

in dialogue with (dis)-Ability

1 Introduction

Addressing the issue of user involvement, this paper sets out to consider the significance of diversity in shaping strategic urban projects. More specifically, it demonstrates how introducing the factor dis-ability in the design and planning process may trigger genuinely innovative environments.

The environments we refer to are innovative in the sense that they provide multiple sensorial qualities, and as such considerably differ from most buildings and spaces, which are produced under consideration of only one sense—sight. The absence of non-visual features in traditional architectural spatial representations indicates how these are disregarded as important elements in conceiving space.¹ In general, however, the quality of space, matter and scale is assessed by a combination of multiple senses.² The way spaces feel, the sound and smell of these places, has equal weight to the way things look.^{3,4} The bias towards vision, and the suppression of other senses—in the way the built environment is conceived, taught and critiqued—results in a disappearance of sensorial qualities.⁵ A promising strategy to regain these qualities, we will point out, is to explicitly involve the perspective of users with dis-abilities in the design and planning process. As we will point out in this paper, this strategy yields environments that are more functionally comfortable for the real diversity of users, but also more enjoyable and meaningful for all.

Except in participatory design, however, users—or lay people in general—are rarely involved in the design and planning of the built environment. They tend to be held at arms length and are only allowed in as abstractions (through functional concerns) or as ideals (through notions of authentic living).⁶ At first sight, this should not be too problematic, since designers and planners themselves are after all users of the built environment as well. However, research in environmental psychology has shown how student architects gradually become increasingly remote from the way lay people describe and prioritise buildings and spaces: over the five years of their studies they take on the language codes, stylistic preferences and rituals of architects, and become assimilated into the social mores of the profession.⁷ The “architectural autism”⁸ that results from this socialization into the profession, may be countered when architects engage in a dialogue with “the other”. Such a dialogue turns out to be particularly enriching for the design process and may trigger the generation of new design knowledge. “The other” may refer to different dimensions of diversity, e.g. ethnicity,⁹ gender¹⁰ or—the focus of this paper—disability.^{11,12}

In order to reveal the potential of engaging in a dialogue with dis-ability during the design and planning process, the paper is structured as follows: Section 2 starts by pointing out how the spatial experience of people with certain impairments may complement the professional expertise of designers and planners, and argues for infusing the design and planning process with this unique knowing-in-action. In substantiating this argument, Section 3 subsequently describes two projects that illustrate how attention for dis-ability may trigger the generation of innovative environments. Section 4 closes with summarizing lessons learned and outlining major challenges for the future.

2 Spatial (dis)-Ability

Through their daily interaction with buildings and spaces, users develop insights that can be highly relevant in designing and planning the built environment. Recent research on non-designers points to the existence of implicit (tacit) design knowledge in people without educational or professional design expertise.¹³ Moreover, specific user groups, such as people with certain impairments, are able to appreciate spatial qualities or detect misfits that most professional designers or planners are not even aware of.

Architects (and other professional designers) know, think and work in a visual way;¹⁴ their sensorium is strongly visually developed. As such, designers considerably differ from visually impaired persons, whose sensorium is strongly developed in a tactile and auditory way, approaching a more haptic experience of environments.^{15,16} For instance, persons who are congenitally blind contend to rely heavily on “facial vision”, an ability to feel space with the help of sound waves or displacement of air.¹⁷ As a result of this ability, they understand and interact with space in a completely different way than most professional designers. More in general, the perspective of visually impaired people may teach us about *aisthesis*, the ways in which the sense of touch works together with all other senses.¹⁸

People with a hearing impairment are more like professional designers in that they are highly visually oriented. Across the board, the visual is the way in which they communicate. But in situations where visual communication is impossible (e.g. darkness), the haptic becomes important as well. The experience of individuals with a hearing impairment may yield unique insights in the qualities of visual and haptic signage and the aesthetics of form and colour.

This different appreciation of spatial qualities is not unique to sensory dis-abilities such as blindness or deafness, but also holds for mental impairments. Persons with mental retardation may point to the lay-out of environments and the signification of orientation, transfer and transitions from one into another place. Alzheimer’s disease, for instance, impairs a person’s ability to deal with most normally complex environments.¹⁹ Everyone tends to feel relaxed in comfortable and familiar settings, or anxious in strange and unfamiliar settings, and persons who suffer from Alzheimer’s dementia are no exception to this rule. However, as the disease damages part of the brain that soothes anxiety in these situations, unique understandings can be derived from the way the brain has developed to emotionally cope with the environment. By consequence, studying the environmental needs of this user group as well as the effect of environmental design on them enables designers to learn a great deal that is applicable to design for everyone.

More in general, the perspective of people with dis-abilities represents a unique form of experiential knowledge that is currently unexploited in the design and planning process. Many of these people are interested to share their specific expertise, but paradoxically enough, they currently fall outside the common think paths of architecture and planning. As Hubert Froyen contends, these people “*are the most vulnerable to exclusion by inappropriate design but at the same time the key actors par excellence to analyze the characteristics of the misfit and to help in finding better universal design solutions.*”²⁰ Their specific experiential knowledge is not only critical in directing the (re)design of accessible buildings and spaces;²¹ it could also inspire innovative design solutions that contribute to the overall quality of the built environment. Infusing the design and planning process with this unique knowledge-in-action, so it can be argued, may contribute to substantial quality improvement and innovation of buildings and spaces. The areas of aisthesis, multi-sensorial aesthetics, emotionally rich environments, and semiotic analysis of the complexity of spaces are likely to benefit from engaging in a dialogue with dis-ability.

3 Case studies

So far, this paper has pointed at the unique source of experiential knowledge represented by the perspective of people with dis-abilities, and has argued for exploiting this resource to improve and innovate the design and planning of buildings and spaces. In substantiating this argument, the following subsections introduce two projects that illustrate how attention for dis-ability may trigger the generation of spaces that have a greater carrying capacity and that introduce a more playful form of aesthetics, in the sense that they invite, accommodate, and dialogue with people with very diverse orientations and capacities. The first project is the waving slope at Expo 2000 in Hannover designed by Kamel Louafi, and is followed by the un-built Glass House for a Blind Man designed by Vinko Penezić and Kresimir Rogina. These projects can be considered as representative of two extremes of a spectrum: the former stands out because of the subtle and surprisingly simple way in which it makes an exterior space accessible for all; the latter is purely hypothetical and more futuristic in nature.

3.1 Waving slope, Expo 2000, Hannover (Germany)

The first project that helps substantiating our argument was triggered by the landscape design competition for the gardens of Expo 2000. The Algerian/German landscape architect Kamel Louafi²² won the competition with the design of “gardens in transition”. The main theme of the design is the metamorphosis of a garden from urban plaza into the open landscape, which takes shape as a sequence of different gardens—from black and Mediterranean over bamboo and grass to dune—and different spatial experiences—from intensive to extensive, from sombre to bright, from “deep down” to “high up”, from noise to silence. As a result, the visitor is conducted and sensitized, almost self-evidently, to explore contrasts and contradictions between human, nature and technology. In Louafi’s view, this bonded trinity will generate the major challenges for the future.²³



Figure 1: Waving slope at EXPO 2000 (photo: Office Louafi)

Together, the “gardens in transition” constitute a long, narrow park, 50m wide and 800m long. At the north side, the sequence starts 3,5m below the ground level, and gradually rises over the entire length to the height of the surrounding area. In order to make this fairy-tale “Gärten im Wandel” accessible for all, two extra waving slopes, 70m long each, have been

built at the north side (see Figure 1). The horizontal part of every wave offers a point to rest. The central galvanised metal strip, at night bordered by light on both sides, offers visually impaired persons a visible and tangible guiding line. The whole provides a functional, safe, creative and above all playful answer to the challenge to make exterior spaces accessible for all.²⁴

3.2 Glass House 2001 for a Blind Man

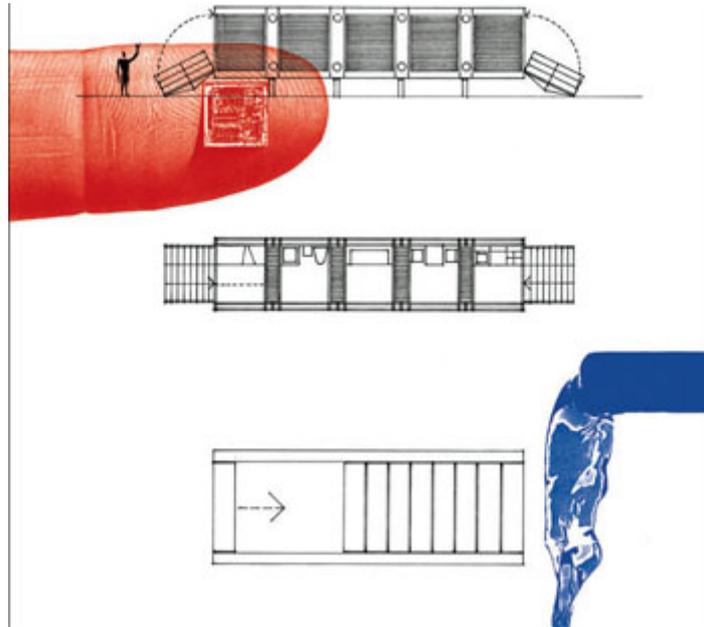
The second project that deserves special attention is the Glass House 2001 for a Blind Man, designed by the Croatian architects Vinko Penezić and Kresimir Rogina.²⁵ While the project was originally designed in 1990, it gained renewed attention at the Venice Biennale in 2000 with the international architecture exhibition *City: Less Aesthetics, More Ethics*.

Back in 1990, the architects wanted to design a hypersensitive feedback house, which could be built at that time, or at least not later than the year 2001. In designing this house, they tried to kill three birds with one stone.^{26,27} On the one hand, they aimed at questioning the relation between the physical and the virtual in architecture: the digital age has brought about very specific conditions and rules which most of today's architectural practice is not dealing with. This digitalization is bringing more sincere audio-tactile qualities into life, which brings us to the project's second objective: in designing the Glass House, Penezić and Rogina wanted to explore the shift from our predominantly visual civilization to a different, audio-tactile culture. Finally, the architects wanted to question the ethical aspect of the post-modern condition, which turned architecture from modernist idealism based on social programs into a completely commercial activity.

In addressing these three objectives, Penezić and Rogina juxtaposed the qualities of glass as a building material with the experience of blindness. Since the main features of glass—transparency and reflection—are meaningless in the World of Darkness, they developed a system to transform sensations from the World of Light and Shadows into the morphology of the World of Darkness.

In essence, the Glass House is a simple container (see Figure 2) built up of hollow audio-tactile glass elements. The media that support those audio-tactile characteristics are water and air, which flow through these transformable elements and, coordinated by a microprocessor, produce different temperatures and sounds (see Figure 3-4). The project can be considered as a refreshing twist on an almost archaic system in that it combines the Ancient Roman hypocaustus²⁸ with the possibilities of today's digital technology.

According to Penezić and Rogina, the key to innovation lies in creating environments responsive to the impulses of their immediate—natural, technological and phenomenological—surroundings, as well as to the diversity of their users (see Figure 5). Glass House 2001 for a Blind Man exemplifies this new paradigm: it deals with the surprising concept of the blind person's awareness of glass and, at the same time, avoids the misconceptions that characterise exclusive approaches, since the audio-tactile glass elements do not exclude visual or formal characteristics.



**Figure 2: Glass House 2001 for a Blind Man as a simple container
(drawing: Penezić & Rogina)**



Figure 3-4: Textures of the audio-tactile glass elements (drawings: Penezić & Rogina)

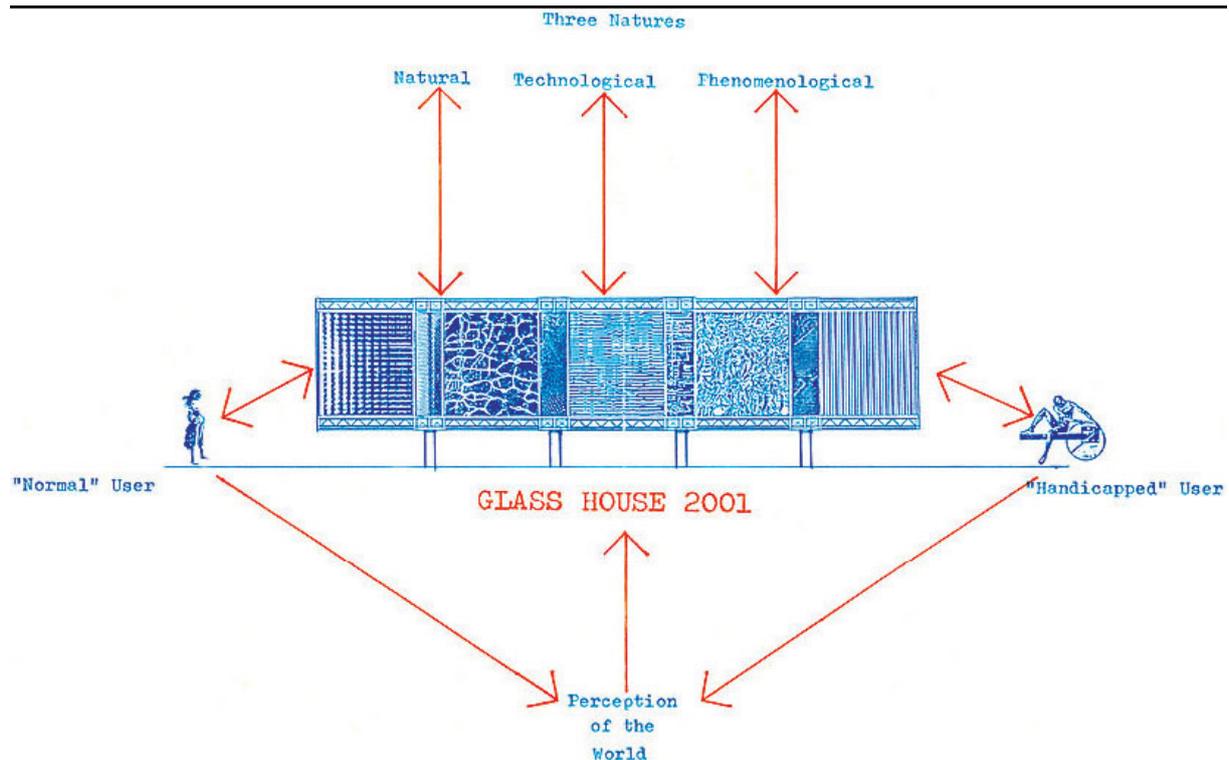


Figure 5: Glass House 2001 exemplifies a new paradigm (drawing: Penezić & Rogina)

4. Discussion and Conclusion

We have argued in this paper that a genuine dialogue with dis-ability may resort into a critique of how designers of buildings and spaces are socialized into the profession. Furthermore, such a critique may trigger the exploration of complementary avenues that hold surprising potential for shaping innovative environments, such as aisthesis, multi-sensorial aesthetics, emotionally rich environments, and semiotic analysis of the complexity of spaces.

The first project addresses the need for access to and transition between spaces, as well as the contemporary challenges of the contrasts and contradictions that are found between human, nature and technology. In presenting the second project, Glass House 2001 for a Blind Man, we specifically considered how the dialogue with blind and visually impaired people may lead to consider underused features of material use, in this case of glass in the built environment.

The projects we selected considerably differ in terms of purpose, context and nature. However, both stand out in that they question the basic form and content of the physical fabric from a multi-sensorial perspective, instead of taking the average design as a given and adding on features to make it more accessible. Moreover, both projects avoid the misconceptions of exclusive approaches by appealing to people with and without dis-abilities, as such doing away with the assumption that responding to the needs of the former tends to reduce the overall design quality.

If we want to stimulate and support the design of such environments in the future, the question arises: how can we infuse the design and planning process with the unique experiential knowledge of people with dis-abilities? Research suggests that information, in and of itself, is insufficient if the mechanisms for people with dis-abilities to provide professionals with their views are absent or weakly developed.²⁹ A major challenge therefore will be to develop scenarios that provide the context for professionals to effectively engage in

a dialogue with dis-ability from the very start of the design or planning process. Can we offer designers and planners a method to involve users with dis-abilities in shaping a qualitative built environment? For instance, how can an architect effectively collaborate with people with a visual impairment to break through the merely visual? Would it be possible to involve these people as experts in the design team? If so, how would the team communicate and evaluate the visual, tactical, auditory qualities of the environment being designed? Or are other scenario's thinkable? As these questions illustrate, further research is needed to explore how exactly a dialogue with dis-ability may take shape.

Notes

- ¹ Dischinger, Martha (2006) The Non-Careful Sight, in Patrick Devlieger, Frank Renders, Hubert Froyen and Kristel Wildiers (eds), *Blindness and the Multi-Sensorial City*, Antwerpen: Garant, pp. 143-176
- ² Pallasmaa, Juhani (2005) *The eyes of the skin*, Chichester: John Wiley & Sons
- ³ Holl, Steven (2005) Thin Ice, in Juhani Pallasmaa, *The eyes of the skin*, Chichester: John Wiley & Sons, pp. 6-8
- ⁴ Mellaerts, David, Wildiers, Kristel and Devlieger, Patrick (in press) *Leuven horen en voelen*, Leuven: Peeters
- ⁵ Pallasmaa, Juhani (2005) *The eyes of the skin*, Chichester: John Wiley & Sons
- ⁶ Till, Jeremy (2005) Lost Judgment, in Ebbe Harder, *Writings in Architectural Education*, EAAE, 164-183
- ⁷ Wilson, Margaret A. (1996) The Socialization of Architectural Preference, *Journal of Environmental Psychology* Vol. 16 No. 1, pp. 33-44
- ⁸ Pallasmaa, Juhani (2005) *The eyes of the skin*, Chichester: John Wiley & Sons
- ⁹ Pedersen, Annette and Crouch, Christopher (2002) Introducing Universal Design to a Colonial Context, in Jon Christophersen, *Universal Design*, Norwegian State Housing Bank, pp. 289-314
- ¹⁰ Heynen, Hilde and Baydar, Gülsüm (2005) *Negotiating Domesticity*, London: Routledge
- ¹¹ Dischinger, Martha (2000) *Designing for all senses*, PhD dissertation, Göteborg: Chalmers University
- ¹² Devlieger, Patrick and Froyen, Hubert (2006) Blindness/City, in Patrick Devlieger, Frank Renders, Hubert Froyen and Kristel Wildiers (eds), *Blindness and the Multi-Sensorial City*, Antwerpen: Garant, pp. 17-38
- ¹³ Wakkary, Ron (2005) Exploring the everyday designers, in John S. Gero and Nathalie Bonnardel (eds.) *Studying Designers '05*, Key Centre of Design Computing and Cognition, University of Sydney, pp. 277-282.
- ¹⁴ Cross, Nigel (1982) Designerly ways of knowing, *Design Studies* Vol. 3 No. 4, pp. 221-227
- ¹⁵ Devlieger, Patrick and Froyen, Hubert (2006) Blindness/City, in Patrick Devlieger, Frank Renders, Hubert Froyen and Kristel Wildiers (eds) *Blindness and the Multi-Sensorial City*, Antwerpen: Garant, pp. 17-38
- ¹⁶ Hull, John (2005). *On Sight and Insight: A Journey into the World of Blindness*. Oxford: OneWorld
- ¹⁷ Herssens, Jasmien and Heylighen, Ann (2007) Haptic architecture becomes architectural hap, 39th *Nordic Ergonomics Society Conference* (submitted)
- ¹⁸ Löfgren, Orvar and Wilk, Richard (2007). In search of missing processes. *Ethnologia Europaea* 35:1-2.
- ¹⁹ Zeisel John (2001) Universal Design to Support the Brain and its Development, Wolfgang F. E. Preiser and Elaine Ostroff (eds.) *Universal Design Handbook*, Boston: McGraw-Hill, Boston, pp. 8.1 e.v.
- ²⁰ Froyen, Hubert (2003) Universal design education, *UD Education*, Brussel: KVAB, pp. 17-21
- ²¹ Imrie, Rob and Hall, Peter (2001) *Inclusive Design*, London: Spon Press
- ²² Landscape architect Kamel Louafi (born in Algeria) established his own landscape architecture firm in Berlin in 1993. The firm employs landscape architects, architects, sculptors and industrial designers. It has participated in several invited competitions and has designed numerous gardens, including the new Königsplatz in Kassel; the Oriental Garden in Berlin, the gardens at the Sheikh Zayed Bin Sultan Al Nahyan Mosque in Abu Dhabi, and the Garden of the Islamic World in Mecca.
- ²³ <http://www.louafi.de/> (last visit: June 5, 2007)
- ²⁴ Froyen, Hubert, Asaert, Carl, Dujardin, Marc and Herssens, Jasmien (2006) *Ontwerpen voor iedereen. Integraal & Inclusief*, Brussel: Ministerie van de Vlaamse Gemeenschap, Gelijke Kansen

²⁵ The Croatian architects Vinko Penezić and Kresimir Rogina are collaborating since 1979 and established their joint architecture company in 1991. Their realisations range from sports facilities and sacral complexes over social housing for war victims to office buildings, interiors and TV sets, and have attracted several national and international awards.

²⁶ Penezić, Vinko and Rogina, Kresimir (1999) Penezić & Regina 59-79-99 Tokyo Works, Zagreb

²⁷ Penezić, Vinko and Rogina, Kresimir (2006) Architecture in the Digital Era, in Patrick Devlieger, Frank Renders, Hubert Froyen and Kristel Wildiers (eds) *Blindness and the Multi-Sensorial City*, Antwerpen: Garant, pp. 203-214

²⁸ A hypocaust is a hollow space or a system of channels in the floor or walls of some ancient Roman buildings that provided central heating system by receiving and distributing the heat from a furnace.

²⁹ Imrie, Rob and Hall, Peter (2001) *Inclusive Design*, London: Spon Press

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