Chapter

Accessibility for Fully Mobile Patients: The Case of Children with Autism

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1. Introduction

Consideration for physical disability, in the sense of accessibility, has been integrated in the design of public architecture (DDA, 1995). Additionally, there is a growing tendency to make design for disability more inclusive or even to be part of the generic design paradigm as future-proof solution. Design for physical accessibility was often mentioned among the requirements of mental health care projects, even though patients in mental health are to a great extent peripatetic (WLHE 1997; Goldie 1989). That was even the case when mobility was compromised due to their pathology (catatonia) but in that case universal accessibility devices were of no much use (Van der Heijden 2005). Design for dementia gradually gets a more generic role over the broader umbrella of the design for older people, as does barrier free housing or lifetime housing for people with dementia (Kelly, 1993, Pollak, 1997). Yet, accessibility becomes a more integrated concept paying increased attention in the quality of movement and communication in space. Scher, in 1996 explored the communication experience in health care facilities associating accessibility with way finding. Peace (1998) gave a more systemic interpretation of the ability to access care environments placing importance on factors such as organisation, control over space and accountability. Chrysikou (2013) pointed the discordance between the physical and organizational milieu as a factor that compromises accessibility for acute mentally ill patients, even if they are fully peripatetic.

It is clear that the idea of accessibility becomes broader over the years, to incorporate more elements of the environment than mobility, to enable the user to benefit from the full potential of space and be able to participate in all activities on offer. Similarly, the group of users that can access and use their surroundings to the highest possible degree seems to spread gradually. Under that prism, the aim of this research is to explore the potential of architecture and design in the aid of children with autism, when it comes to their functioning in their environment in the best possible way. In short, the paper explores the possibility of space of reducing

part of the symptomatology of autistic behaviour to increase functionality and interaction in space through design. That in its turn could increase the usability of the services, as the potential of children to engage in the activities of the day program might increase.

2. Methodology

To explore the context of accessibility and safety for fully mobile patients in health care environments the research explores the case of children with autism. Autism involves a wide spectrum of deficiencies affecting behaviour in several ways. As the basis for the design principles that formed the conceptual grid of the study, evidence based data were inferred from studies conducted for conditions such as highly sensitivity, Alzheimer's disease and mental retardation (Shapiro & Parush 2002, Shapiro & Roth 2001, Mahnke 1996, Zeisel 2006, Aron 1997).

The facility for children with autism was designed for 10-15 children with several developmental disorders and autism. Methodology included staff participation, children observation, literature review, experimental data from perception field and the use of innovative technologies and their transfer to design. In short, the framework was evidence based architecture with user involvement.

First, the principles that derived from the literature review formed a theoretical framework that was employed in the design of a day-care facility for children with autism. The brief was designed according to the manipulation of stressors as a mechanism that would increase the perception sense of people with autism. The reduction of negative stressors, that are so beneficiary for groups that have increased difficulty to cope, could be also beneficiary for staff (normative people), even if staff as more able population might have increased mechanisms of coping compared to children with autism.

Second, all evidence suggests that design for healthcare is more successful when there is user participation from the very beginning (Chrysikou 2012). Staff working in the facility that the new day-care centre would replace, were engaged in open interviews on the operational and therapeutic regime of the facility as well as the physiological and mental needs of the children. There was also observation of children when they were in the facility that would be replaced by the new building.

As a result of the information gathered from the literature review, the staff interviews and the observation of the children, the brief set the standards about the layout of the new facility, as well as more detailed information such as specifications of fittings and fixtures and visual organisation of space including colour schemes and materials. The research focused on making a building that would gather all information and transform it in a three dimensional exemplar that would function as the cell of therapeutic activity.

3. Discussions

The research locus comprised a day center with children with autism in Athens, Greece. It spread on the first and second floor of a building that had to change use and be completely renovated for that purpose. All concerns for physical accessibility were met. The renovation concerned many aspects of therapeutic architecture, such as the redesign of facades for the reduction of stigma. However, since those are beyond the scope of this study we will not go into more depth here. The emphasis on therapeutic engagement of space through manipulation of stressors, which is the main tool in order to increase children's capability to function independently in a more coherent way, (Dilani 2008), concerned the interior of the facility, where children actually spent their time in the center.

Changes that regarded accessibility and coherence can be grouped in two main categories: the increase of safety and physiological optimum functioning sense as well as the sensory activation and orientation to enhance unobstructed movement. (See fig. 1)

At sense of safety level, concerns stemmed from children increased activity, repetitive behavior, including bumping themselves or parts of their bodies into objects or walls, gets occupied with potentially harmful objects. Negative distraction and discouragement of dangerous points together along with preventing or minimizing physical damage were the main design tools. All those intervention translated practically to:

- accident and bumping on walls prevention through perceptional clues;
- perceptional obstacles and use of boundary outlines for the avoidance of mirrors, windows etc;
- non-slipery and anti-shock sub-layers floor materials applied for accident and impact reduction;
- openings (windows and doors) control, special window fittings;
- natural daylight everywhere and luminaires with the minimal disruption of the melatonin mechanism;
- avoidance of dust gathering points such as cornices, as these children have respiratory problems more than normative children.

4. Results

This pilot project of designing for coherence produced initial post-occupancy evidence. The building has just been occupied for four years. There has been no need so far for spatial alterations or changes of function. Despite the Greek recession that might force the facility to reduce the number of staff, and thus reduce the one to one therapies in favor of more institutional larger groups, this did not occur as the results from the operation justified to stakeholders the cost. It is also important to mention that the successful operation of the facility - for which

design has a part, even if the degree cannot be identified - has avoided phenomena of NIMBYism and the neighbourhood participates in the life of the center, exchanging visits and aiding in several ways.

As far as staff have commented in post-occupancy visits of the design team, staff reactions to the building were positive and comments so far included "reduction of headaches" by staff, specific agitated children being calmer than in other spaces according to staff and staff "forgetting to check the time to leave" when working in the premises. Agitated and repetitive behavior was less observed the time the children were in the building compared to their previous facility, according to staff and according to observation of the same children. The fact that children responded positive to the center is not related to the positive reaction to change that happens as a reaction to change to normative subjects, as change is a disruptive factor when it comes to autism. The smooth change from the new to the old premises then was by no means to be expected..

5. Conclusions

That was the first step of the production of knowledge regarding the space for children with autism. This building should on a second stage, provide the locus for a Post Occupancy Evaluation (POE) study, where solid research data can be produced, by testing the brief and subsequently the theories behind it.

- design can influence the acceptance of the building by the community, staff and patients;
- accessibility is affected by the mental capabilities and condition of the individual when disability is concerned, even when physical mobility are not the issue;
- design can influence the sense of coherence when autism is concerned;
- design has the potential to affect staff satisfaction and wellbeing, indirectly having to deal with more co-operative patients or directly with direct effects to their physiology;
- accessibility should not be related only to mobility, as other parameters, such as operations can compromise it and thus compromise mobility.
- more research is needed on the effects of stressor manipulation in buildings for autism.

Figure 1. Perseptional clues through colour, shapes, condures

Figure 2. Focal points for self-reference

6. References

Aron E N (1998) The Highly Sensitive Person, Broadway Books, New York
Chrysikou E, (2012) From Normalization theory to a "Fit for Purpose" architecture for the mentally ill. World Health Design, 5(3), pp.68-77
Chrysikou E (2013) Accessibility for mental healthcare. Facilities, 31(9/10): 418-426
Dilani A (2008) Psychosocially supportive design: a salutogenic approach to the design of the physical environment. In World Health Design, July, pp. 47-55
Disability Discrimination Act 1995, Great Britain (1995). Department of Health. NHS ModernisationAgency. National Primary and Care Trust Development Team (NatPaCT)
Goldie, N, Pilgrim, D and Rogers, A, (1989) Community Mental Health Centres: policy and practice. London: Good Practices in Mental Health
Kelly M (1993) Designing for people with dementia in the context of the building standards. Stirling: Dementia services development centre
Mahnke F H (1996) Color, Environment and Human Response. John Wiley & Sons Inc
Peace L K100 (1998) Understanding Health and Social Care. Open University Press, London
Pollack R (1997) Technology and design for dementia in Judd et al (eds) Design for dementia. Stirling: Dementia Services Development Centre
Scher P (1996) Patient focused architecture for health care in Arts for Health. Manchester Metropolitan University, Manchester
Shapiro M, Parush S, Green M, Roth D (1997) The effect of the "Snoezelen" in the management of children with mental retardation who exhibit maladaptive behaviours. The British journal of Developmental Disabilities 63(85)
Shapiro M, Roth D, Marcus A (2001) The effect of Lighting on the Behavior of Children who are developmentally Disabled. DISES Journal, 4:19-23
Van der Heijden F, Tuinier S, Arts N, Hoogendoorn M, Kahn R, and Verhoeven W (2005) Catatonia: Disappeared or under-diagnosed? Psychopathology,38(1): 3-8.
WLHE (1997) Community based mental health facilities: safety and security by Design. London: West London Health Estates (WLHE)
Zeisel J (2006) Inquiry by Design. W.W. Norton &Company