Main Article:

Transforming Interior Spaces: Enriching Subjective Experiences Through Design Research

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Abstract

This article explores tacit knowledge of lived experience and how this form of knowledge relates to design research. It investigates how interior designers interpret user lived experiences when creating designed environments. The article argues that user experience is the basis of a form of knowledge that is useful for designers. The theoretical framework proposed in the article examines the nature of user experience and how it can be utilized in the design process. The study of lived experiences is contextualized within aesthetic, subjective, and functional aspects of the interior design process, which requires users to express their meanings and needs. A case study is described to illustrate the various stages of this process.

Keywords: design research; experiential knowledge; tacit knowledge; dynamic process; pragmatic philosophy; interior spaces

1. Introduction

In our everyday lives, we live in spaces that are active, changing, and dynamic. When designers create interior spatial designs for various types of uses and experiences, they consider both the aesthetic qualities of a space and how people experience interactions and sensations within the spaces. However, people's experiences are subjective. These are experiences people have in the moment of living, both consciously and unconsciously, in interaction with the space and others in the space. This involves a form

of knowing that is "implicit, naturalistic, ecological cognition of everyday existence" as opposed to "deliberate, formal, thinking and knowledge" (Storkerson, 2010, Section 1, para. 2). This article explores these implicit forms of knowing and considers what design possibilities may emerge from them. Documenting these forms of knowing requires an understanding of how designs reflect aesthetic and functional ends while taking into account the direct experiences users have (Poldma & Thompson, 2009). This requires an understanding of how everyday experiences of the users' life-world impact their subjective meaning-making (Shusterman, 1997; Vaikla-Poldma, 2003; White, 1998).

The theoretical framework proposed here links experiential knowledge to the direct interaction of users within an environment and recognizes the dynamic nature of that link. Experiences of the life-world are taken as a basis for designing environments that actually work for their intended use.

The proposed theoretical framework builds on philosophical ideas about the nature of lived experiences and subjective meanings, and relates it to the process by which users accept or reject a space. These ideas are explored using the example of a research project done in a residential long-term care institution. The research clarifies how the exchanges between the design researcher and the participants contribute to changes in the space.

2. Designing Interior Space

2.1. Current Research

Currently, when researchers study the design of interior space, they tend to be concerned with either the causal relationship between people and their environment or the interactions between material properties and the space being designed. Often, environment-behavior theories form the basis of design inquiry. Such inquiry seeks to understand the relationship between people and their environment using evidence that codifies the relationship (Dickinson & Marsden, 2009; Poldma & Thompson, 2009; Zeisel, 2006). In this form of design inquiry, design researchers demonstrate how appropriately designed space can add value to living well in an institution, how safety and security can add to productivity in working environments, or how evidence-based knowledge of environment-behavior relationships can inform the design process.

Examples of this type of research include the use of questionnaire-based statistical data to glean how the environment affects people's activities (Botti-Salitsky, 2009; Dickenson & Marsden, 2009). This type of research is usually framed in a positivist mode, which seeks objective knowledge (Guba & Lincoln, 1994). Studying human behavior in terms of causal relationships involves verification or falsification of a priori hypotheses. A limitation of this approach is that, as Guba and Lincoln have stated, "[h]uman behaviour, unlike that of physical objects, cannot be understood without reference to the meanings and purposes attached by human actors to their activities" (Guba & Lincoln, 1994, p. 106).

It is these meanings and purposes that tacit forms of knowledge contain. Such meanings and purposes are usually studied through narratives and conversations between designers and users (Creswell, 1998; Merriam & Associates, 2002; Vaikla-Poldma, 2003).

2.2. The Role of Lived Experience

People develop meanings attached to objects and environments, be these art objects, personal things, or other people in their lives (Bachelard, 1969; Csikszentmihalyi & Rochberg-Halton, 1981). These meanings arise through interactions that occur within spaces such as homes, offices, or recreational places; the meanings in turn affect perceptions and subsequent interactions (Poldma, 1999, 2008; Vaikla-Poldma, 2003).

Design of interior spaces needs to take the above meaning-making process into account. When designing interior space, the designer (or architect) works directly with clients and users to take an existing (or imagined) interior space and transform it. A variety of knowledges come into play in this process. The role of the technical aspects of the space, such as air quality and material properties, is well recognized in design, but how the tacit aspects shape the design process is less understood.

In practice, the tacit aspects of experience within spaces and between people often shape how the design evolves. Multiple experiences and contexts act together to transform empty spaces into aesthetically functional interior places (Vaikla-Poldma, 2003). These experiences are both internal and external to the user, in that the persons who use the space attach meaning to the space where they live and contribute socially through the interrelations they have with others (Malnar & Vodvarka, 1992; Poldma, 2009).

2.3. Conversation and Meaning Making

Designed spaces, whether real or virtual, trigger various experiences. When designing interior spaces, we are preoccupied with both tangible and intangible aspects. We are preoccupied with its volume and physical characteristics; we are also preoccupied with how the space forms a backdrop for a complex set of interrelationships among people, objects, contexts, and lived experiences. Moreover, these interrelationships evolve over time (Malnar & Vodvarka, 1992; Mitchell, 1993).

Designing interior spaces also requires an understanding of what happens when the spatial experiences people have are grounded in their real, lived experiences that are both subjective and social. These experiences happen simultaneously with changing physical conditions, such as lighting, and changing time-space relations, such as when we work at home, live and work in multiple contexts, or "live at work." In these contemporary ways of living and working, the physical space is a backdrop for changing activities, not bounded by any particular states of being or any particular ways of knowing (Ainley, 1998; Ardener, 1981).

Spaces are designed after investigating multiple issues including user needs, building contexts, space requirements, appropriate materials, colour and lighting, furnishings,

social needs, cultural setting, and then combining it all aesthetically to create the interior space. The space is expected to support the activities and human engagements about to take place there.

Designers engage in conversations with clients and users at various stages of the design process, in part to make sense of the information gathered and then to make decisions and generate ideas for the design of the space. Aesthetic and functional design decisions are made on the spot by designers engaged with stakeholders as they define how the space should be occupied and for what purposes (Poldma, 2009; Vaikla-Poldma, 2003). There is a service relationship that develops between the designers and users as they participate together in both design and production processes (Nelson & Stolterman, 2003).

2.4. Static and Dynamic Spaces

Interior space has long been documented theoretically in terms of physical attributes such as objects, walls, lighting, and color (Malnar & Vodvarka, 1992). Students learn about interior space as an architectural entity grounded in physical attributes that are static and exist as independent features (Poldma & Wesolkowska, 2005). Consequently interior spaces are often reduced to their physical attributes, material and surface decoration, producing static spaces where an office is an office, a restaurant is a restaurant.

In practice, however, spaces are required to be used in a flexible manner where multiple activities can occur in the same place. Designers are often called upon to design spaces for dynamic lived situations, not static ones. This calls for a more dynamic concept of space.

3. Proposed Theoretical Framework

3.1. Beyond Causal Explanations

Historically, theories about interior space have considered human-environment relationships in causal terms (Hall, 1969; Lang, Burnette, Moleski, &Vachon, 1974; Malnar & Vodvarka, 1992). Influences include B. F. Skinner (1971), whose idea of behavior modification through positive reinforcement is applied to designing interiors often when specific design elements such as form and material are chosen.

When human and environment relationships are seen as causal in nature, knowledge claims are assembled from measurements of those relationships. The knowledge claims, when regarded as true, guide subsequent design thinking. This appears to be part of a dominant discourse of design, known as evidence-based design. However, a limitation of this approach is that it is based entirely on what is called *a priori knowledge* (Amin & Cohendet, 2004; O'Brien, 2006), overlooking the subjective experiences arising within the interior space.

Environment-behavior theory explains human-environment relationships as causal and these relationships are situated within essentially static physical interior attributes. It

reckons, people feel well or poorly due to lighting, environment systems, color, or other physical space attributes, such as floors, ceilings, their finishes, and related objects in the space. These interior attributes "act upon the user" and their appropriation (or otherwise) of the space (Dickinson & Marsden, 2009; Zeisel, 2006). Therefore, according to this theory, changing these surface treatments should "improve" the interior situation.

Causal explanations do not always take into account subjective experiences. Interior spaces are locations of both aesthetic values and social constructions. Subjective experiences, affected by role, status, gender, and such other individual-level factors, also guide interactions in interior environments (Belenky, Clinchy, Goldberger, & Tarule, 1997; Code, 1991). For example, women navigate spaces differently from men. Similarly, cultural differences impose different social rules and hierarchies that influence social constructions of space and place (Ainley, 1998; Ardener, 1981; Rose, 2001; Rothschild, 1999; Spain, 1992). People also attach meanings to objects and the spaces they live in.

Therefore, in the proposed theoretical framework, subjective experiences and meanings are considered salient elements. These are not captured usually (nor authentically) using empirical positivist modes of research.

3.2. Beyond Static Attributes

Until recently, and in an effort to legitimize the profession, interior designers have generally tended to be more concerned with building professional practices, ethical conduct, and solving problems of a pragmatic nature (Abercrombie, 1990; Hildebrandt, 2000; Malnar & Vodvarka, 1992). When professional designers ask clients and the users of the spaces what they need, how they live, and observe their situations, they try to understand how people live and work, how they engage in social and personal activities to be able to provide supportive and appropriately designed spaces. The spaces they design are by their very nature dynamic in that they integrate people within changing circumstances.

While some people live in the global 24x7 information communities, others carve out lives on the fringes just to survive. Different people can experience the same space as hostile or friendly, as virtual or physical, or as a place for personal or social needs. It is difficult to reduce these experiences to codified statistical numbers, as different subjective voices account for different ways of living, working, or playing in different cultures and societies.

Accordingly, in the proposed theoretical framework, spaces are not characterized entirely through static attributes. Spaces are seen as dynamic contexts and products of social interactions.

3.3. Beyond Codified Information

There has been a criticism of "knowledge-reduced-to-information," which refers to a limited vision of knowledge:

1. the vision of knowledge as a simple stock resulting from the accumulation of information in a linear process;
2. the hypothesis that any form of knowledge can be made codifiable;
3. the vision that knowledge is limited to individuals;
4. the idea that knowledge is limited to something that people "possess" (Amin & Cohendet, 2004, p. 17)

By contrast, knowledge derived through experience and tacit understanding would be based on what is experienced in real time. This form of knowledge situates design thinking within the context of use, such as the ways in which people actually appropriate spaces. Forms of tacit knowledge such as lived experiences run up against evidence-based positivist research norms (Storkerson, 2010).

In the proposed theoretical framework, a more extended notion of knowledge is adopted. In this extended notion, knowledge relevant to design is not limited to codifiable information alone, but also includes the effect of comparing and combining subjective experiences in real time. This notion of knowledge will allow the designer to consider a wider variety of inputs while designing interior spaces, such as perceptions, experiences, and conversations.

3.4. Emerging Paradigms of Space

People are finding themselves living and working very differently than even 5-10 years ago. In this technologically and digitally enhanced world, objects are transitory, spaces can be virtual or physical, while communication and interactions are varied and changing constantly, all affecting social and political norms (Abrahamson, Meehan, & Samuel, 1998; Dent, 1998; Dholakia & Zwick, 2003; Margolin & Buchanan, 2000). Spaces are no longer designed for one specific use, nor as the determinant of a particular set of activities. As Poldma and Wesolkowska (2005) state in their comparison of the old and new paradigms of living/working:

> [T]he subject perceives place as a primary mode of identification against "others" such as the environment, people or work processes. People worked in the office, lived at home and enjoyed leisure time in the movie theatre. In the new paradigms of living and working, both experiences and tasks overlap one another constantly. . . . lived experiences overlap and intersect the boundaries of space and place/time. Realities are defined in practice and practice is defined in space, one that can be local or global, imagined or actual, and which often cuts across boundaries physical/virtual. (Poldma & Wesolkowska, 2005, p. 56)

In this type of paradigm, the process of designing spaces needs to work with a wider set of inputs. Interior design approaches need to "consider all the senses, and how these simultaneously experience visual space and respond to sensory cues while engaged in social human contact" (Poldma & Wesolkowska, 2005, p. 57). The user becomes a key organic part of the design process. Their activities define the space.

> In the age of mobile communication, we have thus moved from *spatialized time*, where the nature of the activities was predominantly governed by the structuring logic of the place (one reads in a library, one studies in a classroom, one eats in a restaurant, etc.) to *temporalized space*, where the nature of the activities of its inhabitants define the place (a restaurant becomes a playground, a coffee house becomes an electronic mall, a train becomes a work station, etc.). (Dholakia & Zwick, 2003, pp. 11-12)

People's activities and experiences are increasingly defining what spaces are and how spaces evolve in response to changing activities and experiences. Design researchers need an approach that allows them to harness users' subjective experiences towards the creation of new spatial forms.

The proposed theoretical framework responds to this requirement. It opens up the design process to the subjective and experiential inputs of the various users and stakeholders, based on their perceptions. This process of sharing becomes part and parcel of the process of transformation of the space during its use.

This theoretical framework can be illustrated using a case study example to show how research informs design and how design informs research, both driven by users' experiences.

4. Case Study: Interior Design for an Elder Care Institution

An elder care institution was designed for a particular aging population. The design was created using the best practices and knowledge sources available, having been renovated about 2 years prior to this study. However, something was not working, because the head nurse of the dementia unit called me and told me about how the residents were being brought to the space and were trying to leave it, thereby rejecting the space in that unit that had been designed for them. Both the head nurse and the staff were perplexed. While the space was beautiful, clean, and appeared to suit its intended purpose, something was not working. When the staff tried to bring the residents to the designated room for specific activities, they promptly began to leave, even though many were wheelchair bound. I was asked to investigate the reasons why and I promptly set out to create a research project to answer why the users were rejecting the seemingly beautiful and functional space designed for them.

Using evidence-based procedures that were theoretically supported by a constructivist paradigm (Guba & Lincoln, 1994; Rose, 2001), the team of researchers proceeded with a three-phase study. In the first phase, existing physical conditions were recorded and the

perception of staff and volunteers were collected. Particular attention was paid to the users--elderly residents with dementia. The unit programs, activities, and family social situations were also assessed. Dialogues were arranged with all the stakeholders and users.

Using a combination of observation and visual qualitative data, the issues were recorded, verified, and analyzed. The data consisted of the physical characteristics and spatial elements, as well as the observations and narratives from the conversations the researchers had with various stakeholders, including users, volunteers, nursing staff, and families of the residents.

The data were documented and analyzed using interpretive analytic methods that provide trustworthiness through triangulation (Clandinin & Connelly, 2000; Creswell, 1998; Rose, 2001). This included an analysis of the observations of the physical space, responses from stakeholders, and activities within the spaces.

Epistemologically both the research and design processes are considered to be constructivist in essence (Creswell, 1998; Vaikla-Poldma, 2003). The design researchers sought to understand user perceptions, dynamic social activities, and the spatial capacity to support these different activities, and identified the multiple contexts that were revealed (Poldma, 2006).

The issues raised by the users included a lack of social space for family members to meet, poor ventilation and lighting affecting the visibility and comfort within the space, and an inability to sense the space due to poor color choice for the older residents, who did not "see" the space as a place where they would want to be. The corridors felt like an "abyss" and the space itself was cold and institutional in feel. Another interesting issue emerging from the stakeholders was their diverse perceptions both of the use of the space and of the activities that might unfold. The perspectives varied widely depending on whether one was a resident, volunteer, doctor, nurse, or caregiver.

In the second phase of the study, and once recommendations have been made and accepted by the stakeholders, minor design revisions were proposed and then some renovations were carried out. The recommendations included adjustments in lighting and spatial zoning to rectify the problems identified as leading to the rejection of spaces by the residents. New spaces were created to incorporate social program activities, based on the recommendations by both researchers and care-givers working together.

The third phase of the study consisted of re-evaluating the success of the changes and the responses of all the stakeholders were documented. Overall, the changes improved responses and social activities that satisfied the nursing staff, residents, and families alike (Poldma, 2006). Families were delighted that they were able to socialize with their loved ones, while the staff noticed improvements in the residents' ability to navigate the spaces with reduced dependence on the staff for their daily activities. In all the three phases of the study, conversations and dialogues contributed to the movement of the study from

evaluation to implementation of changes and again to evaluation of the ideas to improve the space.

5. Discussion

In the case study example, the reasons why the space did not work initially became clearer through careful observation of the users and several conversations with the stakeholders. The data collection and analysis was supported through methods that value the voice of the people occupying the space. The physical properties of the space were recorded alongside conversations about the activities and user needs and desires. The changing activities and needs were documented and the space was changed to reflect the issues. The adjusted space provided the flexibility necessary for the activities to unfold.

The analysis uncovered issues that are functional, while listening to the users allowed the design researchers to glean what they wanted. Changes were suggested understanding both the institution's needs and the caregivers' perspectives. The design researchers worked closely with the staff and nurses in the unit to understand their perspectives, and observed and listened to the users to get theirs as well. Both revealed things that did not work in the space.

The case study exemplifies the theoretical framework proposed in this article. Following this framework, design research needs complement the subjective meaning-making process. Designing then becomes integrated with the overall cyclic process which allows users' experiences to shape their environments, which in turn create new, hopefully richer, experiences for them.

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