



# Creating Places through Architecture: Can environment-behaviour research help?

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## **Abstract**

For quite some time, architects have been struggling to benefit from the vast body of environment-behaviour research to produce meaningful architecture. Written examples of such efforts are few and far between. In this context, this paper presents an attempt by a student of architecture to employ environment-behaviour research in the design of an elder's home and discusses the potentials and problems of the approach. It shows that if theory of architecture, design practices and environment-behaviour research could be re-orientate towards and employ the idea of place as a bridging concept, it will facilitate such a link between the environment-behaviour research and design.

**Keywords:** Architectural design; place; environment-behaviour research; design studio

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## 1.0 Introduction

When environment behavior research field emerged, there were great hopes that architecture will benefit from this research. However, Fisher shows that architecture has benefitted little despite the availability of environment-behaviour research (2004). Architects are reluctant to use research while the researchers have not presented the findings in a form appealing to architects (Fisher, 2004). Moreover, design studios promote casual approaches to space and form. Teaching practices also do not encourage students to search for and use environment-behavior research. However, often, students have been fascinated by the literature. While ideas generated through E-B research have entered the design practices, no coherent approaches have emerged. In this context, this paper presents an attempt by a student to employ environment-behaviour research. It envisages that the discussion will help understand how to construct a meaningful bridge between environment-behaviour research and the practice of architecture.

## 2.0 Creating Places through Design: A theoretical exposition

Architecture involves creating places for people. Thus the reciprocal relationships between people and places are fundamental to design. Often however, architecture students assume and casually interpret these relationships and expect the spaces they create to become meaningful places. In design studios, actual clients are not present and people affected by design interventions are not known. Under these circumstances, assumptions made about social and cultural dimensions, and likely people's behaviours often lack tangible evidence to justify the assumptions. Moreover, theory of architecture—expected to make students to think, generate ideas and provide theory—is dominated by articulations of celebrated architects. Only few theoreticians have articulated the idea of architecture as 'creating places' through understanding people's behaviour. Research that discusses place making in architecture is both inadequate and incoherent.

Most architectural practices are indifferent to research. There, despite claiming to deal with social issues, most practicing architects' interpretations of social dimensions of space do not acknowledge the need to relate to real people. For example, Bates, the Design Director for LAB Architecture Studio writes "it is our belief as architects that the social dimension of space lies in its ability to be materialized and conceptualized by means of new and evermore *speculative* spatial orderings" (2013) (*italics mine*)

On the contrary, there is ample literature that articulates the relationships between architecture and human behavior. Goffman (1963), Broady (1966,1968) and Hall (1966) have discussed the multi-faceted social dimensions of architecture. Canter, (1974, 1977) wrote extensively to introduce psychology to architects and showed how places are conceptualized by people. More importantly, Rapoport established the relations between house form and culture (1969) and has showed how Environment-Behaviour research is relevant to architecture. Alexander (1975, 1977, 1979) has articulated ways of producing

places in response to social needs through pattern language. More recently, Hillier et al (1984), Shah et al (2007), and Lockton (2011) have shown ways and means of producing research and work out methods to engage Environment-Behaviour research into architecture. Among them, Alexander (1977, 1979) Hertzberger (1991) and Nammuni (1991a, 1991b, 1991c, 1991d) are noteworthy as they represent three different approaches. Other practices such as Supports and Infill (Habraken, 1972) and Participatory Design (Hamdi, 1992; Lawrence, 1992) are useful to enabling people to be active participants of making places.

Alexander focused upon the issue of the absence of feelings from the modern developments and argued that the main cause for this lies in architectural practice. In order to infuse human emotions to places, Alexander (1979) re-interpreted the 'Timeless Way of Building' while proposing the adoption of socio-spatial patterns rooted in a community as a language. Pattern language (1977) suggests that every community possesses spatial patterns that could be applied to create places that are 'alive'. In addressing the issue of the absence of 'sense of home', Alexander (1985) built with the people and re-defined the role of the architect as an architect-builder. In contrast, Hertzberger (1991) outlines an approach that allows people to personalize and 'possess' spaces to become their own. He offers insights into a number of ideas from the real world that can be spatially articulated which focus on public-private dualities; territoriality, in-between transition spaces, dwelling, habitation, personalization and 'place'. Hertzberger (1991) relying on phenomenology makes a convincing case for a shift from users to dwellers and to create architecture as a framework with multi-valence and opportunities for personalization. In fact, a generation of architects from Christian Noborg Schutz, and Charles Moore to Juhani Palasma, have articulated the phenomenological approach to treat architecture as the creation of meaningful places. However, there is a lack of design processes that help engage environment-behaviour research to be employed in design.

The most recent contribution to these have come from the development of digital technologies and the idea known as 'Evidence-Based-Design'; EBD. Informe Design transforms Environment-Behaviour research into an easy-to-use digital format. Its objective is to 'facilitate designers' use of current, research-based information as a decision-making tool in the design process...' (Informe design, 2013).

## **2.1 The research**

This paper examines an approach employing environment-behaviour research adopted by a student at the University of Bahrain with the intention of creating meaningful places. The author was the supervisor of the project. The design of an Elders Home in Kerala, India, the project demanded that the social and psychological well-being of the elderly be considered the most important issue. It challenged the student to use social and psychological traits as the major determinants of architecture and employ Environment-Behaviour research.

## 2.2 Theoretical basis

The student attended a design studio that explored architecture as place making and the relevance of environment-behaviour research and phenomenology to design. The studio argued that architecture possesses therapeutic capabilities which are central to its social art. This contrasts with the often-acknowledged communicative ability architecture possesses which treats buildings as objects of representation. It proposed that 'architecture is place-enabling' and architects must focus upon 'place' more than space. It was argued that the 'creation and experience of place' is an outcome of people-space transactions and creates profound psychological ambiances that influence their actions. Therefore, while offering opportunities to personalize and to dwell as Hertzberger (1991) argues, specific spaces must produce possibilities for appropriate 'contextual conceptualisations' that facilitate human actions. It was argued that 'affordances' are not only tangible physical frameworks but also 'atmospheres' that either promote or hinder human actions. The studio looked at Alexander's patterns as physical frameworks that ensure culturally compatible, spatial arrangements that can be immediately employed, provided the necessary psychological conceptualisations can be produced. It was discovered that neither Alexander nor Hertzberger deal with the specific situations of the people although Nammuni allows those situations to be part of the interpretations.

## 3.0 Methodology

This research used a participatory research approach. The author was the supervisor of the student and was involved with the project from its conception to completion. The research draws upon personal experience of observation of the design activities, followed by conscious reflections in order to understand and construct a holistic view of the approach to design and its outcomes. This is phenomenological research.

Natanson (1973) offers an introduction to phenomenological method and calls it a science of beginnings. According to Seamon (1982), phenomenology is a critical and descriptive science. In contrast to approaches based on the philosophical basis of positivism founded on empirical reality and validity (Bergaman, 1967), phenomenology does not look for objectivity, quantification, repeatability and public verification. Instead, it aims to free the scientists from '*a priori*' ideas of experience. As Seamon (1982) argues, it seeks to derive accurate qualitative descriptions through empathetic looking and seeing. One of the basic techniques involves reflection (Jager, 1975) through which the researcher records the aspects of the phenomena as they reveal (Seamon, 1982). Its aim is not explanation but understanding. Its validity is based on intra-subjective corroboration; by a researcher presenting one's own experience to be evaluated by another as similar to that person's experience. As Seamon (1982:122) points out, there is a 'genuine wish to look and see and there are no external props like statistics or legitimacy requirements to guarantee accuracy'.

#### 4.0 Designing for the Elderly: Research

The design of an Elders Home requires that the physical, social and psychological well-being of the elderly be considered as the most important issue. In other words, the user's social and psychological traits were treated as the major determinants of architecture. Revathi, (the student) and the author (supervisor), began the process by scanning the Environment-Behaviour research literature to compile available information. The data-base inform design was used. Information was related to two different aspects; general character and conditions of an Elder's Housing. Most data recommended place-specific outcomes. Two tables were produced listing the information. By analyzing the data, ideas were conceptualized to translate them into strategies to create potential-places.

Table 1: Environment-Behaviour informationon surrounding

Data	Source	Strategy to translate into Places
Poor housing conditions increase cognitive decline. Good housing conditions do not impair cognitive abilities.	Russell N. James, III and Anne L. Sweaney (2010)	Create good physical characteristics. Design well-built, spacious houses, pleasant rooms and outdoors.
Quality of Neighbourhood Open Spaces (NOS) was associated with life satisfaction and time spent walking. Pleasantness, safety and distance to NOS influenced happiness.	Takemi Sugiyama, et.al. (2009)	Create quality atmosphere outdoors with well-laid out gardens, trees and paths. Provide houses closer with privacy to provide a quality surrounding.
Subjects who had a pleasant and safe NOS within walking distance more likely to indicate life satisfaction	Takemi Sugiyama, et.al. (2009)	Create pleasant walkways and shaded places to sit around and linger to help appreciate the the atmosphere.
All NOS attributes (pleasantness, nuisance, quality of paths, etc) were associated with health. Nuisance (e.g., annoyance from dogs, young people) also affected health.	Takemi Sugiyama, et.al. (2009)	Create places devoid of nuisance, such as dogs, young noisy crowds. Create quiet but interesting places where elderly can find safety and peacefulness.
People with access to good paths were high-level walkers. Quality of the walking paths may influence walking among older adults more than their presence alone.	Takemi Sugiyama, et.al. (2009)	Create interesting walkways with visual vistas, and exciting views to encourage walking. Bring pleasantness to the elders setting. Introduce a joyful landscape.
Public spaces were occupied	Gill Hubbard,	Create possibilities for the

during the day, but residents sat outside their rooms when others had gone. Social relationships are important for health and well-being	Susan Tester, and Murma G. Downs (2003)	elderly different days at different places at least in the outdoors, so that a variety and diversity of places can be encountered.
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(Source: Revathi Prasannan)

The information provided greater understanding of the elder's situation, and how to direct architecture to assist their specific life situation. For example, growing old involves a general decline of sensory abilities. However, while poor housing conditions can negatively impact the decline of sensory abilities, articulating building components and spaces can help engage sensorial experiences purposely, whereby some of them could be re-awakened. This suggested that strategies must be worked out in the design of spaces to engage sensory abilities, so they can be sharpened. The second table provided information related to places as perceived by the elderly. For example, research pointed out that one of the most traumatic aspects for old people was their continued longing to return to the places where they had lived all along. They also suffered from an inability to construct attachments to new places in a new facility. It also showed that, creating intimate and smaller spaces was more desirable. This suggested that opportunities must be made available to 'personalize' places; particularly the private rooms. Interestingly, research showed that the residents would even personalize and claim ownership to places defined by chairs in a public dining room.

Table 2: Environment-Behaviour data to determine specific places for the elderly

Data	Source	Strategy to translate into Places
The impact of person-environment relationships on place attachment and the meaning of home should be more fully considered	Denise Cloutier-Fisher and Jennifer Harvey (2009)	Create opportunities to facilitate and enhance attachment to the new. Create places that substitute the previous places in which they lived.
Most elders preferred view of natural environment. Declared a 'ownership' of things such as a personal computer, in-room or a pet.	Lois J. et.al. (2006)	Make large windows wherever possible and create verandas so that the elderly can relate to the Nature.
Innovations in renovating home environments (e.g., dividing larger facilities into smaller units) improved living conditions for residents (more personal space in	Lois J. et.al. (2006)	Create personalisable places, in the housing units and bedrooms. Also make possibilities to personalise places in

common areas).		public areas. Create more intimate-scale.
A strong sense of neighborhood may lead to improved physical and mental health, higher activity levels, and better social networks among older women.	Anne F. et.al. (2004)	Create places outdoors for children to play, and opportunities for elderly for socialization Create interactive places surrounding each house unit.
Participation in leisure activities may improve quality of life for retired and near-retired individuals	Robert O. Weagley and Eunjeong Huh (2004)	Create as many places as possible for leisure; specially catering to the leisure the selected elders engaged in. Create smaller personal areas.

(Source: Revathi Prasannan)

#### 4.1 The conceptual approach

Revathi conceptualized that in order to construct a general ambience of pleasantness, and an enchanting atmosphere, a central place must be created which will have the ability to arouse pleasant feelings. This was to be a place where the residents would have an enjoyable time, either socializing or in solitary contemplation. It was also conceptualized that the place must be accessible from all residential facilities by walking and be a 'place to walk-about' as well. Revathi therefore imagined a small shallow pond bounded by a gently elevated earth embankment covered in grass around which to locate defined places for sitting. The pond was to be created as natural as possible with a walkway surrounding from which a variety of views across the water could be created. It was imagined that the elderly residents will spend their evenings, walking or sitting down around the pond. The area was landscaped sparsely so that it would provide adequate greenery but not a thick jungle. Bird nests were to be located there with opportunities to breed small pets in order to bring life to the place. Revathi then located all residential facilities around this pond in small clusters, each unit providing accommodation for four elders who could share a verandah overlooking a courtyard (Fig 3).

### The Design Outcomes

- Creating a general atmosphere; a neighbourhood of pleasantness
  - Creating a central social place
  - Creating a series of personalisable places outdoors



Fig. 2: A Conceptual sketch of the central place: a pond surrounded by a walkway  
(Source: Revathi Prasannan, and Author)

### The Design Outcomes

- Creating a personal places indoors, with opportunities for personalisation
- Creating continuous connections with the pleasant outside.

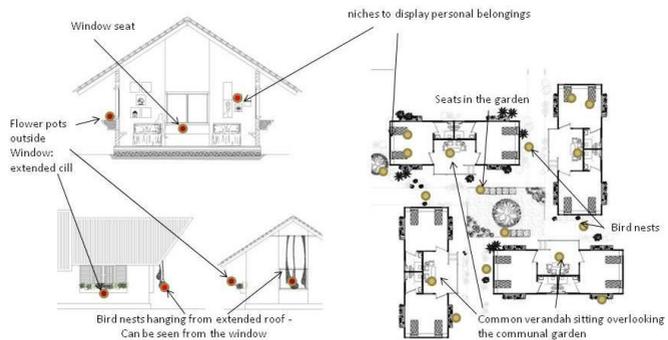


Fig. 3: The places enabled in the indoors and the neighbourhood  
(Source: Revathi Prasannan, and Author)

## 5.0 Conclusion

This research shows that environment behavior research could greatly facilitate the design of places for people, provided that the whole process of conceptualizing and detailing architectural design could be perceived as a process of place-enabling. Given the variety of places created specific to elders and the ways in which Revathi could defend the project with specific references to elders and their psychological needs, the design approach could be considered successful in engaging Environment-Behaviour research in creating architectural design. The project showed that it had been anchored on the cultural specificities of the elders in Kerala, by bringing in agricultural plots as part of the system of places located adjacent to the residences. The numerous small details introducing colours, sounds, and visual frames along with opportunities for spending a pleasant time could be considered as contributing to enhance the declining sensorial and cognitive skills while creating a safe and pleasant environment. The opportunities for walking and the places created for sitting around the pond could certainly encourage social and physical activities contributing to general well-being.

The research showed that the act of enabling places could be made clearer and the students can be directed easily to acquire an architecturally rich conceptual approach based on scientifically discovered research information. Despite the fact that the social and psychological aspects were taken as the determinant of architecture, Revathi was able to produce a project that comprised of interesting spaces and places, which every architecture student wants to be proud of as having created. In fact, it demonstrated that an architect's creativity is not hindered in pursuing a research-based approach; a common misconception that deter many architects to employ research.

It is acknowledged that the project needed more refinement and testing of the ideas of co-relations assumed in creating individual places and how they generate the dynamic and assuaging qualities claimed to be present in the spaces. The latter however is beyond the scope of the design studio and requires independent research to establish relations between forms and spaces. Such information is available but the architecture students need to be guided to locate such information and to apply them in design more consciously, deliberately and skilfully to address social issues. For example Lee (1976) demonstrates through an experiment that intimacy as a spatial quality is mostly associated with the sloping ceilings. It is argued that such information must be more widely availed to the architecture students and they must be guided to seek them deliberately within socially conscious design approaches, if we are to pursue architecture as a meaningful social art; a practice that can satisfy architects' creative impulses and also engage social issues to create form.

One of the most important insights gained during is that there appeared to exist very little relationship between theories of architecture and environment-behaviour research, except those of phenomenology advocated by writers like Norberg Schultz,

(1971)Hetzberger (1991) and Juhani Palassma (2012). It was thus hypothesized that the students could have benefitted more if the environment-behaviour research could be linked to the phenomenological approaches to architecture which also employs place as a central idea of inquiry. This paper proposes that further research in this direction is needed, if environment-behaviour research is to be made a guiding basis of architectural practice.

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