

## The Environmental Experience of Shopping with Cognitive Impairment

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**Abstract:** *The environmental experience of shopping was used as a vehicle to research the experience of complex or non-residential environments for people with cognitive impairment. Cognitive impairment is defined here as a condition by which an individual's cognitive processes have become altered for some reason. Such conditions may result, for example, from acquired brain injury, dementia, and/or substance abuse. The objective of the study was to ascertain through the investigation (a) the experience of shopping from the person with cognitive impairment's perspective; (b) the impact or the role of the physical environment in that experience; and (c) the implications for designers of public places such as interior designers, architects, and landscape architects. Therefore an ethnographic investigation of four individuals' experiences was undertaken by accompanying them on a shopping expedition to an environment they nominated as being very familiar to them. The findings highlight the role of environmental mediation in the experience of the person with cognitive impairment. Spatial layout, environmental containment, spatial positioning, environmental triggers, and signage are all revealed to influence the environmental experience. In addition, spatial understanding, environmental constancy, environmental stimulation, and a sense-of-knowing were also revealed to be important. The participants with cognitive impairment exist in a state of continual and conscious negotiation when in public spaces. The environment sometimes acted as a facilitator in order to help the participant cope with the situation and achieve goals, while at other times the physical environment was shown to be limiting or obstructive. This information is important for designers of public spaces due to the increasing numbers of people with cognitive impairment using such spaces.*

**Keywords:** *interior design, environmental experience, cognitive impairment*

### Introduction

There are increasing numbers of people with cognitive impairment in our society. The World Health Organization's (WHO) defines impairment as any loss or abnormality of body functions or structures including psychological, physiological or anatomical aspects. In relation to the current field of research reported in this paper, relevant impairments are sub-grouped by WHO as psychological: nervous or emotional condition; intellectual: difficulty in learning or understanding things; and head injury stroke or brain damage: with

long-term effects that restrict everyday activities. The Australian Bureau of Statistics (ABS) defines disability as occurring 'when a person has an impairment or is restricted in his or her activities or participation because of health condition(s). Of particular concern are those disabilities resulting in specific restrictions which affect the core activities of self care, mobility or communication; or schooling or employment restrictions' (ABS 2003). This definition emphasises how impairments can influence to varying degrees a person's ability to cope with day to day life. In 1998 ABS reported that 599,100 people had at least one of these three disabilities and needed some form of assistance (ABS 2003). With Australia's ageing population increasing, the number of people with dementia is also increasing. The Alzheimer Association notes that in Victoria the people with dementia 'increased by 10.3% between 2002 and 2005, and is expected to increase by a further 17.8% between 2005 (52,535) and 2010 (61,905); ...it was estimated there were approximately 13,400 new cases of dementia diagnosed. By 2050 the number of Victorians with dementia is projected to increase to 176,000, a near fourfold increase over 2002' (Alzheimer's Association, 2006). As a result, it is becoming increasingly urgent to give consideration to if and how these people may be coping in our dynamic and changing environments.

There is limited investigation of the link between people with cognitive impairment and the designed environment from the perspective of the users' experiences. Zeisel (2006) in his latest version of the seminal reference *Inquiry by Design* introduces the field of environment/behaviour/neuroscience (E/B/N). Through the description of E/B/N the role of the environment in memory, spatial processing, and learning is highlighted. Core concepts from environment behaviour theory – place, personalisation, territory, and way-finding – are described as having a 'central role in the evolution of the brains of all animals...' (Zeisel, 2006, p. 356) and he cites the impact of neonatal intensive care units on the child's development. In addition, Zeisel proposes that an in-depth understanding of neuroscience can also inform the design of environments, and therefore, can support people with impaired brain functioning. A residence for people with Alzheimer's disease is described and highlights that the design generator was the nature of the brain atrophy which was mapped against design performance criteria and possible design responses.

In contrast to investigations of institutional environments, the current research project deliberately explored everyday environments, and in addition, focused on the experiences of complex or non-residential environments for people with cognitive impairment. Such environments are an integral part of how we engage fully in life on a day to day basis – especially in contemporary urban societies. Therefore, they provide an opportunity to

understand 'normal activity' for these people as opposed to scenarios involving adapted housing or institutional care provided for those with severe limitations. The example of the everyday activity selected for this study was shopping. In addition, the person with cognitive impairment in relation to shopping environments is an example of the broader theoretical construct known as the person-environment relationship.

The experience for people with cognitive impairment, through their relationships with the built environment and with other people, may be facilitated or inhibited, and thereby, their ability to cope is affected (Smith & Adkins, 2005). An ability to cope is defined in this study as an ability to understand and negotiate one's surroundings, to obtain one's goals, to express one's self as desired, and to maintain one's identity to a self established level at any particular point in time. A sense of belonging, as part of the environmental experience, is integral to positive outcomes for the person. Therefore, it is imperative that the act of 'place-making' is giving explicit attention in environmental design processes and associated practice.

The study will be introduced with a description of the method used, an outline of the findings, and a discussion of their implications in light of the findings. The research to be described in this paper focuses on the interaction between the person with cognitive impairment and the characteristics of the physical environment. Therefore the investigation of shopping, which will now be outlined, demonstrates these connections from the position of a person with cognitive impairment striving to obtain their goals and therefore to cope.

## **Method**

This study is a pilot investigation into the experience of shopping and as such is developed as an interpretative study in order to gain the insiders' understandings of the situation. A small number of participants were selected to gain insights into their experience rather than to attempt to gain generalisable data in the first instance. As part of the ethnographic pilot study conversational interviews and field notes were selected as the mode of data collection. This enabled the researcher to take the role of participant observer and to discuss as well as observe issues as they arose during the shopping event.

Each person's visit served as a case study to identify how the person with cognitive impairment in the shopping environment experiences the situation. The objective of the study was to ascertain through the investigation (a) the experience of shopping from the person with cognitive impairment's perspective; (b) the impact or the role of the physical environment in that experience; and (c) the implications for designers of public places such as interior designers, architects, and landscape architects.

The field work involved four people with differing forms of cognitive impairment; two with acquired brain injury and two with dementia. People with acquired brain injury may have difficulty performing everyday tasks that others take for granted. Their resultant behaviours which are exhibited may be due to the 'condition itself' and/or due to frustration. They are complicated by the fact that the injury/disability is not visible to those people around them. Similarly those with early onset of dementia may have difficulty processing environmental stimulation and may become disoriented and frustrated. In relation to people with dementia, Pressley and Heesacker (2001) state that there is a need to research sites where there is a mix of people rather than just specialised environments. In order to adhere to this requirement, this project targeted the everyday environments for shopping.

A consistent set of problems that characterise cognitive impairment has been identified by other researchers, including visuo-spatial processing skills and ability to tolerate stimuli (Barnes et al., 2003; Mapstone et al., 2003; Perry & Hodges, 2003). Visuo-spatial processing refers to the management of visual data, including the assessment of objects in space (for example, humans, cars, chairs and so on); whether they are moving or stationary, the speed with which they travel and slotting these measurements into the memory (Williams, 2003). It is also important for panoramic visual imaging, which includes connecting together the collection of images into one scene and assessing things such as the depth, distance and other generalities. In relation to responses to stimuli, cognitive impairment can affect processing associated with all five senses: vision, hearing, taste, touch and smell (Moberg & Turetsky, 2003). In particular, it is associated with problems with visual attention to sequential stimuli. The processes of odour identification, detection sensitivity, discrimination and memory are all affected. As memory and attention deficits are at risk to over stimulation, tasks such as reading, listening to music, watching television or other associated visual and recreational activities can become more difficult because of their disorientating effects. Outcomes may include vulnerability, memory loss leading to disorientation even in familiar environments, distractibility, and physical challenges often evident, while some people can suffer depression (Smith, 2001, 2006).

Each of the current study's participants undertook a shopping expedition to their local or regular shopping centre. Each encounter involved a different form of environment—a shopping mall, a small shopping centre, a supermarket in a centre, and a recycling depot. The nature of the shopping experience was not controlled because the priority was for the participant to select their 'local' shopping environment; that is, the one they were familiar with and were to some degree comfortable in. Their selections also allowed us to include

a diversity of situations – department store, supermarket, enclosed mall dining area, and recycling yard – and therefore gain insights into some of the possible experiences for people with cognitive impairment as part of this pilot study. Even so, this study was very focused with the results drawn from an in depth look at a few individuals, and therefore, will be used to inform future research in this area of environmental design involving more extensive studies.

The participants were interviewed informally through a conversation about their accident or medical condition and the impressions that they held about shopping. This discussion occurred prior to the visit. Each person was also 'chatted to' while shopping as he or she went about the acts of arriving, looking for things, finding items, paying, and leaving and returning to their car. This process provided insights into the nature of having cognitive impairment as well as the experience of carrying out the everyday event of shopping from their perspective. The shopping excursions lasted approximately an hour as extended visits were normally avoided by the participants because they become tired and sometimes ill from the activity and the concentration required.

Each visit involved experimentation with recording and monitoring techniques. It was found that an accompanied shopping event that involved an unstructured interview was the most successful in gaining a relaxed and open discussion. It became obvious that disadvantages arose when too many people were involved – additional researcher and/or carers. Taped conversations would have been useful, however, these were not undertaken as the length of the visit and the intrusion of the tape recorder were two negative considerations. Therefore notes were taken to record characteristics of the environment (for example, the layout) and the visit (for example, where the person went within the space) and any comments by the participant (for example, how they felt, recalling past experiences). Initially it had been planned to identify distinct episodes or events which would demonstrate particular aspects of the experience. However, the shopping excursion did not lend itself to such a systematic breakdown. Instead an interwoven discussion of how the person felt, what they were doing, and their past and expected experiences unfolded.

## **Findings**

All four participants were cognisant of what it is to have cognitive impairment. By making explicit some of the implicit understandings they demonstrated not only how they see themselves but also the relationship between others' understandings and their own understandings of their actions or behaviours. They also demonstrated, to varying degrees, how they had a sense of the environment and its relationship to their actions. This 'knowing' was in itself a context for future action. It involved knowledge about (a) the future, and (b)

the self. For example, the activity quite often involved negative physiological outcomes such as tiredness, nausea, or headaches. Therefore the participant undertook a chosen activity, such as going shopping knowing that as a result other things would need to be foregone.

The data were then interrogated to identify key concepts. In particular those that demonstrated a connection to the environment in some way were identified and sub-grouped accordingly. The material world was shown to play a number of roles in the experience. These identified roles are (a) the site as a location, (b) a setting for an activity, and (c) a participant in interaction. The environment as a mediator in the person-environment relationship was also shown to be played out in a number of ways. Aspects of the environment involved in these phenomena included the spatial layout, the degree of environmental containment, positioning within space that were supported by the environment, triggers, spatial understanding, environmental constancy, environmental stimuli, and signage. Each of these will now be discussed to demonstrate the relationship of the environment to the experience for the person with cognitive impairment. Pseudonyms are adopted in regard to the participants' comments.

### **The spatial layout**

The spatial layout was a critical dimension of the shopping experience. 'Frank' specifically noted that complex configurations such as the Myer Centre in Brisbane's CBD would not be able to be negotiated without distracting him from his goal or purpose. However, in contrast, the systematic layout of the supermarket or small centre enabled strategies to be employed. Acts such as 'walking every aisle' and 'doing the circuit' were noted. The layout of the store also enabled a certain degree of predictability about others' behaviour and the tasks required. This predictability allowed 'Frank' and 'Glen' to structure their relationship with the environment in order to cope. In 'Glen's case one area (or zone) was always crowded and noisy when the facility opened, with people running to get to the most desirable items first. This meant he was unable to concentrate, resulting in debilitating headaches. He therefore chose to avoid this area until the crush receded. In 'Frank's' case the supermarket layout provided opportunities to ensure success such as being able to undertake a systematic perusal of the immediate shelves, to recognise the need to act in some way because of the location, to use objects as triggers to certain actions, and to be able to self check his hunches and rationale for what to do next in his own time. Over time these particular actions or strategies became rituals that are aspects of what it for this person to shop in a particular location and to enhance his/her ability to obtain the goal.

### **Environmental containment**

Environmental containment may also be an important dimension. For example, a shopping aisle was noted by 'Frank' to provide limits to the experience at any point in time and therefore was a positive factor. Three major aspects of context came to the fore – spatial context, social context, and contextual constancy. In association two points of disjuncture are evident. The spatial context is important in this aspect as the layout can limit the input at any one time, delineate the environmental input, and provide order. Similarly, the demarcation of zones within the larger space in the experience of the recycling yard or the division of space in the department store by wide circulation paths edged in red, both helped to contain the breadth of stimuli in any one location or time period. 'Audrey' states that to assist navigation she 'follows borders on the floor border/edge of shopping centres' (Interview notes) while 'when asked if he knows things he wants are on the other side of an aisle or if he normally assumes they are; 'Frank' replies that the supermarket is good as the aisle is a contained space' (Field notes), and therefore he can locate items.

### **Spatial positioning**

In addition to the overall spatial layout is the manner in which the person is positioned within the environmental setting by aspects of the environment itself. Spatial positioning may reveal to the shopper only a slice of the whole environment, certain vistas, or particular alcoves. It may also result in the person establishing linkages with other aspects of the environment – either physical or social – for example, being able to see all of one kind of product, to communicate with the staff, or to be identified as requiring service rather than being an independent browser by other shoppers.

These connections can be either positive or negative. In 'Glen's case having to queue to pay for goods without having a place to rest or put his goods down, meant that he was subjected to undue stress that brought on nausea from pain. To the outsider he appeared as just another constituent part of the queue with no particular identity distinguishing him from the others. He was positioned firstly in a particular physical context and secondly in a social structure through the layout and environmental design. Subsequently taken-for-granted, yet incorrect, assumptions could be made about him as a member of the queue and therefore as a generic 'purchaser' based on the person-environment relationship. In contrast to 'Glen', 'Frank' was able to select which exit he used and to whom he spoke. He was able to put down his load and to engage in banter. The environment combined with management positioned him differently and therefore enabled him as an individual to express himself more freely while still partaking in the rituals of supermarket shopping.

The spatial positioning of an object also influences the outcome or the level of engagement by the person. For example, the object's position in the visual field influences the ability to see the item as some objects were noted during the visits to be concealed behind service ducts, that displays were divided between different sides of stands, similar goods were displayed on different sides of the aisles, and the like. For people who may have difficulty remembering or linking disparate fields such arrangements potentially will influence their ability to easily obtain their goal and to feel as though they are coping.

### **Environmental triggers**

The environmental characteristics also act as triggers to thought and to actions. The physical environment, as an abundance of differing visual stimuli, is the context within which the individual needs to negotiate and interpret. This happens in two ways – as a trigger and/or as an orientation tool. As a trigger, the environmental object or situation (product, aisle, shop, or signage) may operate in three ways. Firstly it is interpreted as an icon; that is, it is the thing in itself that is required or taken. Secondly, it triggers the memory so that the individual remembers that they have a need for something. Finally, it triggers actions. Those demonstrated by 'Frank' and 'Glen' included checking the written plan of action or reviewing the list of things to buy. The other senses presumably act as similar cues. If there is too much stimuli providing overload for the person, actions may be required to cope. 'Glen' noted that in order to filter out distracting auditory information in order to cope, he focused on the visual surroundings; this in turn made him more tired.

### **Spatial understanding**

During this research project spatial understanding was demonstrated to be involved in orientation and navigation in one or more ways. For example, the participants with cognitive impairment demonstrated that at times they could (a) orientate themselves in space, (b) they have a 'mental' plan of the space through which they can move with purpose, (c) they can recall the total layout and the items within the space, and (d) they seem to understand the spatial relationships. They know or recall where they are by looking at the environmental cues, and therefore, the objects serve a greater purpose in assisting an individual than simply being its contents.



## Signage

The physical environment also assists in orientation within the greater spatial context. Signage is used as a system of communication in distinguishing areas ranging from entire zones to individual items. The more integrated the visual language used the more successful it is likely to be. However, the position or height of the sign or item outside the normal visual field may mean it is missed. 'Audrey' related how signage is 'Okay in front and at head height as [she] can't see below a certain level. [Also she] can remember location and direction,... I know I am on level Y'. She then works out where to go; looks for signs, uses the directory. However, she relates how after her brain injury that she was 'frightened while in the Centre on her own; it felt like it was brand new even though [she had been] going there for 10 years' (Interview notes).

Of interest is the fact that none of the four participants appeared to be using the signage. Yet when asked 'Frank' and 'Glen' were emphatic that they used it continually. As Rapoport (1982, 1990) states, redundancy assists people to orientate and find their way. 'The more complex and culturally pluralist the setting, the greater the required redundancy to produce sufficiently clear cues, particularly since many people are "outsiders"' (p. 150). As our participants demonstrated, people with cognitive impairment who are interacting at local or familiar shops often needed to recheck what they were doing or were going to do. Therefore they are applying strategies or actions in much the same way as an outsider may need to do in a new town or complex.

'Frank' used a list of objects as a linear record of a spatial plan of the store. Orientation (in this case) involved a layout map in the form of a list and the produce as it is laid out on the shelves in the store. Therefore, the produce acts as signposts to the map and vice versa. Reciprocal relationships exist between the list as a layout, the environment as a layout, and the objects as a list. 'Frank', through a constant dialogue with the environment via the actual three dimensional space in relation to his list, was able to stay on track to locate himself in space and to find the objects which were sought. In 'Glen's case, he stated that he 'doesn't get lost or forget where he is. However, he does forget what he is looking for because of the reduced speed to get ideas into the mind'; the problem is not orientation or finding his way; rather the difficulty is the 'visual reaction to place, accessing lots of things, and going into lots of places rather than going to get something in an ordered way' (Interview notes).

### **Environmental constancy**

Environmental constancy seemed to be an important aspect of the ability of people to cope with the situation successfully. The participants with cognitive impairment experienced the chosen environment through their local knowledge. 'Frank' and 'Glen's stated aim is to be in a place where local knowledge can be applied or integrated and hoped that the environments they frequent will remain stable in the future. This is obviously contradictory to the philosophy of many retail spaces, including one of the case-study environments which was undergoing renovations. Confusing environments, which cannot as readily be understood through 'local' or immediate knowledge, were spoken about during site visits and if possible they are avoided by the participants.

### **Environmental stimulation**

Environmental stimulation can cause discomfort, distraction, and long term physiological consequences. Sensations are part of the environmental situation or setting, and are perceived and interpreted by the occupant of a space. All four participants noted the effect of noise on their experience and their level of engagement with it. For example, 'Glen' stated he was 'very sensitive to noise since the operation – noise in shopping centres, music, machines, talking' (Interview notes). 'Mark' also noted that noise is a major irritant in the environment, for example the slamming of the kitchen cupboard (Interview notes). 'Frank' commented that the overall activity level was distracting (Interview notes).

### **Sense of knowing**

In addition an important aspect of the experience was a sense of knowing about the event without necessarily being able to identify its particulars. For example, things look familiar or things are known to be in this place. Within the context the person is tacitly aware that safeguards may exist (such as the staff and the way they look out for 'Frank'). In addition, the ability to rationalise that particular negative outcomes will result in certain circumstances is evident. For example, three of the four participants predicted that they would not be able to know the way and/or know how to cope in larger or more complex environments. This indicates that at least three processes may be involved and future research may clarify the process occurring. The pilot study implies that (a) intuitive knowledge dominates conscious thinking about the situation; (b) memory informs the logic of the situation; and (c) evaluation of the current situation occurs by projecting to the future through reasoning. In addition, knowledge constitutes the experience of the place or event and informs action. In this case study, 'Frank' and 'Glen' both demonstrated knowledge of:

- their selves (capabilities and limits)
- self and condition (as understood objectively by others)
- sense of the environmental moment (pre-action to cope with situations arising)
- symbols and cues (constructing meanings)
- future scenarios (situations and actions).

### **Summary**

The findings highlight the role of environmental mediation in the experience of the person with cognitive impairment. Spatial layout, environmental containment, spatial positioning, environmental triggers, and signage are revealed to influence the experience. In addition, spatial understanding, environmental constancy, environmental stimulation, and a sense-of-knowing were also revealed to be important.

The environment was shown to be an 'active' participant. The physical components not only act as a site of activity but can alternatively be understood in terms of their potential to form relationships. These will become the basis of interpretation and experience. A theoretical framework was generated and has been described elsewhere (Smith & Adkins, 2005). The constituent concepts include person environment relationships, environmental understanding, place, experience, and environmental mediation; each of these concepts is integral to environmental design.

From the above examples, it is evident that the physical environment has multiple roles in assisting people with cognitive impairment to cope with the day to day activities of life. The requirements and desires are facilitated or inhibited to varying degrees due to the person-environment relationship. As a consequence, it is worth considering how the designers of public spaces can incorporate this knowledge concerning the physical components of the person-environment relationship for people with cognitive impairments while simultaneously being cognisant of the broader context.

### **Designing public places for people with cognitive impairment**

As environmental design mediates our everyday experiences, the ability to cope for people with cognitive impairment is embedded in the notion of place. Place is linked, not only to a sense-of-place, but also to the role of the structures and ideology embedded in its creation. Place has been shown:

*...to be more than a setting, which we perceive through our sense organs and/or by thinking about it. In addition, our interpretations of a location or situation are the meaning that it has. These connections are important to our sense of belonging and engagement as we continually reconfigure or transform the place through our actions and with usage. If we are unable to develop meaningful connections then the built environment remains as space and as Berleant stated, the relationship is about 'distance and separation' rather than engagement and meaningful connections (Smith & Adkins, 2005 p.16).*

It is evident that shopping experiences in this study involved conscious and ongoing negotiation with the immediate surroundings. For example, as 'Glen' related there is a 'need to concentrate; as the filtering systems are affected it is hard to focus. He tries to make up for the amount of distracting sound by focusing on the visual aspects 'as an anchor'...His concentration span is limited and the need to focus is very draining. As a consequence each activity leads to headaches and the best times to do anything are early in the morning as he tires during the day (Interview notes). 'Audrey' stated 'I am constantly thinking while doing the tasks' (Interview notes), while 'Frank' also commented '...there is a continuous process going on before I get to the checkout...' [I am] '...working at remembering' (Field notes). Therefore the person's potential ability to be integrated or to have their own sense of being integrated with the environment; that is, an 'unconscious' mode of operation, was demonstrated to be held at bay.

What the research has also shown is that people with cognitive impairment have a particular type of relationship with the environment which affects their ability to cope. As the number of people with cognitive impairment increases there is imperative to seek greater understandings of these relationships and their outcomes. People with cognitive impairment may demonstrate anti-social behaviours such as aggression or violence in certain circumstances. This has been shown to not necessarily be due to 'the condition' but rather due to other parameters such as frustration arising from the situation (Clitheroe et al., 1998; Rowlands, 2001; Wilson, 1999; Yody et al., 2000).

Therefore, the implications for designers of public places, such as interior designers, architects, and landscape architects, would appear to not only be in matters of usage and function. In addition, there is a need to address how environments are linked to a person's ability to understand and negotiate one's surroundings, to obtain one's goals, to express one's self as desired, and to maintain one's identity to a self established level at any particular point

in time. The design of public spaces has embedded within it certain ideologies, constructs, and assumptions of the creators and facilitators of such places.

The experience of people with cognitive impairment during their everyday activities exists through their relationship with the physical environment. The quality and nature of the relationship is mediated by the characteristics of the physical domain, and as such the design of the built environment is a critical consideration in contemporary environments. Information drawn from the first hand experiences of people with cognitive impairment can assist in the development of greater understanding, and therefore, a review of practice. This study therefore raises our awareness of some pressing issues for a growing segment of our population and informs designers, and those responsible for the management and governance of public spaces, of an area of investigation that needs immediate and informed attention.

### **Summary**

In summary, it is evident from the case study described above, that a number of important issues need further research. The interconnection of the person with cognitive impairment and shopping environments can be understood more fully by recognising the following. Firstly, the environment is revealed to be active in how a person with cognitive impairment engaged or understood the place. Secondly, the design, and therefore the act of designing, produces a palette of physical elements to which a person can respond. The philosopher and scientist C. S. Peirce referred to this potential as the 'brute object' which can be interpreted numerous ways; it exists with the mere possibility to be something else (Peirce, 1988). Thirdly, a location or site potentially becomes 'a place' for someone through a person's interpretative processes. Place comes into being through these everyday experiences which facilitate meaningful connections whether positive or negative. Fourthly, a person with some form of cognitive impairment has particular characteristics (cognitive, perceptive, and affective) which influence the interpretive process, and therefore, what comes into being as this type of place for them.

The resultant outcome is influenced by the form of person-environment relationship. At least four types of person-environment relationships (P E) have been demonstrated to exist ranging from separation and objectification to interdependence and immersion (Zeisel, 1984; Aitken, 1991; Moore, 1987; Smith, 2000). However, from this study it is proposed that a person with cognitive impairment cannot readily move through all of these states – for example, viewer, participant, immersion (Smith, 2000). The ability to disengage has been shown to be very limited. The participants appear to be in the viewer state (P + E) person state, where the

environment is objectified, being continually read as a text, as the person seeks clarification of what the place is, how to act, and what is involved in this particular instance. An environment which would facilitate the transformation from one person-state to another as appropriate would seem desirable to assist the person with cognitive impairment to cope – to increase their positive experiences, while in turn, reducing their predicted negative experiences. One way to achieve this is to understand the mediative role of the physical environment in the person-environment relationship and that the venue or space known as the shopping centre has the potential to become ‘a place’ with meaningful connections for people with cognitive impairments.

In addition to addressing the lack of examples where design practice has been informed by research, this area of research recognises the urgency of addressing the increasing numbers of people with cognitive impairment. The concepts outlined in this paper were drawn from the conversations and observations collected during the accompanied shopping excursions with people with cognitive impairment. These findings have flagged a number of issues that constitute the experience of shopping from the perspective of a person with cognitive impairment. They have also provided insights into the impact or the role of the physical environment in those experiences and set the scene for further research in this field that may inform practice.

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