The influence of changes in the physical and technical design on social

interactions in a cohousing community

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Abstract

Cohousing has gained renewed interest in the Netherlands, especially for populations of over 50 years of age and as an alternative for professional and family care. This in combination with living independently. In a cohousing community people have the possibility to share daily life activities in a specially developed facility. This paper presents the relation between changes in technical and physical characteristics and social interaction in a cohousing community. Based on literature and case studies gathered by students changes in social interaction through changes in the design of the cohousing community and home technology have been observed. Based on the results it was concluded that the relation between changes in the physical and technical context and social interaction occur in expected and unexpected ways. Changing interactions can be related to the script or to the change itself.

Keywords:

Social interactions, cohousing community, home technology, physical design

1 INTRODUCTION

Cohousing has gained renewed interest in the Netherlands, especially for populations of over 50 years of age and as an alternative for professional and family care. Together with the intention to live independently as long as possible. In a cohousing community people have the possibility to share daily life activities in a specially developed facility. These facilities comprise of multiple dwellings (20-30) that are oriented around a common open area and a common building[1].

A cohousing community is generally designed according to the so called 'social contact design principles'. If a community is designed with these principles in mind the social interactions within the community are thought to be optimally supported. Several studies in cohousing dwellings and buildings show that these aspects like proximity of the dwellings, the position towards other houses, buffer zones between private and general space, surveillance within the community and shared pathways indeed affect social interactions in the community [2-7].

But even though cohousing communities have been designed according to these principles, it is not automatic that dwellers will have an active social life in such a community. The members of the community need to be actively involved in forming the basis for a healthy social interactive community.

Because in cohousing communities there is no condition of management, people are all equally responsible for the organisation for the community. This means that dwellers have to manage their own community and therefore bring formal aspects such as dealing with rules and tasks into their daily lives. It is known that formal interactions are socially more demanding than informal interactions and are more often source for conflicts.

Furthermore the organization of the community drives on consensus. Consensus making is a difficult task, especially when people have different values and goals. Cohousing communities therefore try to attract a homogeneous group of people that have similar values and goals. This generally comes to people that choose to be actively involved in the community and are socially able. For this reason wannabe residents have to take part in a selection procedure to be allowed to join the community. This essential procedure is complicated by the fact that cohousing communities are mostly owned by housing associations which are unwilling to have unrented apartments. This raises the change of unfortunate group settings.

Apart from values and goals the age of the residents in a cohousing community is an important factor. The older people get the more help they need and the less help they can offer to others. In case the average age of the residents gets too high this has a negative effect on the possible interacting activities of the group. Activities sometimes have to be stopped due to the ageing of residents.

In a first conceptual model of interaction [8] the influence of formal interaction, informal interaction, ageing, physical and technical design and personal factors on social interactions have been configured (see figure 1). This model visualises that differences in individual values, goals (and behaviour), technical and physical design influence social interactions in a cohousing community.

It is necessary to know which factors influence social interactions, but this does not directly show how this influence might lead to better wellbeing of individual dwellers.

Social interaction relates to social wellbeing. Social wellbeing is depending on the network of personal relationships and social exchanges that take place[9]. When this network is included in a shared social network with forms of reciprocity and trustworthiness this can be seen as social capital [10, 11]. Social interactions are a structural aspect of social capital. A cognitive aspect of social capital is related to trust and reciprocity of the social network. That places a certain doubt upon the idea that social interactions in it self are predictive variables for social capital.

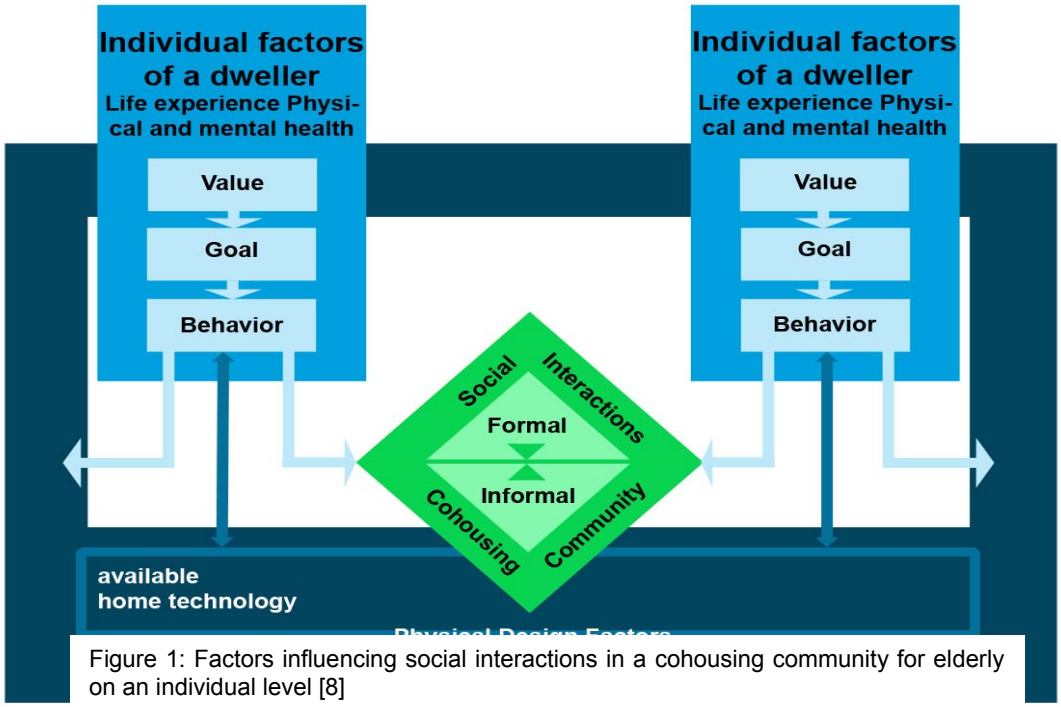

Figure 1: Factors influencing social interactions in a cohousing community for elderly on an individual level [8]

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regulations [13] and the ongoing design process as a key contributor to conflicts [6]. The more people with interfering values and goals interact with each other, the more likely they have conflicts with each other. Aspects of trust and reciprocity may not be optimal in the case of conflicts within the community.

Furthermore the literature on social capital has pointed out the importance of bonding and bridging contacts for people within a community. Too much in-group contacts (high participation within the group, low trust outside the group) might lead to miniaturization of the group [14]. This means that social interactions within the group cannot provide all contacts for social wellbeing of the individual members.

Based on these insights observing social interactions within a community is just a part of social wellbeing. The quality of the contacts and the contacts outside the community are important as well.

Figure 1: Factors influencing social interactions in a cohousing community for elderly on an individual level

As mentioned before, it has been concluded from literature that the physical design of a cohousing community influences the social interaction in a cohousing community. New developments like the use of atriums, technologies like domotics and ambient intelligence [15] have not been included. The last years there has been a shift from products that react on user input to products that are context-aware, networked and pro-active devices. The enabling technology is available and the focus is shifting towards user oriented challenges: personalization, adaptation and anticipation.

gent technology.
) might influence social interactions in cohousing communities as well. According to Friedewald et al [16] an intelligent home should be analyzed from the perspective of supporting families and friends being together and interacting with each other. Basic functions like home automation; communication and socialisation; rest, refreshment and sport; working and living; support the families in achieving their goals.

Not many technology providers have sound knowledge about the social context of the technology they produce [17]. But if technology is aiming to support families (e.g. communities in meeting their goals) it seems important to understand the relation between social interaction and changes in the technical and physical design. If technology would end up isolating people because they were totally depending on the technology in their homes and not in need of any physical help of other people anymore this would be a negative development. On the other hand if it would be possible to influence social

wellbeing of dwellers in cohousing communities by technical and physical characteristics a cohousing community might become a more robust sustainable alternative which is suitable for different kinds of dwellers.

Changes in the physical environment can occur when a community is started and the whole community has to learn a new script, or in existing communities when some aspects of the script have been changed. A script is a framework defined by technical objects of action together with the actors and the space they are supposed to act. [18] When the script changes behaviour changes.

This paper presents the relation between changes in technical and physical characteristics and social interactions in a cohousing community.

1.1 Methods

The study was performed in two directions. Firstly information about social interaction and influencing factors was derived from literature. Secondly several student projects were performed that concentrated on the social and physical characteristics of five cohousing communities.

The students performed semi-structured interviews with twelve residents of cohousing communities and collected photographs of the buildings and common areas of five cohousing communities in the northern part of the Netherlands. The residents were chair persons or other members of the boarding group of the community. All dwellers in the communities of this study are originally from the Netherlands. The education of dwellers varies from primary school to university and the professional background from housewives, farmers to higher management. From the interviewed members of the cohousing communities ten out of twelve attended higher education (bachelor and masters degree). Most interviewed consider themselves active residents although having small physical problems.

The communities differ in size and starting dates: community A has 26 apartments and started 15 years ago; community B has 24 apartments and started 12 years ago; community C has 49 apartments and started 5 years ago; community D has 21 apartments and started 22 years ago; community E has 65 apartments and started 8 years ago. A characteristic of all cohousing communities was the use of consensus in decision making.

2 results

The analysis of the physical context of the cohousing communities reveals that in all cohousing communities the design principles for social contact were adopted as all contain common facilities and shared pathways. Furthermore it was established that two of the studied communities are larger than mentioned in literature (49 en 65 apartments). These communities are multi-floored buildings with the use of a central atrium.

The intended role of the atriums was to provide the possibility to have interactions with other residents when the weather conditions are poor. However, the actual use of the atrium in community C does not confer with the intended function in the design, as people avoid social interactions in the atrium. They have tried to improve the use of the atrium with attributes (for fitness), decorations and small plastic plants (see figure 2). The residents mentioned two reasons for their dislike of the atrium. The first reason was that all other residents can overlook the atrium and people wish for more privacy in their social interactions. The second reason was related to the bad climate in the atrium (too hot in the summer and too cold during winter times). The atrium in community E (see figure 3) has the possibility to some privacy due to the use of (big) plants and trees.

Fig 2 and 3. The atriums in community C and in community E

All communities are equipped with a safety system (see figure 4). This system helps the regulation of people entering the building. These systems strife for the situation that nobody can enter the building without the permission of a specific dweller.

The introduction of a safety system in community C resulted in a special meeting with the local firefighters and police on the subject of safety. As a result of this meeting safety was further addressed during a meeting with residents in which formal rules were set about allowing people to enter the building. Chairpersons were made responsible for following the rules and confront dwellers who are less cautious. The number of visitors entering the building has decreased since the introduction of the system.

Fig 4. An example of a safety system in community C

In community A the introduction of the safety system has led to a new informal network according to two dwellers. They can hear the visitors through the intercom by picking up the phone, so they exactly know who is allowed to enter the building and by whom. Because this feature is added to the centrally located parking and the surveillance in the community, privacy is highly at risk. Some dwellers seem to find it very interesting to follow the lives of their neighbors.

In community B the common room (see figure 5) has been improved by addition of some new facilities such as a fire place and a pool table. According tot the chair person this has resulted in a significant increase in the number of residents using the room.

Fig 5.The common room in community B

In one of the older communities (A) new tablecloths were needed because the old ones were outdated. It was arranged in informal consultation that one of the female community members would arrange this. So she bought new cloths. But the community members disliked the new tablecloths very much. They decided during a formal meeting to keep the old ones (see figure 6).

In the oldest community (D) of this case study also some improvements were made on the interior of the common rooms, but this seemed no big issue for the community.

Fig 6. The common room in community A with the old tablecloths

3 Discussion and conclusions

The conducted research is not representative for all residents of the cohousing communities studied, because the respondents were all chair people or board members. Still the results are in line with previous research from Brenton [12] who performed a study on cohousing for elderly in the Netherlands.

New physical and technical design aspects like home technology and the use of atriums have been observed in the newer communities. When new technologies enter the cohousing community this changes the script. Technical objects define a framework of action together with the actors and the space they are supposed to act. [18]. This may lead to expected and unexpected changes in behaviour [19]. In the case of the atriums community gardens have been replaced by a central covered space.

The (dis)use of the atrium in community C was unexpected but the solutions in community E might be interesting to study for this community. The atrium is a new design aspect which has not been considered in cohousing literature. According social contact design principles a buffer zone between private and communal space is an important aspect [6, 7]. A private garden works as a buffer between the communal garden and the private dwellings. In this case the plants in the atrium of community E might work as some sort of buffer zone.

Privacy was also related to the unexpected (dis)use of the intercom in community A. Privacy is related to the individual values and behaviour (see figure 1) but it seems that this can be influenced by the physical design factors. It needs to be studied whether it is true that easy access to personal information is provided the threshold for harming privacy is lowered. However the results in this study seem to confer.

Community C is placed in the Northern part of the Netherlands in a small village with no big criminal records. It is the question whether the implemented safety system is necessary for this community. The alteration in entering the building might in the end result in unwanted social side effects. In literature on social capital the importance of bonding and bridging contacts for people within a community have been pointed out. Too much in-group contacts (high participation within the group, low trust outside the group) might lead to miniaturization of the group. This may lead to unhealthy behaviour [20]. Based on this knowledge it might be suspected that community C could be at risk.

Another notified change in the physical context was the common room in community B. According to the chair person this has led to more use of the room and therefore increasing social interactions. In the research of Willlams [6] the importance of investing in common facilities for social interactions has been regarded. Problems with poor design of common facilities may reduce the extent to which space is used.

Small changes on tablecloths in community A may be a cause for conflicts within the community, while in community D changes don't seem to influence the residents. It would be interesting to know the differences between these groups on aspects as homogeneity, the formal social factors or the cognitive aspects of social capital within these groups.

From the literature and the case studies the following conclusion can be drawn:

- Changes in the technical physical environment influence social interactions in a cohousing community in expected and unexpected ways, though not all changes are effective. Considering social contact design principles might be useful for improving social interactions.
- Changing the environment may lead to direct changes, related to the script of use. But these changes can also be indirect. These are more related to the (dis) likes of the improvement and the formal process itself.
- It is useful to evaluate social interactions in the way they contribute to the social capital of dwellers.

In the next phase of this project the social interactions in a cohousing community will be further investigated through action research; a description of interaction patterns with context information of the interaction will be made. These interaction patterns are deduced from the 5W (who, what, where, when and why) and 1H (How) method [21]. The exact changes in interaction are a step in a better understanding of the relation between technology and social interaction. This may lead to insights which may influence newer developments.

4 Summary

This paper explained the relation between physical and technical design in cohousing communities. Changing technology in the near future might change interactions

between dwellers. More knowledge is needed on interaction patterns.

5 acknowledgments

We would like to thank the dwellers of the cohousing communities for inviting us in their homes and their support in conducting this research. We would also like to thank the students who helped to conduct the research especially Mark Wierenga en Marnix Meijer from the 'Atelier Wonen, Welzijn en Zorg' of the Hanze University of Applied Research.

6 References

[1] Durret C. Senior Cohousing: A Community Approach to Independent Living. Berkely: Habitat Press, 2005.

[2] Fleming R, Baum A, Singer JE. Social support and the physical environment. In: Cohen S, Syme SL, editors. Social support and health, 1985. p. 327-45.

[3] Cooper Marcus CaS, W Housing as if People Mattered: Site Design for Medium Density Family Housing. Berkeley, CA: University of California Press, 1986.

[4] Gehl J. Life between Buildings: Using Public Space. New York: Van Nostrand Reinhold, 1987.

[5] McCammant KaD, C Cohousing: A Contemporary Approach to Housing Ourselves. CA: Ten Speed Press, 1994.

[6] Williams J. Designing Neighbourhoods for Social Interaction: The Case of Cohousing. Journal of Urban Design 2005;10:195-227.

[7] Abu-Gazzeh T. Housing layout, social interaction and the place of contact in Abu-nuseir, Jordan. Journal of Environmental Psychology 1999;19:59.

[8] Bouma JT, Voorbij AIM. Factors in social interaction in cohousing communities. Include London, 2009.

[9] Jong Gierveld d, J (1998). A review of loneliness: concepts and definitions, determinants and consequences. Reviews in Clinical Gerontology 1998;8:7.

[10] Portes A. Social Capital: Its Origin and Applications in Modern Sociology. Annual Review Sociology 1998;24:24.

[11] Putnam R, D E Pluribus Unum: Diversity and Community in the Twenty-first Century, The 2006 Johan Skytte Prize Lecture. Scandinavian Political Studies 2007;30:35.

[12] Brenton M. We're in charge: CoHousing Communities of older people in the Netherlands: lessons for Britain? Bristol: Policy Press, 1998.

[13] Meltzer G. Sustainable Community, Learning from the Cohousing Model. Trafford: Victoria Canada, 2005.

[14] Almedom AM. Social capital and mental health: An interdisciplinary review of primary evidence. Social Science & Medicine 2005;61:943-64.

[15] Aarts EHL, Marzano S. The New Everyday: Views on Ambient Intelligence: 010 Publishers, 2003.

[16] Friedewald M, Costa OD, Punie Y, Alahuhta P, Heinonen S. Perspectives of ambient intelligence in the home environment. Telematics and Informatics 2005;22:221-38.

[17] Venkatesh A, Nicosia F. New Technologies for the Home-Development of a Theoretical Model of Household Adoption and Use. In: Brucks M, McInnis D, editors. ADVANCES IN CONSUMER RESEARCH, 1997. p. 522-58.

[18] Akrich M. The De-Scription of Technical Objects' in Bijker, W. & Law, J.(eds) Shaping Technology\ Building Society. Cambridge, Massachusetts: MIT Press, 1992.

[19] Clitheroe HC, Stokols D, Zmuidzinas M. CONCEPTUALIZING THE CONTEXT OF ENVIRONMENT AND BEHAVIOR. Journal of Environmental Psychology 1998;18:103-12.

[20] Lindström M. Social capital, the miniaturisation of community and self-reported global and psychological health. Social Science & Medicine 2004;59:595-607.

[21] Ha TS, Jung JH, Oh SY. Method to analyze user behavior in home environment. Personal and Ubiquitous Computing 2006;10:110-21.