



A phenomenological study of spatial experiences without sight and critique of visual dominance in architecture

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Abstract Architectural phenomenology suggests that the basis of perceptual integrity between the subject and a space is multi-sensorial. However, the advancement of visual representation techniques within architecture has led to predominance of the visual experience over other sensory modalities. As a consequence, the integrity of the user's multi-sensorial appreciation of space has been largely neglected which may impact on the holistic experience of the individual.

The present study uses an architectural phenomenology approach to explore user experiences of architectural spaces without reference to visual input: the aim being to elucidate key sensory modalities that drive a synthesis of the spatial experience in the absence of visual cues. In this way, the study aims to highlight the role of the non-visual, as a criticism against the tendency to present architecture as a predominantly visual phenomenon.

A qualitative study of spatial experiences from four congenitally blind and three late blind individuals was carried out within the framework of architectural phenomenology. Thus, although all suffered total loss of sight, it was possible to assess the impact of latent visual memories within the second group. In-depth interviews with each participant explored responses to four semi-structured, open-ended questions. They were asked to describe; 1) what an architectural space means to them, 2) the place they live, 3) the most important architectural features that affect their experience either positively or negatively and 4) the most favourable and unfavourable place they had ever been. No time limit was imposed for answering the questions. The answers were audio recorded with permission.

All participants judged an architectural space predominantly by its acoustic properties, with no clear difference between the congenital or late blindness subgroups. A frequently mentioned construct was the sense of spaciousness with the acoustic properties of architectural features such as materials and ceiling height identified as critical determinants. Tactile experiences, in the form of air circulation felt on the skin also helped the participants to judge spaciousness. But, it was odour that was often described as the feature that defines the identity of a place. Contrary to common beliefs, tactile experiences using the hands were mentioned least.

We conclude that non-visual senses subserve a central role in the formulation of spatial experiences for the visually impaired and postulate that they may have similarly significant impact on the experiences of the visually adept. Designing the properties of different acoustical ambiances to promote a synergy of sensory experiences through, for example, the selection of materials or dimensional adjustment at intersections, voids, openings and atria rather than concentrating on visual impact alone would enrich the environmental experience significantly.

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Introduction

Phenomenology can be defined as an interpretive study of the phenomena that human beings encounter and experience (Seamon, 2000). And, its product informs on the essential qualities of worldly human experiences within the framework of Existential Phenomenology as described by Heidegger (1962), and Merleau-Ponty (1962).

An architectural space, the product of the architectural process, is phenomenal in this sense. The relationship between the space and the user can be explored phenomenologically with an examination of the architectural manifestation as it is 'lived' and acted upon by individual users. Architectural phenomenology, the interpretive tool employed in the study presented here, seeks a qualitative description of the architectonic experience on a concrete but personal level.

An individual's experience of an architectural space can be more than visual. An architectural space is not only understood through the eyes and the intellect but experienced through all the senses of the body as one moves through it and actively interacts with it. Pallasmaa (2005) argues: *Experiencing architecture is multi-sensory; qualities of space, matter and scale are measured together by the eye, ear, nose, skin, tongue, skeleton and muscle. Architecture strengthens one's sense of being in the world, and this is basically an enforced experience of self. Instead of mere vision, or the five classical senses, architecture involves several realms of sensory experience which interact and fuse into each other. (p.41)*

So, a phenomenological study must employ a holistic, multi-sensorial approach to describing the architectural experience, where a person and the space are interacting synergistically (Holl et al., 2006; Pallasmaa, 2005).

However, there are few architects whose designs are said to have been successful in heightening the multi-sensorial experience. The Swiss architect Peter Zumthor is one such rarity according to Pallasmaa (2005, p.70). But in general, building design is primarily a product of the architect's intuition and personal experience. Consultative inquiries into the first-hand experiences of building users or the lay persons' account of so-called multi-sensory architecture are rarely employed. The predominant sensory informant in the architectural process is the visual modality. Indeed, architectural education is preoccupied with the sense of sight. Every architect initially conceptualises how the project will look before designing it and then production begins with drawings, sketches, plans and perspectives which are all part of a visual process. The end product is presented as an artistic or photographic rendition with no trace of people. Although certain architects (e.g., Rasmussen, 1959) have advocated that architecture is a multi-sensory and holistic activity, recent technological advance in modelling programs and visual representation techniques has fostered a continuing emphasis on the visual. Furthermore, published critical analysis has argued that the architects' preoccupation with appearance and visual aesthetics has reduced their products to mere physical objects that are seen by the spectator at a distance rather than lived and acted upon by the occupant (Frank & Lepori, 2007; Pallasmaa, 2005). Therefore this design approach, which relies so much on visual aesthetics, may threaten the user's holistic sense of place by not appreciating the multi-sensory nature of person-space interaction.

There are a number of studies in the field of experimental psychology that interrogate spatial cognition and capacity in the congenitally blind but qualitative research looking into real-world 'lived' experiences and their meanings is scarce. One exception is Karlsson's (1996) phenomenological-psychological research on the experience of spatiality for the congenitally blind. Experiences of objects that can be localized in space (e.g., jar, side-walk, house, sky) were qualitatively investigated through interviews initiated by a set of key words. It was the tactile sense, used in an active exploring manner, which was found to be the most important in constructing an awareness of spatiality. Although the study concerns general spatiality, a similar methodology and Karlsson's (1996) findings may be pertinent in the experiential analysis of architectural space as well.

We present here a qualitative phenomenological inquiry into the experiences of visually impaired individuals that highlight a significant role for the non-visual senses in understanding and interacting with an architectural space. We present our findings as a critique against the dominance of visual aesthetics in current architectural practice. The aim of the present study is to elucidate key sensory modalities that drive a synthesis of the architectural experience in the absence of visual cues and as such we have sought to build upon the phenomenological methodologies of authors such as Karlsson (1996). We have not sought to create a design for disabled living, rather a census of non-visual cues that may subserve a central role in the formulation of spatial experiences for the visually adept as well. People with visual impairment are expert users of the non-visual qualities of architectural spaces. Taking the experiences of the visually impaired into account in the architectural process may have a significant impact on the experiences of those who primarily rely on vision. Highlighting such qualities of architectural space that are appreciated by non-visual senses can potentially enrich the spatial experience for all of us.

Method

A qualitative inquiry into spatial experiences in the absence of visual cues was carried out within the general framework of existential-phenomenological research.

Participants

Participants were recruited with the help of the Technology and Education Library of the Visually Handicapped (GETEM), the Platform of Visually Handicapped Students and the Six Points Association of the Blind, all located in Istanbul, Turkey. In total, seven individuals with total visual impairment volunteered to participate under informed consent. Four of them were congenitally blind and the remaining three were late blind. Thus, although all suffer total sight loss, a subset of participants may be capable of referencing latent visual memories. Our reasoning was that this potential difference may manifest itself in qualitative differences between the two groups. Each participant is identified in the text by a numeral code to protect their privacy. The age, gender and occupational profile of participants are presented in the table below (Tab.1). The participants' age ranged from 28 to 46 and they had similar educational and socio-economic backgrounds.

Participant	Age	Gender	Category	Occupation
P1	32	Male	Late Blind	Librarian
P2	30	Male	Late Blind	Public servant
P3	46	Female	Late Blind	Psychologist
P4	28	Male	Congenitally blind	Public servant
P5	32	Male	Congenitally blind	Librarian
P6	29	Female	Congenitally blind	Civil servant
P7	35	Male	Congenitally blind	Public servant

Tab. 1.The profile of participants

Interview technique

An in-depth interview was separately conducted with each participant in order to gather their descriptive accounts regarding spatial experience. Care was taken not to direct their answers in any way. So, that all the interview questions were semi-structured and open-ended. They were asked to freely describe; 1) what an architectural space means to them 2) the place they live or spend most of the time 3) the most important architectural features that affect their experience either positively or negatively and 4) the most and the least favourite place they had ever been. The questions were used as cues to elicit descriptive accounts of the participants' architectural experiences. The participants were encouraged to talk about whatever came to mind in association to the question. The researcher adapted interactive questions according to the participant's

responses and commentaries. No time limit was imposed for answering the questions. The answers were audio recorded with permission.

Results

The contents of participants' accounts were carefully studied in order to identify common themes. The aim was to identify commonalities and patterns between each account, rather than analysing and presenting all of an individual's responses. The findings are presented here featuring notable accounts from answers across all questions.

The participants tended to focus on sensory modalities (e.g., sound, smell) or specific physical properties (e.g., materials, height, and proportion) when describing their architectural experiences. They talked about the acoustic properties of the space most frequently. For example, P7, who is blind from birth, described how he would make a sound by hitting his cane on the ground and listening to the echo coming back from the wall when there were multiple other disturbing noises in the vicinity that could misguide him. He said that sound pollution and echoes coming from more than one direction made it difficult for him to understand the spatial structure. He summarized:

I think a well-designed place needs to have good acoustics; when I walk, there shouldn't be things that prevent me from understanding the echo. (P7; male; congenitally blind).

Structurally, all the participants expressed a disliking of low ceilings because of the difficulty in tracing sound echoes. Three of them also said that extra high ceilings also made it difficult to follow echoes. They seemed to prefer ceilings that were of intermediate height. P3, who is late-blind, described how she used echo to understand the place but also her fear of large open space with no returning echo:

Many blind people utter sounds from their mouths and perceive the area with the echo...This is more or less how I understand whether a place is small or large. (P3; female, late blind)

I don't like staying too long in an undefined large space because I don't like the idea of continuously having unknown people's eyes on me. If my sound doesn't come back to me that means I'm too out there in the open and everybody can watch me. (P3; female, late blind)

Thus, echo seems to play a crucial role in understanding the space. There was no outstanding difference between the congenital or late-blind subgroups in this respect. The only difference between the congenital and the late-blind subgroups was that after understanding the architectural space using auditory and other cues, the late blind person could form a putative image of the place using visual memories. P2, who lost his sight at the age of 20, describes:

For example, if there is a desk in the office, and a chair in front of the desk, I understand that, that there's something in front of the desk. I don't know whether that's due to sound. After I understand, a picture forms in my mind. (P2; male, late blind)

When defining architecture, P4 also emphasized the importance of the acoustics. He described how he used sound data to analyse the space:

I don't judge architecture in terms of materials; the most important thing for me is the sound, ceiling height and then air circulation. I also feel more comfortable in large but echo-free places. Echo constrains me; I collect data on the return of sound and other echo interferes with the data. (P4; male, congenitally blind)

P1 talked about what he called "the force of attraction" that was created by the acoustics of his favourite building:

...the door is very easy to find, it attracts you, pulls you into it. The door is large, and with the force of attraction it creates, it draws you in... [How would you define this force of attraction?] It's to do with sound. Like light coming out of a lantern; light disappears in an empty space but when it hits a wall it stays there and freezes. So does sound. In this place, sound literally takes you there, like pushing you down the hill. Like the sink hole in the bathroom sucks water into it. (P1; male, late blind)

Even when construction materials were mentioned, they were discussed on the basis of their acoustical properties rather than their haptic properties. For example;

Glass helps with direction because it gives the heat of the sunlight to the inside. Another thing I like about glass is it lets you hear the rain. When the rain hits the windows of a large place, even if there is no other sound inside, you can guess the size of the room. As a person who cannot use visual elements but uses auditory elements, the sounds coming in from a window, like the rain, have a psychological effect, make me feel comfortable. (P1; male, late blind)

It is easier to find directions inside a wooden structure thanks to echo. In a huge structure, due to increased echo, it gets more difficult to find directions. If re-percussion is minimal, it feels better. Tiles and as such are not good. (P2; male, late blind)

Although I don't like houses without carpet, I don't like carpeted, large spaces, either. It's got completely to do with acoustics. (P6; female, congenitally blind)

Wall coverings may prevent unnecessary echo, wood reduces echo, for example in CRR [a concert hall] there are fabric-like things on the wall. But it shouldn't be overdone. For example in Bosphorus University, the walls of the reading room were covered with some materials resembling egg cartons. This is also too much; it absorbs the whole sound. Such a covering diminishes the echo that we need. So, maybe wood is the most reasonable, because it neither totally absorbs the sound, nor causes echo pollution...I like plaster, marble, and granite; even if I can't see them I can sense them. (P7; male, congenitally blind)

The other important experience was the sense of smell. Odour, was often described as the property that defined the identity of a place. The following descriptions are examples:

Odour is important to me, but it's difficult to explain this. I usually remember places with my breathing. That's how I commit it into memory. I guess air gives me more data and therefore I register with that. Touching comes after air and sound. (P4; male, congenitally blind)

For example, smell gives an idea of the ambiance; I think about the smell of the city, the home, the restaurant, I try to guess the place from the smells. "How does the city smell?", when I go out of the airport, I pay attention and try to form thoughts about the city. (P6; female, congenitally blind)

Odour also has an effect. The smell of humidity that comes when you go down to the metro scares me, for example. A nice scent attracts people. I don't go there [the metro] willingly, every time I feel like I'm going somewhere I don't know, despite having used it many times. (P2; male, late blind)

Besides these bodily sensory experiences, a frequently mentioned construct was the sense of *ferahlik* (spaciousness). This Turkish word is not only related to the size but has rich multi-sensory connotations including freshness and comfort. This notion was often used while they described their most favourite place and generally evaluated in association with the feeling of air circulation and the experiences of proportions and ceiling height. For instance;

When I think of architecture... "largeness" and "height" notions come to mind. If I give an example, when I go into a shopping mall, the area needs to be open and "spacious" to some extent... The first thing that comes to my mind when I enter a place is usually, "Would it be more spacious if we changed this with that?" (P6; female, congenitally blind)

I don't perceive light but I feel that Palladium [a shopping centre] is brighter, more spacious, with sufficient space, shinier and cleaner. I can also sense the high ceiling and the largeness. It's also to do with the echo... I don't know how I feel light but I know the feeling of a brighter and spacious place. Senses of smell, brightness and cleanliness come together and as a whole give the sense of spaciousness and this, in my opinion, determines the ambiance of the place. (P3; female, late blind)

I expect comfort from architecture. For example if it's about housing, I expect to be comfortable. If I can breathe easily, if I feel peaceful by the wall height and the spaciousness inside the

building, then it's a good place for me...Air circulation affects the feeling of spaciousness of a place. For instance, breathability is very important to me. (P4; male, congenitally blind)

The houses in our village, for example, are adobe. The walls are very thick, I feel so comfortable when I go inside those houses. They are spacious. Now, the walls in the new house are thin, the ceiling is lower and I feel stuffed when I go inside. (P2; male, late blind)

These answers show that sense of spaciousness, even if explained structurally, for example by ceiling height, is actually a synthesized impression based on auditory, olfactory and haptic (especially feeling of air circulation) experiences of the space. For this reason, their liking or disliking of a place is related to this sensory integration and the holistic sense of place. Conspicuously, all participants described shopping centres as their least favourite places. Even though the details of individual accounts differed, participants mostly emphasized uncomfortable acoustics and air as well as crowded planning that cause perceptual disturbance. On the other hand, buildings with a courtyard in the middle were described favourably as an example of a pleasant space by all participants.

As a building, I don't like shopping malls. The reason is air, there's air inside but it's an artificially cleansed air... It's also exhausting due to too many electric currents, it feels more tiring in the shopping mall than walking outside on the street. Maybe it's also due to noise. (P4; male, congenitally blind)

It's more comfortable if it's open on top and covered all around on sides because you can get repercussions of the sound of the cane from the walls. But if the top is closed and the sides are open, you don't know which way you are walking to...Shopping malls are the worst examples. I can't go anywhere without asking directions. You can't understand the echo because of the noise produced by other people. There are a lot of noises and a lot of movement. (P7; male, congenitally blind)

I think courtyards and water increase the general quality of a building. Places with an open top and enclosed by three sides give a sense of spaciousness and protection. (P3; female, late blind)

Rather than focusing on one sensory modality or specific architectural properties, one participant (P6) described the sense of belongingness thus defining architecture as something that emotionally connects the person to the place. She described that her emotional involvement in architecture was the result of multi-sensory corporeal interaction with it.

I think architecture is what makes me belong to the place, because I evaluate the texture, the smell and the interior of the place and decide whether I like it or not. (P6; female, congenitally blind)

Lastly, P1 offered an interesting analysis of how a blind person “sees” the architecture. He said:

I just thought this; a building that's good for me may be meaningless to the sighted person. Why do you need so many forms and décors inside the building? I decided this is because people are afraid of emptiness...for example Sutis [a restaurant] in Taksim. There are lots of fake flowers when you are going up the stairs. That makes me very uncomfortable, but I'm sure it's appreciated visually. We look at things in a more primitive way. (P1; male, late blind)

P1 asserted that unnecessarily complicated shapes and ornaments disturb people like him. Interestingly, his stated preference for simple forms was reminiscent of the principles of Modernist architecture. Postmodernist architecture, on the other hand, may create ‘disturbance’ by reinstating superfluous decoration and sculptural complexity in attempting to restore meaning to a building.

Discussion and Conclusion

The present study explored the role of non-visual experiences of space within the framework of architectural phenomenology. No prominent differences were found between congenital and late blind subgroups in their accounts of architectural space, apart that late blind participants

could form an image using visual remnants to reinforce the overall perceptual impression. The results showed that whether they were congenitally blind or late blind, all participants judged an architectural space predominantly by its acoustic qualities. Auditory experience, especially listening to echo, helps the participants to understand the size and the structure of a constructed environment. On the other hand, the ambiance of the place seems to be conceived through a combination of olfactory and haptic experiences as well as the auditory.

The acoustic qualities of certain architectural features such as the materials used and ceiling height were described by the participants as important determinants of spatial comfort and pleasantness (*ferahlik*). Smell was often described as the feature that defined the identity of a place. The overall sense of spaciousness, which was frequently mentioned and described favourably by the participants, was not only judged by acoustical properties but also determined with the help of tactile information in the form of air circulation felt on the skin. However, there was a clear contrast between our findings and those of Karlsson (1996). In our study tactile experience, the physical palpation of environmental features was mentioned least by the participants whereas Karlsson's conclusion was that palpable haptic inputs were of prime significance in the perceptual experience of spatiality in general. Our findings also contrast with commonly held beliefs within society: that the visually impaired rely primarily on the sense of touch.

Methodologically, this study has demonstrated the value of the phenomenological research approach in describing the architectural experience. In-depth interviews allowed us to listen to the voices of actual users of architectural spaces and to understand their first-hand, personal experiences. There are many phenomenological discourses in architecture but phenomenological inquiry into user experiences as a research method is still rarely found.

Participant accounts helped us understand the experiential integrity of architectural spaces. When visual cues are absent, people utilize different sensory modalities and combine them to conceive of the space in which they find themselves. Space still gains meaning and identity in the absence of non-visual cues. For example, the sense of spaciousness seems to be achieved as a result of the integration of all pleasant non-visual experiences.

As a whole, this study showed that architectural space can be a meaningful, comprehensible, environment even if sensed in the absence of visual cues. Even though for the visually adept architecture is primarily defined visually, non-visual senses play a central role in the formulation of spatial experiences and meanings for the visually impaired. In particular, the participants' rich descriptions of their auditory experiences pointed to the importance of acoustic properties in architecture. Many preferred architectural features such as certain materials and ceiling height which in fact related to the acoustical ambiance of the space. Low ceilings, poorly defined large spaces and complicated architectural shapes were described negatively. In contrast, high ceilings, courtyards, natural materials such as wood and even water were described as positive features. Structural features such as courtyards can create refreshing air flows while natural materials like wood can produce a pleasant scent. Running water can also produce a restful ambiance. Interestingly, all of these features are found in traditional Turkish architecture: wooden houses, decorative indoor water pools, and a courtyard in the middle of a building. This observation implies that the overall understanding synthesised by participants may have been achieved with reference to an internal cognitive 'filter' of culture-specific expectations. Further research that encompasses this essentially existential element of the phenomenological experience may extend upon and bring our current findings further into context. As a lay person's architectural taste is said to be shaped by seeing and experiencing traditional buildings in a given society, Turkish blind people's architectural preference may have been developed in the same way. Alternatively, we can also argue that vernacular architectural traditions are generally more multi-sensorial and humanistic compared to contemporary international-style buildings that emphasize visual aesthetics.

We can postulate that those features preferred by the visually impaired may have significant impact on the experiences of the visually adept. Given the clear significance of acoustic properties in the present study we propose that it may be possible to enrich the environmental experience for all, by adjusting the acoustical ambiance rather than concentrating on visual impact alone. For example, the judicious selection of materials or dimensional adjustment at intersections, voids, openings and atria may have the capacity to influence or inform the sighted user on a separate, but significant level thus enhancing the utility of the space. However, one thing should be noted. In our attempts to promote a multi-sensorial approach to the architectural process we are not recommending the use of superfluous architectural details that can lead to over-complication. As P1 pointed out, unnecessarily complicated architectural features can be disturbing for unsighted users.

The aim of this study has been to define the critical determinants for spatial awareness of the unsighted in an architectural space, to inform upon the importance of a multi-sensory, holistic experience for all and to apply this as a criticism to the dominance of the visual modality in current architectural practice. The accounts of architectural experiences provided by the participants of this study provide a clue to understand how space can be experienced as a synergy of different sensory qualities. We can learn how to improve the non-visual appreciation of a space from the experts in this field: the visually impaired. Our conclusion is simple; Architecture should offer multi-sensory space of high qualities for both unsighted and sighted users. To achieve this, we can look to the translation of multi-sensory phenomenology to the architectural sphere.

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