

The Dreams and Needs of the Housing for the Elderly - User study in two sheltered houses in Helsinki area

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Abstract

The quality of housing is important in particular for the frail elderly who spend most of their time indoors. The decline of functioning capacities reduces living area and social relations of the elderly. The nature and the immediate surroundings have an important role in the maintenance of their functioning capacities. The stimulating semi-private spaces encourage to social contacts with other residents. In a multidisciplinary study coordinated by the Sotera Institute in the Department of Architecture, Aalto University, several user oriented research methods were applied to learn more about the use of semi-private common spaces in the housing areas for elderly. The *walk-through method* was used to have a holistic view and to catch the problems of the common used areas. *Methods used in art therapy* were applied to achieve in-depth knowledge concerning the hopes and dreams of the elderly in their living environment. *Small scale pilots* were realized in the sheltered houses for the elderly in Helsinki. As a result, knowledge about the use of light, as well as the visual elements and sound in the perception of the space was achieved. The outdoor spaces and stimulating common use places play an important role in supporting social contacts for the elderly. The possibility to participate in the design of their own living environment in the sheltered house makes it more acceptable and personal for the residents.

Key words: Elderly, user-oriented, semi-private spaces, stimulation of senses

Introduction

The population of Finland is aging rapidly. By the year 2040 the proportion of persons aged over 65 is estimated to be approximately 27% (Official Statistics Finland. 2009). The aim is to promote “aging in place” and the target is that 91-92% of the elderly over 75 years live in their own homes or in home like sheltered houses (STM. 2008). The accessibility and usability of the residential buildings and their immediate surroundings become more important, especially for the elderly over 85 years as their daily action radius gets smaller. The elderly residents require small-scale and easily accessible surroundings. The new housing areas should be designed and the existing housing areas should be refurbished to support the independent living of the elderly and to promote life span dwelling. The nature and the services nearby as well as the social network help the elderly to have a self-contained life even though the functioning capacities might decline. “Aging in place” and maintenance of the social environment gives sense of security and supports the independent living.

The loneliness is one of the main causes of depression and affects the quality of life amongst the elderly. The space for common use in an apartment house is generally minimized to economize on building costs. The design of the courtyard is neglected or postponed for the same reasons. These spaces, however, are

important for the social networking in the neighborhood. The semi-private common areas should be designed to be attractive and invite the residents to go out from their individual apartments and interact with other people.

Space planning, furnishing, color and material choices as well as natural elements influence people's well-being. Stimulating environment with natural elements and building details provide landmarks and signs that help residents to create a cognitive map of the place and help them to orientate in different spaces (Van der Voordt. 2001). Architecture and the space planning can support the daily activities and have a positive impact on people's behavior. By architectural means, with an open plan, the use of colors and lighting, the perception of the space and the way-finding can be improved. The accessible, safe and stimulating living environment can activate and encourage the elderly residents to participate in the community.

Background

The environment and the architecture have an emotional impact on people. At present, a part from few exceptions, building industry and decision processes, which aim for rationality, often neglect the factors that produce emotions. Originality of the housing environment is lost and the apartment buildings tend to resemble each other. The aim of this research was to study the factors that give satisfaction and positive experience in the living environment as well as in the immediate surroundings to the elderly residents and support their independent living.

Our previous studies have been focusing mainly on the accessibility and functionality of the apartment for the elderly. The accessibility is the basis for independent coping. However, to be able to participate fully in the society the person has to be able to go out, meet other people and access to the services. The semi-private spaces in an apartment house are places for daily exchange. By creating stimulating spaces where people like to stay for a while we assume that the possibility and frequency for social intercourse would increase. Jan Gehl (Gehl. 1987) suggests that the quality of environment has effect on people's social activities. According to him the optional recreational activities take place more often in good quality environment. Consequently the frequency of interactions grows and the social activities occur when people meet and are in the same place.

Previous studies have suggested that environment and nature have impact on people's well-being as well as on their behavior and coping in daily life. Van den Berg (2011) has studied the stress-relieving effects of gardening and Wells & Evans (2003) have studied the effect of the nature on rural children. Ulrich (1984) has studied the effect of natural views on patients recovering from illness. These studies conclude that nature and natural elements seem to have positive and therapeutic impact on people. It is probable that these results and best practices could be useful as preventive measure in the housing for the elderly.

The accessibility has to be seen in a wider perspective. As the problems in hearing and vision tend to increase as people age, the visual and hearing environment becomes more important. The sense of security in the physical and social environment is related to the perception of the space. The comprehensive experience of the space is formed not only by sight and hearing but also through sense of touch and smell (Stenros & Aura. 1984) as well. The contrasting colors can be used to support the depth and spatial perception of the space. The colors attract attention on cues and landmarks in the environment (Wijk. 2003). The colors can be used in way-finding and orientation in a space. Matteo (2004) points out that color and light are of same radiant spectrum and one doesn't exist without the other.

Davis & Al (2009) suggest that most people navigate based on a series of landmarks. According to them distinctive landmarks or cues are important to develop a cognitive map, especially in aging. The cognitive processes of way-finding and perception of the space was studied in virtual context. The place learning

and way-finding were poor in the environment with cognitively poor cues. They suggest that especially for elderly residents, lack of environmental knowledge can lead to immobility and lack of social interaction.

Methods

In this study a multidisciplinary research team, including master's level students from different schools and backgrounds, has applied several user driven methods to explore the hopes and the needs of the elderly about their living environment. In addition to traditional study methods like observation, questionnaires and interviews, the *methods of art therapy* have been adapted for this user study. Further, the *walk-through method* was applied to assess the means that visually impaired elderly use to find their way and orientate in a sheltered house. To study the importance of the lighting in the use of common spaces a lighting *pilot* was realized in the living room of a sheltered house. The residents of two sheltered houses took part in these studies.

A student in visual arts, Aalto University, School of Art and Design, called together a voluntary resident panel (N=29 participants) and further, a focus team (N=8 participants) formed out of the resident panel. The resident panel was assessing the living environment of the elderly bringing out the unpleasant and the pleasant things about living in a sheltered house, as well as the dreams and hopes about the daily environment. The elements were projected on a board, presenting the landscape of life. By using art-based methods the residents could express themselves across differences of physical and verbal abilities and could take part fully in the group work (Knill, P. & al. 2004). The participants were also asked to present their dream space in a painting (figurative or abstract). The colors, shapes and atmosphere of the paintings were discussed and verbalized in the focus group as well as personally with each participant.

The focus group met five times. The meetings were organized in the familiar environment to the residents and the atmosphere was kept cozy and relaxed. The trust between the residents and the facilitator of the focus group was the main condition to the success of the user study. A focus group discussion was important as according to Kitzinger (1995) and Krueger (1994) the group discussion reveals themes that are not appearing in a personal interview.



Fig. 1 and 2. Visual methods and a simple three dimensional model were used to develop the immediate surroundings of the sheltered house together with the residents (Sara Ikävalko, Aalto University).

The focus group worked on a three dimensional model of the sheltered house to deepen and to concretize the themes raised in the resident panel. The model seemed to facilitate the understanding of the buildings and the immediate surroundings as an entity. The elderly with difficulties on verbal expression were handy with the model. The natural materials like sawdust, sand and the moss, which were used on the model,

were pleasant to the sense of touch and raised memories from the past to the residents. The participants were also given a tool kit with for example a diary to write down and illustrate their daily life and a disposable camera to take pictures of the meaningful things in the environment.

The walk-through method was applied by a student in cognitive sciences, Helsinki University, Department of psychology, to assess the influence of the environment on the independence and comfort of the residents. The individual walk-through method was carried out in two separate phases and residents in two sheltered houses participated in the study (N=24). The target of the first phase was to identify the possible shortcomings felt by the elderly in the built environment and immediate surroundings.



Fig. 3. A tour in the common used places was preliminary planned (Christian Sannemann, University of Helsinki & Leena Aalto, Aalto University).

The main target group in the second phase was the elderly with visual impairment, who were not diagnosed a memory loss (N=6). The comparison group (N=4) had no diagnosed visual impairment. Most of the persons with visual impairment had hearing difficulties. The average age of the elderly with visual impairment was higher and they had been living longer in the sheltered home than the elderly with normal vision. The way-finding and orientation strategies of the residents were studied through specific questions and observation. The comfort, temperature, lighting, colors and acoustics were assessed with the residents. Pair of adjectives for example “moister – dry”, “fresh – stuffy”, “fragrant – smelly” was used to collect the impressions of the residents in stopping points that were chosen in advance. The walk-through was preceded by a personal interview.

Elderly	with visual impairment	with normal vision
Number	6	4
Male	1	-
Female	5	4
Hard of hearing	5	1
Avarage age (years)	89,9	77
Avarage lenght of stay (years)	4,2	2

Table 2. Profile of persons interviewed in the study

A lighting pilot was organized by the student in Architectural lighting design program, (KTH Royal Institute of Technology). The pilot was in two similar common used spaces in different floors in one of the sheltered houses. The aim was to monitor the frequency of use of the space and the impact of lighting on the use. The lighting in one floor was improved while in the other was left as it was. The residents were

interviewed on the lighting levels and solutions. In the pilot area the space was lit with indirect lighting on the walls and ceiling. The tables and functional areas of the room were lit with direct lighting to activate the residents and to encourage the use of the room.

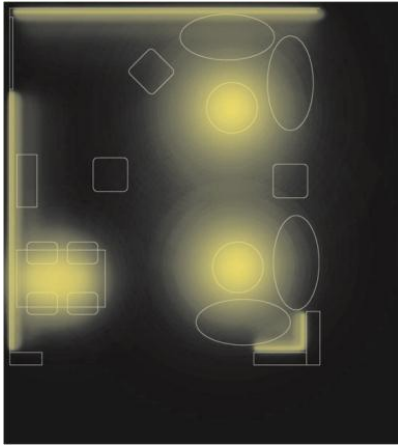


Fig. 4 an 5. The plan and the realization of the lighting pilot (Reetta Maila, KTH, Aalto)

Results

Results of different levels were obtained in the study. Although the number of participants in the study was small and any statistical or universal conclusions can't be made, the deepen knowledge of the elderly about their own living environment was brought up. Additionally to the knowledge about housing other results on practical level came up.

Outdoor area

According to the focus group discussions the garden and the view from inside to the garden were important sources of well-being to the residents. The outdoor area plays an important role in social contacts with other residents. The residents were following activities in the garden from their private rooms, and the activity in the garden invited them to go out. The residents who had their room facing the common garden took part more often in the social activities. Whereas the residents, who had their rooms facing towards the neighboring buildings expressed, that they were abandoned and not aware of all the activities that took place spontaneously in the garden. The residents felt also that the outdoor area was neutral zone to socialize, and the contact with neighbors was natural and easy. They desired to have more sheltered sitting places, more activities and plays in the garden. The gardening and the outdoor games were enjoyable social activities and the residents desired tools and equipment in sight, free to use, for their activities.

During the interviews and questionnaires the elderly were also asked about the use of the immediate surroundings. Some residents who had moved to the sheltered house from other parts of the town had not explored the immediate surroundings and did not know the neighboring areas, except the health center next door. The unfamiliar neighborhood was felt unsafe. Because they felt socially and physically insecure, the residents did not want to go far from the building. In one of the sheltered houses the small commercial center in the neighborhood with a shop, a pharmacy, a library and a church was not familiar to some of the residents all though they had lived in the house for nearly two years. Furthermore elderly, familiar with the immediate surroundings, with declining functioning capacities were reluctant to go out alone. They preferred to go out with some relative or member of the staff.



Fig. 6. The immediate surroundings have not been fully exploited in supporting the elderly living at the sheltered house (Johanna Hätönen, Aalto).

The main worries of the residents related to going outdoors were the loss of strength while having a walk or the fear of getting lost. Some residents also mentioned the problem of incontinence as reason for not leaving the sheltered house. During the interviews residents answered that they had enough exercise outdoors but at the same time they remarked that they would like more walks and outings. More benches and safe and even walking paths in the neighborhood would encourage the residents to go out. The walking paths should be clearly indicated and visual maps and guides should be provided to new residents. The elderly with good knowledge of the neighborhood could act as guides for the new residents.

The sheltered house analyzed in this study was formed of three buildings that frame two court yards of different characteristics. One of the court yards was realized with natural elements, several sitting benches and a patio. The other yard was realized with even pavement and the attention was put to the accessibility. However, as there was no shade on the yard it was felt too warm at summer time. The yard was hardly ever used and most of the activity took place in the green yard.

Common used spaces

The residents expressed the desire to have more informal meeting places for social contacts between themselves or with relatives in the house. In addition to spaces for structured activity, the intimate spaces for chatting and for spontaneous meetings were missing. The elderly were also dreaming of a wooden sauna building in the court yard.

Reason for coming to the common used spaces	Ground floor	Upper floors
Dining	10	-
Meeting people	7	6
Meeting staff members	7	4
Information	7	1
Entertainment (radio, tv)	3	0

Table 1. The use of common use spaces (residents N=10).

The elderly residents come to the common used spaces for meals and to meet other residents, relatives or a member of the staff, whereas they preferred to watch television or listen to the music in their own room. The meal times are important and give a rhythm in the daily routine. Some of the residents come one hour before meal to wait before the dining hall. As the food comes from an outside service provider, the doors of the dining room were kept closed between meals. The dining room is not used in an efficient and

economical way and it stays empty most of the day. Meanwhile the space outside the dining room becomes an important place for socializing. However the fittings and the place outside the dining room, near the entrance, do not encourage that activity.

The residents felt also the large dining area too noisy and uncomfortable. The conversation and the movement with the walking aid was difficult especially in the dining area where the tables were placed in long rows. The dining area in the other sheltered house with small tables for four persons was felt more comfortable. In one of the sheltered homes the dining tables were placed in each floor during the renovation of the dining hall. The residents felt this small scale solution more cozy and would prefer to dine in smaller groups in their own floor.



Fig. 7 and 8. Small scale pilot was realized in the sheltered house Vuorensyrjä (Päivi Aro, Sotera)

The elderly residents desired more informal spaces and rooms for private discussion with friends and with other residents. On the grounds of the themes that came up in the focus group meetings, a cozy sitting alcove was designed and realized in the entrance hall of one of the sheltered houses during this research. Several plans were made according to the preferences of the residents, and the final plan was chosen together with them. The acoustics and the visual aspects of the space were taken into account to encourage social intercourse. The use of the space was monitored through a camera with activity sensor, and the level of noise and the quality of indoor air were measured.

The residents were asked questions about the lighting pilot in the common used space as well. The results were partial. The residents felt that the new lighting setting was much better than the original, however the existing fittings were uncomfortable and the time residents spent in the common space was not increased. The comfort and the usability of a space are a set of elements and in this case the lighting did not increase the usability of the common room.

The results of the qualitative study with the visually impaired persons indicate that the things that affect the most the way-finding capacities and orientation were the level of the impairment of the person and the familiarity of the space. Those residents who had lost their sight while living in the sheltered house navigated with ease using their memory and previous experience. Those residents who had lost their vision before moving to the sheltered house had learned quite rapidly how to navigate their way inside the house. However, the persons with visual impairment used also perceptible clues to find their way inside the sheltered house and said they would profit of guiding colors and lights. The observation revealed that they had difficulties to navigate in corridors with low lighting and for example missed turning to a corridor with poor lighting.

In order to cope with the environment the social skills and the attitude towards life helped the residents. Most persons with visual impairment in this study accepted with content the assistance from other residents. The unexpected changes in the environment like doors that were opening to the corridor and displaced furniture were considered to be the main obstacles.

Contrary to other residents the persons with visual impairment felt the open view from the common used rooms to the entrance and outdoor area undesirable. Unlike other residents, who enjoyed the view outside, they expressed the concern about the people watching inside from outside. Some of them also expressed the desire to share the sheltered house with other visually impaired persons.

Discussion

The common areas in sheltered houses should be designed to encourage social contacts and to create possibilities for communication. Small scale housing environment is cozy and support independent living of the elderly. The sheltered houses and other form of housing for the elderly should be close to the services and safe outdoor activity areas. "Aging in place" is important to maintain the social contacts.

Elderly people are a heterogenic group of individuals who have their own desires and hopes. Often they attribute the problems with environment to their personal functioning capacities. According to them for example the reason for not seeing or hearing is the loss of sight or audit. This is only partially true. During the analyses of the sheltered houses many lacks in the lighting and acoustics of the environment were found. The deficiencies in sight or audit could be partially compensated by appropriate level of lighting and better acoustics. Jokiniemi (2007) proposes that when the environment offers affordances to several senses the person can perform in the environment even if one of the senses decline.

The physical form, the aesthetic and the atmospheric qualities of common spaces can promote social relations and are in a specific role in housing for the elderly. Andersson (Andersson, 2005) proposes, that the architectural solution of the elderly homes can be described as hotel, word or home like. The association to any type of solution is about the choice of materials on the walls, ceilings and floors as well as the furnishing. The environmental cues and clear landmarks help the elderly residents to navigate in the place and to form a cognitive map of their living environment. The familiarity of the place gives sense of security and support the activity of the residents.

The elderly are experts on their own needs and able contribute to their own living environment. The residents participating to this study showed that they now well their living environment and it's potential. Furthermore, the participation to this study made the elderly think actively ways to improve their own living environment. One of the main results of the study was that the elderly got inspired and instead of being passive receivers the elderly became active producers. The relatives were invited to an exposition showing the works of the elderly in the sheltered house. The best results and ideas can be applied in the housing design to encourage independent living and to prevent a premature move to an elderly home.

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