# Building a Social Community

Research
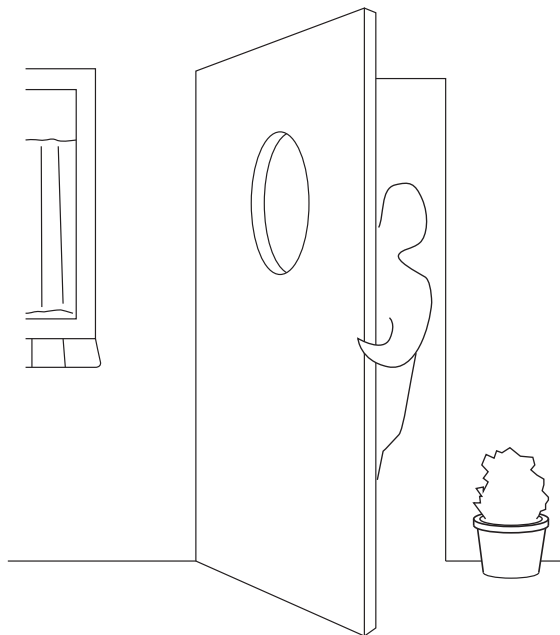


K. van Vuuren

RESEARCH BOOKLET | BUILDING A SOCIAL COMMUNITY

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# PREFACE

Before you is the report that is the outcome of the Graduation Studio Designing for Care in an Inclusive Environment as part of the Master track Architecture at the Technical University of Delft.

During the process of making this report I had the opportunity to stay in an elderly complex for a week together with another student who also follows this studio. This experience really opened my eyes towards housing for elderly. During this stay the situation of one man had a huge impact on me. He was severely lonely and had lost his will to live. He did not want us to solve his specific problem but mentioned that loneliness and depression in general is a common issue among people and it should be addressed by architecture. This is what triggered me to focus on this topic. This research is therefore about how loneliness can be prevented by architecture.

This topic is not addressed often by architecture which also means not much has been written specifically about loneliness and it's connection to architecture. This thesis therefore has become an exploring research into the architectural and urban themes that effect loneliness and social behaviour.

I want to thank Habion for the opportunity to let us stay at a nursing home for a week as this was an unique experience. I also want to thank B.M. Jurgenhake, S.M.A. Sedighi and P. Tomesen for their advice and support during tutoring. I would also want to thank M. Wolters and T. van der Hoeven and my family for spreading the questionnaires and supporting me during my process.

Enjoy reading!

Koen van Vuuren

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# SUMMARY

Loneliness is social pain. It occurs as a defence mechanism if a person does not have enough social contact. This pain prevents people from being isolated which in historical times would be fatal as people are stronger and safer in groups.

Among elderly loneliness is more severe then in other age groups. This is due to the loss of good friends and loved ones. Next to this elderly are less active in public places as they are housed in more closed off complexes where every facility is present so that they wont have to leave the complex. This means they are not likely to meet new people outside of their building or wing.

But loneliness is a pain that also leads to retraction and people isolating themselves from public life. It then becomes a vicious cycle where people can become increasingly lonely. It can only be contested by the individual that suffers from it. Loneliness can thus not be solved by architecture but it can be prevented by it.

But how to prevent loneliness with architecture? By addressing relations which have the most impact on people their social life their social health can be restored. According to multiple sociologists weak ties such as colleagues and neighbours are of most important as they replace lost strong ties such as loved ones and friends. But social interactions with weak ties should happen naturally and not forced upon or organised. Organised social activities are a major threshold for people with social anxiety which excludes them from such activites. The main question for this research is therefore as follows:

*How can the build environment promote spontaneous social interaction to prevent loneliness among elderly?*

The main conclusion of this research is that people need to leave their private domain and enter the public realm as this is where spontaneous interactions take place. To get elderly out of their private domain the environment should invite to do so. This means to create attractive environments with opportunities to engage in social activities as well as to live independent, to fulfil potential and to be seen by others.

Activity attracts activity so by activating public spaces elderly are more tempted to go outside. But as elderly are less active then other groups it is good to mix them with youth, students, and families, which also increases their visibility to the rest of the community they live in. But while they should live mixed between other types of demographic groups they still want to seek support among each other but in small manageable groups of approximately five elderly. Elderly should therefore be housed in small groups with a communal garden or space to meet and control.

Next to organising dwellings the public realm should also be organised so that it stimulates spontaneous social interaction. By creating third spaces, green spaces and transitional spaces this can be accomplished. This is because people transfer to or past these locations which creates opportunities to meet others on the way over and/or at the location itself. These spaces can be locations such as a restaurant, park and library and they should be visible from inside the dwellings as activity attracts activity.

But these location should also have certain qualities such as that they have to be comfortable, safe, visually stimulating and controllable. This latter describes the hierarchy and depiction of private and public spaces. As being social also means to have control over the amount of social interaction one has, and thus also being able to retreat in privacy. The difference between private and public should therefore be clearly marked so that it is recognisable for others. These interventions or design guidelines should all be implemented close to the housing as elderly do not have a broad range where they can go.

# CONTENT

## THEORY

# INTRODUCTION

During this research I conducted a fieldwork consisting of a week living in an elderly complex. The point of this fieldwork was to experience what problems elderly actually face and learn from their stories and actions. During this week I partnered up with a fellow graduate and together shared an apartment in an elderly complex in a small village in the Netherlands named Zuid-Scharwoude. In the shared living room of the wing where we stayed we met a man who really wanted to talk to us and invited us into his house for a cup of coffee. There he told us that during the past seven years he had lost his wife, he suffered from a stroke which caused brain damage, he had lost his bakery, he had lost all his friends after his wife had died and due to his depressing attitude his son also did not visit him anymore. He also told us he was severely lonely and missed his wife a lot. He felt like he missed a partner with which he could enjoy life again. During this conversation he also mentioned that he missed meeting people of his own age but that these people did not live in the building or surroundings and he had no idea where elsewhere he could potentially meet them. The sadness showed clearly on his face and his misery was so severe that he told us that he cried a lot and at sometimes hoped that he would not wake up the next morning if he went to sleep. This man was only 56 years old. The reason why this man really wanted to speak to us was because he wanted us to focus on his problem and solve loneliness. His story struck me and thus the focus of my graduation thesis is about loneliness.

## 1.1 LONELINESS

Not only the man described in the previous paragraph suffers from loneliness. A lot of people suffer from loneliness and not only elderly or people in care facilities, 43 percent of the entire adult population (aged 19 years or older) of the Netherlands suffers from loneliness (GGD'en, CBS & RIVM, 2018). Among elderly it is even more severe with 62,7 percent people aged 85 or older suffering from loneliness. Loneliness is a serious problem as it can lead to the obstruction of engaging in society or/and health issues (Sociaal en Cultureel Planbureau, 2018). Loneliness even can lead to Alzheimer disease (Wilson et al., 2007).

But what is actually loneliness and why do people feel it? Humans are the most social creatures on earth. We have developed speech in order to communicate with each other and more importantly to plan ahead. This quality in combination with the fact that our bodies do not posses any specific weapons to defend ourselves from predators, made us become more intelligent in able to survive. Because of this lack of defensive qualities against predators people also searched for protection among each other. Being among other people in a group means to be better protected then when alone and isolated. To protect us and keep us within such a group, our bodies developed a pain which promoted this behaviour. This pain also know as loneliness is a social pain and protects us from being isolated because being isolated from a group means being vulnerable to predators (Cacioppo & Patrick, 2009).

Loneliness can be defined as following:

*"Loneliness is a situation experienced by the individual as one where there is an unpleasant or inadmissible lack of (quality of) certain relationships. This includes situations in which the number of existing relationships is smaller than is considered desirable or admissible, as well as situations where the intimacy one wishes for has not been realized. Thus loneliness is seen to involve the manner in which*

*the person perceives, experiences, and evaluates his or her isolation and lack of communication with other people." (De Jong Gierveld, 1998)*

This definition suggests that there are different situations in which people can feel lonely. Loneliness can be categorised in three types which are emotional loneliness, social loneliness and existential loneliness.

- Emotional loneliness arises in the case of a strong missing due to the absence of an intimate relationship, an emotionally close relationship with a partner, family member or a close friend(s) and can arise, for example, after a divorce. (Van Tilburg & De Jong Gierveld, 2007, p. 7 -14)
- Social loneliness is linked to the lack of meaningful relationships with a broader group of people around you, such as acquaintances, colleagues, neighbours, people with the same interest, people to pursue a hobby with. (Van Tilburg & De Jong Gierveld, 2007, p. 7 -14)
- Existential loneliness is described as a feeling of being lost and wandering, not having a place or role in life, a sense of meaninglessness. (Jorna, 2012)

McGraw (1995) recognises even more types of loneliness next to the three types already mentioned, which are metaphysical loneliness, epistemological loneliness, communicative loneliness, ontological loneliness, ethical (moral) loneliness, cultural loneliness and cosmic loneliness. These types will not be discussed during this research because most literature only recognizes the three main types of loneliness.

## 1.2 LIFE WITHOUT SOCIAL LONELINESS

But what does there need to be to prevent people form becoming lonely? There is no word for "not being lonely" as well as that there is no word for "not having pain". Being "not lonely" and "without pain" is considered to be part of our natural state and therefore no description exists (Cacioppo & Patrick, 2009). But having no pain means having a good health. Therefore having good social health is similar to not being lonely or not having social pain. So how can the social health of elderly be promoted by design solutions?

Social health can be reached by three factors, namely to fulfil potential or obligations, managing life independently and to participate in social activities (Huber et al., 2011). The first two describe preconditions to being socially active while the latter describes being socially active. To prevent loneliness and to maintain a high social health it is thus important to be socially active next to the social preconditions needed to be socially active.

Social activities are influenced by the context in which people live and can socialize (Sociaal en Cultureel Planbureau, 2018). Social activities mainly take place in the public realm. Creating an environment that stimulates people to be in public spaces can lead to more social interaction because people have a higher change of meeting each other. But social activities along with optional activities will only take place if the environment is designed good (Gehl, 1971). A good designed environment can thus prevent loneliness. This only accounts for social loneliness as emotional loneliness is provided by good friends and family. The environment wont be directly able to stimulate encounters between these type of ties. This research will therefore only focus on social loneliness.

## 1.3 SOCIAL INTERACTION WITH WHOM

It is now clear that social loneliness can be prevented by engaging in social activities and that the environment can stimulate these activities, but it is also important to know with whom these activities should be conducted.

The  story of the man in the beginning of the introduction provides some insides into this topic. While this man was lonely he still participated in several organised activities with other people. So while he regularly had social interaction these relations did not fulfil to the perception of his social needs. He also mentioned that he wanted to meet people of his own age as everybody living around him was older. This was actually not true as several people aged around their 60's lived within the complex. He only was not aware of them because he only attended organised activities. This meant he was bound to the people attending those activities and these did not fulfil his social needs. If the environment, in this case the building, was designed good people would have been present in the public spaces. This would have given him the chance to spontaneously meet other people and extent his social network. Literature confirms that these spontaneous meetings are of most importance to people their social life.

According to Granovetter (1973) social interaction can be divided in three categories of "ties" that people can have with other people which are strong ties, weak ties and absent ties. Strong ties are for instance relationships with good friends and close family. These ties can provide emotional support and therefore are of importance for emotional loneliness (Granovetter, 1973). While strong ties are of importance to a persons social life, they are hard to influence by the built environment. Different from strong ties, weak ties and spontaneous social interactions can be influenced by the built environment (Alidoust & Bosman, 2015). They also can introduce people to new social groups outside their known social groups (Blokland, 2008) and can lead to friendships and even relationships thus replacing or adding to people their strong ties (Granovetter, 1973).

Summarised, weak ties introduce us to new social groups and can replace strong ties. These weak ties can be obtained by spontaneous social interactions which are stimulated in an environment that is designed to do so.

## 1.4 RESEARCH QUESTIONS AND GOAL

Loneliness can thus be prevented by spontaneously interacting with lesser known people. These interactions can be promoted by the context in which they take place but how should this environment then look like? The main question of this research therefore is:

*How can the build environment promote spontaneous social interaction to pre-vent loneliness among elderly?*

To be able to answer this question certain themes will be addressed in the research. For every theme a sub question is formed, which all together can answer the main question. These questions are:
• How is social interaction affected?
• How should a social network/community be composed to promote social interaction?
• What is the range in which elderly socialize?
• How does distance effect social behaviour?
• Where does social interaction mostly take place within the living environ-

ment?
•   What are the environmental qualities that stimulates social interaction?

The result of the research will be used to form and structure the design of a building/urban plan on. It is therefore needed to form conclusions that can be used as design tools. The concept and program of the design can then be based on these design tools. But these design tools will be general tools which can be applicable in every building culture. To still be able to generate a design at the end of the research the guide lines will be linked to parameters which with architectural elements that stimulate spontaneous social interactions can be recognised and measured. This in the end creates a pattern book of architectural elements.

# RESEARCH METHODS

To provide structure and reliable data in the research, certain methods are used to guide the process of this research. Fist the structure of the research is described and secondly the methods used to collect the data for the research are elaborated.

## STRUCTURE

The sub questions of the research address six themes. Within these themes different aspects of social interaction are described. This ranges from topics such as: how we conduct social interaction but also where and with whom. These themes are divided into two parts. One is about the human side of social interaction while the other is about the context in which social interaction takes place. The three themes within each of these two parts go from specific (small scale) to more general (large scale). From what is needed for social interaction to take place to the region in which people have social interaction. As well as from distances that change social behaviour to environmental qualities that promote social interactions.

The conclusions derived from these themes are not will not be specific solutions but more general guidelines. This gives the designer but also the reader opportunity to come up with their own specific design solutions as long as they do not conflict the guidelines. In such a way new typologies or more outspoken urban layouts can be achieved.

## RESEARCH METHODS

During the research certain methods are used to gather the information needed to answer the questions asked in the introduction. The research is an explanatory research in a broad topic and therefore addresses a lot of issues thus making it hard to conduct quantitative research. Instead the research will be a qualitative research. Beneath are the methods that are used in this research elaborated and is explained why these particular methods are chosen.

### Observational fieldwork

To provide us with a framework for our research we were given the opportunity by Habion to live among elderly for a week. This week was planned in the 6th week and was used to confront us with current problems that elderly face while living in an elderly complex. This fieldwork triggered the main topic of this research but also provided valuable information about the life of elderly and their daily activities. During this fieldwork interviews about their daily activities and observations about social behaviour where done.

### Literature

During this research a literature review is used to explore the theme of social interaction but also to explain and structure the observations made during the fieldwork. Sociology as a field of study has addressed the topic of social interaction in a very elaborate way. This knowledge is used to find out what social interaction is, why humans engage in social interaction and why and how it affects us. Furthermore literature is used to study the affect of spatial design on human behaviour and more specifically social interaction. The information derived from this is gathered, structured and compared. In doing so a solid base for further research is given and certain phenomenon derived from other research methods can be explained.
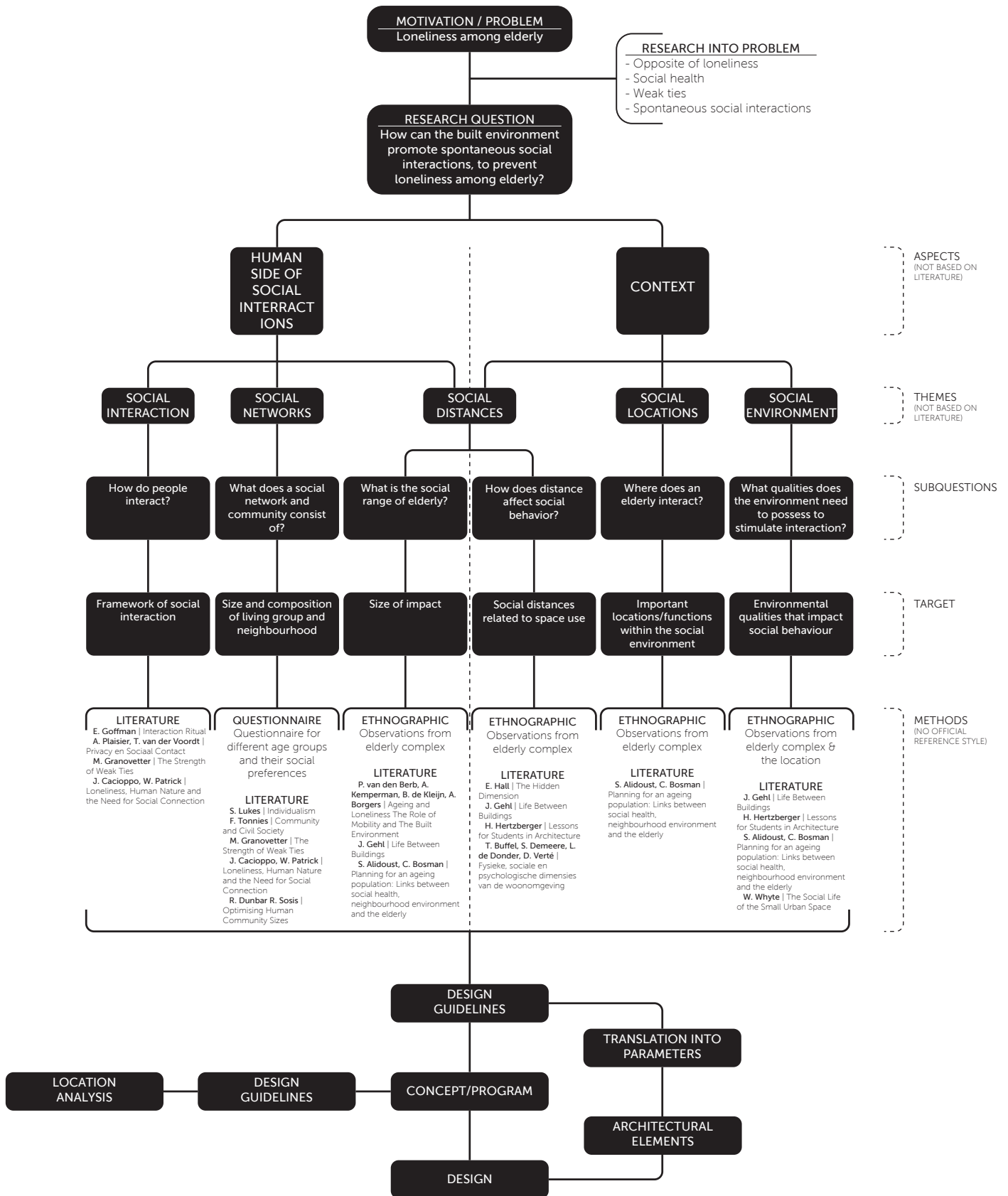
**MOTIVATION / PROBLEM**
Loneliness among elderly

**RESEARCH INTO PROBLEM**
- Opposite of loneliness
- Social health
- Weak ties
- Spontaneous social interactions

**RESEARCH QUESTION**
How can the built environment promote spontaneous social interactions, to prevent loneliness among elderly?

**HUMAN SIDE OF SOCIAL INTERRACT IONS**

**CONTEXT**

ASPECTS
(NOT BASED ON LITERATURE)

**SOCIAL INTERACTION**

**SOCIAL NETWORKS**

**SOCIAL DISTANCES**

**SOCIAL LOCATIONS**

**SOCIAL ENVIRONMENT**

THEMES
(NOT BASED ON LITERATURE)

How do people interact?

What does a social network and community consist of?

What is the social range of elderly?

How does distance affect social behavior?

Where does an elderly interact?

What qualities does the environment need to possess to stimulate interaction?

SUBQUESTIONS

Framework of social interaction

Size and composition of living group and neighbourhood

Size of impact

Social distances related to space use

Important locations/functions within the social environment

Environmental qualities that impact social behaviour

TARGET

**LITERATURE**
E. Goffman | Interaction Ritual
A. Plaisier, T. van der Voordt | Privacy en Sociaal Contact
M. Granovetter | The Strength of Weak Ties
J. Cacioppo, W. Patrick | Loneliness, Human Nature and the Need for Social Connection

**QUESTIONNAIRE**
Questionnaire for different age groups and their social preferences

**LITERATURE**
S. Lukes | Individualism
F. Tonnies | Community and Civil Society
M. Granovetter | The Strength of Weak Ties
J. Cacioppo, W. Patrick | Loneliness, Human Nature and the Need for Social Connection
R. Dunbar R. Sosis | Optimising Human Community Sizes

**ETHNOGRAPHIC**
Observations from elderly complex

**LITERATURE**
P. van den Berb, A. Kemperman, B. de Kleijn, A. Borgers | Ageing and Loneliness The Role of Mobility and The Built Environment
J. Gehl | Life Between Buildings
S. Alidoust, C. Bosman | Planning for an ageing population: Links between social health, neighbourhood environment and the elderly

**ETHNOGRAPHIC**
Observations from elderly complex

**LITERATURE**
E. Hall | The Hidden Dimension
J. Gehl | Life Between Buildings
H. Hertzberger | Lessons for Students in Architecture
T. Buffel, S. Demeere, L. de Donder, D. Verté | Fysieke, sociale en psychologische dimensies van de woonomgeving

**ETHNOGRAPHIC**
Observations from elderly complex

**LITERATURE**
S. Alidoust, C. Bosman | Planning for an ageing population: Links between social health, neighbourhood environment and the elderly

**ETHNOGRAPHIC**
Observations from elderly complex & the location

**LITERATURE**
J. Gehl | Life Between Buildings
H. Hertzberger | Lessons for Students in Architecture
S. Alidoust, C. Bosman | Planning for an ageing population: Links between social health, neighbourhood environment and the elderly
W. Whyte | The Social Life of the Small Urban Space

METHODS
(NO OFFICIAL REFERENCE STYLE)

**DESIGN GUIDELINES**

**TRANSLATION INTO PARAMETERS**

**LOCATION ANALYSIS**

**DESIGN GUIDELINES**

**CONCEPT/PROGRAM**

**ARCHITECTURAL ELEMENTS**

**DESIGN**

Figure 1. Research scheme (Own image)

Questionnaire

While literature has provided structure and conformation of the information gathered during the fieldwork, there is still information missing that is not derived from both. Mainly the activities and functions certain age groups prefer. A questionnaire is therefore made to answer those topics. The complete questionnaire and its results is added in the appendix (page 106).

# READING ITINERARY

The research is split into six themes that each discuss a particular field of social interaction. The first three themes have derived from the human side of social interactions of which the first chapter discusses what social interaction is what senses are needed to engage in social interaction and why it is important that we have enough social interactions. The second chapter then discusses the people with whom social interactions is engaged. This includes the type of relations and their importance to loneliness. Next to this the amount of relations that forms the most stable community and the composition of this community is reviewed. The up following chapter provides inside in the range in which these relations are relevant. Also researched during this chapter is how far elderly can walk and what characteristics of the environment prevents them from going further.

The last three themes are about the context that promotes social interaction. Chapter four therefore discusses the effect of space and primarily the effect of distances between persons and how this influences the way they behave. The next chapter follows up and describes particular places where social interaction mostly takes place, thus identifying places that form chances for spontaneous social interactions. In the sixth and last chapter the environmental qualities that specifically influence social interactions are discussed.

The findings of these themes are gathered in the conclusion. Thereupon the conclusions are developed into guidelines with which then architectural elements can be recognised and assessed.

# THEORY

# 1 SOCIAL INTERACTION

Social interaction is one of the primary needs of life (Blokland, 2008). It can only take place between two living creatures. But what is social interaction? And what actions or perceptions are needed for it to take place. According to Turner the definition of social interaction is:

*A situation where the behaviours of one actor are consciously reorganized by, and influence the behaviours of, another actor, and vice versa. (Turner, 1989, p. 13-14)*

This definition in short means to act or react on our perception of others. This definition therefore also includes non-verbal communication such as touching, waving and eye contact.

During this chapter firstly the precondition to social interactions will be discussed. After this it will be clarified that being alone is not the same as loneliness and that this distinction is important for social interaction. At last social interaction is reduced to the senses in which we perceive others or actions of others. This latter topic can drastically change when due to age our senses decline.

## 1.1 SOCIAL PRECONDITIONS

As mentioned in the introduction there are some precondition to social interaction. These precondition give people the self-esteem and value to socialize and to participate in social activities. The participation in social activities together with those preconditions form our social health. The two precondition are to live independently and to fulfil potential or obligations (Huber et al., 2011). When one is not independent and does not serve an obligation within the community they will perceive themselves as not socially adequate. It is therefore of importance to provide people with the change to add something to the community as well as supporting them in living independently.

| Independence | To fulfil potential or obligations | Participate in social activities |
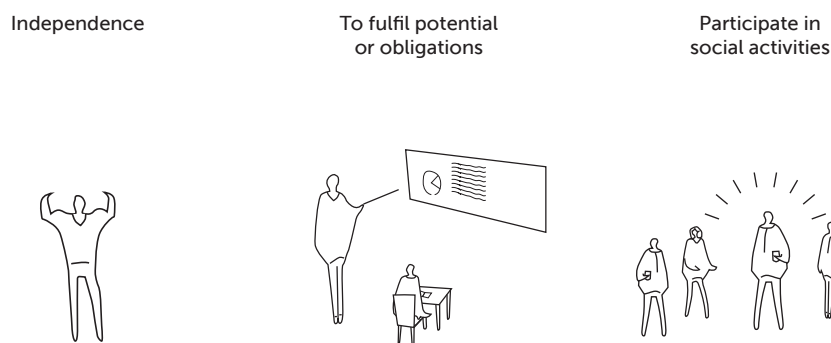


Figure 2. Three main elements of social health (own images based on the description of Huber et al.,2011)

### 1.1.1 Live independently

Independence and autonomy are seen by elderly as components of a healthy life (Tavares, 2017). People like to have control over their life and their private domain (Van Dorst, 2015).

Elderly should be provided the opportunity to do their daily activities and make

use of functions in the neighbourhood. This means to provide age-resilient housing where eventually adaptations can be made if necessary to support them to conduct desired activities. Next to this the environment should be accessible to everyone. This especially counts for locations that provide primary needs such as supermarkets and health care. These functions should be accessible and present within elderly their physical range. This enables them to provide food for themselves as well as the care they need to continue to live independently.

### 1.1.2 Fulfil potential or obligations

Elderly have during their life time been a valuable part of society and their community. They have always fulfilled obligations such as working, maintaining their garden and house, even raised children and supported others. When people become pensioned their children will likely already left the house and will take care of themselves. With both the obligations of work and care for children now missing from their life, they lose some of their value to society. This also adds to the negative image elderly might have. This image consists of the perception that elderly don't want to participate in society anymore and just want to enjoy their well-deserved rest (Penninx & Royers, 2007).

But elderly actually want to be part of society and contribute and help others (Penninx & Royers, 2007). Next to this elderly participation in society can contribute to "feeling human". It can encourage positive feelings such as self-determination, productivity, self-development, and the ability to engage. Next to the social benefits and personal benefits it also is beneficial to our economy. Volunteering and informal care are valuable functions that elderly can still fulfil (Hoeymans, 2009).

According to Penninx & Royers (2007) elderly also want to meet new people, experience things, be helpful, be independent and have a purpose. But which tasks would they like to fulfil within a community? This question was included in a questionnaire (see appendix A page 106) and the results are that elderly like to transfer their knowledge and accompany people during activities. This implies a preference towards more social activities and less physical help for people which is explainable due to the physical decline due to aging.

In certain areas in the world the concept of elderly labour is combined with horticultural therapy. For instance in a therapeutic garden in Singapore they provide group activities where elderly can garden together (figure 3). In this way a social activity is also therapeutic and can even by helpful for the garden (Teo, 2016).

Figure 3. Eldelry gardening in the therapeutic garden at HortPark (image by National Parks Board retrieved from: Teo, 2016)

## 1.2 CHOICE TO INTERACT

Being social is also choosing not to be social and having control over this decision. It is important to mention that loneliness is not the same as being alone. Loneliness is missing social contact while being alone means isolation from people. To occasionally be alone can even be considered a good thing (Storr, 2005). So to isolate yourself from certain social events and from other people should not be punished by forcing people to participate in social activities. To participate in social activities and to have social interactions is a choice. Therefore there always needs to be a place where people can retreat to in privacy. A place which is a private domain. This private domain is a social territorium where people can act differently then in other more public spaces. The owner of that private domain makes up the rules of behaviour in that space which are referred to as values (Van Dorst, 2015).

   The decision over the amount of social contact with people is very personal. Some people need more social interaction then others. An example is a woman from the elderly complex Buitenzorg at which the fieldwork was conducted. She had a light form of dementia and had a little bird to whom she talked. But when asked if she was lonely, she replied that she only missed her daughters and husband and not specifically friends or other intimate contacts. She also did not participate in a lot of organised activities. A man from the same complex did tell us he was lonely. While he did participate in certain activities and also helped the staff with setting up the tables for dinner, he still missed certain relations. These cases indicate that some people do need friends while others do not and that some need family while others do not. Everybody is different and this should be accepted and

people therefore should not be forced to be social. But staff in elderly complexes should be aware of people that say they do not like to participate in social activities but who are actually miserable due to the lack of social contact. Loneliness can cause a defensive mechanism due to which people retract and isolate themselves from others only intensifying the problem. Only the person who is lonely can break this vision cycle (Cacioppo & Patrick, 2008). The environment can only assist people making the step towards social interactions that in the end eliminate their feeling of loneliness. As mentioned earlier, everybody is different and has different social needs, it is therefore important to provide different opportunities for social interaction with different people and in different ways. To lower the threshold for elderly and other people to seek help or to make the first steps towards being social it is wise to have a gradual transition towards more public and more social environments. But to make a subtle threshold it is first needed to understand how people interact.

## 1.3 SENSES

As the definition of social interaction (p. 26) suggests that we react to the behaviour of others it indicates that the perception of others is key in socializing. So social interaction has to do with our perception of others. We can only interact when we are able to sense others. When some of these senses fade because of our physical decline due to for example age, they will enforce other senses to compensate. Hall in his book The Hidden Dimension (1990) shows that our perceptions of others shapes our behaviour. He also mentions that if we sense more of another person, situations become more intimate. He distinguishes different categories of senses but these are not the main senses of the human body. The senses with which we perceive other people according to him are kinesthesia, thermal receptors, olfaction, vision and oral aural. Three categories are similar to three of our main five senses which are sight (vision), hearing (oral aural) and smelling (olfaction). Next to these three main senses he also mentions kinesthesia which is the perception of our movement and secondly, thermal reception which is the sense to perceive temperature changes.

   To simplify the process of explaining how these senses influence social interaction between elderly, kinesthesia is discussed as being part of seeing together with vision. Seeing together with the other three ways of perceiving people and thus influencing how people interact are elaborated more detailed below.
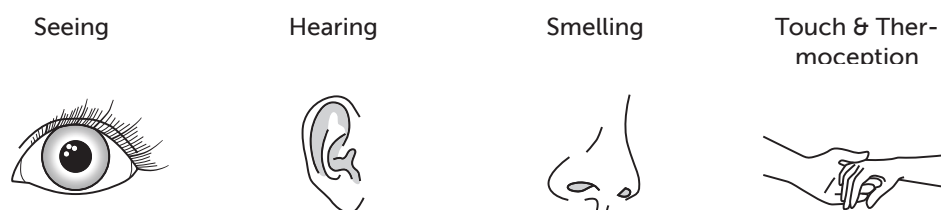
| Seeing | Hearing | Smelling | Touch & Ther-moception |



Figure 4. Senses of interaction (own image based on description of Hall, 1990)

## 1.3.1 Seeing

Our vision is our most evolved sense. This is because vision was needed to spot predators from a distance so there was still time to react and flee to a safe location. Because the environment in which people live is horizontal our sight has also evolved horizontally. That is why our eyes are placed horizontally next to each other (Gehl, 2010). This also shows in everyday items that stimulate our visual sense such as televisions and computers. These screens are always positioned horizontally. As seen in figure 5, our perception vertically stretches mainly from 0º to 30º downward while horizontally our standard line of sight almost stretches 120º.
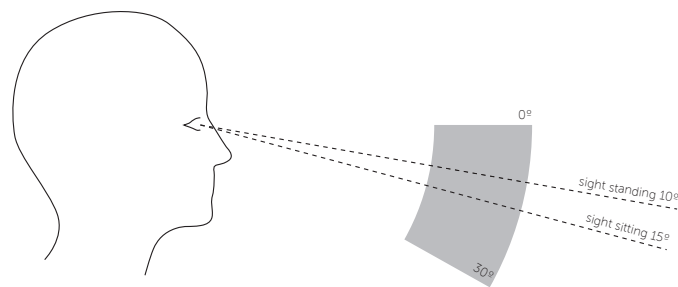


Figure 5. Vertical sight (Own image)

Our vision is normally located 10º downward to see where we walk. This means people do not perceive locations which are located above them as well as locations located beneath them.

Because our vision is mostly organised horizontally, spaces also need to be organised horizontally. Whyte (1982) mentions that if people do not see a space they will not use the space. Height differences especially when perceived form the lower level do not attribute to social interaction (Whyte, 1982). This is also the result of perception of activity. People are attracted to activity and if activity cant be perceived people are also not attracted to it (Gehl, 1971). It therefore should be avoided to rely on social interaction between different levels of height. Especially for elderly who have trouble walking and therefore need to pay attention to where they place their feet sensing others or certain activities while walking becomes hard.  This even can be aggravated by the decline of sight of the elderly.

A benefit to vision is that activity tends to attract activity (Gehl, 1971). This means that if people perceive others being active they are likelier to go outside and join or watch this activity then when no activities take place. This is because of two reasons of which one is that people have the tendency to cluster together (Whyte, 1982). Another is that people are curious creatures and like to be sensory stimulated (Gehl, 2010). This is also why most entertainment is perceived and not joined by people. Activities such as watching television, going to a concert, watching a football match and looking at a street performance all have to do with our senses being stimulated. It is in such cases mostly the visual sense that is stimulated. While other senses also support this behaviour, sitting on a terrace and watching other people go by is less interesting without vision. Activity in public space can also be

used to attract elderly people out of their private domain into the public realm which makes it likely-er that they will engage in spontaneous social interaction.

During the fieldwork in the complex Buitenzorg some of the residents indicated that they liked to watch the people who played a game of kolf (traditional local sport) in the main hall (figure 6) but that they did not understand the rules or played the game themselves. This indicates a lack of interest in the game but a high interest in watching people who are doing certain activities.



Figure 6. The kolfbaan in elderly complex Buitenzorg (Own image)

Another example of this is a man who during the Friday afternoon game hour (figure 7) did not participate in the games played but read a book on a sofa in the corner. He occasionally spoke to people who walked past him but never joined the activities taking place. On other days he was not present in this space. He just liked the atmosphere of the people, the social aspect and the stimulation of the senses.



Figure 7. Gameday in elderly complex Buitenzorg (Image by R. Sondermeijer)

People thus like to see other people, but people also like to be seen. A person cannot be part of a community if the rest of the community is not aware of their presence. Next to this is being seen by others also a form of spontaneous interaction. Waving at someone behind the window can benefit the establishment of weak ties. These interactions over time add to the feeling of trust in the environment and the community which can give elderly the confidence to go outside.

### 1.3.2 Hearing

Next to vision hearing is also an important sense because it can evoke emotions. If someone screams this can evoke fear or aggression. People also use hearing to calm down such as by the use of music. Sound and especially music evokes emotions (Van Zijl, Toiviainen, Lartillot & Luck, 2014). Music can also affect the performers who make the music, even if they focus on their technique. (Weninger et al., 2013). Mellow piano music is therefore also used in subway stations in the Dutch city Rotterdam to prevent aggressive behaviour (NOS, 2015).

Hearing similar to vision can also provoke people to become active. By hearing sounds of activities taking place, the curiosity of people is stimulated. They are likelier to go outside and join the activity. A benefit of sound compared to vision is that even when people close their curtains and block the vision to the outdoor world, sound will penetrate the dwelling if loud enough. Sound is a helpful element that can stimulate elderly to go outdoor but when there is too much sound it can be a disturbance. Places where activities take place should therefore carefully places within the living environment.

### 1.3.3 Smell

Smell is also one of our most powerful senses. Smell can evoke memories much deeper then sound or vision can (Hall, 1990). The smell of apple pie can immediately evoke memories of mother's who always baked apple pie when it was someone's birthday.

Odour can also reveal the emotions a person has. For example when someone sweats this can mean that they are nervous. Next to revealing emotions of someone, smell can also be used to seduce or disguise by the use of perfume. Hormones are also perceived by smell (Hall, 1990).

But smell is hard to promote by the use of architecture. Smell is just present and is hard to influence. The only influence on smell is to block unwanted odours. This can be smells from toilet stalls or smelly trash cans. By making it easier to block or remove the cause of the smell the quality of the space in which it was present becomes better. Therefore providing a better environment for social interactions.

For elderly this problem can become increasingly difficult as smell declines with age. The ability to recognise smells and where they are coming from becomes harder. Alzheimer can even speed up this process (Boyce, 2006). It is important that elderly do not develop unwanted odours in their private domain as well as due to their hygiene. As this can lead to the loss of social interactions. Care staff therefore should check if the hygiene in dwellings as well as of the person itself are good so that this does not disrupt their social behaviour.

### 1.3.4 Thermoception

Thermoception is the ability to feel hot and cold (Hall, 1990). Other people can only be perceived with this sense when they are very close. Thermoception manifests itself in the form of for instance warm breath of someone on our skin or the touch of a cold hand.

Thermoception does not decline as fast as other senses. Elderly can loose all their other senses but still have the sense of touch and thermoception. They do become more sensitive of fluctuations of temperature as they become less aware of small temperature changes and thus do not correct those until large fluctuations are perceived which can be uncomfortable. Sudden large changes in temperature therefore should be avoided (Van Someren, 2011).
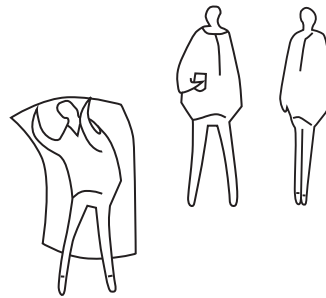
For social interaction it is important that people feel comfortable in a space. It also means that for some people when they have lost sight, smell and hearing, social interaction becomes automatically intimate and only by thermoception and touch. For people who have declined so much that they only perceive warmth, cold and touch it is therefore important that occasionally people hold their hands or put a hand on their shoulder. In this way even those people can feel the love and presence of others and do not feel alone.

# 1.4 FINDINGS

### Independence

To be able to conduct in social interactions ones perception of themselves has to be good. To achieve this a person has to be independent and given the opportunity to be so.

### Privacy when needed

To engage in social interaction is a choice. To be alone is not the same as loneliness and is even beneficial. It is therefore important to be able to retreat from social situations.
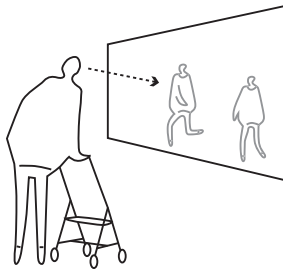
### Perceiving activity

Activity attacks activity. It is therefore beneficial to elderly to have a view on activity in the building or in the public realm.
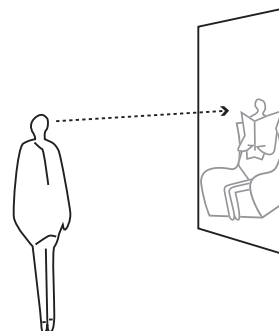
### To be perceived

To be part of a community has to do with the community being aware of the inclusion in the living environment. It is therefore beneficial for elderly to be seen.
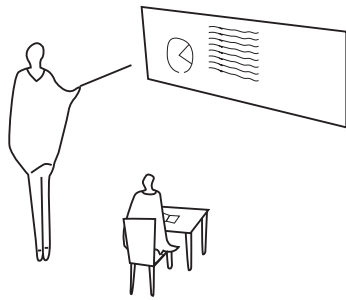
## Fulfil potential

A precondition to be able to engage in social interactions is to perceive themselves as an useful addition to the community. It is therefore of importance that the elderly are given the opportunity to contribute something and to fulfil their potential.
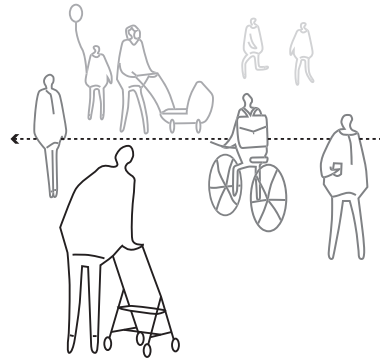
## Orientation horizontally

The eyes of a human being are horizontally next to each other and this also shapes our vision horizontally. Next to this our eyes are focussed 10 degree downward. Height differences should therefore be avoided.

# 2 SOCIAL NETWORK

Society has changed during time. People evolved from members of small groups or living communities to members of a complex society. Within this complex social system called society, social life has also become more complex. People have become more individualistic. But people also have become part of more social groups. There is thus more selection about which activities are shared and which are individual and with whom they are shared. In this chapter these phenomena are explained as well as how to establish a more simple social order again which is based on public trust.

Social contacts together form a social network. A social network consists different people and thus different relations, values and interests. Some relations are more important to people their social life then others. Next to this people conform themselves to certain social groups as well as live together in a community. But what are social groups and of whom are they composed? In this chapter firstly the type of contacts will be established. Which after individualism in our current society as well as communities are elaborated. But also questions about how many contacts and what type of people should live together are answered.
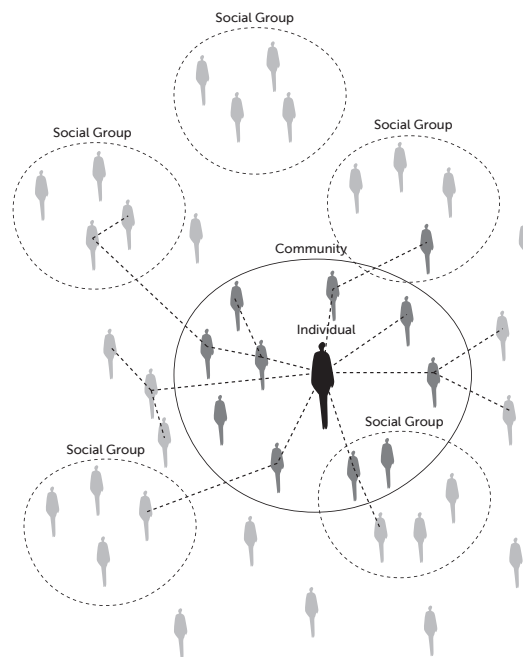


Figure 8. A social network consists of ties with other people in different social groups as well as in a community (Own image)

## 2.1 TYPES OF CONTACTS

Within our social network there are different types of relationships. Some relations are more intimate while other relations consist of being familiar by face. There is thus a hierarchy in types of relations. Sociologist Granovetter divides relations into three categories which are strong ties, weak ties and absent ties (1973). In figure 9 these type of relations are categorised by tie.

STRONG TIES  WEAK TIES  ABSENT TIES

Family  Acquaintances  Known people
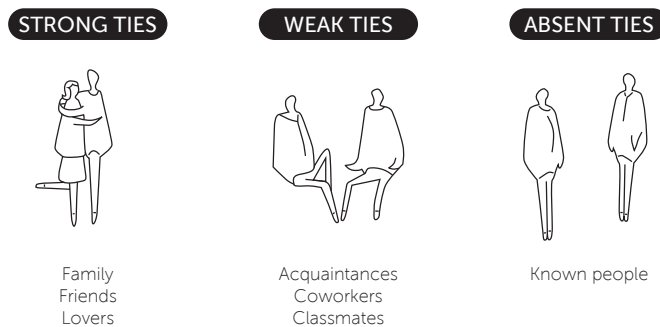Friends  Coworkers
Lovers  Classmates

Figure 9. Different ties and the relations that are part of them (own images based on the description of Granovetter, 1973)

But which ties are most important? What ties in the long run prevent loneliness? From these different types of ties, weak ties are considered the most important to our social live (Granovetter, 1973; Blokland, 2008). This is because weak ties introduce us to different social groups. Over time these weak ties can evolve into stronger ties. This means that eventually they will replace our strong ties. Thus if ever a partner or good friend will pass or leaves, weak ties will likely replace them. A social network with a large amount of weak ties can therefore prevent loneliness.

For elderly whom have no work more and thus no colleagues neighbours and friends become more important. But also friends sometimes become more scarce as they can pass away. The community and neighbours surrounding the elderly thus provide a very important role in their social network. But communities and neighbours do not always provide the support that elderly need due to individualism of society. Individualism should thus be avoided and communities should become more endorsed so that it can provide support for elderly.

## 2.2 INDIVIDUALISM

As mentioned people have become more individualistic. Technological developments made us concerned with stuff. Leisure is now a house product instead of something that is shared within society. Television and other products deliver amusement and stimulation in our own house instead of during communal functions or activities (Putnam, 2001). This means that elderly have less activities to join publicly. Providing activities that are shared which are normally private can stimulate community cohesion, such as for example a communal movie night or cooking and eating together. Such common activities have a low threshold and attract different people within a community and therefore good opportunities for bonding. A neighbourhood should thus need to accommodate a space that can provide room for these activities.

Individualism is also encouraged by the current attitude towards social Darwinism. Due to our capitalistic economy, social Darwinism has become a common way of looking towards minorities which has resulted in negative associations towards elderly as they don't contribute to society anymore (Penninx & Royers, 2007).

Putnam (2001) also recognises that ethnic groups have distanced themselves creating a society where there is a lack of trust. According to Jacobs (1961) trust is important to social cohesion as it gives security to roam the street among

anonymous people and still feel safe. Montgomery (2015) enforces this statement by claiming that trust is the most important quality within a city as acting fairly to strangers who dress and act different is of importance in cities.

Trust can be established by regularly having positive social contact with unknown people (Jacobs, 1961). Community cohesion is also formed by trust as well as integration and a sense of belonging (Dodds, 2016) Individualism can thus be abolished by the presence of spontaneous interaction which according to Jacobs (1961) and Gehl (1971) takes place in good designed cities and spaces.

Elderly can take away any negative associations by contributing publicly to society. By contributing to the community and thus society the public familiarity of elderly is also improved. Next to that it also stimulates the feeling of fulfilling ones potential.

To sum up, in current times people have become more individually concerned. To abolish this, people should restore the trust in each other. This can be achieved by positive spontaneous interactions with people which only take place in a good designed environment. Next to this private activities should regularly be communal as it bonds different types of people. A space within the neighbourhood should accommodate such activities. There also should be an opportunity for elderly to still contribute to society.

## 2.3 COMMUNITY

The word community is widely used and misused. Often for advertising such as phrases like "join our Facebook community". The term community is also used in combination with other words such as work communities or social communities. Due to this extensive use of the word community it is of importance to clearly define what a community is and what it is not. There are multiple definitions of the term community described below:

Community as a group living in the same area

*Community is a group of people living in the same defined area sharing the same basic values and organisation. (Rifkin et al., 1988)*

Community as a group sharing the same interests

*Community is a group of people sharing the same basic interests. (Rifkin et al., 1988)*

Community as a social entity that shares a sense of identity

*An informally organized social entity which is characterized by a sense of identity. (Whyte, 1982)*

These definitions all touch upon a group of people that share something such as an identity, interests or values. For this research a combination of all definitions will be made. The definition of a community will be referred to as a group living together that shares values, a sense of identity and interests.

A tight community means a larger network of weak ties and an increased feeling of belonging. Especially among elderly this can feel secure and comfortable as they know their neighbours and the people they encounter in public spaces around within this community. Simple encounters such as saying hello to a known

resident of this community can blossom into stronger relationships.

## 2.4 NETWORK SIZES

But how many people should there be within the social network of an elderly and of which type of people should this network consist? Is there an optimum network size and composition?

Naturally humans are bound to social groups. During our prehistoric existence these social groups provided shelter and protection from animals that wanted to devour us. Humans are not physically capable of defending themselves from carnivorous  creatures. We don't have big claws, sharp teeth or hard shields that defend us from predators. Humans have to rely on group chemistry to survive during such dangerous moments. It is exactly due to this phenomenon that we have learned to communicate on such a high level. Our communication skills do not compare to most creatures on earth which mostly communicate at the moment events are happening instead of before certain events are happening. This type of communication is widely known as planning. The fact that humans can plan ahead and calculate certain risks is the specific reason why we became so intelligent (Cacioppo & Patrick, 2008).

But these groups in which we gathered and enjoyed protection have certain group dynamics. When does such a group get to large or to small to carry on existing? Is there a limit to group sizes?

Dunbar (1992) explains in his research that social creatures have a larger Neocortex (frontal part of the brain). Dunbar shows that this larger Neocortex enables us to live in larger groups. But what does this mean for a community?

Eckert & Murrey (Altman, Lawton & Wohlwill, 1984) recognises different values linked to group sizes which they divide into four scales from small to large. These groups are the individual, microsystem, exosystem and macrosystem. According to Eckert & Murrey an individual has different values then the society has and therefore the context in which they act is different (Altman, Lawton & Wohlwill, 1984). This coincides with Van Dorst (2005) his privacy zones. Within different scales of groups within society there are different privacy zones and different values.

Research into group sizes has proven that there are certain group sizes which humans conform to (Dunbar, 1992, 2003; Hill & Dunbar, 2003; Zhou, Sornette, Hill & Dunbar, 2005; Dunbar & Sosis, 2017). Studying group sizes revealed that there are distinguishable group sizes that are more com mon which are groups of  5, 15, 50, 150 and 500 members (figure 10). To distinguish these groups they were given names which are Kin (5 members), Sympathy Group (15 members), Band (50 members), Clan (150 members) & Megaband (500 members) (figure 100).
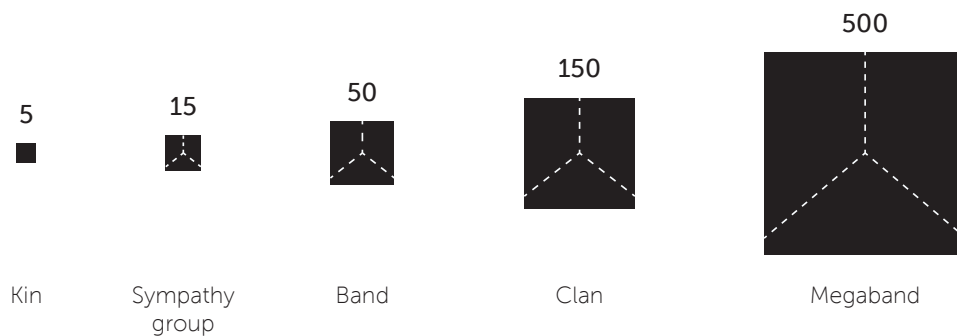
Figure 10. Group sizes and their names (own images based on the description of Dunbar, 1992)

There is also critique on this scheme as it does not take in account complex social structures (Acedo-Carmona & Gomila, 2016). But this research which critiques it does agree with the fact that humans conform themselves to particular group sizes according to the intimacy of particular relations. There is also another article that tried to disprove these group sizes. But what actually showed was that humans do conform themselves to groups but only the amount of people within those groups is slightly lower then the groups portrayed in figure 10 (MacCarron, Kaski, & Dunbar, 2016). Group sizes of elderly and children also deviate from these group sizes and are found to have less group members within the set group types. A study into the amount of people on camp sites also shows that people automatically confirm themselves to these group sizes (Kordsmeyer, MacCarron & Dunbar, 2017). In figure 11 an abstract representation of the group sizes, their names and which type of relationships are mostly present within those groups are portrayed. There are also different characteristics that can be linked to these group sizes. For example relations in smaller groups are more intimate while relations in larger groups are more distant. This also implies for interactions in smaller groups which become more private, with stronger ties, a higher quality, more personal and with a higher intensity.

What Dunbar also discovered is that certain group sizes are more stable then others. During a research of self sustaining farmer communities in Israel it is found that communities between 100 and 200 people are found to be more stable then smaller or larger groups (Dunbar & Sosis, 2017). Groups below these numbers are more likely to be unstable because the larger effect one person can have on such a group. While larger group sizes become unstable if there is no mechanism that stabilizes the group such as laws and a strong hierarchy. Therefore a community should not exceed 100 to 200 group members. If the groups become to large and thus unstable they will naturally split into smaller groups which can then grow to become stable communities (Dunbar & Sosis, 2017).

To find out what the social preferences are of certain age groups and in which group size they prefer to live, this was asked in the questionnaire. The answers reveal that if people get older they like to live within smaller groups of a similar age (figure 12). This contradicts the current system where elderly are placed in large buildings as part of a large community of people who are all elderly.
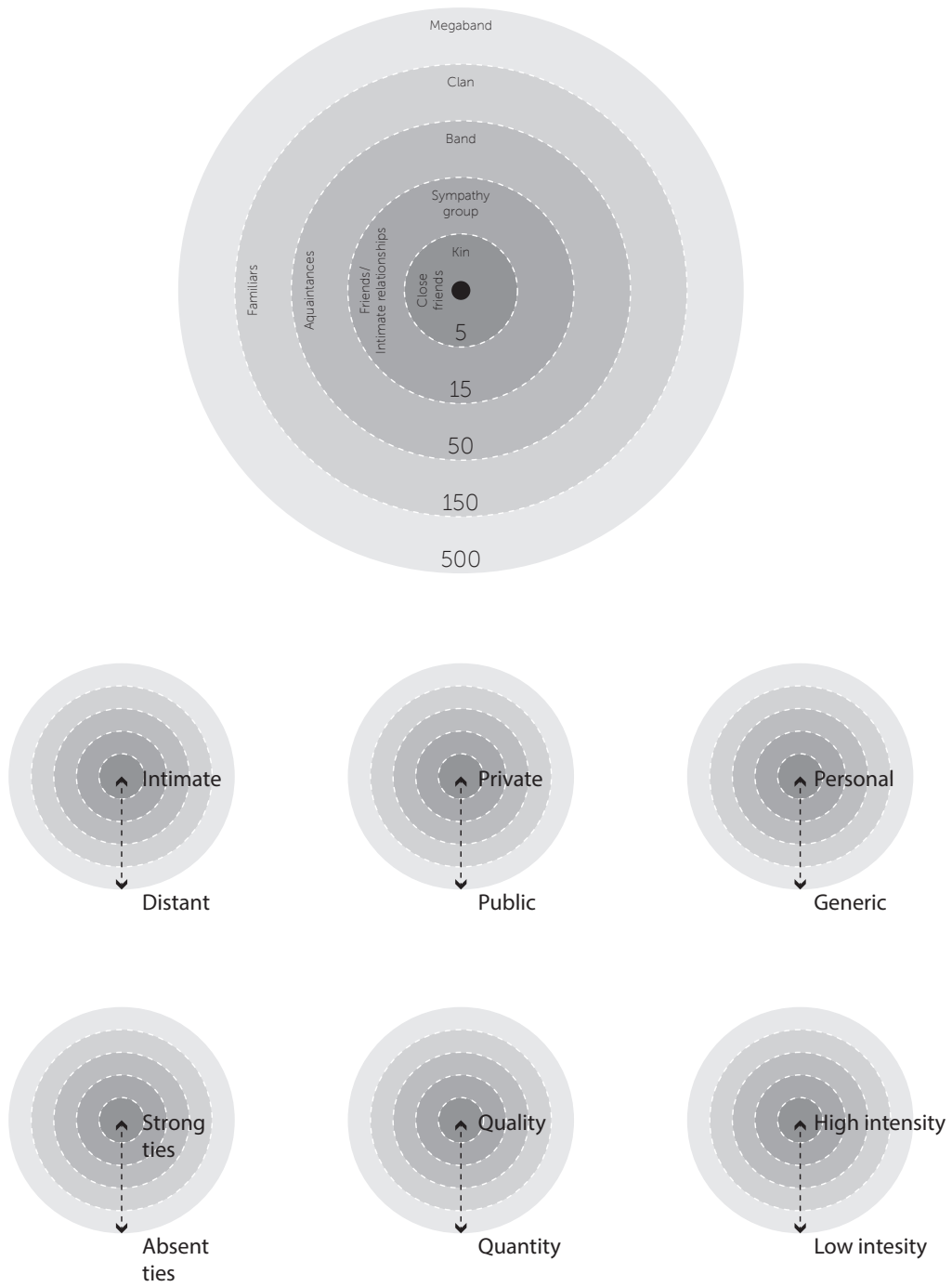
Figure 11. Group sizes and the qualities they can have (own image, based on group sizes as described by Dunbar, 1992)

|        | 5  | 15 | 50 | 150 | 500 | 1500 |
|--------|----|----|----|-----|-----|------|
| <12    | 1  | 0  | 0  | 0   | 0   | 0    |
| 12-17  | 0  | 0  | 0  | 0   | 0   | 0    |
| 18-24  | 1  | 1  | 2  | 0   | 0   | 0    |
| 25-39  | 2  | 4  | 2  | 1   | 1   | 0    |
| 40-64  | 3  | 5  | 4  | 3   | 0   | 0    |
| 65-79  | 6  | 6  | 3  | 1   | 0   | 0    |
| >80    | 12 | 6  | 2  | 2   | 0   | 0    |

Figure 12. Answers given in the questionnaire to the question in which group sizes people would like to live. From top to bottom the age of the people who answered are portrayed and from left to right the group sizes. (Own image)

So what does this preference of smaller groups mean for elderly in a community? The ideal situation is to place them within small groups of 5 elderly that together with 2 other groups live in a group of 15 which is a bit less intimate. Those with two other groups together form a group of approximately 50 which together with other bands form a community of 100 to 200 people (figure 13). These groups can have shared functions according to their privacy levels and the intimacy of the group. On each level of group size other activities can then take place such for example eating and cooking together with the kin (intimate) to movie night with the band (less intimate).

But what would such a community consists of? A community of only elderly will likely be not active which does not stimulate people to go outside as activity attracts activity.

## 2.5 COMMUNITY COMPOSITION

As mentioned weak ties are of most importance to our social life and communities and network sizes confirm themselves to certain group sizes of which some are more stable then others. But what is the composition of such a network or community? Does a community composition of only elderly succeed or does this create a community where activity is lacking?

To come to this answer it is important to factor in that elderly still want to fulfil some roles within society. They want to add something to the existing community. And therefore it is important to know which people are currently present within the environment where the design would be placed. Does the dominant age group of this community form any opportunities for the elderly that are supposed to join that community? To come to answers about which types of age groups would want to form an community together the questionnaire also contained questions about this topic. The results of this questionnaire are portrayed in figure 14.
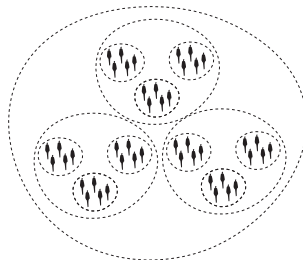
Kin
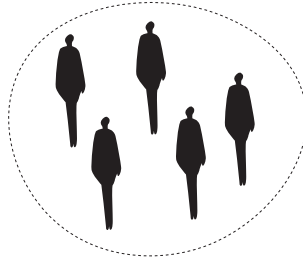
Small group of elderly
together that can share more
intimate functions and
support each other

Sympathy group
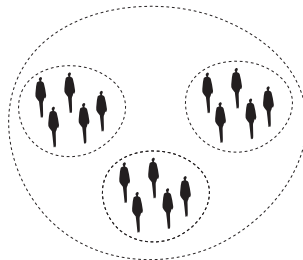
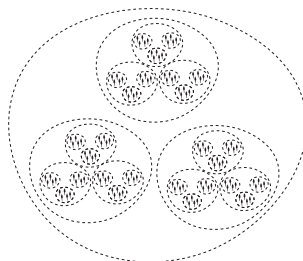Small group of people
together that can share some
functions or spaces

Band

Large group of people
together that can share a
public space such as for
example a courtyard where
they can come together

Clan

A community which shares
pratical functions as well as
leisure which is also open for
people outside of the
community

Figure 13. Community composition according to size which can have a shared function according to
the intimacy of the group (Own image)

Figure 14. Answers given in the questionnaire to the question with which age groups people would like to live. From top to bottom the age of the people who answered are portrayed and from left to right the age groups with which they want to live. (Own image)

| | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | No preference |
|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 1 | 4 | 2 | 0 | 0 | 0 |
| 25-39 | 2 | 0 | 3 | 9 | 7 | 2 | 1 | 1 |
| 40-64 | 5 | 6 | 4 | 10 | 10 | 8 | 3 | 6 |
| 65-79 | 0 | 0 | 0 | 2 | 5 | 6 | 2 | 8 |
| >80 | 3 | 3 | 3 | 4 | 9 | 12 | 7 | 8 |

When asked which age groups people would want to live with, a distinctive pattern develops. Each age group has a slight preference for people of their own age (see diagonal in figure 14). This is likely due to the fact as mentioned earlier that people within one age group have similar interest and values. What also stands out is that while people have a preference for their own age group they also have a tendency to prefer people within the age of 25 to 64. This can be explained by the fact that this is a large group or by the fact that these people provide for themselves and create little disturbance to others.



Figure 15. Answers given in the questionnaire to the question with which age groups people would not like to live. From top to bottom the age of the people who answered are portrayed and from left to right the age groups with which they do not want to live. (Own image)

| | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | No preference |
|---|---|---|---|---|---|---|---|---|
| <12 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 1 | 2 | 1 | 0 | 0 | 2 | 2 | 0 |
| 25-39 | 1 | 3 | 3 | 0 | 0 | 3 | 3 | 3 |
| 40-64 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 10 |
| 65-79 | 2 | 2 | 3 | 0 | 0 | 0 | 1 | 11 |
| >80 | 1 | 4 | 1 | 1 | 3 | 2 | 1 | 15 |

To confirm and establish this pattern the next question of the questionnaire was the opposite to the previous question which is: with which age groups do you prefer not to live? The results are almost a negative of the table in figure 14 (figure 15). Older and younger people are the least desirable. Different to the first question is that people tend to answer that they have no preference to not live

with a certain age group. The most often mentioned reason for this answer is that diversity is good and stimulates activity. People and especially older people want to live mixed between others, which is opposite of what the current situation is, where elderly are placed among each other in large complexes.
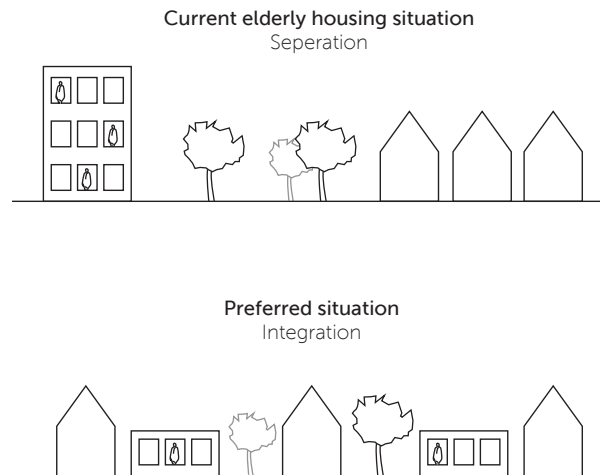


Figure 16. The current housing situation for elderly where they are placed in a large complex separated from other typologies and communities and the preferred situation where they are integrated into the neighbourhood in smaller groups. (Own image)

| | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | None |
|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 0 |
| 25-39 | 1 | 1 | 4 | 10 | 6 | 1 | 0 | 0 |
| 40-64 | 4 | 3 | 6 | 14 | 14 | 10 | 3 | 1 |
| 65-79 | 3 | 2 | 4 | 5 | 10 | 11 | 6 | 2 |
| >80 | 3 | 2 | 2 | 7 | 13 | 18 | 12 | 2 |

Figure 17. Answers given in the questionnaire to the question in with which age groups people would like to interact. From top to bottom the age of the people who answered are portrayed and from left to right the age groups with which they want to interact. (Own image)

To confirm the last two questions and also to see if preferences to social interaction differ, a question about social preferences towards specific age groups was asked (figure 17). Not surprisingly a similar pattern to that of figure 14 shows.

|        | Domestic Help | Babysitting | Support with Cooking | Being Company During Activities | Transfer of Knowledge | Nothing |
|--------|---------------|-------------|----------------------|----------------------------------|------------------------|---------|
| <12    | 1             | 1           | 0                    | 0                                | 1                      | 0       |
| 12-17  | 0             | 0           | 0                    | 0                                | 0                      | 0       |
| 18-24  | 0             | 0           | 0                    | 3                                | 3                      | 0       |
| 25-39  | 1             | 2           | 2                    | 8                                | 4                      | 1       |
| 40-64  | 3             | 4           | 3                    | 12                               | 9                      | 1       |
| 65-79  | 0             | 3           | 2                    | 11                               | 10                     | 0       |
| >80    | 4             | 2           | 2                    | 17                               | 12                     | 3       |

Figure 18. Answers given in the questionnaire to the question what people would like to do for or with others. From top to bottom the age of the people who answered are portrayed and from left to right the type of activities they would like to do for or with others. (Own image)

Another important thing is that within a community different age groups can support each other. Certain activities where proposed in the questionnaire and people were asked to check which activities they would like to do for or with others (figure 18). What shows is that elderly would like to transfer their knowledge as well as being company during activities. This indicates that a match between elderly and younger people would be suited. Surprisingly all age groups would like to transfer knowledge and accompany each other during activities. This means that people have a preference for more social activities then to purely help with tasks.
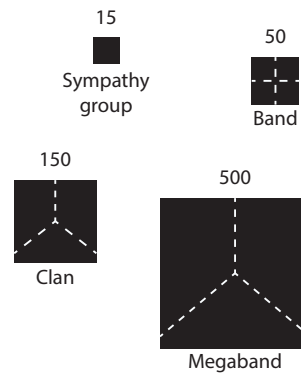
# 2.6 FINDINGS
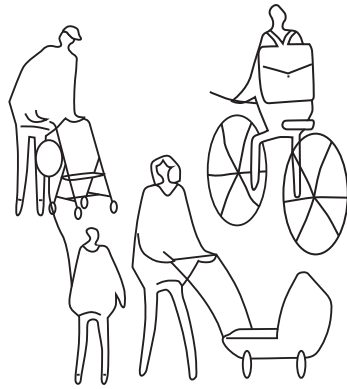


### Mixed users

People need stimulation. It is therefore beneficial to introduce also other users and to create activity at different times. Activity attracts activity.



### Structure of Dunbar

People like to gather in groups. Dunbar has proven that these groups contain of certain amounts. When a group becomes to big it naturally split up in smaller groups. A community of 100-200 is the most stable with an optimum of 150 people also known as a clan.
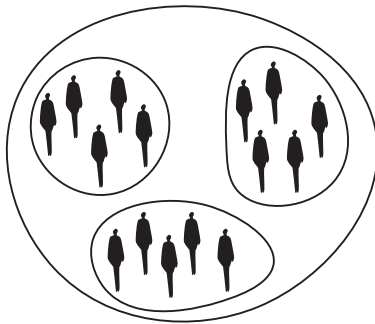


### Sympathy groups of one type of user

Elderly do not like to be among a lot of other elderly. 20 elderly together seems to be their preference which coincides with Dunbar's Sympathy group of 15 people. These Sympathy groups will therefore contain 15 similar users.

# 3 SOCIAL RANGE

The range elderly are physically capable to go to marks their social range. This range can be restricted by certain characteristics of the environment such as the accessibility and safety. These environmental restrictions prohibits them from using certain parts of the environment thus constricting their range in which they are able to socialize. This means the amount of people they are able to meet is also restricted. It is therefore important that the social range of an elderly is as large as their physical capabilities.

Elderly socialize with their network within a specific range. This range is formed by their physical abilities but also due to environmental restriction. Spontaneous interactions take part while in a certain environment. The size of this environment is largely dictated by a persons walking distance. So how large is the range of elderly where interventions to promote social interactions can have an affect?

## 3.1 PHYSICAL RANGE

People's range within their environment is limited by their physical limitations to go somewhere. But how large is this range for a completely healthy person and is this different from the range of an elderly?

Gehl in his book Life Between Buildings describes that the range of people on foot is 400m till 500m (1971). This means that if a person walks at an average pace of 5 km/hour the time it will take to go to the edge of their range and back takes 12 minutes to complete. Off course people can extent beyond this set range for example by taking a long walk or go jogging for a couple of kilometres. This range is not a hard border but an indication to what extent people "normally" walk in their environment.

When people get older their physical capabilities often demise which impacts their range. This means that there is a smaller portion of the environment that the access and thus less people who they can spontaneously meet. Several Belgian elderly where interviewed about their perception of their living environment. One of the question was how big they perceived their environment to be. The most common description of the perception of the living environment was the street they lived on (Buffel et al., 2011). One person who suffered from physical health problems mentioned that the perception of his living environment was restricted to his apartment (Buffel et al., 2011). The restriction of their range was not always due to their physical limitations but sometimes also because of environmental restrictions.

During the fieldwork in elderly complex Buitenzorg we mapped several routes elderly took regularly in their neighbourhood. What showed was that their physical state does not directly compare to how far they go (figure 18). It is more the willingness to go out and explore or enjoy their surroundings that dipict what their range is. One woman who was the second oldest resident of the complex at an age of 98 was the person who walked the furthest. She did this by the help of a walker and sat down on it when she was tired. She also told us that a couple years before she still biked on a electric bike and that she rode it to the beach and back which is a ride of 30 kilometres. A man in his 50's who lived in the same complex only fed the chickens in the yard of the complex and stayed in the communal spaces. He did not go outside for his own enjoyment while he physically was more capable of doing so compared to the old lady. This shows that this range is more a personal but the map indicates that a range of 400-500 meters is still valid, also for elderly.
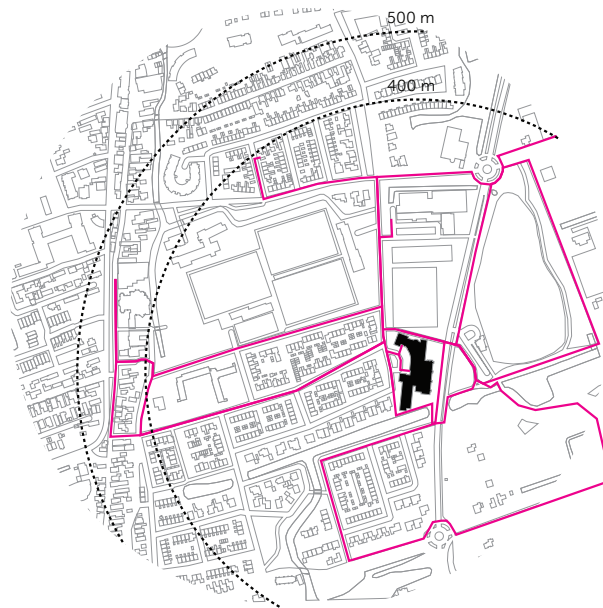
Figure 19. The range and routes used by the elderly living in the complex Buitenzorg (Own Image)

## 3.2 ENVIRONMENTAL RESTRICTIONS

Restriction of the environment can severely impact people their range. When the environment does not support elderly to go outside they will be trapped in "a golden cage" (Penninx & Royers, 2007). According to Alidoust & Bosman (2015) there are four types of environmental qualities that extent people their range. These qualities are walkability, accessibility, density and safety. Walkability concerns the quality of the environment. If the quality of the environment is high, people are more likely to go for a walk (Alidoust & Bosman, 2015). Accessibility provides every person with the opportunity to go where they want. This means that there are elevators, ramps and good pavement present. Accessibility is also about space. If a shop has not enough space for people in wheelchairs or mobility scooters to go in, they are restricting their range potentially missing important products or spontaneous social interactions.

Similar to walkability and accessibility, safety and density are qualities of the environment and if a location is safe people are more likely to go outside. Density on the other hand influences the amount of people present on the street. A higher density can give a safe feeling but a density that is too high can give a feeling of crowding. Next to this elderly are aware that they are an easy target for crime and therefore stay away from youth and young adults (Holland, Clark, Katz & Peace, 2007). The range of elderly is thus impacted by these four qualities of the environment and should be considered carefully when designing.

## 3.3 FUNCTIONS WITHIN THE SOCIAL RANGE

Next to eliminating the restrictions that can constrain someone within a certain range, it is also important to focus on the functions that should be present within this range. There is little theory on this topic but the most important functions that have to be present are at least the primary functions such as health care and food supply such as supermarkets. If not present they should be arranged in an other way such as by delivery. In this way the people can still be independent and cook if they want to and arrange their own medical care and medicine. The closer to an elderly complex these functions are placed the more people are able to make use of them (considering there is only one elderly complex present in the environment).

Later in this research specific functions that promote social interaction will be discussed and therefore not mentioned in this chapter.

## 3.4 OPTIONS TO EXTENT THE SOCIAL RANGE

There are several options to extent the range of a person. The most common is the ownership of a car. This can drastically increase the range to which people can go.

But the percentage of people owning a drivers licence declines among people aged 60 years or older (Centraal Bureau voor de Statistiek, 2019). This is due to the decline of their senses such as vision or hearing rendering them unable to operate a vehicle. Next to this the costs of owning a car can outweigh the benefits it provides, making them decide it is better to not own a car. This is enforced by fear and uncertainties while driving. Elderly therefore own less cars then people aged between 18 and 60.

Car sharing can provide elderly with a car in the neighbourhood of which they share the costs. This can also be used by other groups who need it from time to time such as for example students. For both groups owning a car can be a large expense thus sharing the costs and driving each other around can be beneficial.

During the visit in the elderly complex we met a woman who told us that she goes shopping with her neighbour twice a week. She did not want to drive after she had an accident that damaged her hand. This also gave both neighbours the opportunity for social interaction and sharing an activity. Car sharing can thus lead to new ties which benefits the social health of elderly.

Other devices that enlarge elderly their range are mobility scooters and public transport. If an elderly owns a mobility scooter they can decide for themselves when or where to go within the range the mobility scooter provides. But this does also gives issues as not all shops or other locations are arranged so that mobility scooters can easily manoeuvre. When thus providing social locations within their range it is important to consider if it is accessible for mobility scooters and if that is not possible, to provide good parking facilities.

# 3.5 FINDINGS
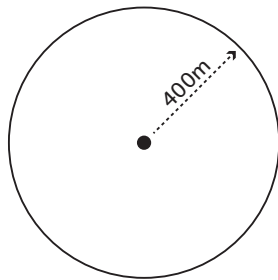


**400m social range**

Elderly have a social range which is constrained by their physical limits as well as limits of the context due to the lack of quality. In good health an elderly their environment reaches 400 meter, which is the range where design can have an impact.



**Centre of Impact**

Elderly eventually cope with poor physical health. Walking becomes a difficulty and their range will slowly close in on them. To still provide independence, primary functions such as a supermarket and pharmacy should be close to the centre to still promote activity.

# 4 SOCIAL DISTANCES

We behave differently if we are closer to persons then if we are far away from persons. This social distance also has effect in traffic space and public spaces. In traffic spaces their should be the opportunity to comfortably socialize. In more public spaces this should distance should be larger because people like to retreat and watch during activities of others. To participate in social activities should be a choice and not a forced participation.

As mentioned in chapter one the more two people perceive of each other the more intimate their interaction is to be considered. Distances between people can thus affect how they behave and socialize. People behave differently when they are very close to each other compared to when they are far away. A conversation is easier when someone is 2 meters away opposed to 10 meters away. Therefore in such situations people automatically begin to talk louder and walk towards the person they are communicating with to reduce the distance. But how can spatial qualities influence this social behaviour positively and does a higher age require different spatial qualities?

## 4.1 ZONES

These behavioural changes of people are influenced by their ability to control over the amount of perception they have on others. People want to be in control over how much they perceive of others and vice versa (Van Dorst, 2005). Hall in his book The Hidden Dimension (1990) has reduced the sensory perception of other people, into social zones according to distance. He distinguishes 4 social zones which are the intimate zone (0-0,5m), the personal zone (0,5-1,25m), the social zone (1,25-2m) and the public zone (beyond 2m) (figure 20).
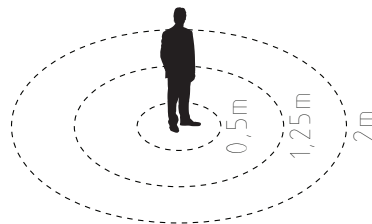


Figure 20. The social zones consisting of the intimate zone, personal zone, social zone and public zone (Hall, 1990)

These distances are determined by the amount of information which is can be sensed by someone. If someone who smells bad is close to another person, they will likely take control over their personal zone/space and step back to increase the distance, so that they are not able to smell that person anymore. These social zones are as said determined by our sensory perception of others. Because the importance of the certain senses is already explained in chapter 1 only the specific distances and impact on our behaviour are described.
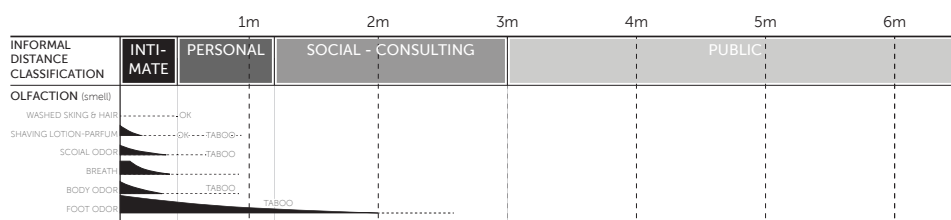
### 4.1.1 Smell



Figure 21. Distance of perception by smell (Gehl, 1971; Hall, 1990)
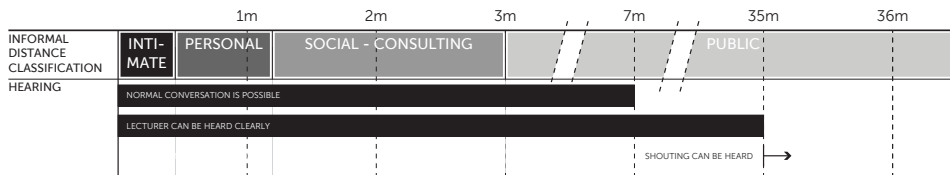
### 4.1.2 Hearing



Figure 22 Distance of perception by hearing (Gehl, 1971; Hall, 1990)
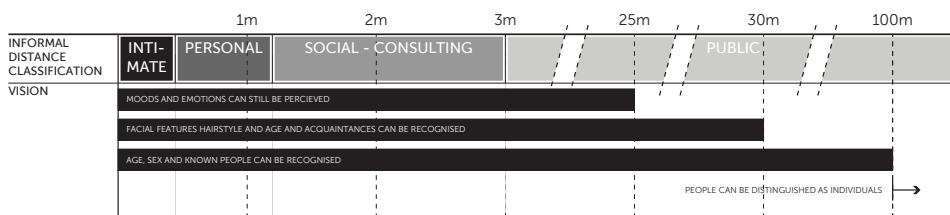
### 4.1.3 Seeing



Figure 23. Distance of perception by vision (Gehl, 1971; Hall, 1990)
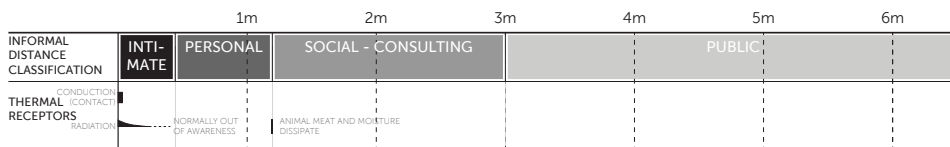
### 4.1.4 Thermoception



Figure 24. Distance of perception by  thermoception (Gehl, 1971; Hall, 1990)

## 4.2 SPACES

**The intimacy of communication is thus determined by the distance between the people communicating. These distances can also be used to determine the size of spaces.**

Van de Wal et al. (2016) in the book Privacy Script have according to similar rules of distances to those of Hall determined which size certain traffic spaces within buildings should be. Van de Wal et al. (2016) base their space size on other dimension then Gehl & Hall do. The dimensions they use are obtained from Lofland (1998). They also use theory of Buchmüller & Weidmann which researched body dimensions of people from different countries. Next to these dimension they also introduce a term named SAD which stands for the Shy Away Distance. This term is used to describe the distance people keep from standing objects such as walls and other people.

Van de Wal et al. do not take social distances into account which renders their spatial dimensions unusable for a research into spatial conditions that stimulate spontaneous social interactions. Therefore new spatial dimensions will be

proposed in this research which do take the social zones and distances proposed by Hall & Gehl into account as well as the SAD of Buchmüller & Weidmann. But these will not be specific dimensions of specific locations such as they proposed but rather dimensions for certain social activities so that a choice can be made during the design if a location should possess certain social qualities or not.
The following social activities or situations will be discussed which are to recognise people, to hear people, to see the emotions of people, to retreat in privacy and to be able to have a conversation.

### 4.2.1 Conversation

A conversation should be comfortable and spaces where people could meet and spontaneously start a conversation should provide the opportunity to do so. And while doing so other people should still be able to pass without feeling that their intimate or private zone is being entered. This means that a space should be SAD (0,4m) + the size of a person (0,5m) + social zone (1,25m) + size of person (0,5m) + intimate zone (0,5m) + size of a person (0,5m) + SAD (0,3m) which totals to a size of 3,95m. This means a location where people can easily socialize and others can still pass comfortably is 3, 95m.

### 4.2.2 Retreat in privacy

This depends on the context in which it takes place. There are different situation that can occur such as people retreating into a closed of area or people who try to retreat within a space where activities are taking place as well as retreating in a large open space. For all three options a spatial suggestion will be made:

#### Retreating in a space where an activity is taking place:

This means that people do not perceive the person who retreats as being part of the activity. This mostly takes place when out of conversation zone making it hard to communicate properly, especially when there are multiple people present in the room. This distance is 7 meters.

#### Retreating in a large open space

Hiding is mostly not an option in such places so there is a compromise that people still recognise the other person but that person has control over what they perceive. When extending the distance to 25 meters, emotions are not visible anymore, giving the person retreating somewhat of control.

#### Retreating to a closed of area:

If there is a possibility to retreat into a closed of area the distance depends on the senses that are being blocked. Sound can be easily blocked but vision is harder as windows are mostly present in dwellings. The distance should exceed the social zone which means larger then 2 meters and preferable larger and with control over the amount other people perceive of them such as by the use of curtains.

### 4.2.3 See emotions of people

This can be when watching activity such as a theatre show or when looking at activities taking place in a square. It is important that people recognise each other but more important that they can read the emotions on someone face. In a theatre because it compliments the story while during looking at activities it can be a lead to talk to someone who looks frustrated or distressed. Especially for elderly the distance to see emotions on people is reduced due to the decline

of their sight. But also for other people in the community it is good that they can recognise if something is wrong with an elderly such as in the case of someone with dementia  who is confused and does not know the way towards their home anymore. 25 meters is given as a measurement by Hall but a smaller distance such as 20  or 15 meters should be preferable. Squares and courtyards should in width not exceed this distance.

### 4.2.4 Hearing people

Hearing people participate in activities can attract people out of their private domains into the public realm. Two children playing in a courtyard for instance probably do not exceed further then 100 meters. But when people have their windows closed this is drastically reduced. Adults having a conversation will not exceed a distance more then 35 meters. A good indication is thus 35 meters but it is not precise and depends on the fact if the windows are closed.

### 4.2.5 Recognise people

Recognition of people becomes harder when vision declines. Glaucoma ,cataracts or floaters can disturb sight preventing elderly from recognising people. For these people 100 meters can be too far. There is no exact number that is giving in literature for these problems. For some elderly every distance would be too large as they are almost blind. A solution to this problem is to not make spaces that are larger then for instance 80 meters as elderly who do not recognise people present in a public space can get scared and get a feeling of being unsafe.

### 4.2.6 Advice

As good literature on the decline of vision and hearing is missing it is hard to depict good distances for these activities. A common advise given by Gehl (2010) is when in doubt less space is better. He also mentions that a pedestrian street should almost never exceed a width larger then 4 meters. This concentrates the people more towards the shopping windows and promotes the amount of activity in the street. This is an advice which also helps for elderly that have declining senses. Smaller spaces are better but without compromising some ones personal zones.

# 4.3 FINDINGS
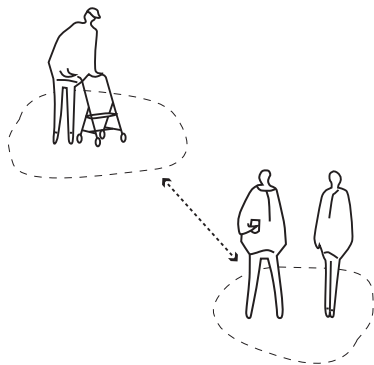


### Possibility to retreat from social events

Activity attracts activity. This does not mean that people always want to join social activities or interactions. To be able to observe them or to be part of the event also can satisfy certain people. Participating in social activities is a choice. These situations should be at least 2m apart.
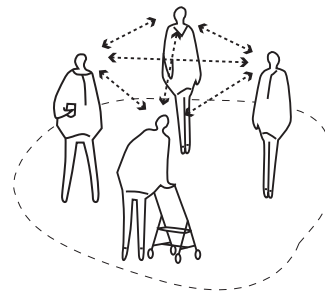
### Possibility for socializing

Socializing takes place in a certain distance from each other. Shorter distances create uncomfortable situations while larger distances make it harder to communicate. Spaces for social interaction should accommodate situations of 1,25m up to 2m plus other activities.

# 5 SOCIAL LOCATIONS

In our environment there are some locations where spontaneous social activities are more common then in other locations. These locations are third places, streets and transitional spaces. Third spaces provide people with neutral ground to meet without entering ones private domain. While streets are the place where people are introduced to other social groups. Streets also are the veins of a city providing movement for people and thus a continuous stream of people which are possibilities to interact with. The locations that divide the street from other locations are transitional spaces. These spaces are mostly concentrated along private domains and in the shape of front yard and porches. But these spaces are also present at public functions in the form of terraces. These spaces all lower the threshold from public to private or semi-private. Green spaces on the other hand makes us perceive our social live more positively.

Within the living environment there are certain locations where social interactions are more likely to take place. These locations are social hubs where people gather or where they pass during transfers between locations. In these locations it is more likely to spontaneously meet people. Social locations therefore have to provide the opportunity to exploit such spontaneous interactions to establish bonding and community cohesion. Next to this the transfers to these locations are of importance as this gives opportunity to meet other people that transfer from locations. These spaces through which people transfer also have to provide an environment where social interactions are possible.

In this chapter the composition of these locations within the neighbourhood is addressed as well as important social locations within a neighbourhood for elderly. These important social locations can be categorised in four types which are green spaces, third spaces, streets and transitional spaces (Alidoust & Bosman, 2015).

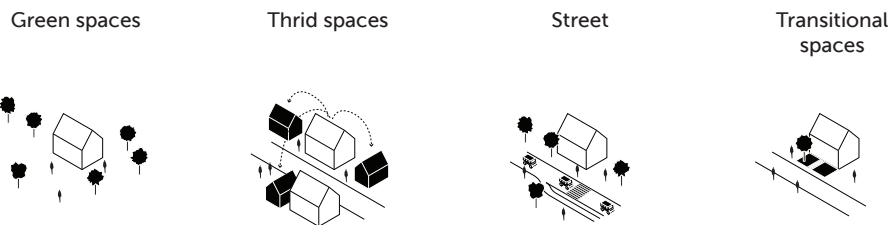| Green spaces | Thrid spaces | Street | Transitional spaces |
|---|---|---|---|



Figure 25. Social locations within the environment (own images based on the description of Alidoust & Bosman, 2015)

The qualities of every location will be individually discussed as well as their importance to elderly.

## 5.1 COMPOSITION OF SOCIAL LOCATIONS

Social locations are locations that provide neutral ground for meetings. People do not have to enter other people their private domain lowering the threshold for meeting. They are free to leave such a social location whenever they feel like it (Van Dorst, 2005). But as already mentioned, transfers between locations are also of importance. This is because people like to establish routines. Some people like to do grocery's on Saturday while others go on Wednesday. These people will therefore never meet during their time in the supermarket. Just providing social locations within a neighbourhood does not automatically enable new social relationships. The transfers to these locations can however establish these relationships. Walking along other third spaces were people might sit on a terrace or in their front yard enables social contact between residents within the area. This can lead to public familiarity (Blokland, 2008) and trust in public life (Jacobs, 1961).

As mentioned in chapter 1 being perceived by others is also important for social bonds as no one can be part of a community if they are not seen by this community. Visual connection from social locations to traffic spaces and vice versa should be established to promote public familiarity and spontaneous social interactions.

During the observational fieldwork public familiarity was not strongly present within the elderly complex. This can be explained by the positioning of the social locations within the building. These locations were almost only situated in corners of the building where only minor amounts of elderly transferred past (figure ...).

This meant that, while the building was small in size (approximately 90 residents) they did not know each other. When asking people if they might knew a certain neighbour who lived across the courtyard they often replied "no". The floor plan in figure 26 clearly shows that such a composition almost never leads to spontaneous social encounters. Visibility into the spaces from inside of the building and from the outside is also quite poor.
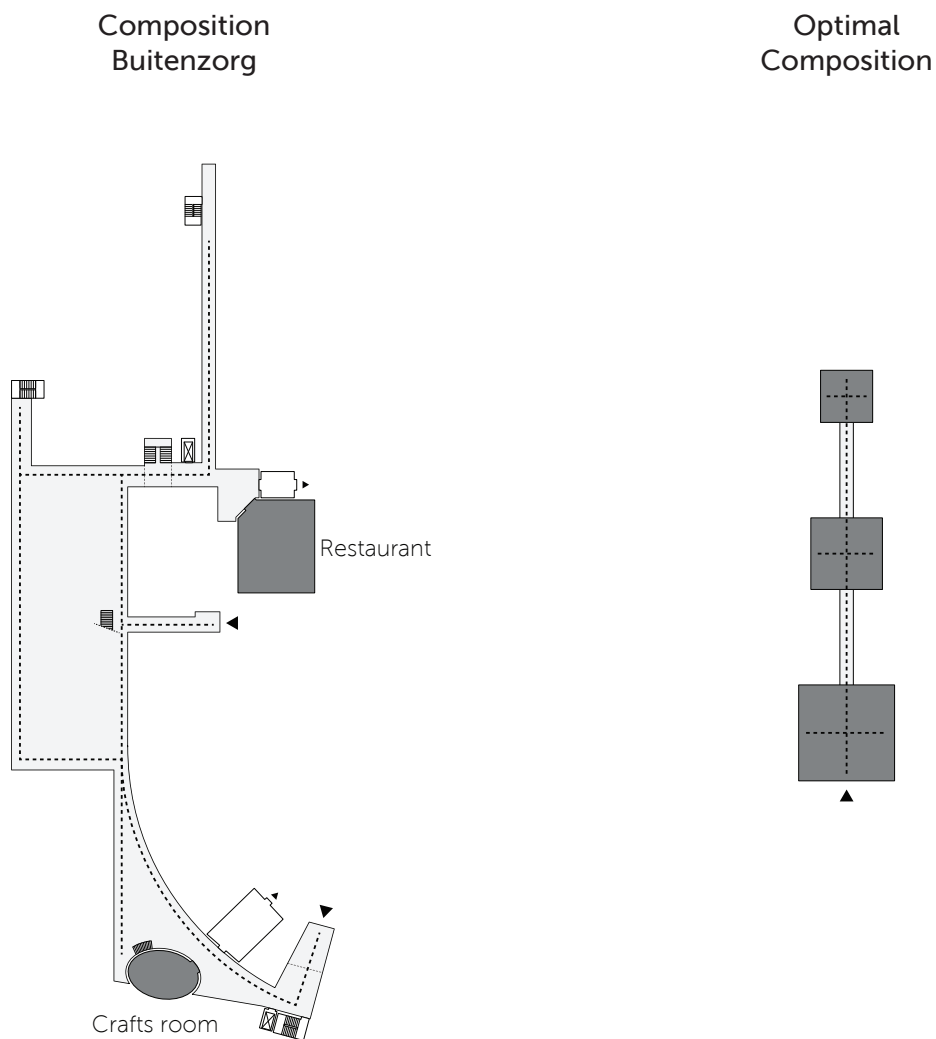
Composition
Buitenzorg

Optimal
Composition



Figure 26. Composition of the traffic space and the communal spaces within the complex Buitenzorg and a proposal for a more optimal composition (Own image)

Next to the composition, also the time frames in which these spaces were used did not promote spontaneous activities. The dining room for instance was only open during lunch and only for residents from the complex itself. This prevents others who do not live in the complex from meeting the people within the complex. When lunch time was over everybody retrieved to their rooms. When not used, the dining room is an abandoned large space full of empty seats which does not appeal people to go sit.

To summarize, social locations are of importance because they provide neutral ground for meeting but also because of the transfers to them. These transfers should pass along or through other social locations to establish social familiarity. Also make certain social locations public so that other people might use the function on different times.

## 5.2 GREEN SPACES

Green spaces which are parks and public greenery play an important role in social life's. Green spaces are places where people can retreat in privacy or to gather for social activities. Green spaces are therefore considered to be valuable community assets (Cohen, Inagami & Finch, 2008). Parks also provide different functions such as a place to relax and retreat, a location for sports, a place for social gatherings such as barbecues, picnics and walks (Cohen, Inagami & Finch, 2008).

Next to the opportunities that green spaces provide for spontaneous social interaction, they also make people perceive their social life more positively. According to Maas et al. (2018) people who live in environments where green spaces are present, perceive their social life more positively then people who don't have access to green spaces. Green spaces even suppress feelings of loneliness as well as the perception of shortage of social support. Parks and other green environment also provide stimulation of our brain. During a research, brain activity and heart rates of participant were measured while being shown pictures of forests and pictures of cities. Pictures of green environments stimulated brain activity while pictures of cities on the other hand do the opposite (Song, Ikei & Miyazaki, 2018).

To conclude, greenery and green spaces are good for people their social life because they provide privacy as well as gathering places where activities can take place. They also help to perceive social life more positively as well as stimulate the brain.

## 5.3 THIRD SPACES

A third place is a public function where people can participate in activities (Oldernburg & Brissett, 1982). These activities can range from highly functional such as shopping to more entertaining such as a theatre. The activities taking place in such locations is not "special" but mostly assists every day life or as already mentioned provide entertainment.

Interviews with elderly show that elderly use third spaces such as religious functions, shops, restaurant, libraries and community centres (Alidoust & Bosman, 2015). Penninx & Royers add to this that people find their mailbox and health care very important locations within their environment. Oldenburg & Brisset (1982) show that verbal communication is the basis of third spaces. But as mentioned in the paragraph "composition" non verbal communication is also important in third spaces. According to Alidoust & Bosman (2015) seeing familiar people within a third space is for some people the main reason to go there.

But what spaces do people actually prefer and how does this change according to age group? Are there functions that can be combined and where different age groups can support each other?
To come to these answers a questionnaire was conducted into the preferable functions and activities in the neighbourhood of different age groups. Also addressed in the questionnaire are the preferred functions in different types of context. The context consisted of neighbourhoods/communities of the group sizes as proposed by Dunbar (2003).

| | Kitchen | Dining room | Living room | Garden | None |
|---|---|---|---|---|---|
| <12 | 0 | 0 | 1 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 0 | 1 | 2 |
| 25-39 | 0 | 0 | 1 | 3 | 5 |
| 40-64 | 0 | 1 | 0 | 8 | 7 |
| 65-79 | 0 | 0 | 1 | 8 | 7 |
| >80 | 1 | 2 | 1 | 6 | 13 |

Figure 27. Answers given in the questionnaire to the question which functions people would like to share within a living group of 5 people. From top to bottom the age of the people who answered are portrayed and from left to right the proposed functions. (Own image)

For the kin (5 neighbouring residents) was asked which functions of their house they would want to share with other residents. What showed was that people of all ages would like to have a shared garden. This was especially significant among elderly. Younger people were more likely to answer that they did not want any shared functions.



| | Sporting | Gardening | Cooking/Eating | Supporting others | Playing games | Creative activities (for example crafts, makin | Social Activities (for example chattin | Watching TV/Movies | None |
|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 2 | 1 | 2 | 1 | 1 | 1 | 3 | 0 | 0 |
| 25-39 | 1 | 2 | 4 | 3 | 2 | 1 | 7 | 0 | 1 |
| 40-64 | 7 | 3 | 7 | 7 | 3 | 3 | 9 | 0 | 0 |
| 65-79 | 1 | 2 | 5 | 4 | 4 | 3 | 10 | 2 | 1 |
| >80 | 3 | 4 | 5 | 4 | 8 | 5 | 9 | 0 | 2 |

Figure 28. Answers given in the questionnaire to the question which activities people would like to share within a living group of 15 people. From top to bottom the age of the people who answered are portrayed and from left to right the proposed activities. (Own image)

In somewhat larger groups (sympathy groups of 15 neighbouring residents) different functions to the smaller group were proposed. Instead of functions of the private domain more general activities were  given. The activities are arranged from active (on the left) to passive (on the right) and what shows is that elderly slightly prefer more passive activities while younger people prefer more active activities such as cooking, gardening and sporting. What also stands out is the fact

that people like to participate in social activities as well as cook and eat together in such groups.

| | Supermarket | Shops | Guest Function | Religious Function (for example church etc.) | Cultural Centre | Sportfacilities | Vegetable Gardens | Facilities for Children (for example playground etc.) | Communal Garden/Park | Library | Bar/Café/Restaurant | Theatre | None |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 3 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 2 | 0 | 0 |
| 25-39 | 6 | 4 | 1 | 0 | 1 | 4 | 1 | 2 | 3 | 2 | 4 | 0 | 0 |
| 40-64 | 7 | 4 | 1 | 1 | 6 | 6 | 2 | 4 | 9 | 2 | 6 | 4 | 0 |
| 65-79 | 7 | 4 | 1 | 4 | 4 | 1 | 1 | 1 | 6 | 3 | 4 | 4 | 0 |
| >80 | 3 | 8 | 0 | 2 | 5 | 4 | 0 | 0 | 7 | 7 | 6 | 3 | 4 |

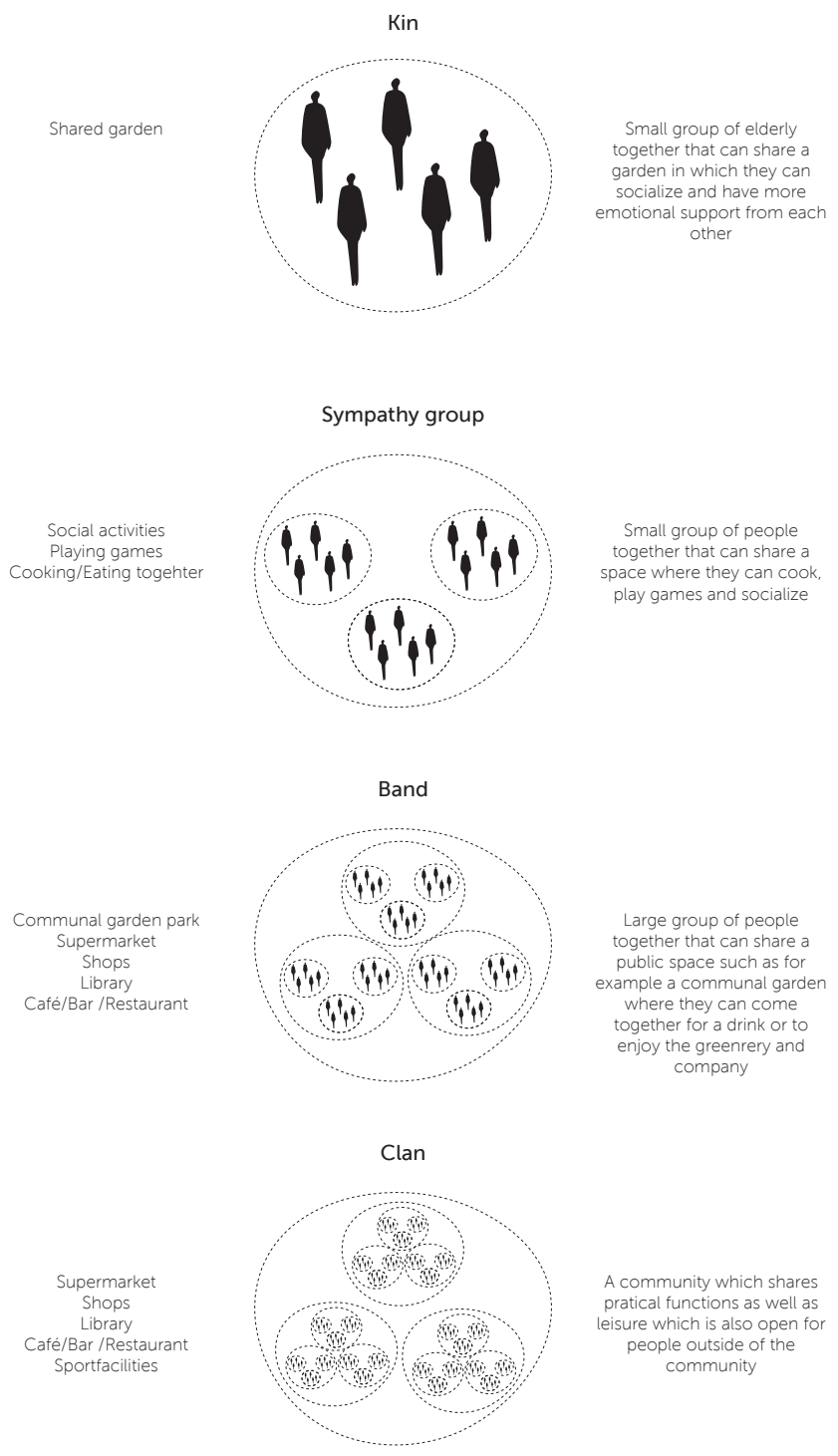Figure 29. Answers given in the questionnaire to the question which functions people would like to share within a living group of 50 people. From top to bottom the age of the people who answered are portrayed and from left to right the proposed functions. (Own image)

The same question was also asked for groups of 50 people (band). The answers this time again changed to more general functions of the city. More practical answers are situated right while left leisure is placed. There are two distinguishable clusters. One is very concentrated around practical functions such as the supermarket and shops as these are primary functions. Another cluster is situated around more cultural functions such as a communal park, a library and a bar/café/restaurant. Places for gathering and leisure on a regular basis.

| | Supermarket | Shops | Guest Function | Religious Function (for example church etc.) | Cultural Centre | Sportfacilities | Vegetable Gardens | Facilities for Children (for example playground etc.) | Communal Garden/Park | Library | Bar/Café/Restaurant | Theatre | None |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 4 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 25-39 | 6 | 6 | 0 | 0 | 2 | 5 | 0 | 0 | 3 | 1 | 5 | 1 | 0 |
| 40-64 | 4 | 5 | 1 | 2 | 4 | 8 | 0 | 3 | 6 | 3 | 7 | 3 | 0 |
| 65-79 | 9 | 7 | 0 | 0 | 3 | 1 | 0 | 0 | 4 | 8 | 5 | 2 | 1 |
| >80 | 8 | 7 | 0 | 6 | 5 | 5 | 1 | 0 | 8 | 6 | 3 | 4 | 1 |

Figure 29. Answers given in the questionnaire to the question which functions people would like to

## Kin

Shared garden

Small group of elderly together that can share a garden in which they can socialize and have more emotional support from each other

## Sympathy group

Social activities
Playing games
Cooking/Eating togehter

Small group of people together that can share a space where they can cook, play games and socialize

## Band

Communal garden park
Supermarket
Shops
Library
Café/Bar /Restaurant

Large group of people together that can share a public space such as for example a communal garden where they can come together for a drink or to enjoy the greenrery and company

## Clan

Supermarket
Shops
Library
Café/Bar /Restaurant
Sportfacilities

A community which shares pratical functions as well as leisure which is also open for people outside of the community

Figure 30. Community composition and the adjoining functions according to group size (Own image)

One group bigger, a clan (150 neighbouring residents) showed similar results. Again more practical functions are more preferred but this time also sport facilities are found to be important. Next to this the clusters are more defined as opposed to the smaller groups where other results where also chosen but less often and now they are not chosen at all.

In conclusion it can be stated that the smaller the group size the more intimate the functions become. In the smallest group people would want to share their garden which normally is a private function. In the larger groups the functions which are preferred become more public and more practical such as parks, café's, a library, shops and a supermarket. These functions can be shared by the whole community. What also stands out that the preferred functions and spaces by elderly do not differ a lot from other age groups. Figure 13 represents the different group sizes and on the left the functions that were chosen by the participants of the questionnaire.

## 5.4 STREET

Streets are formed due to the way our body moves. People walk in the direction they are looking which is linear. Therefore streets have become linear spaces (Gehl, 2010). But why are streets important for spontaneous social interactions between elderly?

People transfer from location to location. This can be from home to work which is a necessary activity or for example from home to a café which is optional activity. These activities can take place in a street but the transfer to them also probably takes place in streets. Street therefore bring together anonymous people who have different objectives (Jacobs, 1961). Streets are therefore a good location for spontaneous social interaction. Next to this they provide a variety of options for activities.

Along side streets, benches and small walls or other elements can provide resting spots were people can look at transferring people. The street itself can therefore also become a third space in a way.

For elderly it is important that streets do not have a lot of obstacles that prevent them from entering them or passing through them. It is also beneficial to reduce traffic as this minimizes space for slow traffic and also hinders less mobile people.

To make a street attractive façades need to be organised so that there is something to see. This can be other people conducting in activities such as a street musician or by the presentation of good in a shop window. In streets where there is no quality, there is nothing to do and nothing to see, people will not stay but only transfer. Empty or closed façades therefore should be avoided.

## 5.5 TRANSITIONAL SPACE

Transitional spaces are also known as soft borders or edges. Transitional spaces are the spaces along the private domain that separate it from more public spaces. These spaces manifest itself in the form of front yards & porches (Alidoust & Bosman, 2015).

According to Gehl (1971) transitional spaces are locations where people preform most of their long term activities in streets. They are also more used then larger

green facilities which are located further away from dwellings such as parks (Gehl, 1971). Next to this front yards also need maintenance and therefore people need to be outside providing the opportunity for social interaction with for example neighbours. Front yards also need infill and thus are an expression of the resident that owns it. It is a location which people can personalise to their wishes claiming their territory.

But while personalisation and activity are wished they do not always happen. Certain design choices can stimulate people to establish a culture where personalisation is accepted.

Transitional spaces also create a distance between for instance traffic spaces and windows of the dwelling. The angle in which people can look inside becomes smaller and thus more visual privacy can be established. This can also benefit the public familiarity of elderly. While the amount of vision inside the dwelling is decreased the willingness to open the curtains compensates for this thus increasing the public familiarity.

Not only dwellings can benefit from having a transitional space. Also along café's, shops and leisure facilities transitional zones become places where people stop and conduct in different activities. Such activities can range from looking at the items shop displays to drinking a coffee at a small table. These places therefore attract people to conduct certain activities outside which in itself attacks more people. This can then lead to more spontaneous interaction between people within the transitional spaces but also between people who transfer past the transitional space. Transitional spaces therefore activate public spaces. According to Gehl, Kaefer & Reigstad an irregular facade stimulates and supports more activities in transitional  zones then a regular facade. (2006).

To summarise, transitional spaces provide a buffer between the private domain and the public realm. They can be personalised to express the interests of the habitant or to establish a territory or private space. Also public space benefit from a transitional space thus it can be concluded that every dwelling as well as every public space should be accessed through a transitional space.

## 5.6 FINDINGS
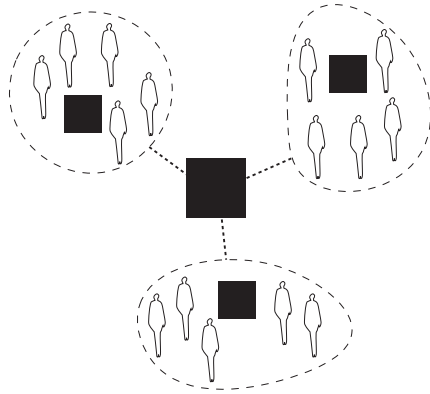


### Communal spaces within each group

Functions are specific to each target group. It is therefore of importance to create functions according to the group size and users that use that space. A communal space within each group also introduces a gradient of spaces for more intimate relations to more distant relations.
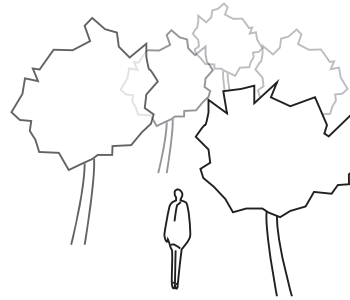


### Green space

Green spaces are beneficial for the perception of our social life's. It is therefore important to implement greenery on different levels.
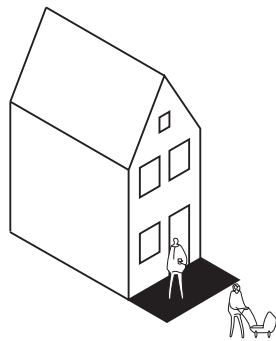


### Transitional space

Creating a buffer between the private domain and the public realm helps soften the borders. This leads to a less harsh threshold for people to enter the public realm. Another benefit is that people are visible in this type of private domain and thus interaction can spontaneously take place.
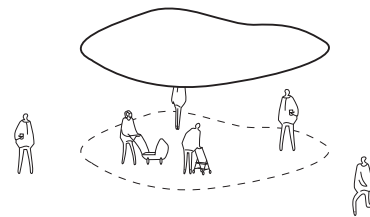


### Third spaces

Third spaces are neutral grounds where one does not have to enter another person their private domain and therefore lowering the threshold. It also attracts people from outside the community and thus creating opportunities to spontaneously meet people.
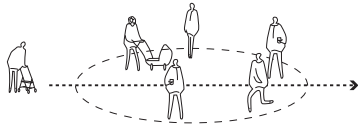
**Transfers Trough Social Locations**

When transferring to a location people should
be seen as well as seen. To accomplish this
people should transfer trough social locations
instead of past it. This creates public familiarity.

# 6 SOCIAL ENVIRONMENT

Gehl mentions in his book Life Between Buildings that if the environment is designed good social and optional activities will take place. Spontaneous social interaction thus is stimulated in well designed environments. But what qualities does a well designed environment consists of? During this chapter the environmental qualities that contribute to social interaction will be discussed. The qualities are separated into five categories which are safety, comfort, accessibility, stimulation and privacy. Findings derived from these five aspects is that people should feel safe and comfortable to participate in social activities. As well as that every place should be accessible for everyone. Next to this the environment should provide the opportunity to retreat in privacy and provide a gradual transition into the public realm lowering the threshold to go there. But these activities and qualities are not relevant if the environment is not stimulating. Stimulation leads to brain activity and lets us perceive our environment positively.

Social environments attract elderly out of their private domains into a context where they can socialize and most importantly spontaneously meet people. These spontaneous encounters introduce elderly to others as well as establish better relationships with weak ties. Such social activities according to Gehl only take place in an environment that is designed good (Gehl, 1971). So what is a good designed environment and what qualities does this environment need to have to promote spontaneous social interactions between elderly?

There is a lot of theory about the qualities our build environment should possess. Alidoust & Bosman (2015) describe the obstacles that should be overcome in order to let social interaction take place. According to them these obstacles can be divided into four categories which are safety, density, walkability and accessibility. This research focusses more on piratical characteristics instead of environmental qualities of the environment.

Opposed to Alidoust & Bosman, The Gehl Institute (n.d.) has determined the qualities of a good environment. They placed twelve quality criteria within a matrix. This matrix is a tool to determine what the quality of a public space is and which aspects still have to be improved. The categories of the matrix are protection, comfort and enjoyment.

There are overlaps between the two lists of qualities the environment should posses. Safety and Protection are similar topics as well as walkability and enjoyment which both describe the sensory quality of the environment. This quality is therefore referred to in this research as stimulation.

Density determines social control and influences the feeling of safety. Density can be thus be part of safety as a category. Accessibility is a very important category for elderly as it can render people unable to access certain social places, even if these places itself are designed good. Accessibility is therefore addressed in it's own category but will not be discussed in depth as good literature on for example wheelchair accessibility is already present.

## 6.1 SAFETY

Safety makes people feel secure enough to pleasantly roam in the public realm and within private and semi-private domains. If a place would be unsafe, only necessary activities would take place thus eliminating spontaneous social interactions from street life (Gehl, 1971). Elderly are aware that they are a vulnerable group and are therefore more affected by the feeling of being unsafe. It can prevent them from going outside as well as visiting specific locations or going out during certain time frames. But what is actually the crossing between a safe and an unsafe environment?

Safety is mostly referred to in two ways. As the actual crime rate of the neighbourhood or secondly as a feeling of being unsafe (Wilson-Doenges, 2000). Van Dorst (2005) adds to this that safety also concerns fire safety and traffic safety which he categorises under physical safety. For this research the two distinctions being made within safety are:
• Physical safety (crime rate, fire safety, traffic safety etc.)
• Social safety (perception of feeling safe)

Social safety                          Physical safety

This latter category is of importance to spontaneous social interactions because it determines whether people will go outside. It also has to be taken into account that social safety can sometimes be caused by a lack of physical safety. They can influence each other.

Social safety can be caused by certain characteristics of the environment which are the presence of potential crime committers, the lack of social control and overview (Van Dorst, 2005).

### 6.1.1 Social Control

Social control is the control a social structure has on the individual. This manifests itself in society by the presence of values, norms and laws. Social control therefore has the power to control the activities taking place in an environment. Social control is mainly used to conform anonymous people to the values of a particular physical environment (Van Dorst, 2005). Anonymous literally means "not knowing by name". If someone is familiar within the community means that they are not anonymous anymore, Blokland calls this public familiarity (2008). The establishment of public familiarity as described by Blokland is thus related with social control as it both attends the anonymous.

Elderly should be able to distinct people who belong to their community from anonymous people as it can alarm them for potential threats or intruders. Public familiarity can help distinct these two groups of people. Public familiarity describes the visual recognition of a person that is a known member of a group or community. This distinction due to public familiarity can be established by providing sightliness onto the public realm. By making people visible from inside private domains they will due to public familiarity become over time non anonymous. This therefore means that elderly do not feel threatened by certain people of whom they know that are part of the community. While anonymous people can be recognised and avoided as they could be threats to their safety. A good example of public familiarity and distinguishing anonymous people from community members is a story a resident of the elderly complex in Zuid-Scharwoude mentioned.

One evening the intercom rang and some boys aged around 16 years asked to

let them in so they could borrow a bicycle pump from their grandma. As these boys where relatively young he opened the door but was sceptical about them as they did not know the address of their grandma otherwise they would have rang that address. He proceeded to follow them from distance as they went into the restaurant area. He then called upon the help of a younger known residents of the complex to assist him to the restaurant to confront the young intruders. They guided the boys towards the exit and went back to check if nothing was stolen. After extensive searching it seemed everything was still present in the restaurant. It turned out that they had unlocked the fire door that directly connected to the outside.

Due to the fact that these boys were anonymous to the resident made him aware to signs that showed that the boys did not belong in the building. If they were common visitors no one would have noticed that they unlocked the escape door. Public familiarity can thus help to prevent such unwanted situations.

Next to public familiarity the feeling of being observed can also influence human behaviour which is known as the Hawthorne effect (Monahan & Fisher, 2010). When anonymous people would enter a space while being observed by residents they are likelier to conform to the set values of public life or of that particular space. Visibility is therefore key to establishing social control. Gehl contributes to this notion with a statement about building height and social control. He mentions that if building exceed a certain height the people who live above that height do not contribute to the social control as perceived from street level. According to Gehl this height is above three levels with a decline until 5 levels and no contribution to social control above that (figure 32). When buildings are higher they take away quality from the public spaces surrounding them therefore buildings should not exceed 5 levels but preferably 3 levels.
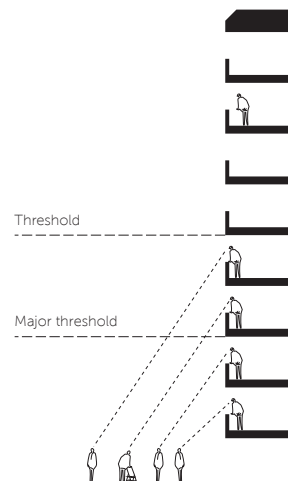


Figure 32. Thresholds of building heights that do not promote to social control on street level (Gehl, 1971)

According to van Dorst (2005) the environment can be controlled if it is marked clearly. People who enter the space will then know due to the markings that they entered a controlled environment and will adapt their behaviour accordingly (Van Dorst, 2005).

Figure 33. Entrances of sheltered courtyards (hofjes) in Haarlem (Own images)

In figure 33 there are pictures of the entrances to courtyards in Haarlem. Some of these entrances are more inviting then others while all give off a signal that the person who enters most conform themselves to other values then the public space of which they came. While these are quite hard borders this result can also be achieved by more minor changes such as different pavement or by a small height different.

Social control is needed as it sets values for more public accessible spaces but it should not exceed to territorial aggressive behaviour. This means that people should still feel welcome to a certain space but change their behaviour according to the set values. Aggressive territorial behaviour does not make people feel welcome but makes them feel out of place and unwelcome.

It can thus be concluded that visibility on public spaces can establish social control as well as public familiarity to distinguish the anonymous people from the members of the community. Next to this clear markings of privacy zones are beneficial to the behaviour of people in them. These marking show people that they are entering the domain of a group of people or individual.

### 6.1.2 Visibility

Visibility can enhance social control and public familiarity. But visibility can also help promote the feeling of safety when people are absent in a space. Humans want to be aware of their environment and the dangers that might be present. Overview is therefore important to be able to detect dangers and enemies lurking ahead (Gehl, 2010). It is therefore important that spaces do not have a lot of sheltered dark corners where potential dangers could hide.

### 6.1.3 Density

Next to visibility and clear markings of privacy zones, the amount of people present can also contribute to a safer environment (Freeman, 2000). The amount of people present in the streets is referred to as density. A good balanced density can provide sufficient people in public spaces so that people get a feeling of safety and social control. The presence of people can also lead to more trust in social situations (Jacobs, 1961) as well as create public familiarity (Blokland, 2008; Sim, 2019).

Jacobs (1961) criticises the way urbanists and city planners use the term density. She explains that density used as a number does not reveal anything of the situation that is present within certain area's. As an example she mentions that Boston south has a lower density then North Boston, but the situations in the southern part are worst then in the Northern part. Does this then mean that higher densities are safer? No because safety is also perceived in suburbs with really low densities. So how should density then be measured? Churchman (1999) introduces the term perceived density. Perceived density is defined as:

*"An individual's perception and estimate of the number of people present in a given area." (Churchman, 1999)*

This definition shows that density is not a matter of numbers that can be linked to certain environmental characteristics but it is a personal matter.

Density can also lead to a negative perception of our environment due to the feeling of crowding. Crowding gives a feeling of uncomfort as we are not able to control our personal space anymore (Churchman, 1999). Crowding indicates that there is a limit to the density that should be present but when exactly this limit is exceeded is a personal matter. For instance one person can like an event

such as a festival and the amount of people that are present while others find it uncomfortable.

Density in itself does not provide safer neighbourhoods. Jacobs (1961) has compared different New York City neighbourhoods densities to their reputation. This has shown that while these neighbourhoods have similar densities the public use of these neighbourhoods is very different. Some are valued highly while others have a bad reputations.

In conclusion density will not directly benefit the safety of an environment but it does enhances the opportunity to meet others and creates more public familiarity. But one has to be aware of the effects of too much density as it can lead to the feeling of crowding.

## 6.2 COMFORT

Comfort is not only about sitting quality but also addresses a lot of other topics and activities. When someone feels comfortable in a space or group they will likely participate in activities that otherwise they would not participate in. Comfort can be distinguished into two categories.
- Group comfort
- Environmental comfort

**Group comfort**                                    **Physical comfort**
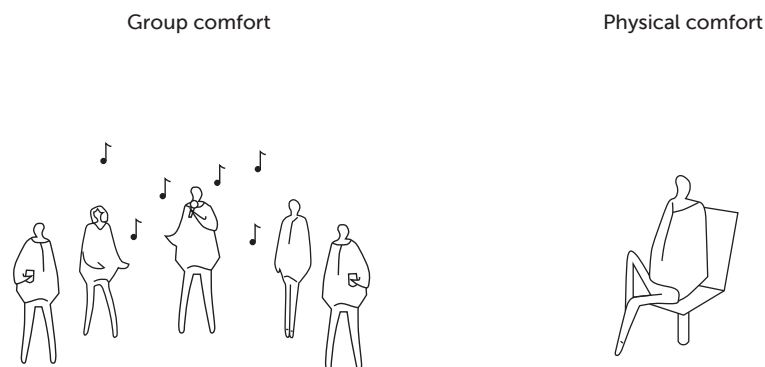


Figure 34. The difference between group comfort and physical comfort (own images based on the description of Van de Wal et al., 2016)

Group comfort as the name suggest is the comfort that groups provide while doing activities. We feel more comfortable doing certain task or activities while surrounded by others who are participating in a similar task or activity. A good example is when a single person needs to sing on karaoke evening they will tend to be nervous. While if they are surrounded by a whole group that is signing along with him, this person will likely not feel the social uncomfort that he felt when he was alone (Van de Wal et al., 2016).

But how does comfort promote social interactions? As Gehl describes in his book Life Between Buildings (1971) social activities only take place in good designed environments. According to him comfort is an important part of a good designed environment. The environment should provide comfort for numeral

functions such as sitting, watching street activity, sports, social activities, standing and walking (Gehl, 1971). As people feel comfort to conduct in these activities they transfer from their private domain towards public spaces giving opportunity for spontaneous social interactions. Next to the transfer to these spaces the activity itself also gives opportunity for social interactions. The amount of comfort influences the time one spends on an activity enhancing the change of spontaneous social interactions.

People if they are seating like to have an overview of their situation. This means that seating along side public spaces are better used then in the middle of public spaces. An advantage is also that the people seated can look towards passing public as well as activities that are preformed in the public space (Gehl, 1971).

In conclusion, places to sit and stand should be present in public spaces and they should be along the edges so that people can see the activities taking place and the people who wander the public spaces.

## 6.3 ACCESSIBILITY

Accessibility contributes to the range in which elderly can have spontaneous social interactions. If places are not accessible it will restrict elderly their range. This is especially the case if the complex, building or direct environment is inaccessible. Such as situation will make the elderly their home a "Golden Cage" (Penninx & Royers, 2007).

Accessibility does not only concern the public realm but also the houses of the elderly. The dwellings observed during the fieldwork had little gardens. These gardens sometimes were well maintained  and other times overgrown. Our fist conclusion was that their physical demise had rendered them incapable of maintaining their gardens. This turned out to be not true. The elderly that were interviewed explained that this was actually due the threshold of the door to the garden was to high. People were able to go into their garden but were afraid of not being able to go back indoors. This meant they did not go outside.

What also should be taken into account is that accessibility is not only making a space accessible for less mobile people. It is also about their experience of entering a building. To give a contribution to their perception of their independence. This means that a slope or elevator should not be placed at the back entrance of a building but that it should be clearly present and visible at the entrance of places or buildings.

## 6.4 STIMULATION

As said in the introduction of this chapter different sources approach environmental stimulation differently. Alidoust & Bosman use the term walkability which they describe as the quality of an environment to be attractive  to walk through (Alidoust & Bosman, 2015). Human are meant to be walking and during most events we therefore walk (Gehl, 2010). Walkable neighbourhoods stimulate movement of people which promotes spontaneous social interactions as well (Gehl, 2010). The walkability of an environment is affected by the sensory stimulation well as by the accessibility (Buffel, Demeere, De Donder, & Verté, 2011).

The Gehl Institute also describes environmental stimulation but with another term which is enjoyment. Enjoyment is according to the Gehl Institute one of three categories of qualities of the environment. Within this category there are three specific qualities the environment should poses. These qualities are a positive sensory experience, the opportunity to enjoy the positive aspects of climate and

human scale (Gehl Institute, n.d.).

### 6.4.1 Sensory Experience

Similar to social interaction the distance between a person and a perceived object accounts for the intensity of the experience. We see more details when we are closer to something. When closely looking at someone, emotions can be perceived through facial expressions. If someone has cried this can be noticed by the irritation of vessels in the eye. This can only be seen from close distances. These details are visually stimulating and thus perceived as more interesting or more intense.

This is similar with public spaces. How closer we are to buildings how more we perceive. This also means that buildings can be perceived on different scales but in all scales they should stimulate our visual senses. By making small spaces not only the distance to buildings but also the distance to people becomes smaller. This increases the intensity in which we perceive those spaces and the people in them.

In smaller spaces details are mostly perceived on street level. This as mentioned in chapter 1 has to do with the angles of the human vision. This vision is horizontally focussed thus our interest and focus normally go towards these directions. The ground floor is therefore the most important location where details should be added.

According to Gehl (2010) modern urban spaces lack this intensity sensory experience. Modern urban plans are made to let in light, air and greenery (Van Dorst, 2005). Therefore these modern urban plans are also very dispersed which creates a distance between the perceiver and the buildings. Modern buildings also lack the detail and ornamentation of old heritage. Therefore these spaces are not stimulating and therefore perceived as less interesting or less intense as old city centres (Gehl, 2010).

Modern cities are also more focussed on car traffic then on pedestrian traffic. Cars are bigger then people therefore the spaces naturally are also larger. This already creates a space where less detail is perceived then in smaller spaces. Next to this cars also go in high speeds while our visual perception is based on walking speeds. People do not see as much details when going fast. For elderly this problem is even more drastic as they do not perceive colour and depth as well as young people do. These aspects of sight change fast at high speeds while they change slowly at lower speeds therefore making it easier for elderly to see their environment.

A sensory stimulating environment also includes greenery. People naturally have been surrounded by lush green environments until buildings were erected. A research into our perception of greenery showed that our brain is stimulated by photographs of nature (Song, Ikei & Miyazaki, 2018). The research does not explain why this happens but it is likely due to the details present in nature. A tree from far away already shows colour, porosity as well as a typical distinct shape, no tree is for example the same. When approaching the tree different aspects of it become clear such as the colour, leave shape and branch structures. Even more closer reveals leaf veins and insect life. This description shows that the amount of detail is increased while approaching it, similar to old buildings and people. The intensity of the sensory experience increases when the distance is decreased.

Not only visual stimulation is off course sensory stimulation. Also sounds and smell contribute to our perception of the environment. Important to these senses is that they should be given meaning (Van Dorst, 2005). This means that when something occurs it should be clear to us what is happening. When this does

not happen it can be very unsettling. For example when a loud bang occurs and it is not possible to visually confirm what is going on, becomes a very unsettling situation. But the environment cannot directly influence this issue and therefore in this research will be ignored.

Summarised, people prefer to be visually stimulated. This can be done by adding greenery, lowering speeds, providing details in buildings and by creating small urban spaces.

### 6.4.2 Enjoy positive aspects of climate

To highlight the details in façades there also should be sunlight present in spaces. (Gehl, 1971). Sunlight also has a positive affect on the usage of public spaces. Whyte found out that in certain spaces in New York people move along with the sunlight that hits the space (1982). But sunlight is also something to be aware of when designing for elderly as they are more vulnerable to temperature changes.

In the summer of 2019 there where a lot more elderly who died due to the high temperatures (Centraal Bureau voor de Statistiek, 2019b). There should therefore always be a choice if people want to sit in the shadow or in the sun. This choice should be present within the dwelling, within their private outdoor spaces as well as in public spaces.

Next to sunlight there are also other aspects of the climate that have positive aspects such as the feeling of wind or the change of climate. These provide an ever changing environment that are recognisable by everyone.

According to Gehl (1971) weather is also an important conversation topic as in every language people like to talk about the weather and especially when it is good.

In conclusion sunlight is beneficial for activity in public spaces and is therefore of importance to take in account when designing. But sunlight can also create temperatures that are dangerous to elderly. Next to sun exposure there should always be shadow present in every public space and dwelling.

### 6.4.3 Human Scale

Human scale as already mentioned is important as it enables us to see details and thus also emotions. This can only happen when people and objects are close to us. Big spaces such as in cities with a layout conform modern urbanism, lack details do to the shear size they have. Next to size also speed affects our surroundings. Large signs along roads and big sound blocking screens dominate the environment while driving. These elements have a lack of detail and are large so that they can be seen when moving in a high speed (Gehl, 1971). Because old cities are build for people who walked they have an abundance of details on eye level and compact urban spaces. In figure 35 & figure 36 two streets in Haarlem are placed above each other. One is designed for walking (figure 35) and one for cars (figure 36). The one designed for cars is very large and has big signs without detail while the street for walking has a lot of detail and personalisation by the inhabitants of the dwellings along the street.

Smaller urban spaces are therefore more beneficial then large spaces for the amount of detail a person can perceive but these details also should be present in the facade and materials chosen.

## 6.5 PRIVACY

Privacy is a precious quality within a city (Jocabs, 1961) but what is privacy and

Figure 35. Small street designed for pedestrian before the car was invented in the city of Haarlem (Own images)



Figure 36. Street designed for cars in the city of Haarlem (google streetview, 2020)

how does it affect our social interactions? Privacy is mostly considered to be the fact that no one can look into our house. Jacobs (1961) names this type of privacy window privacy and describes that architects and urbanists mostly base their plans on this type of privacy. Plaisier & Van der Voordt (1998) confirm this and mention that in practice privacy is mostly seen as respecting the personal domain. Window privacy is easy to established by closing the curtains. Privacy is next to preventing people to look inside your personal domain also the ability to control who takes up your time as well as controlling who knows about your personal affairs (Jacobs, 1961). Plaisier & Van der Voordt distinguish privacy in three categories (1998):

- Personal privacy: to have control over the selection of moments of contact
- Physical privacy: to have control over a place
- Informational privacy: to have control over the personal information shared and to be able to depict to whom and how the information would be shared

This research will focus on creating an environment that stimulates spontaneous social interactions and thus the physical privacy will be the focus of this paragraph. Physical privacy is about the senses and the control over how much we are perceived by others.

### 6.5.1 Visual privacy

Visual privacy or also called window privacy is to control the amount of visibility of a place (mostly a home) by others. This enables us to do activities without anyone seeing them. Visual privacy can be established by closing the curtains but this will also obstruct the visibility from inside into the public realm. Often the dwelling is separated in spaces that also differ in visual privacy. The toilet and bathroom are mostly situated in the middle of the house without windows thus having complete visual privacy. Other spaces such as a kitchen or living room have often less visual privacy. Often people try to balance the visual privacy with their personal visibility towards outside.

During the fieldwork in Zuid-Scharwoude examples of personal visual privacy levels were clearly visible. In the building there are several dwelling types of which some have a kitchen window overlooking the communal and traffic spaces while others dwellings do not have this. What can be seen is that people choose themselves how much visual interaction they have with their environment. A lot of kitchen windows are blocked off visually by curtains (figure 38) while the residents of apartments without such a window showed that they wanted a visual connection. They did this by opening their front doors (figure 37). The photos (figure 37 & figure 38) clearly show this difference. How people tend to organise their privacy is personal and different for everyone. People should thus have a choice to be private or not private.

### 6.5.2 Acoustic privacy

Acoustic privacy is similar to visual privacy but instead of our visual sense it concerns our acoustic sense. People should have the ability to control how much acoustic stimulants they have to endure during moments. Unwanted acoustics outside of our control can cause irritation. This can be in situations where someone is having a loud conversation on the phone while in a waiting room (Plaisier & Van der Voordt, 1998). But also having control over the amount of sound produced is important. A good example of this is the feeling of uncomfort when sneezing in a quiet museum. In certain situations people would like more acoustic control then is provided which can cause contradictions. Some people do not want to hear music from other dwellings but still want to hear birds sing and hear children

Figure 37. Facade in the elderly complex Buitenzorg where there is a no easy possibility to have a visual connection to outside the dwelling which is why the resident opened the door (Own image)



Figure 38. Facade in the elderly complex Buitenzorg where there is a possibility to have a visual connection to outside the dwelling which is blocked off by a curtain (Own image)

playing on the street. In private spaces this can be easily arranged while in public spaces this is impossible to control. A lot of people therefore choose to control the acoustics they want to hear, which can is shown by all the headphones and earplugs present in public life.

To conclude the amount of acoustic should be controlled by the people affected by it. This control fades from private spaces to public spaces and therefore the border between these territories should be clearly marked.

### 6.5.3 Territorial or social privacy

The ability to control our social interactions is partly determined by the context in which these take place (Van Dorst, 2005). Territorial or social privacy is having ownership over a place and having the ability to control and personalize that place (Plaisier & Van der Voordt, 1998). Every space in our environment is controlled by an authority or person. Territorial privacy therefore determines the territorial spatial values which determines if we enter a space or not and if we conform our selves to certain set values or if behave as we want.

Territorial privacy is next to the ability to control places also about the control we have over interactions. This means the ability to control our personal social zones as established in chapter 4 social distances. For example if we stand on a quiet square and someone stands directly next to us, we will automatically step aside and create space for ourselves. At that moment control is taken over the personal space. Important and similar to visual and acoustic privacy is that territorial or social privacy should be personally controlled. This means that people should always have the ability to retreat from a social activity. There is a general belief in society that we should know our neighbours and therefore it has become a somewhat forced relationship (Van Dorst, 2005). But these type of social contacts should occur spontaneously and the environment in which it takes place should stimulate such relationships without being forced upon people.

There are terms that depict the amount of control people have over certain spaces (Van Dorst, 2005). These terms are private and public. When one has full control over a space, this is called private while if no one particular has control over a space this is called public.

But the terms private and public can only describe two types of spaces while there are also spaces which are not described by both these terms. For this reason the term semi-private was acknowledged (Figure 40). But according to Van Dorst (2005) this is a catch-all term which describes every situation within two extremes. Van de Wal et al. (2016) also describe that there is a gradual transition between both these extremes and that there are no hard boundaries.
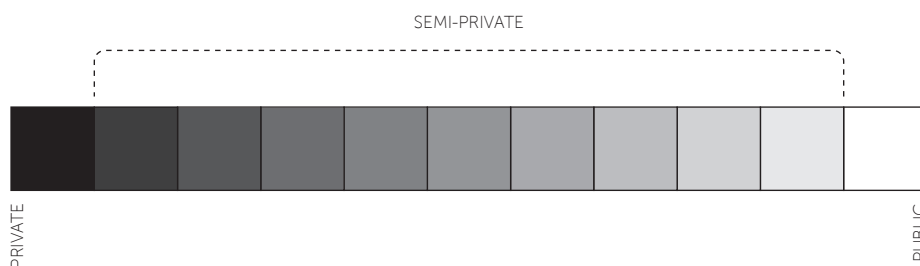


Figure 40. Private and public spaces and all the gradients of semi-private spaces in between (own image based on the description of Van Dorst, 2005)

Our environment consists of spaces that are ordered according to social values. People don't even question certain social values such as ownership over private spaces. A house is a private domain of someone therefore we behave according to their values and terms when entering that space or territory. This has become such a normal part of our social culture that it is even enforced by the law (Van de Wal et al., 2016). According to the law, people can refuse other people from entering their private domain.

Getting older goes parallel with physical decline. Walking gets harder and sight becomes blurrier. This also means that certain activities will have to be assisted over time such as cleaning or getting dressed. This means that in order to assist elderly with their daily tasks their privacy is going to be invaded. This asks for acceptance of the elderly for the fact that people offer help and that this is needed. This thus not mean that certain privacy values have to be ignored. The person providing help is entering ones private space and zones and therefore has to adapt to the values of that resident. This also demands something of the employees . This begins with knocking on the door and asking permission before entering (Plaisier & Van de Voordt, 1998).

To conclude, territorial or social privacy is the ability to have control over the amount of social interaction one has as well as having control over our private spaces.

### 6.5.4 Personalisation of our territory

Within this territorial spatial order, our house is our most private place. And to mark this territory people personalise their house (Van de Wal et al., 2016). This means we still conduct same kind of behaviour as animals which claim their territory. The male Bower bird for instance decorates its nest with colourful pieces in the hope it attracts a female Bower bird. The bird also signals a level of competence to it's competitors.  Humans also use personal items to decorate their house and yards. Personalisation of our private domain has several functions such as showing our competence (expensive items show ability to provide), mark our territory (fences along front and back yards) and show personal information or interests (such as religious signs or abstract sculptures of animals) (Plaisier & van der Voordt, 1998). People also expect that other people personalise their private domains and often find spaces without personal items impersonal and boring. Café's and restaurants also use this technique to make people feel at home. Often furniture in such establishments represent current trends of furniture used in dwellings. This makes the space feel comfortable and personal which lowers the threshold to go inside as well as that it signals that the space is a public space.

A private space should next to the ability to be personalised also accommodate the ability to preform private activities. These private activities are the ability to retreat in privacy, to receive visitors and to preform actions without being disturbed by others (Plaisier, de Groen & Nies, 1997).

When transferring from the private domain to the public domain clarity about who is in control fades. Ownership is harder to determine in public spaces which sometimes can lead to confusions about the accessibility of certain places (Van de Wal et al., 2016). People also behave differently according to privacy grading and if it is not clear which value's need to be respected unsafe situations can occur. Unknown people that wander around in a private building can be interpreted as intruders with bad intentions. Especially among elderly which are aware of their vulnerability, this can create the perception of being unsafe.

According to Gehl (1971) a gradual transition from private to public is needed to

lower the threshold of going into the public. He also mentions that spaces well beyond the dwelling can be perceived as belonging to a private domain. This can create a complex social patchwork where the people need to be aware of the ownerships of those spaces (Van de Wal et al., 2016). To establish such zones clearly, the borders of the zones are marked.
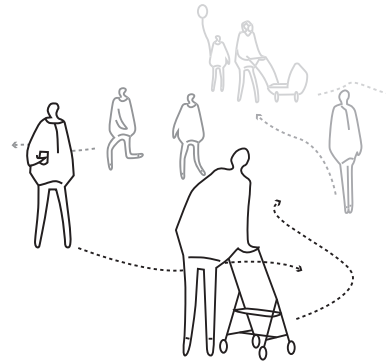
# 6.6 FINDINGS
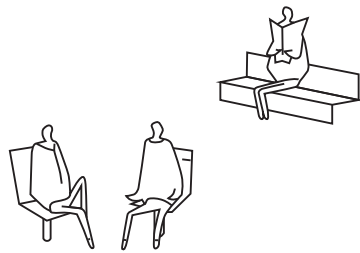


### Places for sitting

Optional activities can be seated. Therefore it is important to create good seating. People mostly like to sit along the edges of spaces. It also functions as a rest stop or a waiting place.



### Only slow traffic

To perceive each other and the details of the environment in a good way, a slow pace is needed. This lets us introduce each other gradually when coming closer. Next to this is it beneficial for the perception of safety within the neighbourhood.
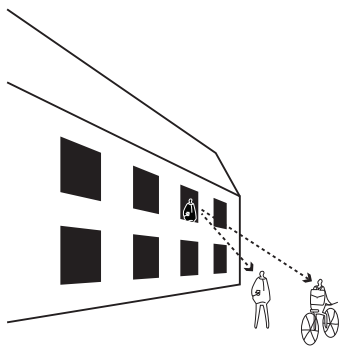


### Visibility on the street

Visibility on the streets creates social control. This gives a feeling of safety to the people on the public streets. It is therefore essential that these people actually see life within the buildings from the street.
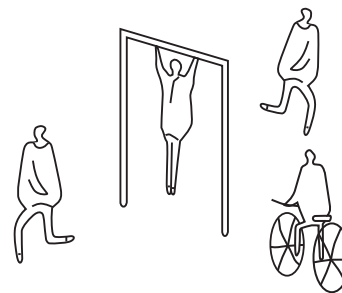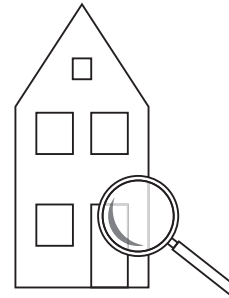


### Places for actitiy

Giving people the possibility to be active and also promote the activity on the streets which in itself also attracts more activity.
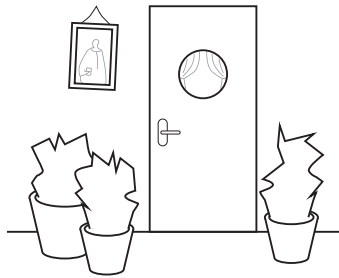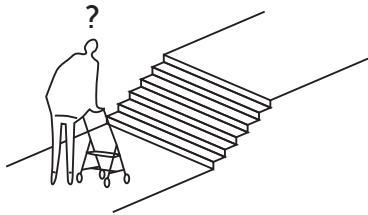
## Personalisation

People want to claim their space. We do this by personalising our environment. This shows our claim and creates a softer boundary from the private domain to the public realm.
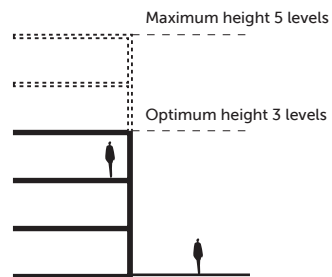


## Details

Details in the façades or other elements stimulate our brain. But only when moving with slow pace.



## Accessibility

Spaces have to be accessible for everyone to not exclude anyone form spontaneous social interactions.



Maximum height 5 levels

Optimum height 3 levels

## Building height

Buildings should be not higher than 5 levels and ideally 3 levels. 5 levels is the threshold in which the people still have contact with the ground. A lower height is also not recommended due to a density which is then to low and the concentration of people on the street becomes too low.
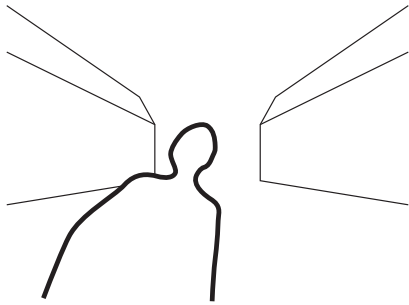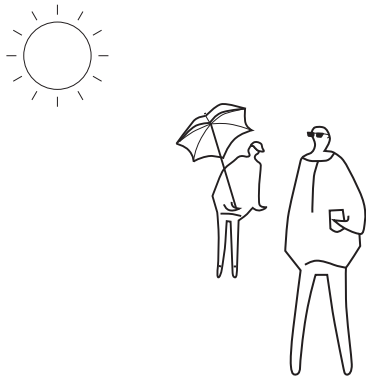
### Overview

For safety overview is very important. The feeling that we can see danger coming puts us at ease.
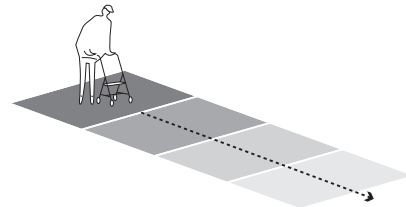


### Privacy Zoning

To lower the threshold to go into the public realm privacy zoning will be applied. The more private zones will also provide the opportunity to be personalised creating familiarity as well as pointing out a territory.



### Enjoy the climate

Enjoy the climate. This means providing sun but also shadow so that comfort can be achieved whenever wanted.

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# APPENDIX A: QUESTIONNAIRE

To better understand what the preferences of elderly and other people are certain topics are derived from a questionnaire. This questionnaire mostly touches upon two themes which are not explained or derived from the fieldwork or literature review. These themes are preferences for age groups living together and functions that should be present in the environment.

## 6.7 THEORY

### 6.7.1 Target groups

The target groups are based on the groups as described by Alexander (1977) in his book The Pattern Language in pattern 26 Life Cycle. Alexander does not mention specific age groups but rather stages in life which are infant, young child, child, youngster, youth, young adult, adult and old person

Based on the description certain age groups as regularly seen in questionnaires are taken which are:

*   <12 (infant, young child & child)
*   12-17 (youngster)
*   18-24 (youth)
*   25-39 (young adult)
*   40-64 (adult)
*   65-79 (old person)
*   80> (elderly)

The first three categories are combined as really young children are not yet capable of answering question about their living environment.

### 6.7.2 Questions

The subjects of the questions mostly concern which age groups want to live together and which activities or functions do they want in their neighbourhood. The questions about the functions and activities are asked repeatedly while proposing a different context. This context which changes per question, is the amount of people that share the functions. This amount or group size is according to the group sizes of Dunbar (1992).

## 6.8 METHOD

### 6.8.1 Distribution

The question where divided among acquaintances and friends. To get enough results in the higher age groups also an bridge club from Delft was contacted and the questionnaire was also spread among those elderly (figure 41).

Figure 41. Bridge club (Own image)

## 6.9 RESPONSE

The total response in the end was 71 of which 39 are 65 years or older. Figure 42 shows the response by age group and also the gender of the persons who responded. The black parts are woman and the dark grey are men.
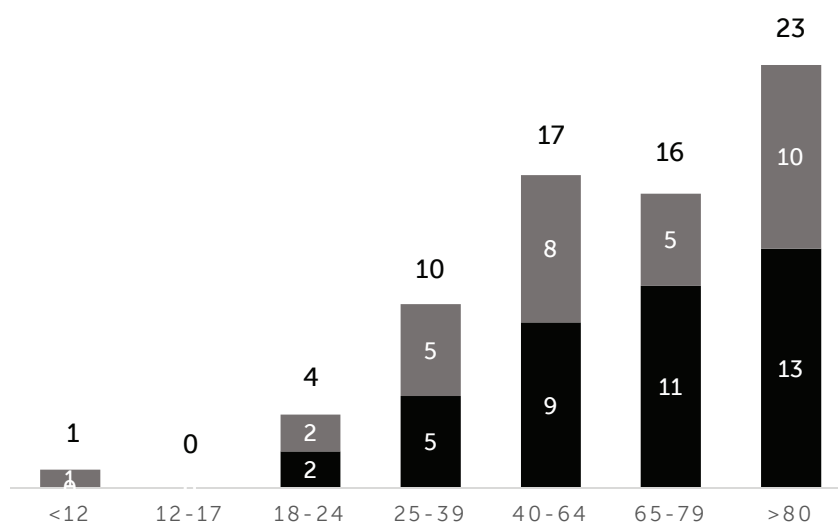


Figure 42. Amount of responses according to age and sex on the questionnaire (Own image)

# ENQUÊTE

Voor mijn opleiding Master Architecture aan de TU Delft doe ik onderzoek naar spontane sociale interactie om eenzaamheid te voorkomen. De resultaten van deze enquête geven inzicht in welke doelgroepen en functies binnen een wijk gecombineerd kunnen worden om sociale interactie te stimuleren. Resultaten van deze enquête zullen anoniem verwerkt worden. De tijdsduur van deze enquête bedraagt 8 minuten om in te vullen. Alvast bedankt voor het invullen!

Leeftijd      _____
Geslacht    O Man      O Vrouw

**Wilt u in een wijk wonen met personen in diverse leeftijdsgroepen of personen in éénzelfde leeftijdsgroep?**
     O Diverse leeftijdsgroepen      O Eénzelfde leeftijdsgroep

**Met welke leeftijdsgroep zou u graag in de omgeving wonen? (meerdere antwoorden mogelijk)**

| | |
|---|---|
| O <12 | O 40-64 |
| O 12-17 | O 65-79 |
| O 18-24 | O ≥80 |
| O 25-39 | O Geen voorkeur |

**Waarom zou u graag met deze leeftijdsgroep(en) in de omgeving wonen?**

_____

_____

**Met welke leeftijdsgroep zou u <u>niet</u> graag in de omgeving wonen? (meerdere antwoorden mogelijk)**

| | |
|---|---|
| O <12 | O 40-64 |
| O 12-17 | O 65-79 |
| O 18-24 | O ≥80 |
| O 25-39 | O Geen voorkeur |

**Waarom zou u <u>niet</u> graag met deze leeftijdsgroep(en) in de omgeving wonen?**

_____

_____

**Met hoeveel mensen van uw eigen leeftijdsgroep zou u in uw omgeving willen wonen? (kruis maximaal 1 antwoord aan)**
     O 5 (directe buren van dezelfde leeftijdsgroep)
     O 15 (kleine buurtgemeenschap van personen uit dezelfde leeftijdsgroep)
     O 50 (buurtgemeenschap van personen uit dezelfde leeftijdsgroep)
     O 150 (buurt van personen uit dezelfde leeftijdsgroep)
     O 500 (wijkdeel van personen uit dezelfde leeftijdsgroep)
     O 1500 (wijk van personen uit dezelfde leeftijdsgroep)

     O Anders, namelijk _____

**Met welke leeftijdsgroep zou u graag sociale interactie hebben? (meerdere antwoorden mogelijk)**

| | |
|---|---|
| O <12 | O 40-64 |
| O 12-17 | O 65-79 |
| O 18-24 | O ≥80 |
| O 25-39 | O Geen |

Wat zou u kunnen en willen bieden aan andere leeftijdsgroepen?

○ Overdracht van kennis
○ Huishoudelijke hulp
○ Oppassen
○ Hulp bij koken

○ Gezelschap bij activiteiten
○ Niets
○ Anders, namelijk

_____

Welke extra faciliteit zou u met uw directe buren (circa 5 omwonende personen) willen delen? (kruis maximaal 1 antwoord aan)

○ Keuken
○ Woonkamer
○ Eetkamer
○ Tuin

○ Geen
○ Overig, namelijk

_____

Welke activiteiten zou u graag met een kleine buurtgemeenschap (circa 15 omwonende personen) regelmatig samen uitvoeren? (kruis maximaal 3 antwoorden aan)

○ Koken/eten
○ Sporten
○ Tuinieren
○ Spelletjes spelen
○ Sociale activiteit (bijvoorbeeld kletsen, koffie drinken, etc.)
○ TV/Films kijken

○ Ondersteuning bieden aan anderen
○ Creatieve activiteit (bv. knutselen, muziek maken, etc.)
○ Geen
○ Overig, namelijk

_____

Van welke functies wilt u met uw buurtgemeenschap (circa 50 omwonende personen) gezamenlijk gebruik van maken? (kruis maximaal 3 antwoorden aan)

○ Religieuze functie (bijvoorbeeld kerk, etc.)
○ Horeca
○ Logeefunctie
○ Bibliotheek
○ Cultureel centrum
○ Theater
○ Supermarkt

○ Winkels
○ Sportfaciliteiten
○ Moestuintjes
○ Tuin/park
○ Voorzieningen voor kinderen (bijvoorbeeld speeltuin, etc.)
○ Geen
○ Overig, namelijk

_____

Van welke functies wilt u met uw buurt (circa 150 omwonende personen) gezamenlijk gebruik van maken? (kruis maximaal 3 antwoorden aan)

○ Religieuze functie (bijvoorbeeld kerk, etc.)
○ Horeca
○ Logeefunctie
○ Bibliotheek
○ Cultureel centrum
○ Theater
○ Supermarkt

○ Winkels
○ Sportfaciliteiten
○ Moestuintjes
○ Tuin/park
○ Voorzieningen voor kinderen (bijvoorbeeld speeltuin, etc.)
○ Geen
○ Overig, namelijk

_____

Welke activiteit(en) voert u regelmatig uit met anderen?

_____

_____

## 1. WOULD YOU WANT TO LIVE IN A NEIGHBOURHOOD CONSISTING OF PEOPLE OF DIVERSE AGE GROUPS OR OF PEOPLE AGED SIMILARLY?

67

4

COMMUNITY WITH DIVERSE
AGE GROUPS

COMMUNITY CONSISTING OF
A SINGLE AGE GROUPS
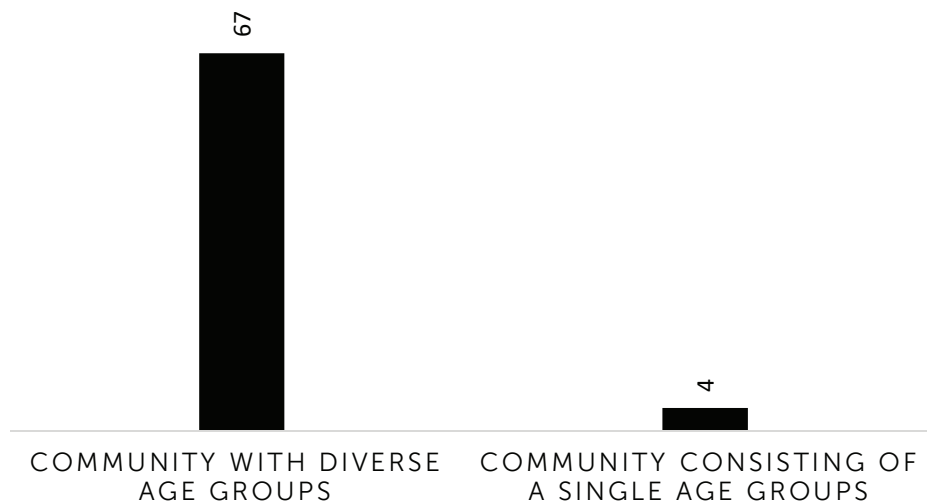
What strikes from the answers given to this questions is that nodbody wants to live in a community consisting of only a single age group.

## 2. WITH WHICH AGE GROUP WOULD YOU PREFER TO LIVE WITHIN A NEIGHBOURHOOD? (MULTIPLE ANSWERS POSSIBLE)

|       | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | No preference |
|-------|-----|-------|-------|-------|-------|-------|-----|---------------|
| <12   | 1   | 0     | 0     | 0     | 0     | 0     | 0   | 0             |
| 12-17 | 0   | 0     | 0     | 0     | 0     | 0     | 0   | 0             |
| 18-24 | 0   | 0     | 1     | 4     | 2     | 0     | 0   | 0             |
| 25-39 | 2   | 0     | 3     | 9     | 7     | 2     | 1   | 1             |
| 40-64 | 5   | 6     | 4     | 10    | 10    | 8     | 3   | 6             |
| 65-79 | 0   | 0     | 0     | 2     | 5     | 6     | 2   | 8             |
| >80   | 3   | 3     | 3     | 4     | 9     | 12    | 7   | 8             |

The answers to question number two give insides into which age groups prefer to live among each other. Most noticable is the diagonal that is developing. This means that people prefer to live among people of their own age. The other noticable thing from this table is the fact that people want to live among people with an age

of 25-64. The most common reasoning the subjects gave for answering similar age groups as their own are:
• Friendships
• More in common
• Similar habits

The most common reasonng the subjects gave for answering other age groups then their own are:
• Diversity
• More dynamic and activity taking place at different times

## 3. WITH WHICH AGE GROUP WOULDN'T YOU PREFER TO LIVE WITHIN A NEIGHBOURHOOD? (MULTIPLE ANSWERS POSSIBLE)

|  | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | No preference |
|---|---|---|---|---|---|---|---|---|
| <12 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 1 | 2 | 1 | 0 | 0 | 2 | 2 | 0 |
| 25-39 | 1 | 3 | 3 | 0 | 0 | 3 | 3 | 3 |
| 40-64 | 3 | 3 | 2 | 1 | 1 | 2 | 2 | 10 |
| 65-79 | 2 | 2 | 3 | 0 | 0 | 0 | 1 | 11 |
| >80 | 1 | 4 | 1 | 1 | 3 | 2 | 1 | 15 |

This table almost represents a negative of the table of question 2. The most common age groups with which people wont like to live is 18-24 and 65-79. The most common reasoning the subjects mentioned that made them answer these age groups is as following:

**18-24**
• Nuisance
• Noise

**65-79**
• This group is associated with complains and controlling behaviour
• Boring

## 4. WITH HOW MANY PEOPLE OF YOUR OWN AGE WOULD YOU WANT TO LIVE WITHIN YOUR LIVING ENVIRONMENT?

| | 5 | 15 | 50 | 150 | 500 | 1500 |
|---|---|---|---|---|---|---|
| <12 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 1 | 1 | 2 | 0 | 0 | 0 |
| 25-39 | 2 | 4 | 2 | 1 | 1 | 0 |
| 40-64 | 3 | 5 | 4 | 3 | 0 | 0 |
| 65-79 | 6 | 6 | 3 | 1 | 0 | 0 |
| >80 | 12 | 6 | 2 | 2 | 0 | 0 |

People do not like to live in really large groups consisting of 150 people or more. The most chosen answer reveals a preference for a small neighbourhood group consisting of 15 people.

## 5. WITH WHICH AGE GROUP WOULD YOU PREFER TO HAVE SOCIAL INTERACTION? (MULTIPLE ANSWERS POSSIBLE)

| | <12 | 12-17 | 18-24 | 25-39 | 40-64 | 65-79 | >80 | None |
|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 0 |
| 25-39 | 1 | 1 | 4 | 10 | 6 | 1 | 0 | 0 |
| 40-64 | 4 | 3 | 6 | 14 | 14 | 10 | 3 | 1 |
| 65-79 | 3 | 2 | 4 | 5 | 10 | 11 | 6 | 2 |
| >80 | 3 | 2 | 2 | 7 | 13 | 18 | 12 | 2 |

This question is used to establish conformation that the answer given on question 2 is realistic. The two tables are similar and therefore confirm that the answer given on question 2 is not unrealistic utopian but actually a fair representation of their wishes.

## 6. WHAT WOULD YOU WANT AND ARE ABLE TO CONTRIBUTE TO OTHER AGE GROUPS?

| | Domestic Help | Babysitting | Support with Cooking | Being Company During Activities | Transfer of Knowledge | Nothing |
|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 0 | 0 | 1 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 0 | 3 | 3 | 0 |
| 25-39 | 1 | 2 | 2 | 8 | 4 | 1 |
| 40-64 | 3 | 4 | 3 | 12 | 9 | 1 |
| 65-79 | 0 | 3 | 2 | 11 | 10 | 0 |
| >80 | 4 | 2 | 2 | 17 | 12 | 3 |

Question 6 reveals what people are willing to do for other people within their community. The actions are arranged according to their instensity of labor. Domestic help costs more effort then tranfer of knowledge. What shows of the results is that msot people like to acompany others during activities. Older people also prefer to transfer knowledge to others. This shows that mixed age groups actually can benefit from each other. Only two people would not like to do anything for another persen.

## 7. WHICH EXTRA FACILITIES WOULD YOU WANT TO SHARE WITH YOUR CLOSE NEIGHBOURS (APPROXIMATELY 5 RESIDENTS)?

| | Kitchen | Dining room | Living room | Garden | None |
|---|---|---|---|---|---|
| <12 | 0 | 0 | 1 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 0 | 0 | 0 | 1 | 2 |
| 25-39 | 0 | 0 | 1 | 3 | 5 |
| 40-64 | 0 | 1 | 0 | 8 | 7 |
| 65-79 | 0 | 0 | 1 | 8 | 7 |
| >80 | 1 | 2 | 1 | 6 | 13 |

This table reveals which functions people would like to share with 5 other residents close to them. Answers are the domestic functions within ones house.

This is because a small group is more private then a larger group. The functions are therefore also arranged from more private functions to more public functions. The result is dominated by the answer "garden" which is the most public function according to this arrangement. This shows that people do not like to share more private functions.

## 8. WHICH ACTIVITIES WOULD YOU LIKE TO PARTICIPATE IN RE-GALURLY WITH NEIGHBROUS (APPROXIMATELY 15 RESIDENTS)?

| | Sporting | Gardening | Cooking/Eating | Supporting others | Playing games | Creative activities (for example crafts, makir | Social Activities (for example chattir | Watching TV/Movies | None |
|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 2 | 1 | 2 | 1 | 1 | 1 | 3 | 0 | 0 |
| 25-39 | 1 | 2 | 4 | 3 | 2 | 1 | 7 | 0 | 1 |
| 40-64 | 7 | 3 | 7 | 7 | 3 | 3 | 9 | 0 | 0 |
| 65-79 | 1 | 2 | 5 | 4 | 4 | 3 | 10 | 2 | 1 |
| >80 | 3 | 4 | 5 | 4 | 8 | 5 | 9 | 0 | 2 |

Table 8 shows the activities people would like to conduct in with others within a community of 15 people. The results are orderened from active to passive. The results show that people actually do not prefer a certain amount of action during a shared activity. The most common result is "social acitivities" which shows that people actually want to conduct activities based soley on the presence of others. This is the only activity in the list that can not exist without others. Next to social activities also cooking and eating together is a higly apprieceated activity. Supprisingly people aged 40-64 also prefer sporting and supporting others.

# 9. WHICH FUNCTION WOULD YOU LIKE TO HAVE WITHIN YOUR COMMUNITY (APPROXIMATELY 50 RESIDENTS)?

| | Supermarket | Shops | Guest Function | Religious Function (for example church etc.) | Cultural Centre | Sportfacilities | Vegtable Gardens | Facilities for Children (for example playground etc.) | Communal Garden/Park | Library | Bar/Café/Restaurant | Theatre | None |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 3 | 2 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 1 | 2 | 0 | 0 |
| 25-39 | 6 | 4 | 1 | 0 | 1 | 4 | 1 | 2 | 3 | 2 | 4 | 0 | 0 |
| 40-64 | 7 | 4 | 1 | 1 | 6 | 6 | 2 | 4 | 9 | 2 | 6 | 4 | 0 |
| 65-79 | 7 | 4 | 1 | 4 | 4 | 1 | 1 | 1 | 6 | 3 | 4 | 4 | 0 |
| >80 | 3 | 8 | 0 | 2 | 5 | 4 | 0 | 0 | 7 | 7 | 6 | 3 | 4 |

Question 9 shows which functions people would like to share with 50 other residents. The results are ordered from functional (primary functions) to leisure. Functional functions are preferred more then leisure functions. The most preferred function is the supermarket while other highly favoured functions are a communal garden and a bar, cafe or restaurant. A religious function is the most preferred by elderly.

# 10. WHICH FUNCTION WOULD YOU LIKE TO HAVE WITHIN YOUR COMMUNITY (APPROXIMATELY 150 RESIDENTS)?

| | Supermarket | Shops | Guest Function | Religious Function (for example church etc.) | Cultural Centre | Sportfacilities | Vegtable Gardens | Facilities for Children (for example playground etc.) | Communal Garden/Park | Library | Bar/Café/Restaurant | Theatre | None |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <12 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 12-17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18-24 | 4 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 25-39 | 6 | 6 | 0 | 0 | 2 | 5 | 0 | 0 | 3 | 1 | 5 | 1 | 0 |
| 40-64 | 4 | 5 | 1 | 2 | 4 | 8 | 0 | 3 | 6 | 3 | 7 | 3 | 0 |
| 65-79 | 9 | 7 | 0 | 0 | 3 | 1 | 0 | 0 | 4 | 8 | 5 | 2 | 1 |
| >80 | 8 | 7 | 0 | 6 | 5 | 5 | 1 | 0 | 8 | 6 | 3 | 4 | 1 |

Question 10 iis identical to question 9 except for the fact that the functions are shared within a larger group. This table does show other results. This gives insides into what people find functions that are more concerned with smaller groups then functions that should be shared with larger groups. What strikes are the following functions
• Shops (more preferred within a larger resident group)
• Sport facilities (more preferred within a larger resident group)
• Vegetable gardens (less preferred within a larger resident group)
• Bar, cafe, restaurant (more preferred within a larger resident group)

What also shows from these results is that elderly prefer more traditional functions such as a library, a communal garden or park and religious functions.