Spatial Fragments, Visual Distortions and Processes of Sense Making

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ABSTRACT

A series of conversations between a group of blind and visually impaired participants and myself about non-visual and multi-sensory spatial encounters is used as the ground for discussion in this design research paper. Specific issues examined include the role of the visual, the auditory and the tactile in relation to the human body, movement, memory, sensory landmarks and processes of sense making. Within the participants' stories of their experiences, spatial and temporal interiors emerge that are mostly based on non-visual encounters with architectural environments, yet may evoke visual imagery in the reader. Their accounts inspire a consideration of new ways of thinking about interior architectural practice and the tools and techniques used in the design process. Writing and drawing are positioned as important methods for exploring, presenting and designing multi-sensory interiors. The main questions investigated are how to communicate qualities of spatial environments that are encountered and remembered in non-visual ways in the context of interior architecture and how such accounts are capable of inspiring interior architects to think about their practice differently and therefore create new knowledge for the discipline.

When Ness leaves her house she knows where the gate is and touches the side of it as she walks past. She then turns into a laneway, putting her hand out on the other side, and touches the wall of the alley. With her white cane, Ness taps along the wall to confirm where things are: 'Because I know that they're there … I just check to make sure that they're there.' [1] Although Ness uses a cane, she still likes to reach out and run her hand along surfaces beside her, like a wall, a fence or a hedge. By also clicking her fingers, Ness gets a sense of the spatial volume through acoustic reflection. Furthermore, she carries a hand-held sonic device called a mini guide. The mini guide can be set to detect solid objects and barriers in close proximity, and vibrates incrementally as one approaches obstacles.

For Bernice, her guide dog Valek will safely lead the way so that she only uses her cane in environments most familiar to her. She explains that when travelling, everything around her is important, including what is next to her, overhead and underfoot: 'Your spatiality when you're not seeing at all feels different. You use your body senses to recognise a lot of things... the sense of smell, the sense of hearing, the sense of touch in all directions, 'cause I even use my toes.' [2] Bernice also emphasises to me the significance of tactile qualities: 'The sense of touch, regardless of what your sight is, is very important.' [3]

Debbie recognises that there is a significant difference between indoor and outdoor environments: 'When I'm outside it all crosses over my cane, there's too much space, but inside I'm able to sort of judge the space around me and get an idea of where I'm going.' [4] She describes her navigation techniques as 'like a bodily instinct or something… I can just sense where everything is... I sort of sense how many steps I'm going and I'm able to judge distance and my direction is really good.' [5]

I interviewed Ness, Bernice, Debbie, Margaret and Brandon (all names are pseudonyms) during a series of focus group discussions about non-visual and multi-sensory qualities of spatial environments at the former Royal Victorian Institute for the Blind (RVIB, now Vision Australia) in 2005. The project investigated, from a design perspective, how individuals who cannot rely on their visual ability are able to make sense of spatial environments and multi-sensory cues that help construct a mental and corporeal spatial map. In the interviews each of the participants described a range of techniques and devices used to project their senses and detect information about the surroundings. The above observations of Ness, Bernice and Debbie highlight key issues that I will briefly explore in this paper regarding sensory orientation, navigation, movement, vision, touch, sound, memory and the human body in relation to the spatial concepts of distance, proximity and boundaries.

My intention in this interview project was not to become a specialist designer of environments for people with visual impairments, but to develop a better understanding of spatial definitions other than visual ones through conversations with the focus group participants. I read their accounts as interiorised experiences of past encounters with the built environment and value their stories as an interior architectural designer who has been searching for new ways of thinking about and practising design. The participants' descriptions have provided a fertile ground for discussion of current practices and priorities in the design of interior spaces. I present this design research paper as a way to critically question and challenge visually biased representational means of communication within the discipline of interior architecture.

My incentive then is to deepen awareness of multi-sensory, spatial and temporal relationships between the human body and the built environment. I believe that new kinds of interiors emerge through explorations of intrinsic interdependencies between different sense modalities beyond the traditional, and still frequently quoted, categorisation of the five human senses, as, for example, in Juhani Pallasmaa's well-known book *The Eyes of the Skin* (1996). In this publication Pallasmaa identifies a hegemony of vision in architectural design of the twentieth century and calls for an architecture that addresses 'all the senses simultaneously.' [6] Although there are some obvious parallels between my argument in this paper and Pallasmaa's writings, my approach differs. I

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do not divide the different sense modalities into five primary senses and my way of thinking is less phenomenologically based. In addition, I believe that not only hand drawing and other analogue ways of working, but also digital media are valuable tools in the design process and communication of multi-sensory qualities when utilised appropriately.

Through the interview sessions I realised that conventional visual methods used in interior architecture, such as computer generated photo-realistic imagery or representational two-and three-dimensional hand drawings would not be capable of conveying the kinds of multifaceted sensuous qualities of spatial environments the participants recounted. Words, spoken and written, were the only accurate way to capture and communicate the spatiotemporal multiplicity within their experiences. Writing therefore becomes an important tool for describing subtle spatial and personal interiors. In the interview project I used audio recording and writing to capture the participants' stories. From the vast amount of material gathered in the focus group meetings I eventually distilled it to 10 minutes of sound recording and a list of key statements relating to the main concerns of my study.

This edited work has since provided me with a kind of design brief for my own design practice and inspired my theoretical exploration of the specific issues discussed in this paper. The accounts and statements of the focus group participants are the main thread tying the argument of this paper together. A discussion of the role of eyesight and vision is followed by an examination of human memory and orientation. I then move on to explore the significance of sound and acoustics and finally conclude with reflections on some key insights I have gained from this research as well as their implications for interior architectural practice.

SIGHT, VISION AND RE-VISION

The majority of persons who are 'legally blind' have some useful sight and visual information seems to retain a central role in their daily lives despite its reduced availability. Many individuals with significant visual impairment still rely largely on their eyesight, using their other senses mostly to clarify, ensure and confirm the spatiotemporal situation. I discovered during my focus group interviews that those participants with any remaining sight (often merely light-dark contrast) still seemed to use it in their navigation of unfamiliar environments. However, none of them trusted their visual imagery completely because they felt that this information was incomplete, disrupted, blurred, or distorted. In particular, Bernice described how a shadow on the ground could cause confusion and insecurity: 'Now I've got the dog ... I know I can go just about anywhere with that dog, but I still have times where if it's a really, really shaded area I will stop and think about it and I'll say ... 'you've got the dog, just keep going,' but if I suddenly walk into a dark area, if I'm on my own, I freeze, 'cause I just cannot work out what's around me ... the dog takes the changes and just goes on.' [7]

Ness similarly agreed on this issue, recounting a scene from the film *At First Sight* (1999),[8] which is based on a story by physician, author and neurologist Oliver Sacks. In the film, the main character who is fully blind has his eyesight partially restored through an operation and is required to learn how to see for the first time: 'In the movie... he sees his shadow and it's so true, you don't realise whether the shadow is a hole or whether it's actually something you can step on, if you've never seen it.' [9] Ness had similar experiences after eye surgery brought back about 30 per cent of her sight for just three months in 2003 before she lost it completely again:

> When you actually get your sight back you don't have depth [perception] and ... when I got my sight back the carpet looked like it was around about my hips, because it just zooms up ... because it's got different specks in it, it doesn't actually look flat ... I seriously thought I could touch the carpet at my hip level, but ... I'm not walking in carpet. And the same thing with ... objects. You can't judge how far away [they are] and you can't judge if they're flat or if they're actually ... a 3-D thing.[10]

The main protagonist of *At First Sight* has similar difficulties in distinguishing between an object and the picture of an object as Ness observed: 'He couldn't tell the difference between a real apple and a picture of an apple without touching it, because they look exactly the same.' [11] When Ness temporarily regained some of her eyesight through surgery in similar circumstances, she noted how it caused her to see things that she was unable to identify:

> It was good, but it was frustrating, because I was seeing things that I didn't know what I was seeing and then other things were good, because large objects, I ... began to realise again what they were and had never seen them and saw them, but in my way. But it was frustrating because people, because for me to explain what I was seeing, and they got very frustrated because they were like, well, 'what are you talking about? We have no idea what it is,' but for me, you know, I'd see it in one way. I remember seeing a giant red thing going across the road and it was a tractor, it turned out to be ... and grass ... I'd never realised grass was that green.[12]

The accounts given by Ness suggest that seeing, and especially the interpretation of what is seen, are learnt processes based on lived experience and only partially natural. In Edmund Carpenter's iconic chronicle *Eskimo* (1959) the anthropologist describes observations made while living with the Aivilik of Southhampton Island, Canada, in the early 1950s.[13] Here, Carpenter suggests that the act of seeing is strongly influenced by cultural conventions. While observing the Inuit, Carpenter noted that they have no favoured point of view when producing or viewing an object or picture. Their craft and carvings have no single intended orientation or theme. Carpenter highlights the difference between the Western and the Inuit ways of seeing by recounting a situation in which he was given carved figures by the Aivilik: 'I found myself turning them first this way, then that, orienting each figure in relation to myself. Aivilik do not do this. They carve a number of figures, each oriented – by our standards – in a different direction ... Similarly, when handed a photograph they examine it as it is handed to them, no matter how it is oriented.' [14]

He also notes significant differences in the means of navigation between Western and Inuit cultures. While to him the Arctic landscape has few distinct landmarks, 'to the Aivilik, [it is] varied, filled with meaningful reference points.' [15] Generally these references were 'not actual objects or points, but relationships: relationships between, say, contour, type of snow, wind, salt air, ice crack.' [16] Carpenter illustrates this different capability as follows: 'two hunters casually followed a trail which I simply could not see, even when I bent close to scrutinize it; they did not kneel to examine it, but stood back, examining it at a distance.' [17] This reliance on those apparently unseen landmarks is also a point of difference for the navigation of individuals with visual impairments. Such landmarks 'hidden' to those who are fully sighted are most commonly situated in close proximity to the visually impaired traveller and may consist of a range of tactile, auditory, olfactory or cutaneous (that is, air movement or temperature) cues rather than large scale geo-spatial objects or signage. Margaret explains how the ordinary system of street signs is mostly unintelligible to her: 'I can't see any of the street signs in Melbourne, I can't find any of the street signs, let alone read them, unless I'm right underneath them.' [18] She describes an example of one of her landmarks on her way to the railway station: 'I know it's a building that's got really old bricks, that's where I turn. I wouldn't know what the street was or anything like that.' [19] Similarly, Brandon tells a story about visiting a friend's house, which had 'whitish floors, whitish walls and this long corridor and white pillars'. To Brandon this space was 'this one, huge, big, white thing with no dimensions.' [20] For the time he was staying there Brandon placed a mat in front of the steps outside the door to provide a suitable visual contrast, and also as a tactile indicator to prompt him where to take a step up.

Non-visual orientation and navigation strongly relies then on a variety of sensory cues in relation to the spatiotemporal context. Multiple sensory features of an environment can become landmarks to persons with different sense-abilities, helping them memorise and make sense of a setting. Some of the techniques used may relate to sound, touch, sight, thermal qualities, air movement, position, balance, facial pressure, smell and taste. For an individual with impaired eyesight, sensory landmarks are commonly in close proximity to the traveller's body. The immediate space and boundaries seem to be more relevant than the broader context, as orientation and mobility techniques and devices focus mainly on objects, surfaces and sounds within the

direct surroundings. Brandon notes that for a person who is blind or visually impaired, a smaller space is more manageable than a larger one: 'When you've got very large spaces you sort of break it down to your immediate space.' [21] Non-visual and multi-sensory concepts of spatiality differ from a predominantly visual understanding in that space is defined by relationships between different layers of sensory conditions and sensing bodies, rather than by the visual and physical boundaries of built architecture. But that the term landmark is most commonly applied to the architectonic as 'an object or feature of a landscape or town that is easily seen and recognised from a distance' [22] sits in contrast to Carpenter's observations of the Aivilik hunters, who understood landmarks as multi-sensory relationships and points of orientation in the environment. This understanding, it seems, is one also shared by visually impaired persons.

Sculptor Robert Amendola (1910-1996) spent much of his life developing techniques for spatial orientation with individuals who had lost their sense of sight. Amendola recognised that seeing does not have to be limited to eyesight and that other bodily senses are capable of compensating for absent ocular capacities through specific training: 'If, without displacing the natural use of hearing for hearing's sake, one were to ask of hearing an extra effort – to hear also for seeing's sake – and similarly for all other senses and sense uses, each taking over one or more of the many functions of sight, it would be like providing the visual cortex with new sensors. The result would be a 'visual' (though non-ocular) experience of one's environment.' [23] He called this technique videation, a term coined by Father Thomas J. Carroll, founder of the Carroll Center for the Blind in Newton, Massachusetts (USA).[24] Videation refers to 'concentrating the imagination on what you would see if you could see at a given moment the image evoked from information coming in from the rest of the senses.' [25] In this method, the visual memory of spatial environments from the time when the individual still had eyesight helps to connect the pieces collected by way of the other senses. According to Kidwell and Greer (1973) everybody mentally visualises spatial relations, with the exception of persons who are congenitally blind.[26]

In my focus group interviews, Debbie described how, one evening, she had visited a friend who is fully blind. The lights in the house were switched off and Debbie, who can see light, shapes and some colour, got used to the house in the dark, orienting herself through her other bodily senses. Later in the evening the friend's parents returned home and switched on the lights. To Debbie this meant she had to learn where everything was in the house and how to get around all over again. Spatiality and spatial relationships therefore can be encountered and understood differently through distinct sense-connections. Debbie's non-visual concept of the spatial environment obviously conflicted significantly with the one combined with certain visual cues. Georgina Kleege, author of several books on blindness, disability and visual art and lecturer at Berkley, similarly describes her way of seeing as a dynamic process, strongly filtered by her mind: 'The dialogue that goes on between my eyes and brain seems something distinctly different from sight. It is not vision but revision, something altered, edited, changed by my mind, subject to my values, expectations, and even moods. I see what I sense is there, what I hope is there, not necessarily what actually is.' [27]

In addition to the act of seeing being strongly influenced by cultural paradigms, it also changes depending on an individual's intent, beliefs and feelings in a particular context and at a particular time. Kleege's assertion that 'expectation plays a large role in what I perceive' [28] is equally relevant to individuals with fully functioning eyesight. Visual stimuli can be filtered in a similar way as several experiments on 'inattentional blindness' have shown. A revealing study by Daniel J. Simons and Christopher F. Chabris describes an experiment in which participants were asked to count the number of times a basketball was passed between team members in white shirts, while ignoring the other team in black shirts pursuing the same action simultaneously. After a while a person in a dark gorilla costume enters the scene and walks through the action. Simons and Chabris found that more than 50 per cent of participants failed to notice the gorilla because they were concentrating on the players in white clothing.[29] The Cocktail Party Effect is an analogous auditory example of essentially the same process of filtering. The effect describes the 'ability to focus one's listening attention on a single talker among a cacophony of conversations and background noise.' [30] Both examples suggest that selective processes are at work between the mind and the sense faculties, and are dependent on what is given priority of attention at the time.

SPATIAL MEMORY, BODILY MAPS AND THE BIOGRAM

The focus group discussions I conducted have also pointed towards yet another issue in relation to non-visual experiences of spatiality: that is memory. All of the interview participants claimed to possess very good memory and that they are able to remember environments instantaneously after having been there only once. A contributing factor to this ability is the concentration required when encountering and learning new spaces. The focus group agreed that common sight-based references used for orientation and navigation, such as distant visual landmarks, street signs and maps are mostly useless to travellers who are blind or visually impaired. Instead, other techniques are applied, including counting the number of steps one has walked, feeling the ground condition and significant changes in it through the feet, memorising the directions and turns of the path, as well as identifying useful sensory landmarks, usually ones within reach. Kleege confirms the significance of changes in the built environment that can be felt and retraced through the moving body as points of orientation: 'I may not know street names, but I retain a memory of the contours of land, of architectural features, of landscaping.' [31] In the focus group conversations, Ness explained that after encountering a site for the first time, she knows how far it was, what walls and other barriers were next to her, where there were openings, whether the footpath was straight, curved or sloping, how many crossings she passed and whether it was a small or a large road crossing. Brandon similarly described how he relied largely on his memory when going for a run before his eyesight worsened and this exercise became too dangerous for him: 'When I used to run ... although I could see people and stuff, but the pavement – 'cause I have got very poor depth perception – that was basically done by memory almost, and [I] would know every crack in the pavement, where I'm going to step up ... everything was almost by memory ... so I'm feeling the contours of the ground, plus looking for obstacles at the same time.' [32] The body detects these tactile landmarks through movement and direct contact with the

physical site. Several points of connection between feet and paving, hands and walls, the cane and the ground shape a mental map of the environment. Key features then become reference points, while movement of the body maps the distances and paths between them. Together these form a mental diagram of spatial relationships. Kinaesthetic qualities are therefore also integral in establishing a sensory and spatial mental diagram of an environment. Kinaesthetic orientation in relation to animal habitation is defined as: 'The behaviour of an animal that moves through familiar terrain in the absence of sensory information (e.g. in total darkness) by the repetition of actions remembered from past experience of the terrain.' [33] In this case, the animal body once familiar with the environment performs learnt and memorised actions apparently independently of reference points in the landscape.

Notably, in this example the authors distinctively refer to the absence of visual information and do not discuss the role of other sensory qualities in kinaesthetic orientation, such as sounds, acoustic reflections, smells, surfaces, and so on. However, the emphasis on the animal moving through familiar terrain and by repetition of actions remembered from past experience augments the notion of a spatial mental map to a bodily memory of a site. This includes its own proprioceptive movements in relation to the environment. Similarly, Brian Massumi's concept of the biogram from his discussion of synesthesia refers to 'lived diagrams based on already lived experience, revived to orient further experience. Lived and relived.' [34] For the body the biogram is a memory of its own movements shaped by sensory qualities of an environment. The sense faculties enable connections between a human body and its surroundings as well as to itself. According to Massumi, biograms are 'intersensory,' [35] involving not only a connection between the senses but more fundamentally a fusion of the senses. Naturally, one's biogram of lived experience is strongly influenced by a range of variables, such as the cultural and social context and the individual body's sensory abilities. Thus a biogram that is not as visually biased may evolve more intensely around worlds of sounds, textures, air qualities, smells, tastes, movement and other bodily sensations. For example, the muscle memory and aural ability of a pianist developed over many years of practice enable the performer to play the instrument intuitively through learnt movements of the body.

SOUNDSCAPES AND ACOUSTIC SPACES

In the previous discussion I established that individuals who cannot make use of their eyesight as a primary sense need to utilise their other bodily senses more purposefully in order to compensate for unreliable and incomplete visual images of the physical environment. In an unfamiliar environment the white cane is one of the most important tools as it helps orientation through tactile information of surface textures as well as providing acoustic feedback about materiality and spatial context. Cane techniques range from tapping to dragging, which provide different tactile and auditory cues. To persons who are blind or visually impaired, sounds and acoustics can provide important cues about the spatial, temporal and cultural context of an environment.

Acoustic ecology researcher R. Murray Schafer coined the term soundscape in the 1970s to describe the total sounding environment, which consists of keynote sounds, sound signals and soundmarks.[36] Schafer positions the field of soundscape studies in 'the middle ground between science, society and the arts.' [37] The term keynote is based on the musical notion of key centre or home tonality. It is a means to describe an anchoring sound within a soundscape:

> …keynote sounds are those which are heard by a particular society continuously or frequently enough to form a background against which other sounds are perceived. ... Often keynote sounds are not consciously perceived, but they act as conditioning agents in the perception of other sound signals. They have accordingly been likened to the ground in the figure-ground relationship of visual perception. [38]

Keynote sounds are also described as drones and examples include the sounds of the sea for maritime communities, air conditioner or fan noise as well as traffic sounds. The second key term used by Schafer for auditory classification is sound signal. Sound signals are regarded as foreground sounds within the soundscape and form auditory warnings of a community within (urban) acoustic ecologies. In the twenty-first century, such warnings have become predominantly electronically generated (sirens, horns, and so on) while the sounds of whistles and bicycle bells, for example, allow for complex layers of information to be communicated to members of an acoustic community. As a derivative from landmark, the term soundmark refers to 'a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community.' [39] Typical soundmarks may include church/temple bells, *Adhn* (Muslim call to pray), town square clocks and foghorns. The acoustic information contained in keynote sounds, sound signals and soundmarks serves as a significant system for non-visual navigation and orientation. Sound can reveal important aspects about the location and materiality of spatial volumes. It may also indicate the presence and position of objects and solid structures, human activity and potential hazards.

The auditory conditions within a built environment have become a catalyst for the work of numerous sound artists. One key reference I used in my focus group interviews was the Sound Sites project by Australian composer and sound designer Lawrence Harvey (1999), which investigated the auditory relationship between spatial qualities in the urban realm and non-visual orientation. Harvey collaborated with blind and visually impaired individuals, taking spatial sound recordings of distinct auditory features in urban settings and natural environments based on a series of conversations. In the piece *Philip Conducts the City* [40] the sound recording demonstrates how a project participant with visual impairments uses a variety of different cane techniques on his journey: 'Sonic textures roll under Philip's cane as he navigates his way through the city. A rapid montage of clicks, scrapes and clutters.' [41] In the focus group discussions I played this particular piece to the interview participants and asked them to identify what they were hearing. Everyone commented on sounds they recognised as Philip drags and taps his cane across the ground surfaces and a number of grates, walking along the street and into an indoor shopping centre. I had listened to this piece several times before and while I had been able to distinguish changes in timbre, pitch and rhythm as well as recognised people talking, it was not possible for me to identify auditory characteristics and spatial relationships of the architectural environment to the same level of detail as the participants in the interview session.

When I asked the group to elaborate how they knew what each of the sounds were and how they picked up on the change from an outdoor to an indoor space, Ness explained: 'When he's outside ... you've got more space; there's more echoing further out. When he goes inside you've got exact walls. You can tell that it's a shopping centre because there's only echo in a certain area. The sound echoes to a more boundary-set space and it's more fake.' [42] To this Margaret added: 'I'd say the silence sounded different,' [43] and Ness agreed saying, 'That's exactly what it is actually.' [44] The silence Margaret referred to describes the difference in ambient sounds and acoustic conditions between the outdoor environment of the city and an indoor shopping centre. As Ness observed, the acoustic space outdoors is larger and keynote sounds like traffic are more intense, whereas the acoustic space inside the shopping centre is more constrained by acoustic barriers. Keynote sounds in an indoor environment may include traffic noise emanating from the street, but additional sound sources with different content, such as air conditioning, background music and voices may also be present. Commonly, many of the surface materials used in shopping centres are hard and acoustically reflective, which leads to a more responsive and live-sounding environment.

REFLECTIONS

I have found the notion of a non-visual approach to interior architecture most revealing, because this poses a number of challenges to the discipline and therefore creates new potential. Non-visual interiors defy conventional design methods of representation such as scaled drawings. Their spatial context is not defined by clear boundaries measurable by the eye; they are partial, fragmented, blurred and unfixed. In interior architectural projects key issues for the successful integration of multiple sensory qualities are how to communicate these in the design process as well as which techniques and media

are useful. Purely visual representational means do not usually achieve this sufficiently and the most realistic looking fly-throughs that have been popular in architectural and interior architectural industry practice do not convey sensuous conditions about the spatial environments other than plain visual appearances, physical boundaries and lighting concepts. To think about site, spatiality and interior architecture as emerging through layered interrelations between multi-sensory qualities and human occupation means that interior architecural design processes, tools and techniques need to be evolved. Many of the tools and techniques conventionally used in interior architecture, such as orthographic and perspectival drawings and representational models (physical and digital), are no longer adequate means of communication on their own and require an expansion. When considering the multiple interconnected layers and qualities of a spatial context in relation to human occupation, it is useful for interior architects to draw on a variety of complementary tools and techniques in the design process, each providing different aspects and insights into the physical and sensory environment. In my research I have found that a combination of analogue and digital media has enabled me to communicate diverse design ideas and sensory spatial relationships.

Writing and drawing both play an important role as experimental ways to explore and express layers and relationships of sensory, spatial and temporal qualities. Writing in particular is an effective tool in that it enables the designer to establish connections between occupants and the spatial environment at a level of specificity, depth and detail that no other tool is capable of. An author's attempt to achieve a coherent narrative corresponds to the efforts made by individuals with visual impairments when moving around. The journey they take resembles a story line in a book as a process of sense-making while being given only particular relevant, yet possibly highly detailed pieces of information about the background and larger context. Drawing, on the other hand, offers different approaches to communicating design concepts for non-visual spatial qualities. The kinds of drawings of most interest in relation to the discussion in this paper are diagrams and maps. In my understanding of them they are not limited to still images, but include techniques such as audio and video mappings as well as the concept of the biogram. The use of audio and video mappings as a way to document fluctuating conditions of spatial contexts and human occupation is an easily grasped technique. Considerations of the biogram in relation to interior architecture, however, are more challenging.

When focusing on the occupants of an interior space, the spatial environment, and especially one that is repeatedly visited, will affect the individuals' biograms. Consequently, the biogram as a lived diagram forms a significant part of a design brief. The task of interior architects to contemplate what kinds of spatial and sensory encounters and experiences they provide through their design becomes pronounced. The synesthetic fusion of the senses in a body's biogram draws direct relationships between the spatial interior of the surroundings and personal interiors of sensation, thought and memory. From an interior architectural point of view it is not possible, or even desirable, to predict precisely how the design of an environment will affect, and over time, shape these personal interiors in a particular social and cultural context, but multi-sensory designs that have been considered on a range of different levels in relation to human occupation will offer spatial encounters and experiences that address the body and the senses in a deliberate and thoughtful fashion, influencing behaviours and social interactions.

NOTES

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