Virginie Anquetil

August 2009

Neighbourhood social cohesion through the collective design, maintenance and use of green spaces

A case study of EVA-Lanxmeer neighbourhood, Culemborg, The Netherlands

ALTERRA WAGENINGEN UR

AGRO CAMPUS OUEST CENTRE D'ANGERS Institut National d'Horticulture et de Paysage

Preface

This research was carried out as part of a training period of three months, from May to August 2009, in the Landscape center of Alterra, part of Wageningen University and Research centre (WUR). This training period ends my master in the National Institute of Horticulture and Landscape Architecture (Angers, France) and aimed at performing a research and get aware of the problematic existing in the Horticulture and Landscape architecture domains. My own personal objective was to get an insight of the social issues of green spaces in order to apply it in the context of urban forestry, in which I wish to specialize. Indeed, urban forestry, and urban green spaces in general, fulfill a number of roles which are getting more and more important with the growing urbanization. In particular, the social impact of green spaces is undeniable and the impact they may have on people should be taken into account when designing and managing urban forestry or green spaces.

This research was integrated into the scope of other researches carried out by the Landscape center of Alterra. Irini Salverda, spatial planner and researcher, and Jeroen Kruit, landscape architect and researcher, who both particularly deal with the influence of green spaces and citizens participation on social cohesion, accompanied and advised me in the definition and achievement of this research project.

Abstract

This research aimed at exploring how the collective design, maintenance and use of green spaces could facilitate social cohesion between residents of a neighbourhood. A case study was carried out in the EVA-Lanxmeer neighbourhood (Culemborg, The Netherlands) where residents themselves organize the design and maintenance of the green spaces in their neighbourhood. Observations of activities in the green spaces were performed to explore the possible influence of the design of green spaces on social interactions, defined as one component of social cohesion. Nine interviews were performed to explore the influence of the collective design and maintenance of green spaces on social cohesion, i.e. on their sense of community, social interactions and social support.

The observations showed that some elements of the design of the green spaces could stimulate the occurrence of social interactions. The presence of *facilities*, like benches or games, enhanced the occurrence of *long and spontaneous social interactions*. Moreover, areas with *facilities* showed the highest frequency of focused activities (e.g. conversations). *Circulation spaces* seemed to stimulate the occurrence of *very short and not spontaneous social interactions*, as compared to the *non circulation spaces*. The *circulation spaces* exhibited a high frequency of *focused interactions*, but not more than *non circulation spaces*. However, most *unfocused interactions* (e.g. greetings) occurred in circulation space, which may show the *probability of encounter acquaintance* is higher in circulation spaces than in non circulation spaces.

Apart from the design of green spaces, other factors could influence the use and the occurrence of social interactions. *The geographical and time-context* could explain why some green spaces are particularly more used than others. The *context of this neighbourhood* is also specific, as residents themselves designed the green spaces. The way green spaces are used is thus probably influenced by the function residents gave to these spaces.

The interviews gave evidence that the process of the collective design and maintenance of the green spaces, contributes to expand a certain *sense of community, social interactions and support* between residents. Indeed, the process gives people an opportunity to gather and develop common interests and shared values. Moreover, the *common responsibility and ownership* shared by residents, particularly for the collective gardens, also contribute to bring new connections and to maintain them.
However, not only the process appeared to influence social cohesion in the neighbourhood: the *population is homogeneous*, which enhances social interactions and the existence of shared values; and the residents of EVA-Lanxmeer were particularly *willing to create and maintain social cohesion*. Green spaces represent one of the many opportunities residents can find to meet other people in the neighbourhood and the collective design and maintenance of green spaces is part of a wider process, which probably enhances social cohesion as well, i.e. the development EVA-Lanxmeer project as a whole.

Key-words: design and maintenance of green spaces, self-organization, neighbourhood social cohesion, social interactions, social support, sense of community, EVA-Lanxmeer.

Table of contents

1. Introduction

In the increasingly urbanizing environment, the availability of nature in cities is threatened. Therefore the contribution of urban landscape is essential to fulfil people everyday needs. In their literature overview concerning people needs in the urban landscape, or what people expect from the urban landscape, Matsuoka & Kaplan (2008) defined two major needs: Nature needs and Human-interactions needs.

1.1. Nature needs

Nature needs are related to the *physical contact with nature*, the *aesthetic preference* for natural environment and the opportunity for *recreation and play*. People are affected by their physical surroundings and are particularly attracted by open spaces planted with trees (Coley *et al.*, 1997). The presence of nature and possibilities for recreational activities near the neighbourhood is generally appreciated by people, who gather, use and maintain, by their presence, a certain safety in the space. Thus, for a number of reasons, the presence of nature in open public spaces may positively influence the use of space by people.

1.2. Human interaction needs

Human interaction needs include needs for *social interactions and privacy* , for *citizen participation in the design process* and the need for *a sense of community and identity*.
Optimistically, properly designed public spaces may promote social interactions (Matsuoka & Kaplan, 2008). Moreover, the presence and use of public green spaces facilitate face-to-face contacts and reinforce social ties within a community or a neighbourhood (Health Council of the Netherlands, 2004). Green spaces containing trees and recreation areas attract more people, who can 'socialize'. In a neighbourhood, the common use of green spaces may even improve social cohesion

between residents (Hynes and Howe, 2004). Public open spaces and green spaces in particular, may offer opportunities for people to gather, interact with each other and establish social connections. But the activities taking place in the space might also contribute to improve social interactions. The activity of gardening, directly connected to nature and green spaces, is, itself, an opportunity for social interactions and social connections to occur (Clayton, 2007).

1.3. Importance of public participation and collective actions

Public participation in the process of designing public spaces is considered important to 'achieve a superior design and to foster community support for urban landscapes' (Matsuoka & Kaplan 2008). Integrating people willingness in the landscape design process would have two main effects: creating a space that is adapted for people needs and thus that will be widely and properly used; enabling people to act for their daily environment and to feel part of the community. Participation is a way to improve the quality of green spaces but also the social quality of life of community members. Collective actions themselves, like public participation, can foster community cohesion. Collective gardens (semi-public spaces) are an opportunity for neighbourhood residents to develop a sense of place and a community support (Hynes & Howe, 2004). Moreover, the collective use of green spaces by residents of a neighbourhood contributes to build a 'sense of neighbourhood and carry out an informal security surveillance' (Hynes and Howe, 2004). Thus, open public or semi-public spaces near the neighbourhood may promote the development of a sense of place, a sense of community and a sense of identity: people get attached to where they live, to their neighbours, to the values and characteristics composing their common identity. In the same time, safety seems to be self-maintained by the group (sense of safety) and people can find a support in the presence of others (community support).

1.4. Research objectives and questions

The use of public spaces and green spaces in particular, seem to fulfil a number of social needs. Interacting with other people, participating in the community life, being part of a community and sharing a common identity are examples of these social needs. Particularly, public and semi-public green spaces within and near neighbourhoods, where people spend their daily time, seem to play an important role in the fulfilment of these needs at the individual level. But their role may also be important for the social cohesion between residents of the neighbourhood. Moreover, the physical characteristics of these spaces, resulting from its design, indirectly influence the fulfilment of these needs, by acting on the way people use the space.
Finally, people have the desire to create and monitor their own landscape, and green spaces which are the most adapted to their needs.

Two assumptions arise from the literature review:

- The collective design and management of the green spaces in the neighbourhood (decision-making, organization and execution of the decisions made) improves social cohesion.
- The daily use of green spaces also improves social cohesion. A certain design of the place can stimulate the daily use of green spaces and thus is a condition for a collective use and social interactions between the residents.

Thus the research will aim at validating these assumptions and answering the following general research question:

How do the collective design, maintenance and use of green spaces within or near the neighbourhood facilitate social cohesion between the residents?

And more specifically:

- How to define social cohesion and how to measure it (in this research project)?
- What is the relation between the collective design and maintenance of green spaces and the social cohesion between residents?
- How do the residents meet and interact in the green spaces?
- What is the relation between the physical design & maintenance and the meeting/interaction between the residents?

To answer these questions, social cohesion has to be defined in the specific context of a neighbourhood. Then, the methodology (a case study) and the research procedures will be detailed. Finally the results and a discussion about the results obtained will be highlighted.

2. Defining neighbourhood social cohesion

The concept of social cohesion has been defined in many ways in preceding researches but no real consensus comes out. In the present research, the definition of social cohesion chosen should fit with two main prerequisites:

- It is possible to measure or estimate the components defining social cohesion.
- It is possible to assess social cohesion at a limited scale, i.e. a neighbourhood. It is assumed that social cohesion can be estimated at a neighbourhood level.

2.1. Literature review

Several formal definitions can be found in the literature:

"the ongoing process of developing a community of shared values, shared challenges and equal opportunity within Canada, based on a sense of trust, hope and reciprocity

among all Canadians" (Policy research committee, Government of Canada, 1999, quoted by Berger-Schmitt, 2002)

"the internal bonding of a social system (a family, a group, an organization, a University, a city or a society as a whole)" (Schuyt, 1997, quoted by Van Marissing *et al.*, 2006)

"a state of strong primary networks (like kinship and local voluntary organizations) at communal level" (Lockwood, 1999, quoted by Chan, 2006)

Some authors consider social cohesion as being a process (see the definition of the Policy research committee, 1999), some others consider that social cohesion is a state of affairs (Chan, 2006). This state might be influenced by several processes, which are usually declined in several dimensions. In his Neighbourhood Cohesion Instrument, Wilkinson (2007) decomposed the concept of social cohesion into 3 dimensions:

- the ***psychological sense of community***
- the ***attraction***
- the ***neighbouring***

2.1.1. Psychological sense of community

The *psychological sense of community* refers to "a strong attachment that people may experience towards others, based on factors such as where they live, where they work, where they go to school or with which groups they affiliate" (Davidson and Cotter, 1993, quoted by Wilkinson, 2007). This sense *of community* conveys the notion of belonging to a community, the existence of shared values, a common identity (Jenson,1998) and the involvement in the community organization and in local actions. *Sense of community* is a feeling that members of a neighbourhood may experience towards their concrete commitment to the community.

2.1.2. Place attraction

The *psychological sense of community* definition also points out the term "where", directly referring to place. Place is a prominent part of the second dimension defined by Wilkinson, *the attraction*. *Attraction* refers to "the capacity of a specific neighbourhood to induce in individuals a desire to continue residing there".

The neighbourhood itself seems to have a significant importance on social cohesion. *Place attachment or attraction* thus seem to be part of social cohesion when considering a neighbourhood (see Forrest and Kearns, 2001; Van Marissing *et al.*, 2005; Wilkinson, 2007; Peters *et al.*, 2008). However, in the literature, when not specifically applied to a neighbourhood scale, *place attachment/attractio*n is hardly included in the definition of social cohesion (see Chan *et al.*, 2006; Berger-Schmitt, 2002; Helly *et al.*, 2003; Stanley, 2003; Rajulton *et al.*, 2007).

The physical environment seems to be dominant and specific to the attraction of individuals to a place. Thus, *attraction* might change according to different locations. However, Forrest and Kearns (2000) consider that place *attachment* is not only influenced by physical features but also by the perceptions people have of the place and the activities taking place there. Attraction to a place is directly influenced by place identity, i.e. a set of physical features, observable activities of people and the meanings people bring to the place (Relph, 1976, quoted by Forrest and Kearns, 2000). Individuals are not only attracted by the view of their physical environment, but also by the activities they will experience and the uses they can make of the space. Moreover, *place attachment* can contribute to social cohesion only when associated with a certain social role of the place (Forrest and Kearns, 2000).

2.1.3. Neighbouring

The last dimension of social cohesion according to Wilkinson (2007) is *neighbouring*. This term refers to the interaction residents have with their neighbours but also to the support they may bring to each other. *Neighbouring* is more a set of behaviours than attitudes: people act towards their neighbours. *Neighbouring* encompasses the terms

social networks, social interactions and social support at a neighbourhood scale (see Forrest & Kearns, 2000; Helly *et al.*, 2003; Van Marissing *et al.*, 2005).

2.2. Dimensions and components of neighbourhood social cohesion

When applied at a neighbourhood scale, the following dimensions and components of social cohesion could be studied (non exhaustive definitions).

2.2.1. Sense of community

The *sense of community* is a feeling that individuals could have about the community/neighbourhood where they live. It includes two components:

- *Common identity and shared values* : members of the community/neighbourhood share a number of values, norms, principles and interests, so that the community becomes a real and recognizable entity.
- *Involvement in the community organization and local actions*: Every resident feels involved in the neighbourhood life and projects, so that everyone contributes to develop the neighbourhood identity and shares values with others.

2.2.2. Place attachment

Place attachment is related to the terms place identity and attraction, as it encompasses the meaning people give to the place. It focuses on the social effects of the place itself, but at the individual level. It is composed of three aspects:

- *Attractive physical setting*: the physical setting attracts people who can appropriate and use the place. The physical setting also guarantees a certain impression of safety.
- *Possibilities for social activities*: the place is a context for social activities (recreation, sport, meeting, restoring, gardening etc.).

- *Meanings of place:* the place is perceived differently according to individuals. The meaning they associate to the place influences the way people use and experience the place.

2.2.3. Neighbouring

The term neighbouring focuses on the tissue of social relations between members of a neighbourhood, resulting in:

- *Social network:* the sum of contacts and interactions between neighbours.
- *Social support*: the sum of individual/collective actions contributing to help and support one's neighbours, materially or psychologically.

The table below summarizes these dimensions of social cohesion and their components.

Social cohesion dimensions	**Components**
Sense of community	Common identity and shared values Involvement in the community organization and local actions
Place attachment	Attractive physical setting Possibilities for social activities Meanings of place
Neighbouring	Social networks Social support

Table 1 : Dimensions and components of social cohesion

3. Methodology : a case study

A case study seems to be the most appropriate method to get an insight of the way the collective design, maintenance and use of green spaces may possibly influence social cohesion.

3.1. The case of EVA-Lanxmeer neighbourhood

EVA-Lanxmeer is an ecological neighbourhood located in Culemborg, near Utrecht, the Netherlands.

The creation of this neighbourhood originates from a private initiative or a bottom-up process (Energie-cités, 2008). In 1994, the EVA foundation (ecological centre for education, information and advice), together with the municipality of Culemborg, decided to built a sustainable environmental-friendly neighbourhood, real alternative to standardized buildings and urbanism in general. A multidisciplinary group of public and private professionals, but also the future residents themselves, was involved in the planning and the construction of the neighbourhood. The neighbourhood was built and is managed according to certain principles, in particular the participation of residents and users in the design and management of the district, the design of 'meeting place' and the creation of conditions for private initiatives of residents. The aim was also to keep and strengthen the existing landscape (*Genius Loci*) and to connect the architecture with the landscape elements (Guiochon, 2007).

The neighbourhood is now established on an area of 24 ha, in which a drinking water supply firm was already settled. 800 residents are currently living in the 250 houses

and apartments composing the current neighbourhood. Houses are accessible for all types of classes: 30% are reserved for social class, 20% for the middle class and 50% for the upper class (Broekhoef, 2009). The neighbourhood also contains 40 000 m² of offices and business units, a bio-ecological city farm, one school and two high schools. It is still in development and new houses are to be constructed.

The neighbourhood green spaces are of three types: private gardens in front of or behind the individual houses; semi-public or collective gardens, located in between the houses of a same block; and public, along the paths and the houses blocks. The specificity of EVA-Lanxmeer is that the residents are responsible for the design and the management of green spaces: the public green spaces, through Terra Bella foundation involving all the residents; and the collective gardens, involving residents of a same block.

3.2. Exploring the influence of the design of green spaces on the interactions between the residents – *Observations*

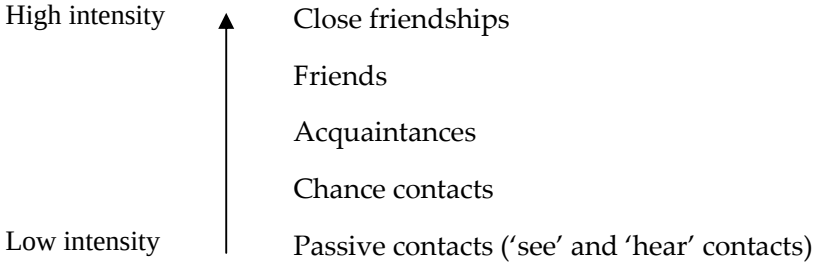
3.2.1. Theoretical background

Some studies have shown that the presence of green spaces improves the vitality of a neighbourhood, by attracting more people and enhancing the use of these spaces. Sullivan *et al.* (2004) showed that there seems to be proportionately more social activities in green spaces than in barren spaces.

In this part of the research, only the component *social networks*, part of the *neighbouring* dimension, will be studied. This component is assumed to be potentially influenced by the design of the space. Moreover, *social networks*, as the sum of social interactions and contacts between neighbours, is the most observable component of social cohesion, as compared to the *support* and the components belonging to the *sense of community* dimension, which are more related to personal feelings. By means of observations, some researchers have already investigated the influence of the

design of public spaces on the use, the vitality and the social interactions occurring in the space. For example, the presence of seating, community gathering places, personalized commercial front door, wide sidewalk and tree cover has a positive impact on a neighbourhood commercial street (Mehta, 2007). However, few studies have focused on the specific influence of the design of green spaces on its use and social interactions. Among these few studies, Peters *et al.* (2008) showed that the design of neighbourhood facilitates certain activities and limits others. For example, a slope designed on the lawn is not favourable for soccer, but nice slopes offering an attractive panoramic view is more favourable for making a barbecue or a picnic.

In order to explore the component *social interactions*, it is important to detail its main characteristics. According to Gehl (1987), different types of *social contacts* exist, with different levels of intensity:



A contact is considered to be *active* when people talk together, going from a few words to a long conversation and greet each other. A *passive contact* is considered to be a contact without any talk or greetings; it is rather a physical presence: being among people, looking at or just seeing them, listening to or hearing them. Nevertheless, *passive contacts* are not negligible because they represent an opportunity for people to have modest contacts, to start a contact which will evolve in the future, to maintain already established contacts, to have a source of information from their environment and to find a source of inspiration and of experiences (Gehl, 1987).

However, Huang (2006) does not consider *passive contact* as being a *social activity* in itself. *Social activity* refers to the observable behavioural interactions among the residents and do not take into account people linked with one another only by seeing and hearing others. Such "*non-social activities*" are also important when considering the use of a space, because it could mean that the setting does not stimulate *social activities* or *active interactions* as such.

Giddens & Duneier (2000, quoted by Bin Kang, 2006) also defined two types of *social interactions* that can be considered as *social activities*: the *unfocused* and the *focused interactions*. *Unfocused interactions* occur when individuals "exhibit mutual awareness of one another's presence" (e.g. greeting and acquaintance), whereas *focused interactions* occur when individuals "directly attend to what others say or do" (e.g. starting a conversation with people).

Social interactions may also be *negative or positive* (Bin Kang, 2006). Negative interactions lead to conflicts, disappointment and devaluation of individuals' worth, whereas positive interactions lead to a positive evaluation and expectations of one another. Depending on the content of the interactions, both positive and negative interactions could lead to social cohesion. However, in the context of observations it is not possible to know the content of the interactions or even not the outcome of positive or negative interactions in terms of social cohesion. Thus, whether the social interactions are positive or negative were not assessed by the observations but explored during the semi-structured interviews (see 'Exploring the influence of the collective design and management of green spaces on social cohesion').

To summarize, the possible influence of the design of green spaces on social interactions was explored by assessing the *type of social activities*:

- ***social activities*** (or active interactions): ***focused*** versus ***unfocused*** interactions
- ***non-social activities*** (or passive interactions)

3.2.2. Choice of the study areas and terminology

Four areas have been chosen to perform the observations, two public and two semi-public green spaces. Two main criteria have been used to choose these areas. First, there should be a significant difference in the design of the areas of a same type (public or semi-public), so that different designs and their effects on social interactions can be compared. In the spaces chosen, the main distinction in the design is the ***partitioning of space***: it is either ***function-specific*** or ***non function-specific***. Indeed, for two areas (namely Anna Blamanweg and Toon Hermanshof), the space is partitioned and the resulting parts seem to be assigned to a specific function (*function-specific design or non flexible*). For the other two cases (namely Oude Lek and Lodewijk van Deysselhof), the space is not clearly partitioned and activities (functions) are either not assigned to a specific part, or not assigned at all so that activities are *mixed up* all over the place (*non function-specific design or flexible*). In the non function-specific design, the extent maintenance and the design elements are *not homogeneous* or *differentiated*, in contrast with the *function-specific* design. Despite of this distinction, every space except Oude Lek contains ***facilities*** or ***equipment*** such as benches, picnic tables, games for children (recreational *facilities*). They are all traversed by ***circulation spaces*** such as a street and public and collective paths. Thus green spaces constitute ***non circulation spaces***.

Secondly, the design and the general organization of the space should enable to make good observations. Indeed, it is easier, for example, to make observations in an open area than in a closed area where vegetation or a physical barrier separates the observer from the rest of the space. For that reason, gardens where the vegetation was very high and the visibility reduced were not chosen.

The study areas chosen are spread in different part of the neighbourhood (see Figure 1). Oude Lek is located in the east part of EVA-Lanxmeer neighbourhood, along the path which leads to Vitens domain, the drinking water supply firm established into the neighbourhood, along Oude Lek pond. The others spaces, Anna Blamanweg,

Lodewijk van Deysselhof and Toon Hermanshof, are located in the west part of the neighbourhood. Anna Blamanweg is the main street of this part of the neighbourhood and connects it on one side to the station. Lodewijk van Deysselhof is situated along Anna Blamanweg. Toon Hermanshof is a courtyard situated at one extremity of Anna Blamanweg, nearby the square and along Hendrik Marsmanweg.

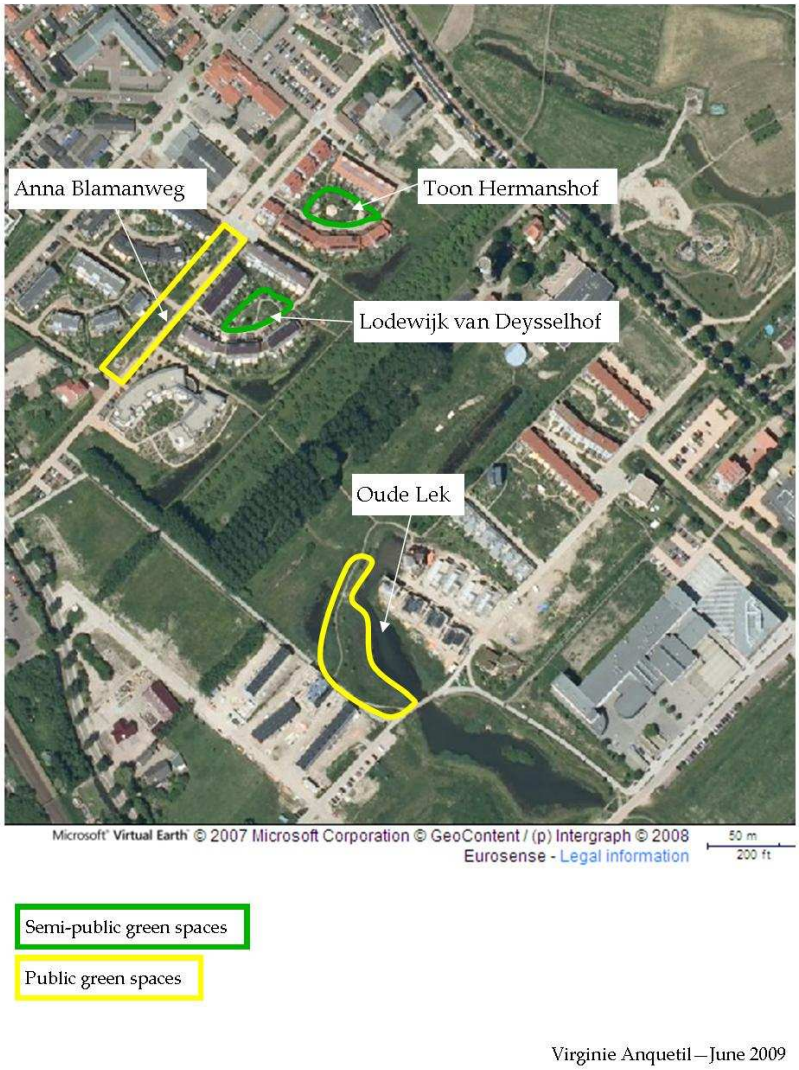


Figure 1 : Location of the study areas in EVA-Lanxmeer neighbourhood

3.2.3. Procedures of observations

In order to assess whether the design of the green spaces stimulates or not the use of the space by people and especially the interactions between users, observations were carried out in the settings. The observations were performed in two steps:

- mapping the setting and physical traces
- observing users and activities taking place in the setting

Mapping the setting and physical traces of use

A sketch of the setting was made in order to get a good insight of the setting and first impressions on the way the space is used. It also enabled to differentiate the different settings and was used for the next observational step. The following elements were located in the sketch:

- the **shaping/design** of the space
- the type of **vegetation** : trees, shrubs, herbaceous plants, grass etc.
- the presence of **facilities and equipment** related to specific activities (sandbox, benches, tables, tools etc.)
- the presence of **physical traces of use**, evidences of past activities in the place (Zeisel, 2006): by-products of use, showing what people do or not do in the setting (erosions, leftovers, missing traces); adaptations for use (added or removed elements, spatial separations and connections); displays of self (personalization, identification signs); public messages (official, unofficial, illegitimate).
- the state of **maintenance** of the space (presence of dog pooh, mowed lawn etc.)

Observing users and activities taking place in the setting

Observations were carried out as recognized outsider (Zeisel, 2006). In this kind of observations, the observer is not involved in the activities taking place in the setting, but the users are aware that they are or could be observed. Despite of the Hawthorne

effect (the fact that people modify the way they behave as soon as they know they are observed), this type of observations appears to be the most adapted for the context of this study. Indeed, it was necessary for the people especially living in the courtyards to be aware that these observations were carried out near their private garden or within the semi-public gardens. The Hawthorne effect has been prevented by choosing random and short periods of observation. People knew that a person observed the setting, but they did not necessarily know at what time and for how long. The documents used to inform the residents is to be found in Appendix 1 and Appendix 2. The observations were completed, when possible, by informal talks with the users.

The observations were carried out during three different periods of the day (9a.m.-1p.m.; 1p.m.-5p.m.; 5p.m.-9p.m.), during the week and the weekends. The maximum duration of each observation was fixed at 15 minutes. A sufficient number of observations was expected, i.e. a minimum of 50 observations per setting. Three weeks were used to cover each period of the day.

The observer focused on several elements, recorded on a coding sheet :

- the **activities** performed by the users (Huang, 2006; Zeisel, 2006, Peters, 2008, Sullivan *et al.*, 2004; Mehta, 2007): ***social activities*** (***focused/unfocused***); ***non-social activities***. A description of the activities was given as well.
- the **location of these activities** (Zeisel, 2006; Mehta, 2007; Sullivan *et al.*, 2004) characterized by blocks dividing each space.
- the **number of people** performing these activities
- the **type/apparent age of people** observed : child (approximately below twelve years old), teenager (approximately twelve to twenty years old), adult (approximately twenty to sixty years old), elderly people (approximately above sixty years old)
- the **duration of stay** in the setting (Mehta, 2007), recorded in minute.

After a pilot study, some elements have been added to the coding sheet : the observer position, the preceding activity (to see whether a same person perform several activities), the period of the day and the period of the week (week end or weekdays). The coding sheet used can be found in Appendix 3.

3.2.4. Analysis of the observations

The aim of the observations was not to make a statistical analysis but to make trends appear in the use of certain elements of the design for social activities.

In order to analyze these results of the observations, the variables of the coding sheet (duration of stay, type of activities, location of activities etc.) were crossed thanks to pivot tables. The number of persons observed was used to calculate frequencies of use. For the 'location of activities' variable, the total number of persons is different than for other variables. Indeed, a same activity could take place in several blocks and a same person could use several blocks during one activity. So when taking into account the location of activities, it appeared that the total number of persons observed were higher, because some persons are counted more than once.

3.3. Exploring the influence of the collective design and maintenance of green spaces on social cohesion – *Semi-structured interviews*

In order to explore the influence of the collective design and maintenance of green spaces on social cohesion, this part of the research consisted in carrying out interviews of some residents of EVA-Lanxmeer. Only the dimensions ***sense of community*** and ***social interactions*** and ***support*** were explored during the interviews.

3.3.1. Choice of the residents interviewed

Different types of residents were expected to be interviewed:

- residents *who participate in the collective actions from the beginning* of the neighbourhood development
- residents *who did not participate in the collective process from the beginning* (new-comers who participated later on)
- residents *who participate moderately* in the collective process
- Residents with different roles in the process (decision-making, execution team, supervision etc.)

Nine residents were interviewed in total, spatially spread in the neighbourhood: four residents belonged to Lodewijk van Deysselhof courtyard, one to Toon Hermanshof, two lived in Vashalishof, one in Rosalie Lovelingpad and one in the Water-woningen near Oude Lek. Four of them were new comers in their courtyard, the rest participated to the first design of their collective garden.

3.3.2. The interviews' content

The interviews were semi-structured so that the conversation was oriented but there were still possibilities for developing certain aspects when necessary. Making interviews enabled to get insight of the experiences and feelings residents have towards the collective process of design and maintenance of green spaces and its influence on (aspects of) social cohesion. The number of interviews was not fixed but the only one requirement was that there should be at least more than one interviewees of each type. The aim of these interviews was not to make a quantitative analysis, so there was no need to have a significant sample of interviewees. However, a minimum of 10 interviews was considered as convenient in order to compare the interviews with each other. The interviews lasted about one hour and raised several issues:

- General information about the resident: for how long does the person live here and why;
- The extent of involvement in the collective design and maintenance of green spaces and in other activities in the neighbourhood;
- The feeling of being part of a community, the contribution to the identity and the existence of a sense of community;
- The type and quality of relationships between the residents;
- The extent of support present in the neighbourhood
- The possible negative feedbacks of the collective design and maintenance of green spaces.

A detailed list of questions is to be found in Appendix 4.

3.3.3. Analysis of the interviews

The analysis was qualitative and focused on determining the points in common and differences which arise from the interviews and particularly:

- Whether there is a difference in sense of community and neighbouring when people participate and do not participate in the process.
- Whether there is a difference in sense of community and neighbouring for people who participate from the beginning of the process and new-comers.
- How the sense of community and neighbouring is (positively) influenced by the participation in the process (mechanisms).

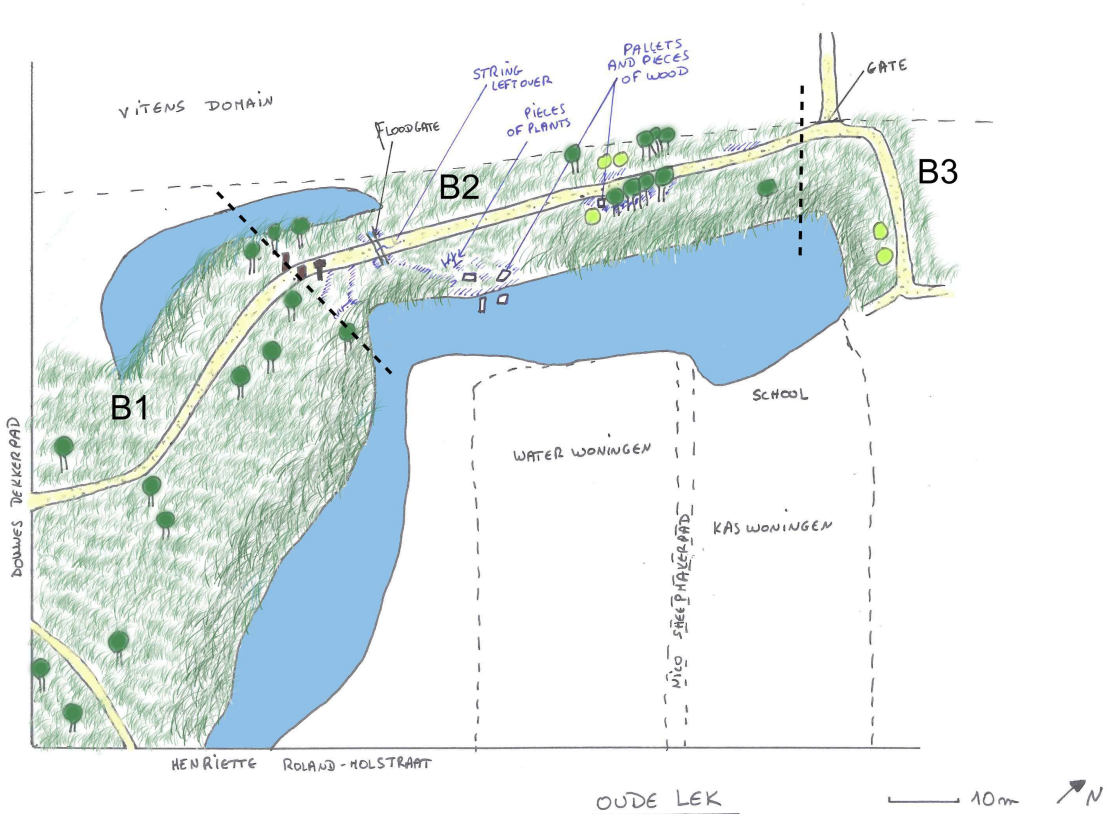


Figure 2 : Sketch of Oude Lek

The entrance into the Vitens domain (transition from B1 to B2)

Figure 3 : View of Oude Lek

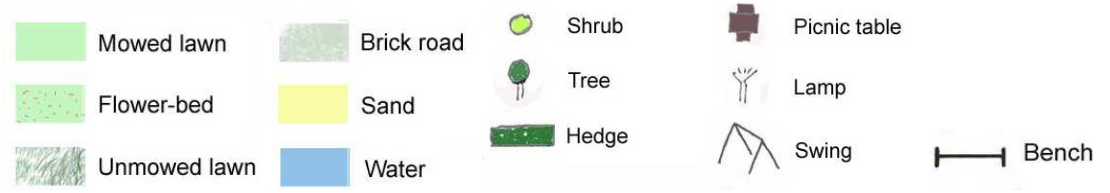


Figure 4 : Legend of the sketches

4. Results

4.1. The influence of the design of green spaces on social interactions

4.1.1. Oude Lek

Design characteristics

In order to facilitate the observations, Oude Lek was divided in three different blocks. The design of each block is not sharply different, but the location is. The block 1 (B1) can be accessed by Douwes Dekkerpad and leads to the entrance of Vitens domain. The block 2 (B2) is located in between B1 and B3, and has an opening to the pond, forming a little beach. A sluice crosses the path as well, making the link between the ponds which are on both side of the path. Finally the block 3 (B3) goes from the orchard directly to the courtyards of Water-woningen, Rosalie Lovelingpad and the little school.

This green space has a *non function-specific* design, because no specific activity seems to be specifically assigned to this place. Moreover, the green area does not seem to be strictly maintained, the grass is let high, giving the impression that the space is 'wild'. The following observations explore whether these characteristics have an impact on the type of activities performed in Oude Lek.

Physical traces of use

Most *physical traces of use* have been observed in the block 2 (B2). Here, pallets have been left over on the grass and some were floating on the water. At some places, the grass seemed to have been crushed, particularly under the trees which surround the pond. During the observations, bigger pallets have been left over on the grass along the path, as if they have been thrown away. A broom has been found in the sluice, showing that one or more persons used it for some purposes. In the block 1, graffiti

Little beach (B2); entrance into Vitens domain (B3)

Figure 5 (continued) : View of Oude Lek

Pallets left over under the trees and on the pond, grass crushed under the trees (B2)

A broom left over in the sluice (B2) and graffiti on Vitens domain poles (B1)

Figure 6 : Examples of physical traces found in Oude Lek

have been made on the poles at the entrance of the Vitens domain. No *physical trace* has been observed in B3.

Activities in the setting

125 observations have been performed in Oude Lek and 223 persons were encountered. Most people were observed during the week (94.6%) and a few have been seen during the week ends (5.4%). This is either related to the fact that there were more time spent for observations during the week than during the week end (because there are more days during the week than during the week end); or directly related to the fact that few people used the space during the week end. The data collected do not actually enable to find out the reasons of this significant difference between the week and the week end.
During the observations, the grass was mowed along the path but it did not seem to have an influence on the amount and type of activities observed.

Over a total of 125 observations, *focused activities* were dominant, representing 65.5% of the persons observed, whereas *non social activities* represented 33.6% of the persons observed. However, very few *unfocused interactions* were observed (0.9%). *Focused activities* involved mainly people walking/cycling through together and sometimes children playing in the sluice (B2). Few focused activities occurred spontaneously: people talking together when walking or cycling through did not meet in the space but before entering the space. They did not seem to choose Oude Lek as a meeting point and people seldom used the space in the same time, so it was not possible to encounter other people. *Non social activities* mostly involved people walking/cycling through the area or walking the dog.

Location of activities Oude Lek	% of people observed (total of 327*)	% of people performing *social activities* (% of unfocused activities included) over a total of 217*
B1	15.6	66.7 (2.0)
B2	19.0	69.4 (1.6)
B3	65.4	65.4 (0.5)

* this total number is higher because one person could have performed one activity in several locations

Table 2 : Spatial distribution of social activities in Oude Lek

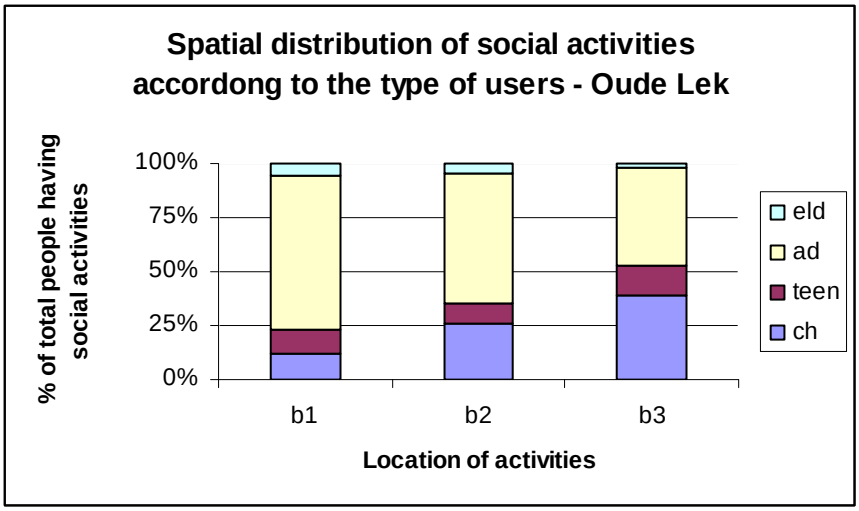


Figure 7 : Spatial distribution of social activities according to the type of users in Oude Lek

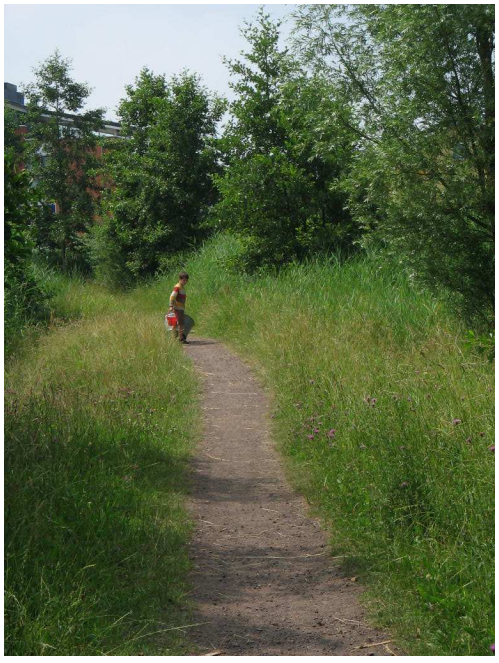


Figure 8 : A child playing near the sluice (B2) in Oude Lek

The *spatial distribution of activities* was not homogeneous (cf. Table 2). Indeed, the block 3 was the most used, representing 65.4% of the people observed, whereas the blocks 1 and 2 represented less people observed (15.6% and 19.0% respectively). However, the frequency of *social activities* in each block was almost equal and relatively high, over 60%. Whatever the activity and the location, adults were dominant *users*, representing 70.6% of the users in B1, 60.5% in B2 and 45.7% in B3 (cf. Figure 7). Children came in a second rank and used B3 with a higher frequency (38.6%). Teenagers and elderly people represented a minority.

There were variations concerning the *use of each block throughout the day* (cf. Figure 9). Block 3 appeared to be used with the highest frequency during the day, except at 3-4 p.m. where the three spaces were equally used. B3 was exclusively used at 10-11 a.m. and at 12-13 p.m..

With respect to the *duration of stay*, very short activities (less than one minutes) occurred in a relatively high frequency in B1 and B3 (52.9% and 69.3% respectively) and the rest lasted 1 to 5 minutes. However, as it is shown in the Figure 10, longer activities occurred in B2, but still representing a small frequency (4.6% for '5 to 10 minutes' and 11.6% for 'over 15 minutes'). It is significant as far as these two durations of stay did not appear in the other spaces.

In B2 the rest of the *social activities* lasted less than one minute or 1 to 5 minutes (41.9% respectively). This result is certainly due to the fact that children have been seen playing during a quite long time in the sluice which is located in B2 and makes the junction between the two ponds.
Most *users* performed in majority activities of less than one minute. However adults performed almost as many very short activities as activities of 1 to 5 minutes long. Only children performed the longest activities (more than 15 minutes) (cf. Figure 11).

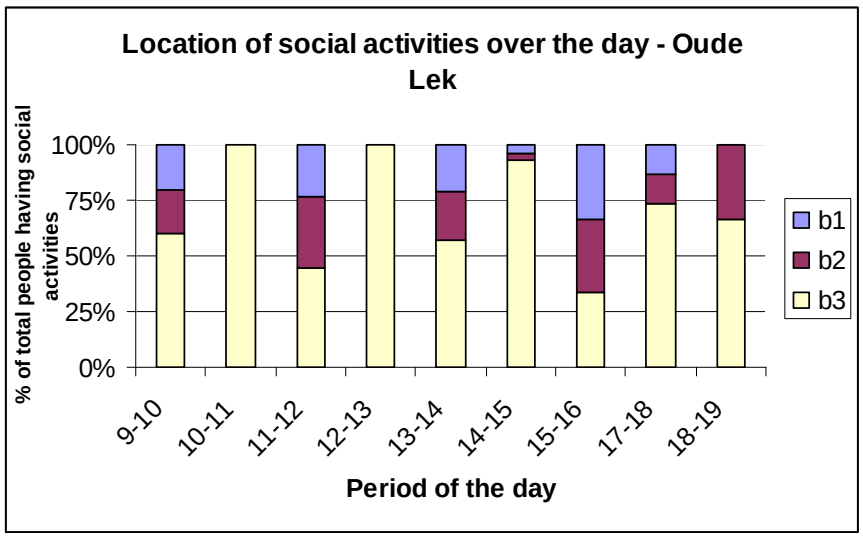


Figure 9 : Spatial distribution of social activities throughout the day in Oude Lek

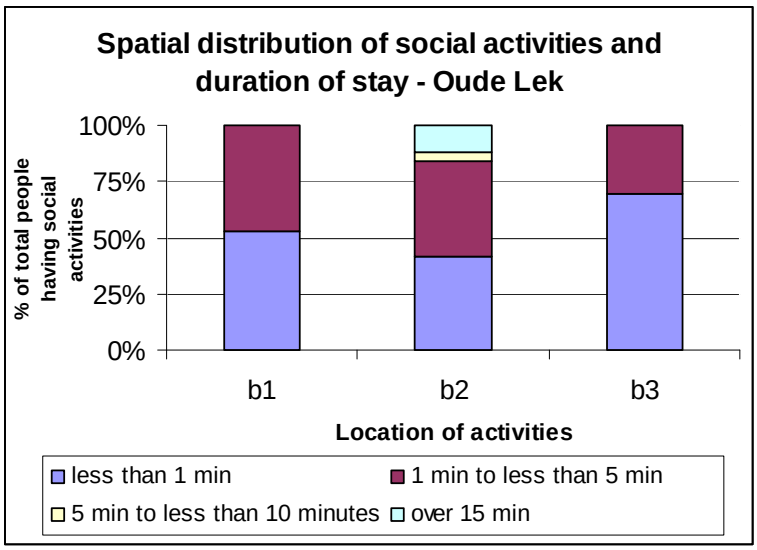


Figure 10 : Frequency of duration of stay according to the spatial distribution of social activities in Oude Lek

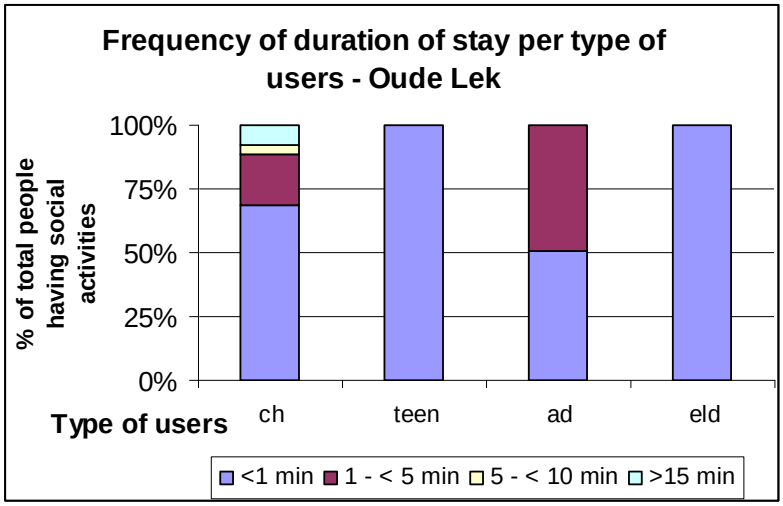


Figure 11 : Frequency of duration of stay according to the type of users in Oude Lek

Concluding remarks on Oude Lek

Oude Lek has a *non function-specific* design and more people have been seen having focused interactions than non social activities, even though most focused interactions were not spontaneous. Unfocused activities were rare, maybe because the probability to encounter people was very low (no activity occurred in the same time). The design of each block was relatively similar. However some variations in the *social activities* (focused and unfocused) occurred according to the blocks. The block 2, where one can find a little beach and the sluice, showed a lot of physical traces of use. The longest activities ('5 to 10 minutes' and 'over 15 minutes') were performed only in this block and by children. This may be explained by the fact that children have been seen playing near the sluice at their lunch break. They may also be the authors of the physical traces observed there. So even if not designed for specific purposes, the sluice and the openness to the pond may have attracted children for long social interactions.

The block leading to the Water-woningen and Rosalie Lovelingpad (B3) was used a lot as well and mostly for very short social activities. It was used in majority at certain time of the day. The social interactions did not start within the space but before entering the space, people used it as a circulation space. The geographical and time context may explain some peaks in the use of this particular block: parents from the east side of the neighbourhood seemed to use the path to pick up their children at school. Other contextual factors could explain the use of this path, especially the type of population living around the path.

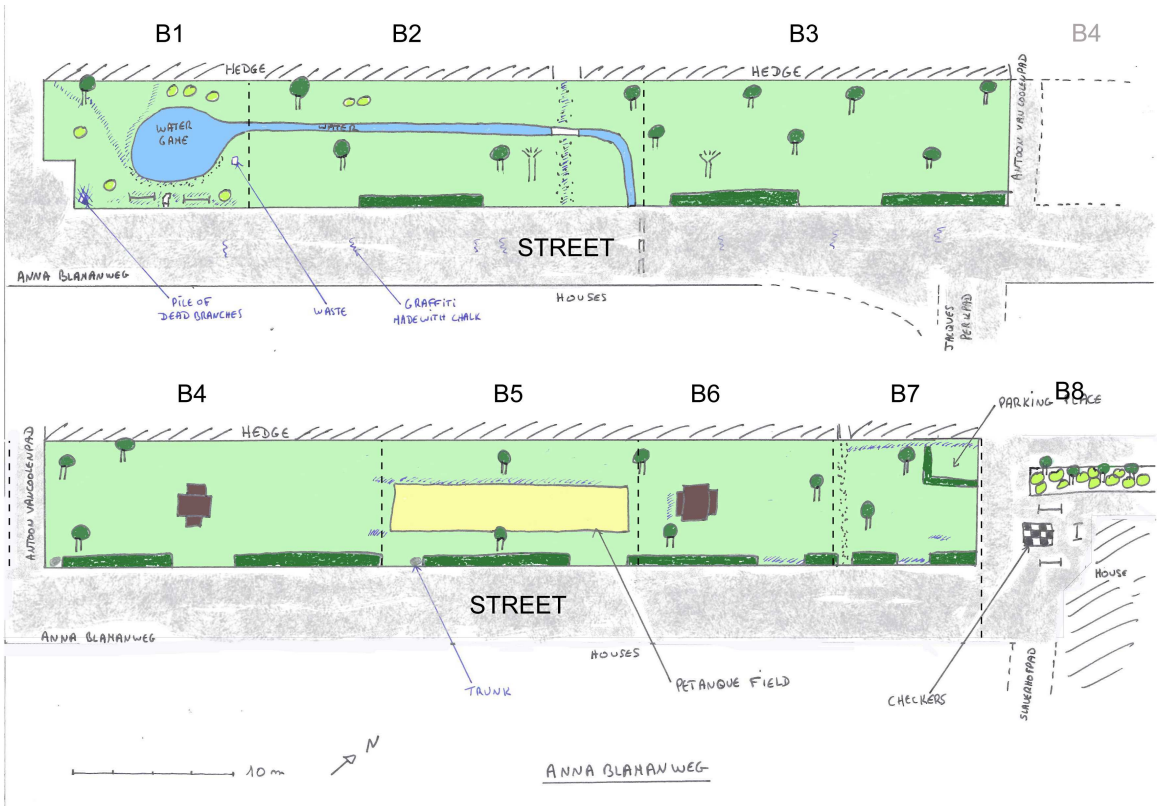


Figure 12 : Sketch of Anna Blamanweg

The water game and the canal (B1 & B2); the picnic tables and the petanque area (B4, B5 & B6)

The water game (B1); the square (B8)

Figure 13 : View of Anna Blamanweg

4.1.2. Anna Blamanweg

Design characteristics

Anna Blamanweg is a street composed of a paved and wide path along with a green space. An important part of the street is non accessible for cars. The green space was divided in 7 blocks and the street constitutes a block in itself, except the square at its extremity which constitutes the 8th block. The green space has been divided according to the design and elements present. The block 1 contains the water game, the block 2, the canal going out of the water game. The blocks 3 and 7 have no particular design and are planted with fruit trees and grass. The blocks 4 and 6 contain the picnic tables. The block 5 contains the petanque. The square (B8) is a wide area and equipped with two benches and a checkers draws on the pavement.

The street is an example of *function-specific* partitioning of space. On one rectangle, a water game is installed, where children have been seen playing in the water. On another part, picnic tables and a petanque area are installed under the shade of trees. In this way it differs a lot from Oude Lek, where the place was actually not designed for a specific purpose. In this street the design may imply some specific activities to occur, although some blocks (3 and 7), where no equipment can be found, do not seem to be given a specific function. The maintenance is stricter than in Oude Lek, and even though the lawn is not sharply mowed, it is clearly more frequently maintained.

Physical traces of use

In Anna Blamanweg, different *physical traces* have been seen in different blocks. In the street, some scrawls have been made with chalk on the bricks. Later on children have been seen scrawling in the street.

In the water game (B1), some elements gave evidence that the place has been used, particularly objects left over, grass crushed at different spots and the bin full of

Figure 5 (continued) : View of Anna Blamanweg



Shoes and a toy left over near and in the water game (B1); cigarette butts and crushed grass under a picnic table (B4)


Crushed grass near the canal (B2); drawing made by children with chalk (B8 and street);

Figure 14 : Examples of physical traces found in Anna Blamanweg

waste. Physical traces were also present near the picnic tables: the grass was crushed and cigarette butts were found there.

Activities in the setting

648 observations have been made in Anna Blamanweg and 1086 persons have been encountered, including 50.3% of adults, 41.9% of children, 4% of teenagers and 3.9% of elderly people. Most people have been encountered during the week (78.4%). *Focused activities* gathered more people than *non social activities*: 704 people (64.8% of the people observed) were engaged in *focused* activities whereas 334 persons (30.8%) were engaged in *non social activities*. The *unfocused* activities concerned only 40 persons (4.4%).

Focused activities were very diverse, both spontaneous and not spontaneous. Indeed people sometimes met in the place, they talked in the street, played in the water game, played badminton in the street, bought ice creams, sat on the grass or at a picnic table. People also met before using the space, especially people talking together while cycling or walking through. *Non social activities* were essentially people walking/cycling/running through the space, but some people have also been seen playing alone, with a ball or with a dog, parking a car in front of a house, walking the dog and one person has even been seen brushing his teeth.

The activities were not homogeneously *distributed in space* (cf. Table 3). Indeed, most people have been observed in the street (61.1%), whereas few have been observed in the other blocks, i.e. the green areas and the square. However, the frequency of *social activities* occurring was relatively high in each block. The highest frequency of *unfocused activities* occurred in the square (B8), representing 12.1% of the people observed. In the blocks 1 and 2, where are located the water game and the canal, almost every activity was *focused* (95.8% and 92.0%, respectively).

Figure 15 : Example of *social activities* in Anna Blamanweg: children playing in the water game (B1)

Location of activities Anna Blamanweg	% of people observed (total of 1356*)	% of people performing *social activities* (% of unfocused activities included) over a total of 943*
Street	61.1	64.3 (4.1)
B1 (water game)	8.8	97.5 (1.7)
B2 (canal)	5.5	93.3 (1.3)
B3	2.1	71.4 (0,0)
B4 (picnic table)	4.0	70.4 (0,0)
B5 (petanque field)	2.4	65.6 (0,0)
B6 (picnic table)	2.5	58.8 (0,0)
B7	3.3	57.8 (2.2)
B8 (square)	10.3	70.7 (12.1)

* this total number is higher because one person could have performed one activity in several locations

Table 3 : Spatial distribution of *social activities* in Anna Blamanweg

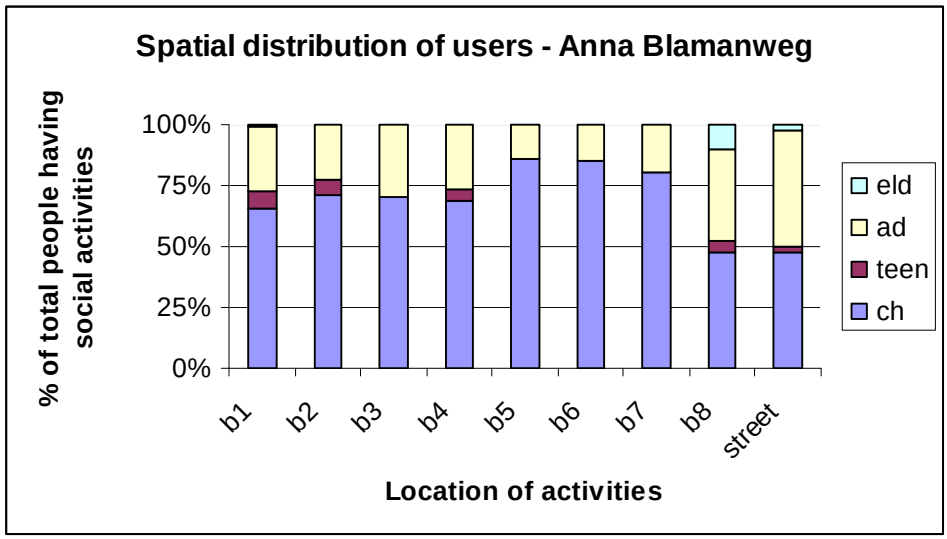


Figure 16 : Spatial distribution of different types of users in Anna Blamanweg

Children were the dominant *users* for every block, except the street, where children and adults performed *social activities* with the same frequency (47.7%) (cf. Figure 16). Teens were few present but have been seen in every block, except B3, B5, B6 and B7. Elderly people have been seen less often as well and mostly in B1 (0.9%), the street (2.1%) and B8 (10.1%).

The street was used in majority over the day, with some variations, as shown in Figure 17. In the other blocks, *social activities* seemed to be mostly concentrated in the afternoon, between noon and 5 p.m..

In terms of *duration of stay*, the pattern varies a lot according to the different locations (cf. Figure 18). In the B1, B2 and B4, activities lasting more than one minute long were predominant and there were few activities of less than one minute. The other blocks were mostly used for very short *social activities* (less than one minute), particularly the street (82.2% of the people observed) and B3 (90%). Still, a certain amount of longer activities occurred in these locations and represented a non negligible part of the activities. For example, 39.4% of the people observed in B8 performed activities of more than one minute.
The longest duration of stay (>30 minutes) appeared in B1 (15.5%), B2 (8.6%) and B4 (13.2%). The duration '15-30 minutes' appeared mostly in B1 (28.4%), B2 (35.7%), B4 (5.3%) and B6 (15%).

For every *type of people*, the dominant duration of stay was less than one minute (cf. Figure 19) except for teenagers who exhibited 52.0% of *social activities* lasting more than one minute long. Only children and teenagers performed the longest activities (more than 30 minutes).

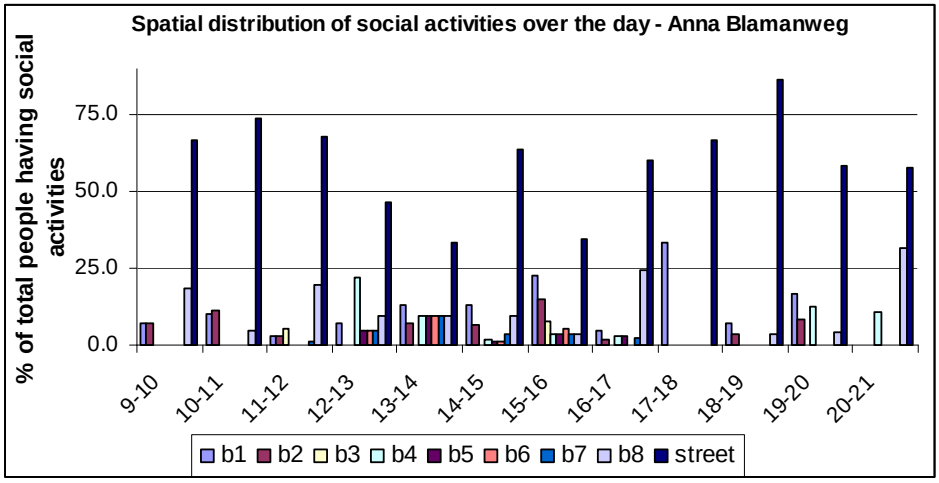


Figure 17 : Spatial distribution of activities over the day in Anna Blamanweg

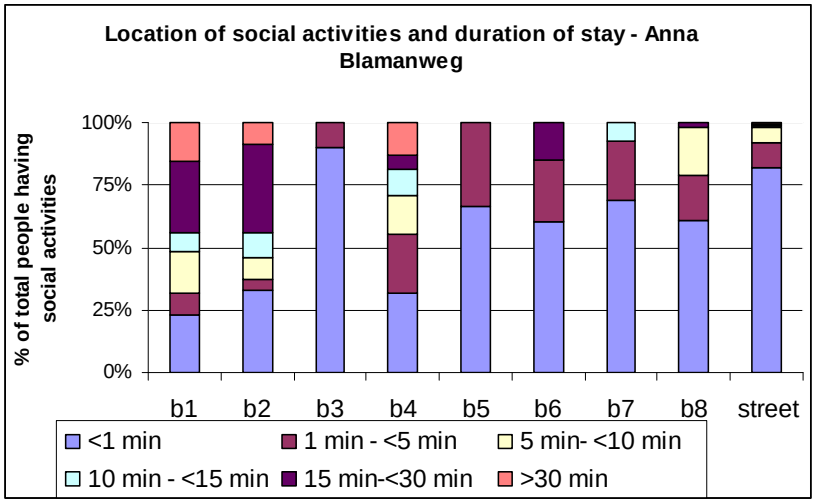


Figure 18 : Frequency of duration of stay according to the spatial distribution of activities in Anna Blamanweg

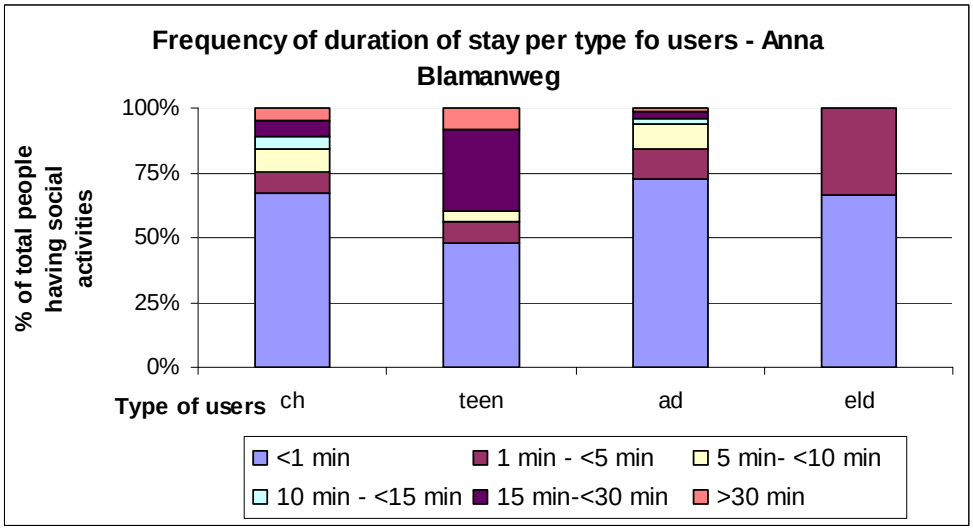


Figure 19 : Frequency of duration of stay according the type of users in Anna Blamanweg

Concluding remarks on Anna Blamanweg

The design of Anna Blamanweg seemed to be *function-specific* particularly because *facilities* are provided at some places. The observations showed that *social activities* occurred with a high frequency in every block and particularly in the water game and the canal, where the frequency is almost 100%. The longest *social activities* (more than 30 minutes) occurred mostly in the blocks where specific *facilities* were provided: the water game (B1), the canal (B2), the blocks with the picnic tables (B4 and B6). Particularly only children and teenagers performed the longest activities in the water game, the canal and one area with a picnic table. These *facilities* may be particularly appropriate for these users to perform very long *social activities* and the afternoon may be the most convenient period to use them. However, there is an exception in the square, where the benches and the checkers have never used during the observations.

In the street, the majority of *social activities* was very short (less than one minute). This can be due to the fact that the street is a *circulation space*. The square (B8), also a *circulation space*, showed, however, less very short *social activities* (39.4%), which can be due to the fact that the area is wider, allowing people to stay for a while and performing *social activities*. Indeed, in the street, people mostly walk through without standing still. Moreover, unfocused activities were more frequent in the square. The location of the square, at the intersection of several streets, may increase the probability for people to encounter each other.

The children were predominant performer of social activities in every block, except in the street where there were as many children as adults. This can be explained by the presence of attracting *facilities* in Anna Blamanweg, particularly the water game and the canal. The proximity of the houses (so the parents as well) and the fact that no car circulates in the street, could explain why children are so present. However, in order to see if this result is really specific to the place, these observations should be compared to other observations made in other street where cars are allowed to circulate.

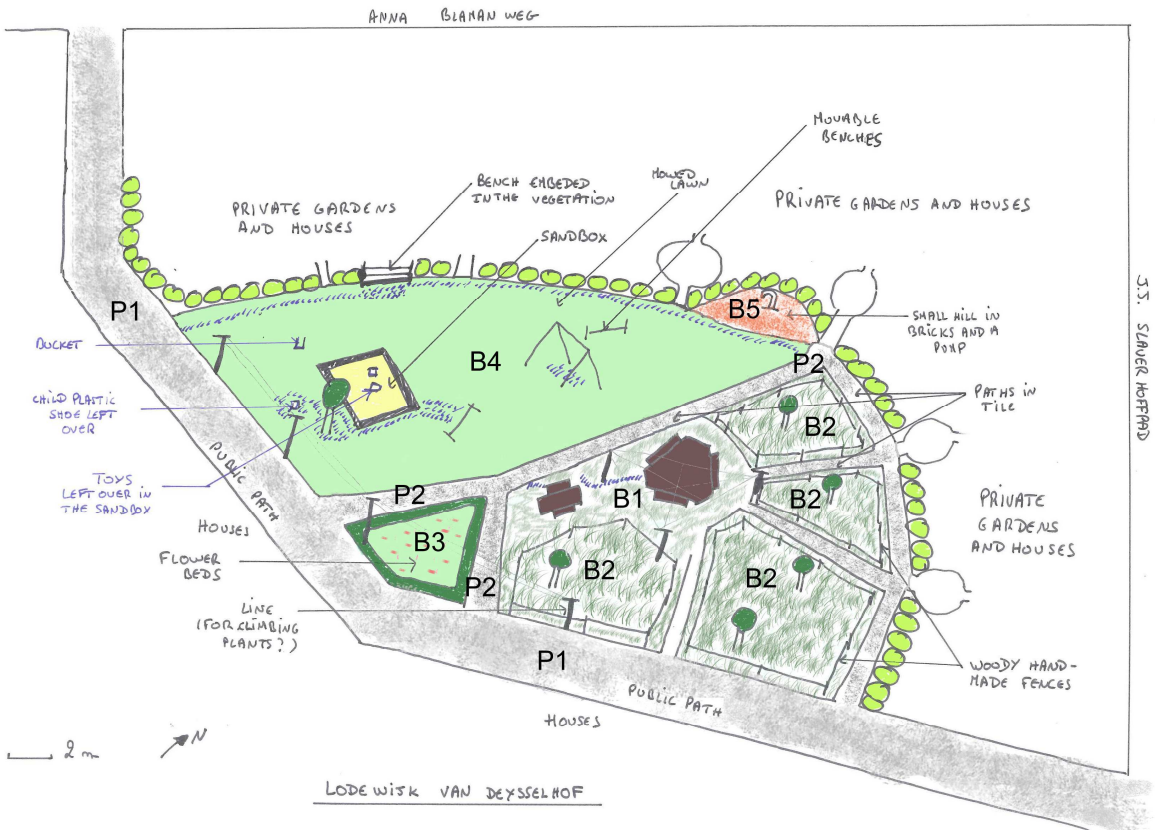


Figure 20 : Sketch of Lodewijk van Deysselhof

One of the picnic tables (B1) and the edge of the garden (B2); sandbox, swing, benches and picnic tables are spread all over the main open areas (B4); the pump (B5)

The public path (P1); the transition from the semi-public to the private gardens: a personalized sitting place

Figure 21 : View of Lodewijk van Deysselhof

4.1.3. Lodewijk van Deysselhof

Design characteristics

The space has been divided in 5 different blocks and 2 paths. The first block (B1) is equipped with 2 picnic tables and comprises the small paths leading to the picnic tables. The block 2 (B2) is a group of four small plots, enclosed with small woody hand-made fences and where the grass is not sharply mowed and. The B2 gives an impression of being wild. The B3 is a small zone planted with roses and enclosed with sharply pruned *buxus* hedge. In contrast to B2, B3 seems to be more sophisticated and maintained. The block 4 (B4) is an open area where a sandbox, a swing and movable benches are spread. A walnut tree gives a shadow on the sandbox. At the edge of this space, flowerbeds separate the collective garden from the private gardens and a bench is embedded in the vegetation. The block 5 (B5) is a small area built with bricks, where a pump has been settled. The path 1 (P1) is the main path, going through the courtyard and is public, in contrast to the rest of the space which is collective (semi-public). The path 2 (P2) is the main path going through the collective garden and is wider than the small paths of B1.

Lodewijk van Deysselhof is an example of *non function-specific* partitioning of space. Indeed, as it is shown in the description of the different blocks (below), the space is more *heterogeneous* in its design. The maintenance is *differentiated*, for example one block is mowed whereas another is not. Even if some specific activities are expected to occur there (picnic tables, swing), the space is assumed to be *flexible* so that some activities are spatially *mixed up* and possibly interact with each other.

Physical traces of use

Several *physical traces* have been observed in Lodewijk van Deysselhof. The grass was crushed around the sandbox and under the swing (B4), as well as near the picnic tables (B1). Some objects left over showed that some areas have been used: some toys in the sandbox (B4), a bucket on the pump (B5) and a box on a picnic table (B1). A

Toys left over in the sand box (B4) and a bucket left on the pump (B5)

Drawings made with chalk on the public path (P1) and one of the benches which was moved there ; crushed grass near the sandbox (B4)

Figure 22 : Examples of physical traces found in Lodewijk van Deysselhof

bench was regularly moved in the middle of the public path as well (P1). Some scrawls were made with chalk on the bricks of the public path.

Activities in the setting

163 activities have been observed in the courtyard, 51.5% during the week and 48.5% during the week end; 292 different persons have been encountered. Almost as many people have been encountered during the week as during the weekend (46.6% during the week and 53.4% during the week end)..

In Lodewijk van Deysselhof, a majority of people performed *focused* activities (74%), 21.9% of the people observed performed *non social activities* and 4.1% *unfocused* activities. Moreover, it appeared that more people performed focused activities during the week end (43.3% of the people) than during the weekdays (30.8%). It is the contrary with non *social activities* : more people performed *non social activities* during the weekdays (13.7%) than during the weekends (8.2%). *Unfocused* activities were as much performed during the weekdays as during the weekends (2.1%). *Non social activities* were mainly people walking or cycling through the courtyard, or playing alone in the collective garden. *Focused* activities involved particularly people talking together in the path or in the garden, playing in the collective garden and in the path, taking care of the garden. *Unfocused* activities were people greeting each other, children playing alone but looked after by their parents or people working together in the garden but spread all over the space.

As shown in Table 4, most people have been observed in B1 (21.1%), B4 (33.8%) and P1 (36.6%). B3 was not used at all and B2 very few. The frequency of *social activities* was relatively high, varying from 59.5% in the public path P1 to 90% in B1. *Unfocused* activities occurred few in the public path (1.7%) whereas they occurred more often on B1 (5.7%), B4 (4.5%) and B5 (5.6%).

Location of activities Lodewijk van Deysselhof	% of people observed (total of 331*)	% of people performing *social activities* (% of unfocused activities included) over a total of 255*
B1 (picnic tables)	21.1	90.0 (5.7)
B2 (wild plots)	0.3	100.0 (100.0)
B3 (flower-bed)	0.0	0.0 (0.0)
B4 (recreation area)	33.8	85.7 (4.5)
B5 (pump)	5.4	88.9 (5.6)
P1 (public path)	36.6	59.5 (1.7)
P2 (collective path)	2.7	77.8 (0.0)

* this total number is higher because one person could have performed one activity in several locations

Table 4 : Spatial distribution of *social activities* in Lodewijk van Deysselhof

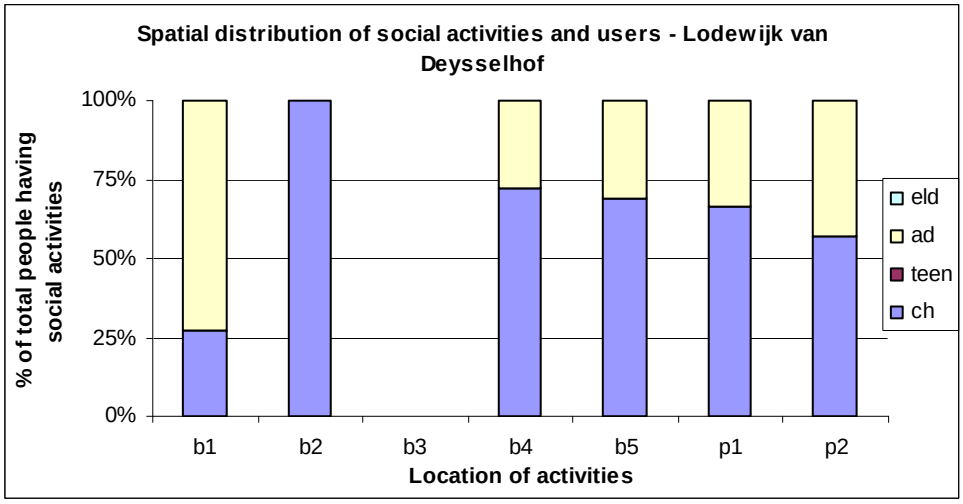


Figure 23 : Spatial distribution of different types of users in Lodewijk van Deysselhof

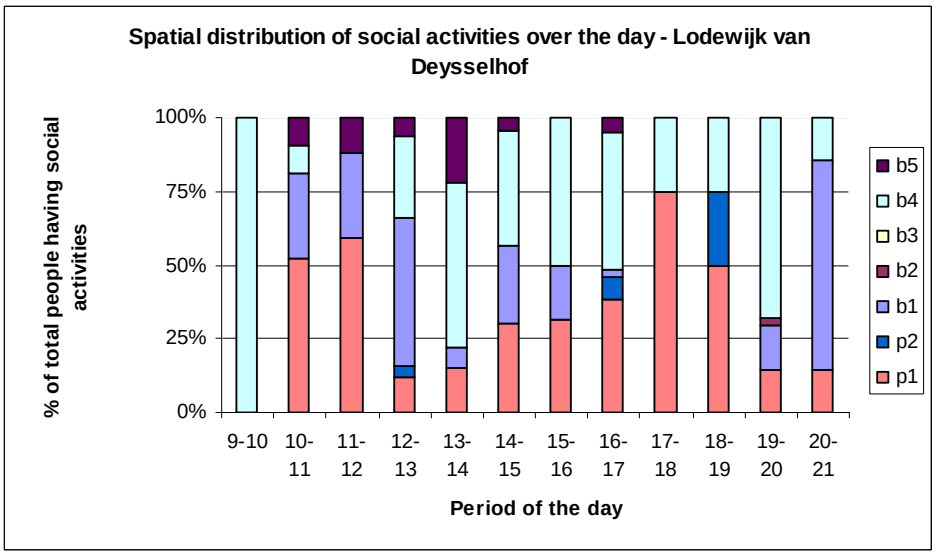


Figure 24 : Spatial distribution of activities throughout the day in Lodewijk van Deysselhof

The Figure 23 shows that adults were *dominant users* in B1 (73.0%), whereas children were dominant users in B4 (71.9%), B5 (68.8%), P1 (66.7%) and P2 (57.1%) and the only users of B2. No teen and few elderly people have been observed.

The *spatial distribution of activities* varied a lot over the day, as shown in Figure 24). P1 was used with the highest frequency during the periods 10-11 a.m. (52.4%), 11-12 a.m. (58.8%), 5-6 p.m. (75.0%) and 6-7 p.m. (50.0%). People used B1 in majority at noon until 1p.m. (50.0%) and between 8 and 9p.m. (71.4%). B4 was the only used block between 9 and 10 a.m. and the most used in the afternoon, especially between 1 and 5 p.m. (50%) and in the evening between 7 and 8 p.m. (67.6%).

With respect to the *duration of stay*, it appeared on the Figure 25 that the shortest duration of stay occurred with a high frequency in P1 (69.4%) and P2 (71.4%). The duration 'over 30 minutes' appeared only in B1 (41.3%), B4 (10.4%) and B5 (25%). In B4 and B5, the majority of activities lasted more than one minute (83.3% and 87.5% respectively). B2 was used only once and for an activity lasting 5 to 10 minutes long. Children and adults performed very short activities with about the same frequency (respectively 32.0% and 30.0%), so they also performed activities of more than one minute with about the same frequency. However, adults exhibited more often activities of more than 30 minutes (30.0%) than children (7.8%) (cf. Figure 26).

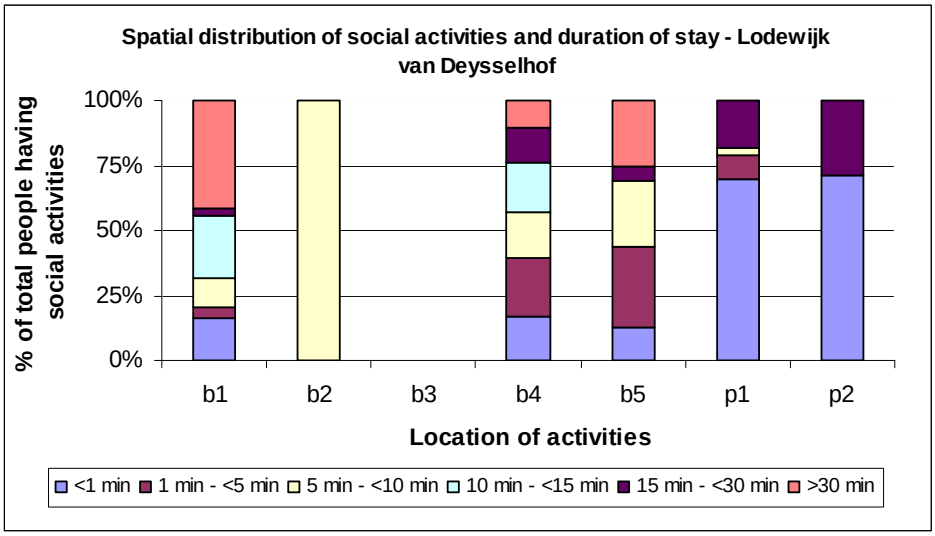


Figure 25 : Frequency of duration of stay according to the spatial distribution of activities in Lodewijk van Deysselhof

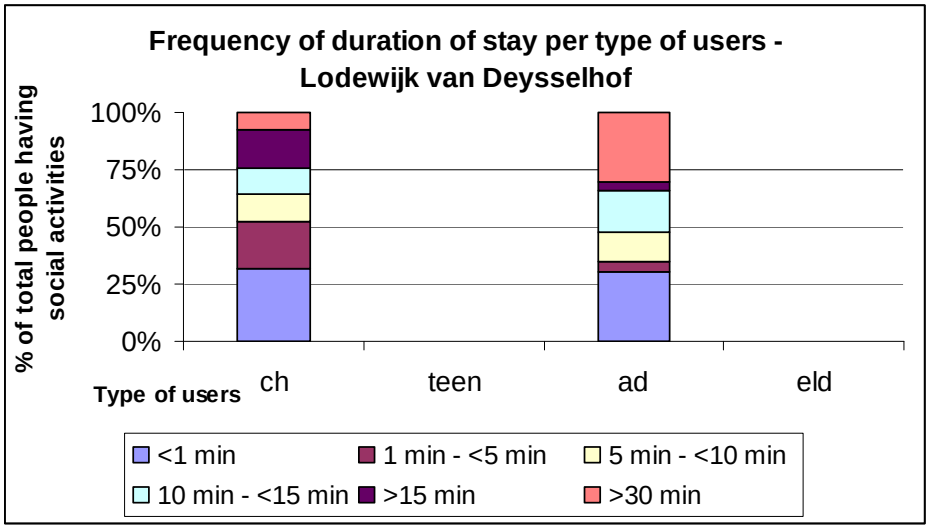


Figure 26 : Frequency of duration of stay according to the type of users in Lodewijk van Deysselhof

Concluding remarks on Lodewijk van Deysselhof

The design of Lodewijk van Deysselhof was defined as *non function-specific*, the organization of the garden is not strict, although some *facilities* (picnic tables, benches) are settled in some places. The observations showed that more *social activities* occurred during the week end and that only children and adults performed *social activities*. We could assume that the week end is the most appropriate for them to use the collective garden during the week end because they have more time for that. In this flexible design, both children and adults performed more long activities than very short activities. The context could explain that few teenagers and elderly people were present.

The *circulation spaces* (P1, P2) showed a high frequency of very short *social activities* (less than one minute) and at certain particular time of the day. Indeed, in general people walked through the path so that they did not stay in the space. Whether it is used more in the evening can be explained by the fact that people just come back from work at this time.

Four blocks contained *facilities* such as picnic tables (B1), recreational *facilities* (B4) and a pump (B5) and these areas were used in majority for the longest activities. These areas may be appropriate for longer activities because people are busy with the *facilities*, particularly children in the playground and adults on the picnic tables. The area with the picnic tables was used mostly between noon and 1 p.m., which confirm that this facility is being used. The playground was used mostly in the afternoon, probably because the main users (children) are sometimes not at school at this time.

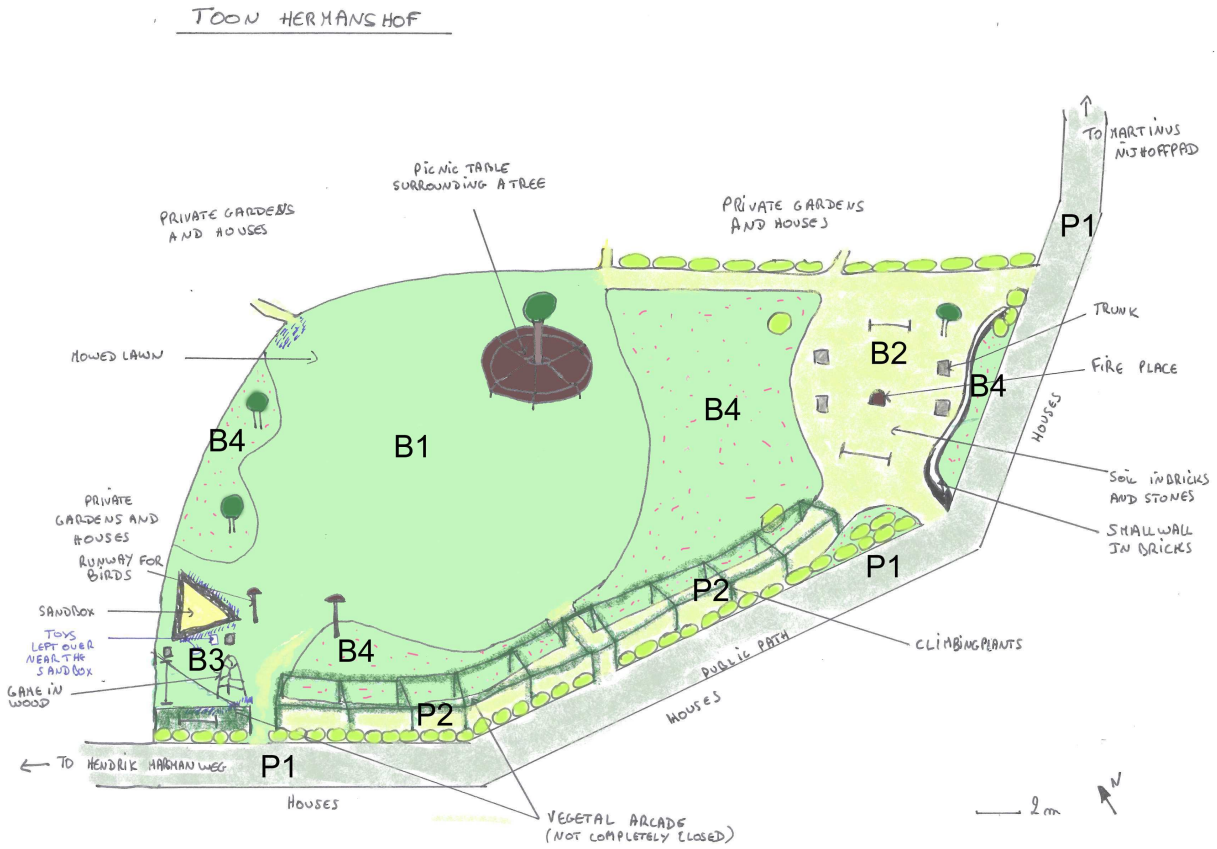


Figure 27 : Sketch of Toon Hermanshof

The open area (B1) with some flowers beds around it (B4) and a sitting place (B2)

The 'playground' (B3); the public path (P1); the path under a pergola (P2) and

Figure 28 : View of Toon Hermanshof

4.1.4. Toon Hermanshof

Design characteristics

A collective garden and a public path compose the courtyard. The space is divided in 4 blocks and 2 paths. The block 1 (B1) is an open grassy area surrounded by the private gardens and flowerbeds (B4). The lawn is mowed and, at the back of the garden, a large tree is surrounded by a circular picnic table. The block 2 (B2) is more isolated from the rest of the garden and separated from B1 by a flowerbed. Two benches and a fire place in the middle have been settled. The block 3 (B3) looks like a playground, where one can find a sand box, a woody game and benches beside it. The fourth block (B4) is composed of all the flower beds of the garden, which seem regularly maintained. The path 1 (P1) is the public path going through the courtyard and the path 2 (P2) is covered by a pergola with climbing plants and surrounds almost one side of the garden, isolating it from the public path.

This semi-public garden is an example of *function-specific* partitioning of space: its design shows that specific areas are assigned for specific activities. Moreover, the design seems to be *sophisticated* and the garden *strictly maintained*: the lawn is mowed everywhere, the climbing plants are pruned and the flowerbeds are kept clean. Toon Hermanshof contrasts with Oude Lek, which gives an impression of wilderness, and Lodewijk van Deysselhof, which does not seem so sophisticated in its design and maintenance.

Physical traces of use

Few *physical traces* have been noticed in Toon Hermanshof as compared to Lodewijk van Deysselhof and to the public spaces. Weeds have been seen growing in the sandbox, showing that the sandbox is maybe not so used by children. However, some grass has been a bit crushed around it. In B2, a table was left over or prepared and the benches were moved.

Weeds are growing in the sandbox (B3)

Benches have been moved and a table with a tablecloth have been left over or prepared (B2)

Figure 29 : Examples of physical traces found in Toon Hermanshof

Activities in the setting

In this space, fewer observations have been made as compared to the other spaces. Indeed, 56 activities were collected, involving 85 people. The reason why less observations have been done is not known, there are several possible explanations. Either the observations, even if spread over the 3 weeks and at different periods of the day, were not done at the appropriate moment; or the space is less used or at least used less often and differently than the other spaces. Some informal talks with inhabitants of the courtyard added some information. Indeed, the collective garden is regularly used for parties gathering all the inhabitants of the courtyard and gardening days are organized. The reader should know that the impressions given by these observations do not take into account these punctual events.

Most people observed performed *focused activities* (60%), whereas *non social activities* concerned 35.3% of the people observed. *Unfocused* activities were observed in minority, representing 4.7% of the people.

Most *focused* interactions were people talking together while walking or cycling through the courtyard and sometimes talking sitting on the benches of B2, on the grass and on the picnic table in B1. *Non social activities* were mainly people walking or cycling through the courtyard. One activity concerned someone taking a sunbath on the grass (B1) and another concerned a child playing alone in the sandbox (B3).

The occurrence of activities was not equal according to the different blocks, as it is shown in Table 5. The public path was the most used (61.7%), followed by the open area B1 (25.5%). B2, B3 and B4 were few used. In terms of frequency of *social activities*, the blocks presented a certain variation as well. The block 2, which was few used, presented the highest frequency of *social activities*. In B1 and P1, *social activities* occurred with a relatively high frequency, but still less than in B2. P2 was not used

Location of activities Toon Hermanshof	% of people observed (total of 94*)	% of people performing social activities (% of unfocused activities included) over a total of 55*
B1 (open area)	25.5	62.5 (0.0)
B2 (sitting place)	7.4	85.7 (0.0)
B3 (playground)	3.2	0.0 (0.0)
B4 (flower-beds)	2.1	0.0 (0.0)
P1 (public path)	61.7	58.6 (6.9)
P2 (collective path)	0.0	0.0 (0.0)

* this total number is higher because one person could have performed one activity in several locations

Table 5 : Spatial distribution of social activities in Toon Hermanshof

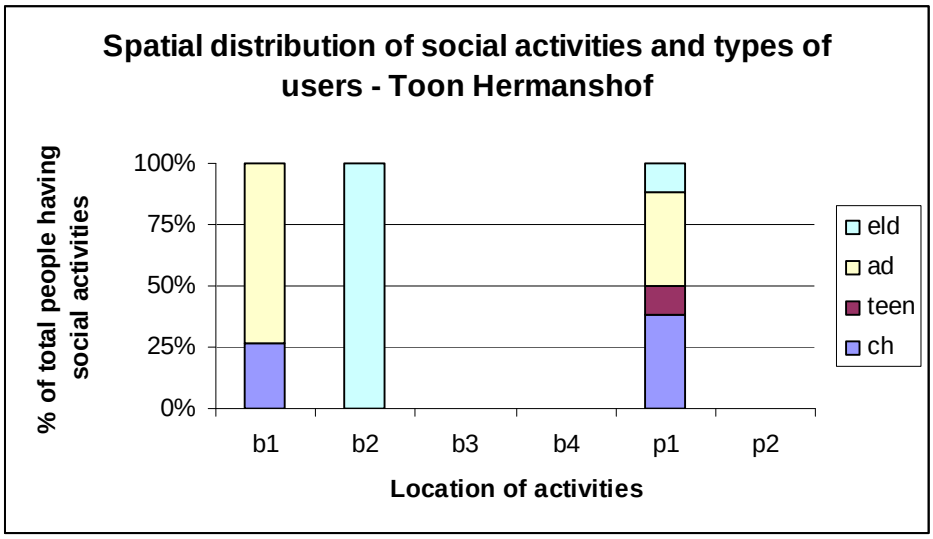


Figure 30 : Frequency of types of users according to the spatial distribution of social activities in Toon Hermanshof

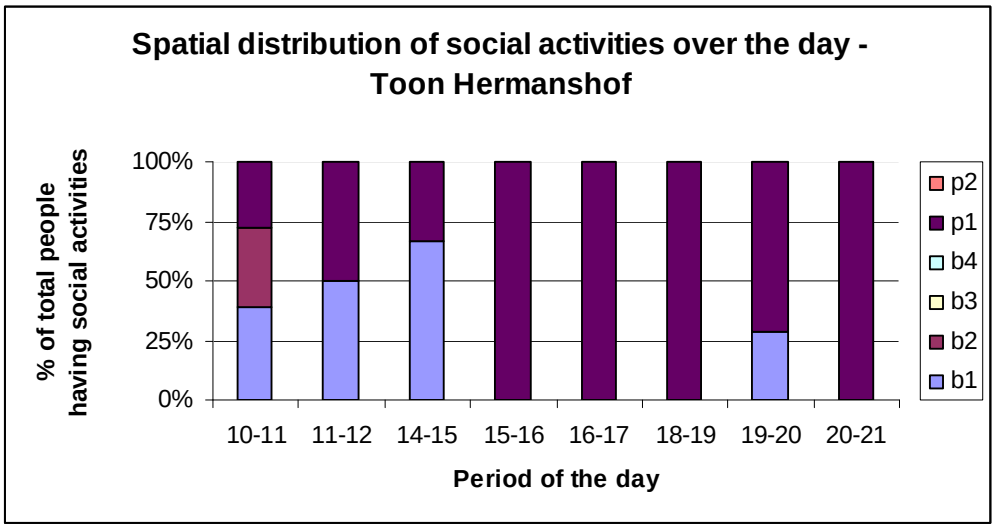


Figure 31 : Spatial distribution of social activities throughout the day in Toon Hermanshof

and B3 and B4 were never used for *social activities* (unfocused and focused). *Unfocused activities* have only been observed in the public path.

The spatial distribution of users having social activities is sensitively different from a block to another (cf. Figure 30). B1 was mostly used by adults (73.3%), and otherwise by children (26.7%), not at all by teenagers and elderly people. B2 was exclusively used by elderly people. P1 was used by every type of users. Nevertheless, here adults and children were dominant users (38.2% respectively), followed by teenagers and elderly people (11.8% respectively).

With respect to the *distribution of social activities over the day*, frequencies of social activities are not homogeneous (cf. Figure 31). The block 1 was used during the morning (from 10 a.m. to noon), in the afternoon (2-3 p.m.) more often than the other spaces (66.7%) and in the evening (7-8 p.m.). The public path P1 was exclusively used after 3 o'clock in the afternoon and in majority between 7-8 p.m. (71.4%). B2 has been used only between 10 and 11 a.m. (33.3%).

According to the Figure 32, very short activities occurred in majority in P1 (94.1%). On the contrary, the longest activities (>30 minutes) occurred exclusively in B2. Finally B1 presented every duration of stay (except the longest), but the duration '10 to 15 minutes' occurred more frequently (60%).

The Figure 33 shows that most users performed a majority of very short activities, except the elderly people who performed the longest activities in majority (60.0%). Adults and children exhibited a little frequency of longer activities (37.5% and 23.5% respectively).

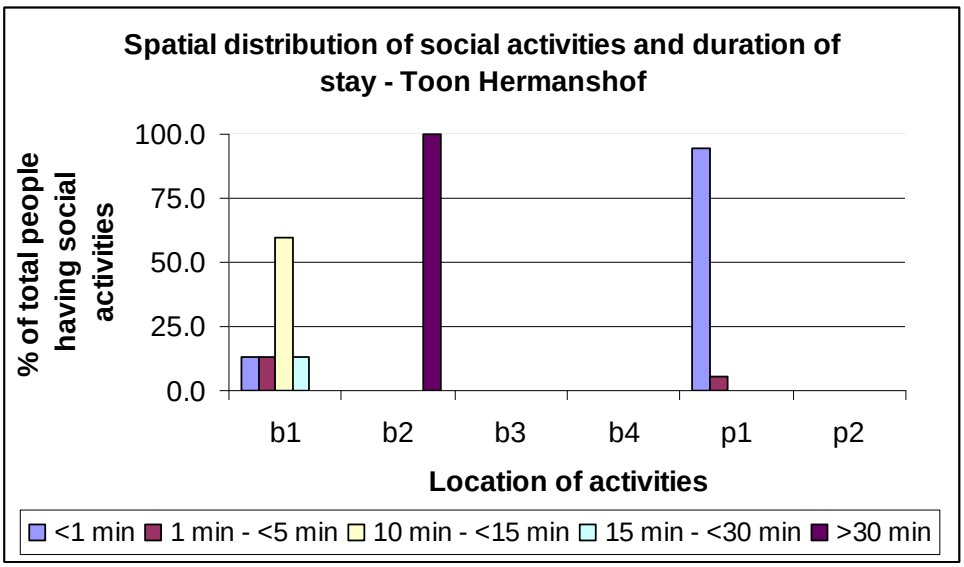


Figure 32 : Frequency of duration of stay according to the spatial distribution of social activities

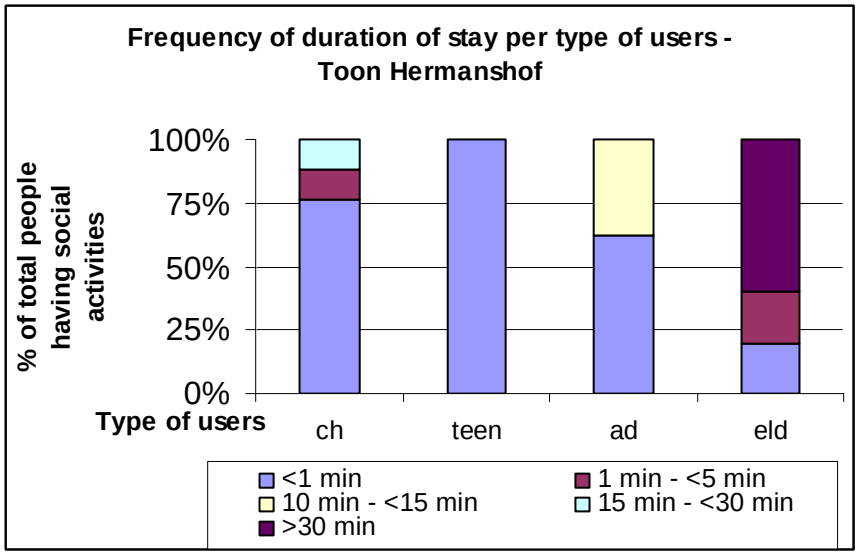


Figure 33 : Frequency of duration of stay according to the type of users in Toon Hermanshof

Concluding remarks on Toon Hermanshof

Toon Hermanshof was relatively less used than the other spaces observed. Its *function-specific* design did not seem to be equally used for social activities. The public path (P1) was used in majority for very short social activities, at every time of the day and by every user. The design of this element and its primary function (circulation) could explain these results: people walk through together so that they stay a very short time. Still these short social activities are essential to create new social interactions, even unfocused interactions. The public path (P1) was used more at some time of the day and particularly in the afternoon. The time-context may have an influence on the use of this path.

The sitting place (B2) was exclusively used by elderly people and for very long activities (more than 30 minutes). The presence of *facilities* such as benches could be particularly appropriate for this type of users to have long *social interactions*. The open area (B1) was mostly used by adults and presented a variety of duration of stay. In this block one can find a *facility* (picnic table), which could have enhanced longer activities. On the other hand, its openness could have been used for short as well as long *social activities*.

Three blocks have not been used at all or at least not for social activities: the path covered with climbing plants (P2), the flowerbeds (B4) and the playground (B3), even if this last block contains recreation *facilities*. This can be explained by the context of the courtyard: there may be few children living here, so that the playground does not find any users. The other blocks might not be attractive or convenient for people to have social interactions.

4.1.5. General conclusion on the results of the observations

The observations carried out enabled to make different remarks concerning the influence the design of the green spaces and the social interactions occurring there. Three main elements of the design seemed particularly interesting in exploring this influence:

- the ***facilities*** in the green spaces
- the ***circulation spaces*** and ***non circulation spaces***
- the ***flexibility*** and ***non flexibility*** of the design

The influence of each of these aspects on social interactions is described in this conclusion.

The influence of the presence of *facilities* in the green spaces on social interactions

Various *facilities* such as picnic tables, benches, games for children, a water game and a canal were found in the spaces studied, except Oude Lek. The findings of the observations showed that, in general, the blocks containing such *facilities* were successful in terms of social interactions. The frequency of focused activities was veru high for some blocks containing facilities, such as the water game and the canal of Anna Blamanweg, the picnic tables of Lodewijk van Deysselhof and the sitting place of Toon Hermanshof. The frequency of focused activities was similar to the frequency found in blocks without facility, such as the open area of Toon Hermanshof and the picnic tables of Anna Blamanweg.

If the frequency of focused activities varied, spaces with facilities seemed to support a specific type of social interactions. Indeed, the *facilities* also supported very long social activities. Sometimes social activities lasting more than 30 minutes were predominant, as it was the case in the sitting place of Toon Hermanshof and the picnic tables of Lodewijk van Deysselhof. These long social interactions are important because when people stay longer, there are more opportunities for them to meet and interact with other people.

Even though such facility is not found in Oude Lek, the sluice installed there seemed to have supported this kind of long social interactions as well.

The facilities seemed to be more appropriate for some users and less for others. Some were more attracting for children: the water game and the canal of Anna Blamanweg, the recreation area of Lodewijk van Deysselhof. The picnic tables of Lodewijk van Deysselhof were more attracting for adults, and the sitting place of Toon Hermanshof was more appealing for elderly people.

The time context influences the use of these facilities. Indeed, the warm afternoons were the ideal time to play with water, as it was the case in the water game an the canal of Anna Blamanweg. In the same way, lunch time was the good time to use the picnic tables of Lodewijk van Deysselhof.

However, there were some exceptions in the influence of these facilities. The petanque field in Anna Blamanweg seemed to be the place of a majority of social activities, but has never been seen used to play petanque during the observations. The 'playground' of Toon Hermanshof was almost never used and not for social activities. The benches and the checkers of the square of Anna Blamanweg was not used as well. So in this case the presence of *facilities* does not seem to enhance the use. Thus the presence of *facilities* enhances in general the occurrence of social activities, because it is attracting for people and users stay there for a long time so that they can easily meet each other. However the influence of these facilities is moderated by the fact that they sometimes attracted specific users and their use could depend on a specific time of the day. The few exceptions observed might be explained by these two factors as well.

The influence of *circulation* versus *non circulation spaces* on social interactions

The frequency of focused activities was relatively high for the *circulation spaces* (around 60%) but sometimes lower than *non circulation spaces*, particularly the spaces containing *facilities*, as described previously. However, the highest frequency of

unfocused interactions was found in a *circulation space*, in the square of Anna Blamanweg. Here, the probability of encountering people may be higher.

Particular social interactions have been observed in the *circulation spaces* such as the street and square of Anna Blamanweg and the public paths in the courtyards and Oude Lek. These social activities are particularly different from the social activities performed in the *non circulation spaces* (the green spaces): social interactions were mostly very short and non spontaneous in *circulation spaces* whereas they were mostly longer and spontaneous in the *non circulation spaces*. Indeed, people used the circulation spaces for their primary function, i.e. to walk through so that they did not stay in the area. The square of Anna Blamanweg, however, exhibited less short social activities, certainly due to the fact that this wider area allows people to stop for a while without disturbing the circulation. Moreover, social activities were not spontaneous because people mostly met before using the space. In Oude Lek, for example, nobody was observed using the path as a meeting point. On the contrary, in the *non circulation spaces*, people met spontaneously, particularly in the water game of Anna Blamanweg, where a lot of children played in the same time, looked after by their parents who usually started conversation together.

Nevertheless, some spontaneous and longer social activities occurred in the *circulation spaces*, as in *non circulation spaces*. For example, children have been seen improvising a volley ball match in the middle of the path of Lodewijk van Deysselhof. Children also used Anna Blaman Street as a playground. This mqy be due to the fact that no car is allowed in the public streets and paths of this neighbourhood, which probably makes the *circulation spaces* safer. However, whether the absence of cars really influences the use of the space by children should be investigated by comparing this case with a street where cars circulate.

Therefore circulation spaces exhibited a relatively high frequency of focused and unfocused activities. The probability of encounter acquaintances in the *circulation spaces* may be higher than in *non circulation spaces*. C*irculation spaces* supported very short and non spontaneous social activities, in contrast with the *non circulation spaces*

where the social activities were mostly longer and spontaneous. Both types of interactions are important in using a place. Indeed, if long and spontaneous interactions enable to strengthen already existing relationships; short and non spontaneous interactions are opportunities for new interactions to be created.

The influence of *flexible* versus *non flexible design and maintenance* of green spaces on social interactions

The spaces studied have been first chosen because of their differences in the extent and sophistication of maintenance and their *function* or *non function-specific* design. The findings of the observations did not make a clear trend appear. The supposed '*flexible*' and '*non flexible*' designs and maintenances have a lot of common points. Every space supported more focused activities than unfocused and non social activities. However, there was one noticeable difference in the fact that Toon Hermanshof was not used as much as the other spaces. The users were also sensitively different: there were more teenagers and elderly people in this garden. Toon Hermanshof seems to be designed and maintained to enhance its *esthetical* value, in contrast to Lodewijk van Deysselhof, which seems to be first designed and maintained to be *functional*. This distinction could explain why Toon Hermanshof was not used to the same extent.

The spaces studied are located in a specific context, since green spaces, and particularly the collective gardens, have been designed and are maintained by the residents themselves. So when trying to interpret the results of these observations, it should be taken into account that Toon Hermanshof could have been designed in such a way that it offers some quietness and beauty for its users. The design and maintenance of these green spaces could partly explain their use and their influence on social interactions, but the fact that people gave them a specific function and use it according to what they expected is an essential point. The expectations of people towards their collective gardens might also change throughout the time.

4.2. Influence of the collective design and maintenance of green spaces on social cohesion

The interviews showed that the collective design and maintenance of green spaces in EVA-Lanxmeer influences several aspects:

- the sense of community
- the social networks and support
- the sense of safety and social control

The interviews also made appear some complications originating from the collective process (§ 4.2.6).

4.2.1. The extent of involvement in the design and maintenance of green spaces

Every resident interviewed participates regularly to the design and the maintenance of the collective garden in their own courtyard, only new comers did not participated to the design because they arrived later on. The extent of participation is variable according to the people, some of them are very involved and have a strong leadership role in the courtyard and some help when necessary. None of the resident interviewed chose to be totally excluded from the process. However one of the residents is less involved and tries to keep a certain distance from the gardening days. This person does not necessarily follow the activities proposed but without withdrawing from the process either.

Three of the residents interviewed were involved in the decision-making of Terra Bella, the foundation in charge of the *maintenance of the public green areas* in the neighbourhood. Some residents were involved in the design of the public green spaces located nearby their courtyard and others in small projects in the public space as well. For example, people from Toon Hermanshof and Lodewijk van Deysselhof participated in the installation of the little fountain located in the square, at the

extremity of Anna Blamanweg and in between both courtyards. A little plot has been settled for two goats, still with people both from Toon Hermanshof and Lodewijk van Deysselhof.

In general, the *reasons* why people chose to be involved in the design and maintenance of green spaces were related to the responsibility to take care of their environment, especially for the collective gardens; by professional interests, for some people who work in environment or landscape domain; by a need to feel connected to the place and of course an interest for plants and nature in general.

Finally, the residents interviewed participated also in *other activities* within the neighbourhood: the EVA-Lanxmeer residents society (BEL), the BEL-newsletter, the city farm, the C4real festival which is organized in the neighbourhood and the school which involves a lot parents in several projects all over the year.

4.2.2. Sense of community

During the interviews, sense of community appeared to be linked to specific components, which were highlighted by the residents:

- ***connections***
- ***shared values***
- ***identity***

Each component is explained and illustrated in the following paragraphs.

In general, *shared values* seemed to be well developed among EVA-Lanxmeer residents. People mostly shared the ecological way of living, although it seems to be some variations among residents. According to the residents interviewed, the commitment to the underlying principles of EVA-Lanxmeer is in general well established, although here again some differences exist in the perceptions of residents. Most residents interviewed explained this common interest by the fact that

a specific type of people has been unintentionally selected at the beginning, which resulted in a relative homogeneous population. Indeed, the residents interviewed noticed that EVA-Lanxmeer population corresponds in general to high-educated and relatively high-income people. Every resident had to sign an agreement before buying their house and committed to respect the rules underlying the project of EVA-Lanxmeer. For example, people do not park their car inside but outside the neighbourhood. When residents were asked about the reasons why they chose to live in EVA-Lanxmeer, the attraction for the ecological principles, the durability, the presence of nature and green areas constitute the major reasons. Moreover, most people had a particular interest in the social dimensions of EVA-Lanxmeer, the residents participation, the good atmosphere, the liveliness and the quietness of the neighbourhood.

Therefore, according to the residents interviewed, the chances for them to share values are higher in this neighbourhood than another "classical" neighbourhood. However differences arise at a personal level, because everyone is different, so residents have to deal with and try to respect one's differences.

The tissue of *connections* appeared to be dense among the residents. Some residents pointed out that, beyond the interest for ecological principles, people first share the space together, thus a common responsibility and a common ownership. This common responsibility connects people in a lot of ways because they have common interests in taking care of both public and semi-public (collective) spaces. Decisions always have to be made and it brings additional connections.

With respect to the *identity* of the courtyards and the neighbourhood, most residents interviewed expressed in general the uniqueness of the neighbourhood and of the courtyards. Indeed, the complexity of the project makes it unique. The courtyards are all different in the way it is designed and in the way people maintain and use it. Residents also gave them different functions. Some courtyards have been designed

so that it is more quiet and intimate (Vasalishof, Toon Hermanshof), whereas some have been adapted for children (Lodewijk van Deysselhof). Lodewijk van Deysselhof is a good example of how the identity is expressed, because a lot of different elements of design are used in the garden, every different element originating from one taste of one or more persons. Thus this courtyard has a specific identity and it is simply multiple because every resident has contributed to it.

At the neighbourhood level, residents seem to be proud of living here and participating to the development of the project. EVA-Lanxmeer should be an example for other neighbourhoods. Accordingly the neighbourhood has an identity in itself but also contains a multitude of identities thanks to the courtyards. Residents contributing to these identities feel more connected or attached to the place and to the project.

4.2.3. Extent of social network and support (neighbouring)

Social networks in EVA-Lanxmeer seem to be highly developed. One resident pointed out that in EVA-Lanxmeer the relationships were courteous and surprisingly spontaneous and simple, as compared to what this person knew before.

Within the courtyard, the residents know each other, was it personally or just people's face or name. At the neighbourhood level, residents know each other more or less, depending on each situation. Residents interviewed who participate to the collective maintenance of the public space (Terra Bella) and to the activities of the residents' society (BEL) usually know a lot of people outside their courtyard. Other *specific aspects* of this neighbourhood, like the city farm or the parties regularly organized in the courtyards contribute to develop *acquaintances*.

The occurrence of *preferential relationships* depends on the people, friendships may appear or not. Some respondents had real close friendships with other residents, both in and out the courtyard. On the other hand, some others have more friendships outside the neighbourhood and have friendly but not deep relationships with their

neighbours. For some residents, the first meetings which were organized for the design of the courtyard were the origin of *preferential relationship*s. Indeed, during these meetings they had to work together, although they did not know each other beforehand. The contacts were made easier and more natural because of this common commitment. In the case of the residents interviewed, these *preferential relationships* have been maintained throughout the years.

On the other hand, *every day life elements* like the school or going out to walk the dog, not specific to the neighbourhood, are also examples of opportunities to meet and know more people. Moreover, children represent in a way a *bridge for new interactions*; they actually contribute to bring their parents together, particularly at school and in the collective garden. These interactions sometimes result in strongly linked groups of people who know each other better thanks to their common interests for children.

In terms of *support*, the residents interviewed were unanimous : everyone could help each other for any kind of problems. Support can be either material or psychological. For example, one can borrow something to a neighbour if needed. When the relationship is a bit more developed, the neighbours easily take care of one another's children. The support has been very deep sometimes. It happened that the neighbours give a *support* to someone struggling against an illness or give comfort to someone for whom something bad happened. Furthermore, the *support* can be very *spontaneous* and one resident underlined that people seem to be *willing to help*. People generally rely on one another, giving a presence and a *sense of safety*.

4.2.4. Sense of safety and social control

The general *sense of safety* was present in the talks of the residents. To explain this feeling, several reasons were highlighted: a certain social control and collective awareness on one hand; the specific distribution adaptations of the public, collective and private spaces on the other hand.

The general *feeling of safety and support* could originate from a particular mechanism, which was evoked by one of the resident. Indeed, as people feel responsible for their surrounding environment, feel connected to the place and to the people living here, they have an implicit and an *unintentional control* on it. This mechanism is a kind of "*social control*". The people unintentionally oversee the courtyard or even the neighbourhood, which actually makes the place safer. Any marginal or disrespectful behaviour is corrected by the residents themselves. For example, when one does not pick up his dog's pooh and a resident sees it, this resident will probably ask this person to pick up the pooh. It happened that some people from outside the neighbourhood disturbed the area and a group of residents immediately came out of their house to calm these persons.

One resident added that the process of being involved in the maintenance of the collective space puts forward collective interests so that problematic individualist behaviours are avoided. There is a kind of *collective awareness*. Another resident also approached this idea and named it "*coexisting agreement*".

Additionally, the *spatial distribution* of the public, semi-public and private space facilitates the supervision of the residents surrounding environment as well. Indeed, within the courtyard, the semi-public garden and the public area (a path) are located nearby the private gardens and houses. In this way, people keep an eye on the collective and public spaces and, as looked after, the place becomes safer, in particular for children. As it is safer, people tend to use it more and unintentionally contribute to maintain this safety. This safety is also an advantage because more people gather and have the opportunity to interact with each other.

Finally, one resident underlined the direct *influence of residents* on their surroundings, which may improves both their *well-being* and *sense of safety*. It improves their *well-being* because people can benefit from a space which corresponds to and is *adapted* to their personal tastes, widens their living environment and their

span of control. By this process the residents may feel more connected to the place (their courtyard, their neighbourhood), feel almost 'at home' or in a safe place.

4.2.5. The actual influence of the design and maintenance of green spaces on social cohesion

Residents were finally asked about the possibility that the design and maintenance of green spaces influence sense of community and social networks and support and there is a general agreement on a possible influence. Nevertheless, most people interviewed pointed out that other processes actually influence social cohesion as well so that the design and the maintenance of green spaces contribute only for a part to improve social cohesion. There are a lot of other opportunities to have interactions, connections and develop a sense of community. Green spaces have the specificity to be a particular context to meet and work with people. Gardening even enables certain interactions to occur, particularly with people who would never have met in another context.

The *common responsibility* in taking care of their environment and residents common interests in doing so seems to contribute widely to improve social cohesion. It is important to create and maintain *common interests* between the residents. According to one resident, social cohesion would never exist without any kind of common interest.

Another resident hypothesized that social cohesion also partly appears because people were *willing* to create social cohesion. The attraction of the residents for the social dimensions of EVA-Lanxmeer could have conditioned them to express their motivation in strengthening the community, creating new social interactions and helping one another. Once social cohesion appeared, they contribute to maintain it, so that new interactions, connections and support are created. Social cohesion may self-maintain thanks to people's willing and actions.

4.2.6. The complications of the collective design and maintenance of green spaces

By making decisions together, persons express their opinions are inevitably confronted to *contrary opinions and perceptions*. When it is only tensions for certain situations, it is source of conflicts in other situations. Some time and dialogue, which seems to be well developed in the neighbourhood, solve most tensions. Thus collective decision-making is not always an easy process, especially in courtyard where people have very different tastes, opinions and perceptions about how to design or maintain the collective garden. The residents admitted that diversity is a good thing, but it may also bring difficulties when people have to deal with one another's differences.

Moreover, a resident added that by being used to make decisions about the collective space, *controlling the surroundings* may become a reflex. There is a risk that the control hold by the group itself becomes too sharp in certain situations, so that individuals get less freedom to take initiatives. Collective decision-making should respect certain proportions so that it stays within its scope, i.e. collective concerns.

Some residents noticed that mostly a same group of people participated regularly to the process of designing and maintaining the green spaces, both semi-public and public. Residents accept that residents *do not participate equally* and it is clear that residents are not obliged to participate to the process, it is a personal choice. But some respondents pointed out the question of the responsibility. Is there an influence of the residents' participation on the distribution of responsibility? If the formal responsibility stays equal among residents of a same courtyard, the responsibility may be informally lower for the residents who participate less. A resident discussed the fact that the organization of collective actions sometimes depend on a small group of leaders in the courtyard but could it contribute to a "decline" of the

community? In other words, does the sense of community created by sharing a common responsibility depend on the level of participation of residents? It could be answered in another research, but in the case of EVA-Lanxmeer, the level of participation seems to be much higher than in more "classical" neighbourhood. A decline in the participation is relative and should also be considered in comparison to another situation.

4.2.7. General conclusion on the interviews

Green spaces, because they are collectively designed and maintained, contribute to expand a certain *sense of community*, *social interactions* and *support* between residents. Moreover, the *common responsibility* and ownership shared by residents, particularly for the collective gardens, bring new connections and contribute to maintain them. In the same way, the population is relatively homogeneous in terms of interests, education and income, which have certainly helped to expand social cohesion. The collective process could have *indirect influence* on social cohesion: a certain *social control* and *collective awareness*, giving residents a feeling of safety. *Creating an everyday environment* which may correspond to their tastes may enhance residents' well-being and feeling of safety as well.

Green spaces represent one of the many opportunities one can find to meet other people in the neighbourhood. *Other factors* seem to influence social cohesion in EVA-Lanxmeer, which may not necessarily depend on the collective process: the common interest residents have for the development of EVA-Lanxmeer project, their willingness to create and maintain social cohesion, and the social control resulting from a particular consideration for their everyday environment.

The collective design and maintenance of green spaces has some *complications* however. It is source of tensions, making people confronting with contrary opinions and tastes. The actual influence of the extent of involvement in this process on the development on a certain sense of community, social interactions and support should be discussed. There is not an equal involvement but, whatever their extent of

involvement, the residents interviewed seemed to agree on the existence of a real community and of a social cohesion within the neighbourhood. Thus, does the social cohesion depend on the extent of involvement of everyone?

Finally, on the long term, a risk that the process goes beyond its primary scope could be questioned. A collective decision-making concerns collective prospects, but it may exist a risk that it could also tend to control individual life and initiatives. If this situation would occur, what would be the impact on social cohesion?

5. Conclusion

This research aimed at answering the question: ***How do the collective design, maintenance and use of green spaces facilitate social cohesion?***

To do so, a case study was performed in EVA-Lanxmeer neighbourhood, in Culemborg (Netherlands) and contained two steps. The first step aimed at exploring whether the design of green spaces has an influence on social interactions, one of the components of social cohesion. Observations of the social activities were carried out in four green areas of EVA-Lanxmeer. The observations showed that some aspects of the design could influence the occurrence of social interactions.

The green areas where *facilities* were present appeared to be successful in terms of social interactions. Areas with facilities showed the highest frequency of focused activities. Here the interactions were very long, sometimes lasting more than 30 minutes long.

The *circulation spaces* exhibited a high frequency of *focused interactions*, but not more than *non circulation spaces*. *Circulation spaces* seemed to play a role for *unfocused interactions*, here the probability of meeting an acquaintance may be higher than in the *non circulation spaces*. *Circulation spaces* also exhibited very *short and non spontaneous social interactions* in contrast to the *non circulation spaces* which supported *longer and spontaneous social interactions*. Diverse social interactions have been observed and they all have an importance in terms of social cohesion. Indeed, short and non spontaneous interactions are potential opportunities for longer and spontaneous interactions to occur later on.

The four spaces studied distinguished from each other by their *flexible design* (*non function-specific design*) or *non flexible design* (*function-specific design*). The observations showed that this distinction had no relevant influence on social interactions. There was no variation in the intensity of *focused activities*. However,

differences in the extent of use have been observed in the four spaces and this can be due to the context.

The *geographical and time-context* may be the reasons why people particularly choose to use certain spaces at certain moments. The *specific context of this neighbourhood* may also influence the extent of use: the residents have a say and create their own green space, making them adapted to their personal tastes and needs. There is a diversity of tastes and needs, making the design, maintenance and the use different from a space to another.

The second step aimed at exploring the influence of the collective design and maintenance of green spaces experienced by EVA-Lanxmeer residents on the *sense of community and social interactions and support*, components of social cohesion. Nine residents were interviewed about their involvement in the process and its possible influence on social cohesion.

The results of the interviewed showed that the social interactions were particularly well developed in EVA-Lanxmeer, from *acquaintances and friendly relationships to real friendships*. When social interactions were sometimes enhanced by the process of collectively designing and maintaining the green spaces (Terra Bella foundation, group of residents of each courtyard) it was also created by other specific aspects of EVA-Lanxmeer, not related to the green spaces: the residents' society (BEL), the parties organized in the courtyards, the festivals, and the city farm. Moreover, even non specific aspects constitute opportunities for new interactions: the school, walking the dog etc.

A particularly important *support* was exhibited through the talk of the interviewees, either *psychological or material*. The collective design and maintenance of green spaces could have played a role in making people know each other and be aware of what is happening in their neighbours' life.

The process seemed to contribute to expand the *sense of community* in the neighbourhood. Particularly, people share a lot of values like the ecological way of

living. This may also be related to the fact that the population of EVA-Lanxmeer is relatively homogeneous in interests for the environment, in education and income. The process brings *connections* between the residents by creating a common responsibility and ownership. The process also allows residents to contribute to the *identity of the neighbourhood* and of their respective courtyards, which may expand the *sense of community*.

However, the influence of the process on social cohesion appeared to be indirect in some aspects: the *common responsibility* for the environment make a social control appear among the residents, contributing to expand *a sense of safety.* As used to work in group and making group-decisions, the *collective awareness* is well developed and individuals may feel protected. By *adapting their environment* to their personal tastes, people expand their *span of control, well-being and their sense of safety*.

Finally, the residents generally agree on the fact that the collective design and maintenance of green spaces contribute only for a part to facilitate social cohesion. Residents are involved in a bigger process, as complex and specific as the EVA-Lanxmeer project itself.

6. Discussion

6.1. About the observations

In order to explore the influence of the design of green spaces on social interactions, observations have been carried out. The observations showed that two aspects of the design, the *facilities* and *circulation spaces*, stimulated two types of social interactions: long and spontaneous on one hand, long and not spontaneous on the other hand. Spaces with facilities seemed to enhance more focused activities as compared to the spaces without facilities. Circulation spaces did not seem to exhibit a higher frequency of focused activities than in non circulation spaces. All the spaces exhibited more focused interactions than non social interactions, but were not used to the same extent.

Concerning the presence of *facilities*, Huang (2006) also showed that activity space, open spaces with recreational *facilities*, which is somewhat similar to some design elements studied, stimulated social interactions. When Whyte (1980) studied the influence of different design elements on the use of plazas in New York, he found that the availability of sitting places, water and even trees in public spaces was correlated with an important use. In the research, three spaces over four contained *facilities* such as benches and playground areas but there were an important variation of use when compared to each other. Toon Hermanshof contained such *facilities* but gave less observations. Therefore the availability of *facilities* in the green spaces may not be the only factor influencing the extent of use and occurrence of social activities. Moreover some exceptions existed in the research: some *facilities* were not used or were used for other purposes than its primary function. Therefore if these *facilities* have an influence on social interaction, it is not necessarily related to its primary function: when nobody has been seen playing petanque on the petanque field of

Anna Blamanweg, children enjoyed to play there in the sand. In Lodewijk van Deysselhof, a bench was regularly used to split up teams during an improvised volley-ball match. Thus, how to consider the influence of facilities and equipment in the green spaces when they are not used at all or not for their primary function? Is the influence of facilities related to its function, its location in the space ot to the context (users, period of the day)?

With respect to the *circulation* and *non circulation spaces*, another research about the influence of design characteristics on social interactions brings elements of discussion to the findings of this research. Huang (2006) found that *circulation spaces* such as routes and nodes were the places where a lot of people have been observed as compared to the other spaces she defined (activity space, scenic space, vague space and seating space). However, Huang found there a low frequency of social interactions as compared to the scenic space and activity spaces (so n*on circulation spaces*), which ranked first. This was not the case in the present research, as both *circulation spaces and non circulation spaces* exhibited a particularly high frequency of social interactions, even if these interactions were of different types. Several reasons could explain this discrepancy.

The *specificity of this neighbourhood* should be regarded as an important factor: indeed, the residents of this neighbourhood are particularly involved in the design and maintenance of their surrounding so that they developed a sense of responsibility which seems to be higher than in a 'classical' neighbourhood where residents are not involved. Therefore a *social control* exists among the neighbours and this could contribute to make the area safer. This relative safety could enhance the use of the *circulation spaces*. Coley *et al.* (1997) pointed out that the presence of trees itself could make the place much safer by attracting and gathering more people, who keep an eye on their surroundings. In this case the social control would indirectly originate from the presence of green spaces. When this may be true for Anna Blamanweg and the courtyards, it does not seem to be the case for Oude Lek, because social

interactions never occurred in the same time, so that no real social control can arise. A mechanism of social control could explain this higher frequency of use and of social interactions of *circulation spaces*.

Therefore, if the use of circulation spaces can be positively influenced by social control, its origin, however, stays unclear and may not be related to the presence of green spaces. The high frequency of focused activities in the circulation spaces could be explained by the fact that people use this space just because it is more convenient and functional and not particularly because the design of nearby green spaces is appropriate.

The variations in the extent of use of the green space observed question about the function of the space. The observations showed that Toon Hermanshof was few used, or at least less often than the other study areas. One explanation is that Toon Hermanshof residents chose to create this space to be quiet, therefore it would not be appropriate for the space to be crowded: its interest could stand in the fact that it is peaceful and restoring for the users. On the contrary, Lodewijk van Deysselhof could have been designed for children to play, so a lot of very diverse activities occur and gather both children and their parents.

After having studied the influence of the presence of green spaces on the occurrence of social interactions, Sullivan *et al.* (2004) also discussed about the possibility that 'social neighbours' contributes themselves to create greener spaces, so a possible reciprocal influence. Although Sullivan *et al.* concluded that this reciprocal relation was not plausible in the context of their research; it seems to be plausible with respect to the context of this one. Indeed, EVA-Lanxmeer residents designed and maintain the public and collective spaces themselves so that it should correspond to residents 'needs and tastes'. Therefore, whether EVA-Lanxmeer residents are 'social' or not, they created green spaces which fit to their needs in terms of function, use and even social interactions.

6.2. About the interviews

In order to explore the possible influence of the collective design and maintenance of green spaces on social cohesion, nine residents of EVA-Lanxmeer were interviewed. The interviews carried out gave evidence that green spaces, because they are collectively designed and maintained, contribute to expand a certain sense of community, social interactions and support between residents. Green spaces represent one of the many opportunities one can find to meet other people in the neighbourhood. Moreover, the common responsibility and ownership shared by residents, particularly for the collective gardens, bring new connections and contribute to maintain them. In the same way, the population is relatively homogeneous in terms of interests, education and income, which have certainly helped to expand social cohesion.

The specificity of EVA-Lanxmeer puts forward the contribution of *place attachment* in enhancing social cohesion. Van Marissing *et al.* (2005) explored the relationship between urban governance, which aims at empowering residents in cities development projects, on neighbourhood social cohesion. Urban governance is a different process than the bottom-up process involving EVA-Lanxmeer residents. However, small projects made as part of urban governance among residents (horizontal social cohesion) seem quite similar to those of EVA-Lanxmeer. Their findings were coherent with the results of the present research : thanks to collective projects, residents feel part of a group, share the same values and responsibility, know each other better through their activities and thus experience a certain social cohesion. Van Marissing *et al.* also pointed out that place attachment probably enhanced social cohesion. According to them, *place attachment* played a role in both being a reason to *act together* (to protect a particular location for example) and sharing *points in common* with others.

Place attachment is not included in every definition of social cohesion, however it seems to play a particular role at a neighbourhood scale, that neighbourhood social cohesion is closely dependent on the place itself. We chose to add *place attachment* in the definition of social cohesion used in the research. It was not the object of the interviews but still *place attachment* was exhibited through the talk of EVA-Lanxmeer residents, particularly in the choice they made to live here and the reasons why they participate in the process. The interviews indirectly confirmed that the place itself played a particular role in social cohesion but gave the impression that *place attachment is implicitly embedded in the sense of community and social connections.* From a conceptual point of view, we could question whether *place attachment* should be one distinct dimension of social cohesion like it was stated in the definition used in this research. Further research on social cohesion, and particularly in the context of EVA-Lanxmeer which has a strong identity, could focus on the *actual influence of place attachment in enhancing the sense of community, social interactions and support*.

The interviews made appear three components of sense of community: *connections, shared values and identity*. Identity and shared values were already included in the sense of community definitions. However, *connections*, which can be defined as *links, common points or common interests*, did not appear in the definition of sense of community. Moreover, the third component defined "Involvement in the community organization and local actions" overlapped one of the objects of the research question itself, i.e. the collective design and maintenance of green spaces. Therefore, further research in a neighbourhood context should define the sense of community dimension with the components *connections, shared values and identity*.

The *influence of collective norms* on the sense of community and neighbouring should be discussed. Indeed, people's actions and behaviours also correspond to an implicit embedded set of norms and values commonly shared by members of our society. Kusenbach (2006) studied the '*normative patterns of neighboring*' shaping the activities

and relationships engaged by neighbours and as neighbours. She studied two distinct neighbourhoods of Los Angeles, with a relative high diversity of people. One of the neighbourhoods had a strong identity, which was visible by the actions of various neighbourhood institutions, as it is also the case in EVA-Lanxmeer. She defined four patterns of neighbouring: '*friendly recognition*', '*parochial helpfulness'*, *'proactive intervention'* and '*embracing and contesting diversity'*. Although the cases studied by Kusenbach are distinct from EVA-Lanxmeer neighbourhood, the three first patterns seem to be similar to what came out of the interviews.

'*Friendly recognition'*, an equivalent of *'civil inattention'* in the public realm (Goffman, 1963, quoted by Kusenbach, 2006), is characterized by the fact that residents regularly greet each other and in a friendly way. The recognition is both personal and positive so that people tend to maintain friendly relationships with their neighbours. The *friendly recognition* seems to be also present in EVA-Lanxmeer, both in the courtyards and in the neighbourhood as a whole.

'*Parochial helpfulness'* corresponds to the mutual aid people exhibit towards their neighbours and seems equivalent to the '*support'* described by neighbours during the interviews. The parochial realm differs from the unconditional support given in the private realm but is more important than what can be found in the public realm. Some examples given by Kusenbach ranged from borrowing something to taking care of a neighbour when he is ill. This kind of support was also found in EVA-Lanxmeer.

The '*proactive intervention'* reflects the fact that neighbours generally do not ignore 'any threat or discomfort a neighbour might experience'. *Proactive interventions* can be spontaneous and does not necessarily bring benefits to the neighbour who intervenes in such situations. Neighbours 'watch out' what is happening in the collective area and do not ignore what the others experience in their private life. This pattern seems equivalent to the '*social control'* or '*coexisting agreement'* pointed out by some of the residents and explaining why EVA-Lanxmeer residents showed a particular sense of safety and rely on their neighbours.

When living in a community such as a neighbourhood, members of this community are expected to know and respect such implicit normative patterns. These *embedded norms and values* probably play an important role in the way the residents interviewed experience their sense of community and their relationships with their neighbours. A certain social cohesion could exist in the fact that people implicitly know that the community is more successful when respecting these norms and that even individuals could benefit from this success. Moreover, even a minimal commitment to these norms could contribute to maintain them within the neighbourhood (Kusenbach, 2006). Even though every context is unique, these principles of conduct seem to be generalized to the parochial realm (neighbourhood, workplace, acquaintances networks).

To what extent these norms could contribute to neighbourhood social cohesion is, however, not clear and may be specific to the place. What is the part of social cohesion attributed to the existence of these norms? To the collective design and maintenance of green spaces? Does the collective process have an influence on the integration of these norms in a neighbourhood? Does the existence of sense of community originate and are strengthened by the collective process? By these norms? By both?

Further research in the particular context of EVA-Lanxmeer could explore what is the respective role of both the normative patterns as defined by Kusenbach and the collective process and actions engaged in the neighbourhood on social cohesion.

7. References

Berger-Schmitt, R. (2002). *Considering social cohesion in quality of life assessments: concept and measurement*, Social indicators research, No 58, 403-428, the Netherlands.

Bin Kang, B.E. (2006). *Effects of open spaces on the interpersonal level of resident social capital: a comparative case study of urban neighbourhoods in Guangzhou, China*, Hunan University, Changsha, China.

Broekhoef, S.M. (2009). *Making Productive Community Gardens in Almere-East work, a matter of good Planning and Organisation?*, Research as part of the Master Atelier (group Almere-East), Wageningen University.

Chan, J., To, H-P., Chan, E. (2006). *Reconsidering social cohesion: developing a definition and analytical framework for empirical research*, Social indicators research, No. 75, 273-302.

Clayton, S. (2007). *Domesticated nature: motivations for gardening and perceptions of environmental impact*, Journal of environmental psychology, No.27, 215-224.

Coley, R. L., Kuo, F.E., Sullivan, W.C. (1997). *Where does community grow? The social context created by nature in urban public housing*, Environment and behavior, Vol. 29, No. 4, 468-494.

Davidson W. B., & Cotter, P. (1993). *Psychological sense of community and support for public school taxes*, American Journal of Community Psychology, 21(1), 59–66. Quoted by Wilkinson (2007).

Energie-cités (2008). *EVA-Lanxmeer: residential participation and integrated functions, part of the Guidebook of sustainable neighbourhoods in Europe*, available online on : http://energie-cites.eu/IMG/pdf/ademe_sustainable_districts_en.pdf (visited in June 2009)

Forrest, R., Kearns, A. (2000). *Social cohesion and multilevel urban governance*, Urban studies, Vol. 37, No. 5-6, 995-1017.

Frieling, M.A. (2008). *Een goede buur: 'Joint production' als motor voor actief burgerschap in de buurt,* Rijksuniversiteit Groningen.

Gehl, J. (1987). *Life between buildings: Using public space*. New York: Van Nostrand Reinhold Company.

Giddens, A., Duneier, M. (2000). *Introduction to Sociology*, 3rd ed. New York.: W.W. Norton. Quoted by Bin Kang (2006).

Goffman, Erving. (1963). *Behavior in public spaces : Notes on the social organization of gatherings*, NewYork: Free Press. Quoted by Kusenbach (2006).

Guiochon, C. (2007). *Les Pays-Bas se donnent quartier vert*, Le Monde, 25th of August 2007, pp. 20-25. Available online : http://www.bellanxmeer.nl/html/berichten/070800_artikellemonde.pdf (visited in June 2009).

Health Council of the Netherlands (2004). *Nature and health: the influence of nature on social, psychological and physical wellbeing*, Part 1 of a two-part study : review of the current level of knowledge. Available online : http://www.healthcouncil.nl/

Helly, D., Barsky, R.F., Foxen, P. (2003). *Social cohesion and cultural plurality*, Canadian journal of sociology, Vol. 28, No. 1, 19-42.

Huang, S.-C.L. (2005). *A study of outdoor interactional spaces in high-rise housing*, Landscape and Urban Planning, No. 78, pp. 193-204.

Hynes, H. P., Howe, G. (2004). *Urban horticulture in the contemporary united states: personal and community benefits*, International Conference on Urban Horticulture, ISHS Acta Horticulturae 643, 171-181. Available online : http://www.actahort.org/books/643/643_21.htm (visited in June 2009)

Jenson, J. (1998*). Mapping social cohesion : the state of Canadian research*, Paper SRA-321, Strategic Research and Analysis Directorate, Department of Canadian Heritage, Ottawa.

Kusenbach, M. (2006). *Patterns of neighboring: practicing community in the parochial realm*, Symbolic Interaction, Vol. 29, No. 3, pp. 279-306.

Lockwood, D. (1999). *Civic integration and social cohesion*, in Gough and Olofsson (eds.), Capitalism and Social Cohesion, ch.4. Quoted by Chan *et al.* (2006).

Matsuoka, R.H., Kaplan, R. (2008). *People needs in the urban landscape : analysis of Landscape and Urban Planning contributions*, Landscape and Urban Planning, No. 84, 7-19.

Mehta, V. (2007). Lively streets: Determining environmental characteristics to support social behavior, Journal of Planning Education and Research, No. 27, pp. 165-187.

Peters, K.B.M.; Elands, B.H.M.; Buijs, A.E. (2008). *Social interactions in urban parks: stimulating social cohesion?*, Forest Recreation & Tourism Serving Urbanized Societies. Joint Final Conference of Forest for Recreation and Tourism (COST E33) and 11th European Forum on Urban Forestry (EFUF), Hämeenlinna, Finland, 2008-05-28/ 2008-05-31.

Policy Research Committee, Government of Canada (1999). *Sustaining growth, human development, and social cohesion in a global world*, A Report Prepared for the Policy Research Initiative (http://www.schoolnet.ca/pri-prp/keydocs/sustain99/index-e.htm). Quoted by Berger-Schmitt (2002).

Rajulton, F., Ravanera, Z.R., Beaujot, R. (2007). *Measuring social cohesion :an experiment using the Canadian survey of giving, volunteering, and participating*, Social Indicators Research, No. 80, 461-492.

Relph, E. (1976). *Place and Placelessness*, London: Pion. Quoted by Forrest & Kearns (2000).

Schuyt, K. (1997). *Sociale cohesie en sociaal beleid*. Drie publiekscolleges in De Balei, De Balie, Amsterdam. Quoted by Van Marissing *et al.* (2006).

Sullivan, W.C., Kuo, F.E., Depooter, S.F. (2004). *The fruit of urban nature: vital neighborhood spaces*, Environment and behavior, Vol. 36, No. 5, pp. 678-700.

Van Marissing, E., Bolt, G., Van Kempen, R. (2006). *Urban governance and social cohesion : effects of urban restructuring policies in two Dutch cities*, Cities, Vol. 23., No. 4, 279-290.

Whyte, W.H. (1980). *Social life in small urban spaces*, Washington: Conservation Foundation.

Wilkinson, D. (2007). *The multidimensional nature of social cohesion : psychological sense of community, attraction, and neighboring*, American Journal of Community Psychology, No. 40, 214-229.

Zeisel, J. (2006). Observing physical traces. Chapter 8 in : Inquiry by design: Environment/behavior/neuroscience in architecture, interiors, landscape, and planning, (New York: W.W. Norton & Company), pp.159-190.

Zeisel, J. (2006). Observing environmental behavior. Chapter 9 in : Inquiry by design: Environment/behavior/neuroscience in architecture, interiors, landscape, and planning, (New York: W.W. Norton & Company), pp.191-226.

Appendix 1 : Information leaflet communicated to EVA-Lanxmeer residents

How do the collective design, maintenance and use of green spaces facilitate social cohesion?

Case study in the EVA-Lanxmeer neighbourhood

As part of a research project of three months (from the 25/05/09 to the 14/08/09), ms. Virginie Anquetil from Alterra (Wageningen) is carrying out a case study in the EVA-Lanxmeer neighbourhood.

The objectives of this research are:

- To assess the possible **influence of the collective design and maintenance of green spaces on social cohesion** in the context of a neighbourhood.

  ***Some residents of the neighbourhood will be interviewed**, in order to get an insight of their participation experience in the collective design and maintenance of EVA-Lanxmeer green spaces.*

- To study the **influence of the design of green spaces** on the use of the space and particularly **on the social interactions** taking place.

  ***Four specific sites** (L. van Deysselhof, Hermanshof, Blamanweg and the Oude Lek) **in the neighbourhood will be observed** and the activities of the users, particularly their social interactions, and their locations and movements in the site will be recorded.*

The observations and interviews will take place from the 23/06/09 to the 11/07/09. The observations will be discreet and not continuous so they should not disturb your privacy. Thank you beforehand for your hospitality.

For further information about the research, please contact Virginie Anquetil, trainee at Alterra until the 14th of August 2009, and carrying out this research:
Virginie.anquetil@wur.nl
+313 748 38 62

Appendix 2: Document sent to the residents of Lodewijk van Deysselhof and Toon Hermanshof

Dear residents,

I am a French student in Horticulture and Landscape architecture and I am currently doing my training period at Alterra, research institute located in Wageningen (http://www.alterra.wur.nl/UK/).
As part of my research project, I am studying the possible influence of the collective design and maintenance of green spaces on social cohesion in the context of a neighborhood. Moreover, the research also has the objective to study the influence of the design of green spaces on the use of the space and particularly on the social interactions taking place.
In order to assess this second aspect (the influence of the design of a green spaces on on the social interactions), I will carry out observations. The observations will be done in four different places in the EVA-Lanxmeer neighborhood: 2 public green spaces and 2 semi-public green spaces (courtyards: collective garden and nearby public path).
The courtyards concerned are Lodewijk van Deysselhof and Toon Hermanshof. I chose these spaces because they are differently designed and I would like to compare the social interactions in both types of design. The design of Lodewijk van Deysselhof garden seems to be *non function-specific*, i.e. the space is organized so that no specific activity is assigned to a part more than another, or that simply no specific activity is assigned to the space. Toon Hermanshof garden, however, is more partitioned, some areas seem to be more adapted for certain activities than other.

The observations will consist in recording :

- the activities taking place in the garden: mainly if people interact with each other
- the location of the activities : in which part of the garden
- the type of people using the place : child, teenager, adult
- the number of people per activity
- the duration of stay in the area

The observations will be done as recognized observer, so people know who is the observer. The observer does not participate to the activities and does not interact to what is happening in the garden. Each observation will last between 15 and 30 min and several observations will be spread over different periods of the day.
To obtain relevant results, these observations will be carried out at all time of the day, even in the week ends and evenings. For practical reasons, I won't be able to observe the green spaces all the day, so my presence will be very discreet and not continuous.
I will be observing in the courtyards from the 23th of June until the 11th of July 2009.

If these observations would cause any inconvenience, please let me know.
I can answer to any question concerning the research, please contact me at the following address: Virginie.anquetil@wur.nl.

Kind regards

Virginie Anquetil
Alterra, Landscape center
In training period until the 14th of August 2009

Appendix 3 : Coding sheet used during the observations

Study area:

Date/Obs No.	Type of activity	Comments on activities	Preceding activity	Location(s) of activities	Type of people	Number of people	Duration of stay	Observer position	Period of the day	Period of the week

Appendix 4 : List of questions orienting the interviews of EVA-Lanxmeer residents

I. General information

1.1. Where do you live in the neighborhood?
1.2. For how long have you been living here?
1.3. Why did you choose to live here?

II. The extent of involvement and role of the residents in the collective process

2.1. To what extent are you involved in the collective design and management of the green spaces in your neighborhood (what is your role in this process)? How often? Why are you involved in this process?
2.2. Does the collective participation sometimes cause conflicts or negative feelings? (give an example)

III. The sense of community in the neighborhood

3.1. To what extent do you feel connected to your neighbors?
With which neighbors?
3.2. To what extent do you share values, opinions and lifestyle with your neighbors? Are you on the same wavelength as your neighbors? (give an example) With which neighbors?
3.3. To what extent do you feel part of or contribute to the identity of the neighborhood?
3.4. Do you think that your involvement in this collective process expands and improves your sense of community? How ?

IV. The level, quality and frequency of social networks and support

4.1. How would you describe your relationships with your neighbors? (in terms of level, quality and frequency)
4.2. Could you find any support (either psychological or material) from your neighbors if you would need it? (give an example) With which neighbors?
4.3. Do you think that your involvement in this collective process expands and improves your social networks and interactions? How ?