As reported by Hoch (2002), (448), an experience is “the act of living through an observation of events and also refers to training and the subsequent knowledge and skill acquired.” An experience is created, when an institution, organization, or a company “intentionally uses services as the stage and goods as props, to engage individual customers in a way that creates a memorable event” (Pine and Gilmore, 1999, 11). The concept of event seems to be in tight relationship with experience in all these definitions of experience. But, what is an event?

The theorist, architect, and well-known educator Bernard Tschumi has an interesting view about architecture and spatial experiences. He believes “there is no architecture without event” (Tschumi, 2012, 176). Adapted from Eisenstein’s diagrammatic methodology, Tschumi discusses the components of which a spatial experience is made of: space, event, and activity. Tschumi explains that spatial experience is not simply about space, form, and function, but also event and activity. David Leatherbarrow (2005) describes that when we acknowledge the unexpected quality of an experience, we call it an event. He explains (2005, 11) that “[w]e give such an experience the name event precisely because of the unforeseen character of what happened – real events are always more than what we expected of them”. Therefore, one can consider event in Tschumi’s work equal to an experience with an unexpected quality as discussed by Leatherbarrow. Unexpected quality of an experience is closely related to three essential components: people, context, and activity (Anderson, 2011). Based on Anderson’s discussions, the stronger the link between people, context, and activity that can be made, the more unexpectedly higher the quality of experience that can be made. Comparing Anderson’s discussions and Tschumi’s arguments in line with Leatherbarrow’s discussions on spatial experiences, notion of event, and its relationship with unexpected quality of experience conveys the idea that there are similar and interesting references in these works.

The essential components in Anderson’s work recall the components of which a spatial experience is made of in Tschumi’s work. Both authors refer to activity as an essential component. Similarly, Tschumi considers space as the setting where activity takes place and Anderson considers context not only as the setting that activity takes place but also as the circumstances that form the setting for an event. Thus, context in Anderson’s discussion includes the space in Tschumi’s argument in a broader view. Each author approaches the third component in a different way. Tschumi considers event the third component of his framework that refers to the acknowledgement of the unexpected quality of an experience by audience. Anderson considers people the third component of his framework and believes without people there will be no unexpected quality of an experience or event. The notion of event in Tschumi’s argument can be considered as the acknowledgement of unexpectedly high quality of an activity performed by people in a certain context. Uninhibited spaces and abandoned contexts have no audience to offer an experience.

Thus, in the present paper, people, context, and activity are considered as the essential components of spatial experiences in the built environment. A spatial experience will be then defined as an experience relating to space that involves people in a certain activity within a context. Enhancing the quality of spatial experience to an unexpected level associates with stronger links between people, context, and activity in this paper.

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