Sensory Navigation in the City Centre

Perceptual paths, sense walks and interactive atmospheres

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Abstract. *While walking in the city, the senses play an essential role in navigation and human behaviour, providing rational grounds for knowledge and action. Traditionally, different scientific disciplines have understood the senses as separate channels for collection of information from the environment. Recently, it has become clear that the senses together form an integrated knowledge-gathering system. This paper investigates the nature of this integration during the spatial experience of wayfinding and navigation in the city. The paper presents the first findings of a community engagement project exploring the sensory and spatial experience of the heritage city centre of Canterbury (UK). This approach brings to the foreground the significance of combining objective data with subjective evaluations of spatial quality and use of urban spaces. The project outcome proposes an interactive representation of sensory-intensive experiences, mapping and notation.*

Keywords: sensory navigation, multisensory perception, sense walks, notation, interactive sensory maps

Introduction

While walking in the city, the senses play an essential role in human behaviour, providing rational grounds for knowledge and action. Traditionally, different scientific disciplines (such as, architecture, sociology, experimental psychology, urban studies, psychogeography) have understood the senses as separate channels for collection of information from the environment. Recently, it has become clear that the senses together form an integrated knowledge-gathering system. The research objective of this paper is to investigate the nature of this integration during the spatial experience of wayfinding and navigation in the city.

The existing imbalance in the multisensory could disconnect people from the built environment. Investigating the senses in depth in their singular modality as well as the multisensory identifies their significance in designing for environmental quality outdoors.

The paper presents the first findings of a community engagement project exploring the spatial experience of the city centre of Canterbury, UK, based on the sensory experience of its citizens and their perceptual memory. This approach brings to the foreground the subjective evaluation of the quality of space that historical spaces

provide and the way they are used. The outcome of the project includes the representation of sensory-intensive experiences, through mapping and notation tools.

Wayfinding and Sensing the Place

The starting point for the project was a challenge and opportunity to investigate environmental quality of the built environment through community engagement. Designing urban spaces in architecture seems to be almost purely visually oriented (Cross, 1982). However, it has been shown that spatial qualities are evaluated by users as a combination of the different senses (Gibson, 1966; Rasmussen, 2001; Pallasmaa, 2005, Middleton, 2010). Research on the sense-scape of outdoor urban spaces has shifted its focus from the visual quality of the designed environment, to studies of sound, olfactory experience, taste, haptic and thermal perception.

Vision

Visual perception still prevails on top of the hierarchy of the senses and architecture remains a visually oriented discipline. Although vision is one of the primary ways of communication in an architectural context, it can also function as a weak link. Vision seems to go as far as the surfatial context, but has little relation to user-specific experiences and perceptions (Lepori et al., 2007).
Visual sense considers three factors: spatiality, atmosphere and visibility. Spatiality is the ability to define the physical room (its volume, distance, proportion and orientation) that depends on factors such as light, shadows, reflection and colours. This kind if spatial perception allows the differentiation between qualities of space, as well as as a means of navigation. Atmosphere determines the general character of spaces, which could contribute towards the psychological mood of the space (and the factors) created for its users. Lastly, visibility correlates with the possibility to see things during a task: the form, surface/texture, colour and light.

Sound

The term ‘soundscape’ refers to the acoustic environment of a place as perceived and understood by people, in context. It is the acoustic equivalent to ‘landscape’, and includes all sound sources, wanted as well as unwanted (Axelsson, 2011). There is a distinct differentiation between noise control and soundscape approaches. For example, the Noise Control Approach is perceived as waste, concerns of discomfort, human response related to level of sound, measures by integrating across all sound sources, managed by reducing level, whereas the Soundscape Approach involves sound as resource, preference, often unrelated to level (quiet is not the objective) and differentiation between sound sources (wanted sound from unwanted sound) managed by ‘wanted sounds’ masking ‘unwanted sounds’. Tools include the use of noise maps, analysis of existing soundscape, soundwalks and structures interviews. Urban soundscape can be evaluated by using questionnaires to assess the acoustic environment, landscape, and the participants themselves (Kang, 1998; Jeon, 2011). The concept of soundscape revolves around a unified theoretical framework to link people with their acoustic environment, experienced through the mediating structures of the landscapes, urban spaces and buildings including the wilderness.
The combination of sound in architecture and psychology has the ability to manipulate the acoustic environment in changing an individual’s feeling and

behaviour – this is commonly referred to as oral architecture. Each created space has a unique acoustic symbolism that triggers memories that could trigger familiarity, arousal, tension, comfort, discomfort, warmth and relaxation.

Smell/Taste

The identity of an architectural space is linked with scent (Henshaw, 2013). Smell plays a large role in behaviour, wayfinding and health, but has been crucially overlooked. Previous studies on olfactory performance have focused on odour detection as well as odour identification. Victoria Henshaw (ibid.) mentioned that detecting and perceiving the odour varies according to factors such as the characteristics of the smell, its detection in the environment, its concentration, trigeminal stimulation, odour tenacity, and the quality contributed to the interaction with the human detection and perception, as well as the individuals themselves.

Smell perception and long-term memory are closely related, and often last for longer time periods as opposed to visual images (Engen, 1991). Smell has the capability to capture and preserve memory of any given space, and every space can have its own particular smell. The power of odour does not only awakens a lost memory, it also serves as a connection to hunger and the desire to consume as well as to stimulate the emotion in order to guide or distract one through and in a space.

Apart from the importance of the restorative experience of olfactory environments and the potentially positive roles of odour, smell studies are directly connected with air quality, pollution, transport and restorative functions. The latter are in close connections with the green amenities and naturalness of the urban environment, such as trees, planting and greenspace, water and waterways and materials. The role of the microclimate is also significant in olfactory design. Air movement and wind flow, as well as the monitoring of microclimates is a prerequisite for the study of odours outdoor. In Henshaw's study (2013) the experience of appropriate wind-speed levels are variable, dependent upon area usage and type and closely interlinked with judgements of olfactory and overall environmental quality.

Haptic:Tactile/Thermal

The haptic sense incorporates the sensations of pressure, temperature, pain, and kinesthetic as well as all of the aspects of sensual detection that involves the physical contact both internally and externally. The sense of touch is unlike any other senses as it deals with the three-dimensional world and similarly carries the ability to alter the environment whilst perceiving it. This is not feasible in other senses such as hearing, seeing, smelling or tasting (Herssens et al., 2007). The haptic sense shows an advantage over other senses by leaving an immediate physical mark and thus, creating a strong immediate link with the body and the built environment. Haptics have been acknowledged to incorporate not one quality only, but many and those of different kinds. As Thomas Reid (1764, in Howes, 2009) mentioned 'the chief of them are heat and cold, hardness and softness, roughness and smoothness, figure, solidity, movement'. The temperature sense (or thermal sensation and comfort) has recently attracted a growing attention by interdisciplinary researchers with design and planning implications. While visual, sound and olfactory quality studies have been focusing on user experience during bodily movement in outdoor urban spaces (Henshaw et al. 2009; Payne 2010), the dynamic aspect of thermal perception has recently been investigated with the development of thermal walks (Vasilikou, 2015).

The aspect of tactile stimuli in relation to aspects of thermal sensation still remain a topic of little reference in the filed of sensory research, despite the great significance of the temperature sense in the enjoyment and exposure time of people in urban spaces (Nikolopoulou et al, 2003; Lenzholzer, 2010). Vasilikou (2015) has investigated extensively the aspect of thermal sensation for people walking outdoors and has developed a thermal notation tool based on spatial, sensory and physical factors.

Multisensory approaches in interactive atmospheres

The actual experience of urban spaces while navigating in the city is based on the overlapping of sensory experiences, presenting an array of methodological problems in its assessment and evaluation. Lucas (2008) developed a notation tool to contribute to the understanding of multisensory perception in the built environment, affirming that the process of notation may be valid because of its affinities with the actual process of perception, which according to Gibson (1966) is an active process that relies on attention and observation. The notation system focuses on a radar diagram method of representation that is conducted in a structured way. Notations can be used as part of a route, where a reading is being recorded at each intersection or specific timed intervals. In our study in Canterbury, notation was used as a static recording of a fixed place, i.e. Stour Street. The notation progresses with attributing a hierarchy in the intensity and importance of six different sensory systems. Descriptors are used to build a narrative. The notation method was not readily used by the majority of participants, and there were cases that prioritisation was preferred on a linear table than on radial diagrams while new descriptors were added to compensate for subtle nuances in perceived qualities.

Sense Walks Mapping the City Centre

The project of sensory navigation in the city centre of Canterbury takes a holistic view of places and their sensory identity and draws on users' experience in evaluating environmental and spatial quality of place. Methods used include sensory walks and mapping as an empowering tool of community engagement in the maintenance and redesign of city spaces. Within this context, the project engages city users in research and creates a community-designed map of the city centre of Canterbury. While people navigate in the cityscape apparently based on their visual perception, the actual experience of wayfinding is multisensory. Sensory qualities attributed to uses of space, climatic conditions and people interaction seem to characterise uniquely a particular node, street or neighbourhood. Two research questions are addressed here:

- What are the embodied experiences, paths and points of sensory interest in the traditional cityscape?
- How can sensory research engage city users in understanding the quality of a place and its everyday use?

For the purposes of this project, the researcher used an enhanced version of sensory walks. Strongly rooted in walking experience, the analysis of the multisensory perception used a hybrid methodology of interviews, map notes, questionnaires and photo elicitation. Participants were invited to document photographically the space they are experiencing, record the sensory experience by way of notation, recordings, word description and sensory mapping.

The case study of Canterbury city centre presents the opportunity to explore a diverse range of urban spaces (streets, squares, parks, gardens, etc) and their sensory qualities in different temporalities. Sensory mapping is used to record subjective responses by pedestrians according to their sensory experience in the cityscape. The data is collected by on-site interviews and by organising structured sense-walking activities in the city centre of Canterbury, in different times of the day and year. The collection of embodied experiences, creative atmospheres, paths and points of sensory interest in the traditional cityscape provides an educative vehicle of understanding the cultural heritage of the place and its everyday use.

Environmental monitoring and digital technology

The project re-invents the experience of walking, wayfinding, discovery of the historical, cultural and natural evolution of walking paths that link landmarks with the city and its citizens. The hybrid methodology involved also the monitoring of the environmental conditions with portable sensors and hand-held devices. These were used by the researcher simultaneously throughout the duration of the walk. The research project addresses how urban environment can be explored in order to facilitate individual and collective interpretation of the senses in understanding of place. It also focuses on how different senses can be represented for interpretation, how technologies might be used in the investigation and depiction of sensescapes, and how and where creative responses to the sensory realm by the community might be deployed to facilitate both collective and individual interpretation. A robust collection of physical, physiological and psychological data proves to be a significant contribution to the application of sensory experience in the design of urban spaces.

Foundations for an Interactive Sensory Map of the City

The convergence between on-site observation, engagement with the community and digital recording of sensory evaluations by activities and participants provides the framework of mapping the sensory realm in the city centre. The collection of data can be compiled and formatted into a virtual image of the city, creating digital interactive sensory maps that may focus on each sense separately or on a combination of sensory environments (sound maps, thermal maps, smell maps, tactile maps, etc). The multisensory aspect of navigation (which entails the bodily experience of everyday walking in the city) encompasses the dynamic nature of the senses: what is common to them, how they interact with one another, how information derived from different senses is integrated, and how this information is used by people in movement to acquire sensory knowledge and evaluate the quality of their environment. Data is elaborated to reveal patterns of sensory intensities and qualities to produce knowledge on the collective memory and experience of city space. The development of the interactive sensory map tool is based on community engagement practices and the idea of the citizen as data generator in the critical evaluation of environmental quality in urban spaces.

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