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## Socio-Spatial Designs and Sense of Community

The impact of residential spatial  
 design features on sense of  
 community in Vinkhuizen

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 Master Thesis Socio-Spatial Planning | 2021  
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## Abstract

Until 2000 academic literature on the concept of sense of community was predominantly written from a psychological perspective. As a result, scholars have critiqued existing literature on sense of community for neglecting the impact of spatial design and the physical environment (Francis et al., 2012). This thesis is a response to this critique.

From a societal perspective, municipalities are eager to stimulate sense of communities in order to increase quality of life in neighborhoods. In Groningen, which is the location of this research, stimulating sense of community is particularly challenging. The reason for this is that neighborhood populations generally consists of both student and non-student residents. The objective of this research is to unravel the impact of residential spatial design on sense of community in streets and housing blocks where the population is mixed: both students and non-students. In this research, social interactions serve as a mediating variable between spatial design elements and sense of community and semi-private spaces and heights have been chosen as the spatial design elements.

A multiple comparative case-study has been applied as a research strategy. Three types of housing have been chosen: a gallery flat, a portico flat and terraced houses. The case are located in one of Groningen's neighborhoods called *Vinkhuizen*, and are all characterized by a mixed population of student and non-student residents. A survey has been conducted among the residents of the three housing types, and a total of thirteen interviews have been conducted as well.

This research shows that spatial design has a facilitative role in fostering sense of community rather than a direct impact. On the one hand, the potential of *semi-private spaces* and *heights* to facilitate social interaction comes into its own under certain conditions. Policy makers and housing associations could consider these conditions when planning a new residential area with a mixed population. On the other hand, human (spatial) behavior proves to be an important factor in the success or failure of semi-private spaces and heights to stimulate contact.

Furthermore, this research shows that students generally do not desire to interact with fellow residents. Therefore, the function of semi-private spaces and height to promote social interaction is undermined. In addition, contact between student and non-student residents is difficult to establish because they do not socially identify with each other. The fact that, on the one hand, social interactions contribute to a sense of community, but on the other hand, the contact between students and non-student residents is difficult to establish, raises questions about successful development of sense of community feelings in streets and flats with a mixed population of student and non-student residents.

This research provides conditions under which social processes can be stimulated by means of physical interventions. As such, policymakers and housing associations can consider these conditions when building new residential areas with a mixed population.

**Keywords:** *residential spatial design, semi-private spaces, heights, social interaction, students, sense of community*

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# Chapter 1

## *Introduction*

# 1. Introduction

## 1.1. Background

Sense of community is a relatively new concept. Since its first introduction in the 1970s, the concept was mainly an object of study in the fields of sociology and psychology (Lewis & Plas, 1996). At first, these studies were limited to defining the concept and distinguishing, predominantly psychological indicators of sense of community (Sarason 1974; McMillan & Chavis, 1986). As sense of community gained more momentum in the field of geography and spatial planning not only the indicators of the concept, but sense of community as a process and its outcomes were studied as well (Farahani & Lozanovska, 2014). The outcomes of sense of community were, for instance, associated with increased participation of residents in neighborhood activities and increased feelings of safety and wellbeing (Francis et al., 2012).

Over time, scholarly perspectives on the manifestation of sense of community and optimal ways to stimulate sense of community have changed. In 1974, Hendriks argued that neighborhoods and communities are inseparable concepts, residents of a neighborhood together form a community. Equating the two concepts like this is nowadays considered outdated. In 1999, Duyvendak criticized Hendrik's (1974) theory. Duyvendak argues that neighborhoods do not automatically evolve into communities because social processes do not exactly follow the geographic boundaries of a neighborhood. Moreover, Sanders (2006) also argues that residents do not always form a community due to changes in society. Sanders (2006) argues that our society has become more focused on the individual and individual choices. He argues that *'people want to be connected, however, this is a connection 'à la carte''* (Ibid., p.50).

Nowadays the thought prevails that neighborhood residents do not automatically develop a sense of community. Nevertheless, municipalities often focus on stimulating sense of community because of its associated positive results (SGBO, 1999). The stimulation of sense of community is mainly addressed by means of social programs, such as neighborhood teams, neighborhood associations and subsidies for joint neighborhood activities (Gemeente Groningen *b*, n.d.). The main purpose of these programs and activities is stimulating the neighborhood residents to get acquainted with each other.

An example of a city where such stimulation of sense of community is taking place, on the initiative of the municipality, is the city of Groningen (Gemeente Groningen *a*, n.d.). Groningen is a small city in the northern part of the Netherlands, and its municipality is focusing its policy on improving the coexistence between different groups of residents, especially between students and non-student residents (Gemeente Groningen *b*, n.d.). This mixed population of students and non-students in neighborhoods provides an extra challenge in stimulating sense of community, for example because of the hesitant attitude of students and non-students towards engaging in social contact with each other (Aalbers, 2010).

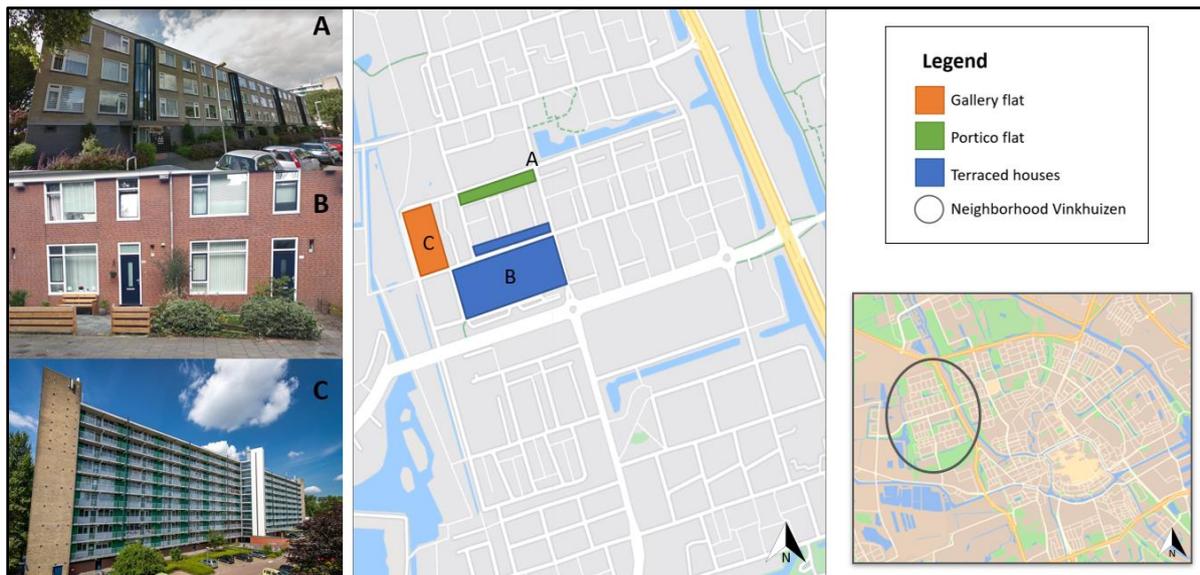
In order to improve the relationship between students and non-students in Groningen, social programs have been set up, such as *Leven in de Stad* (Gemeente Groningen *c*, n.d.). However, a disadvantage of these programs and activities is that students and non-students have to take the initiative to attend. Both Alberts (2012) and Sage et al. (2012) found that students and non-students scarcely intentionally interact. Therefore, it is likely that many students and non-students will not attend these programs, which is unfortunate because social interactions between residents are a precondition for developing sense of community (Kim & Kaplan, 2004).

It can thus be argued that other interventions are needed to improve sense of community in student-identified neighborhoods, which is the subject of this thesis. In this research, a spatial perspective has been used to unravel how sense of community can be strengthened in neighborhoods

where the population of residents consists of both students and non-students. Social interactions serve as a mediating variable between (residential) spatial design and sense of community in this research, based on the research of both Van Ulden et al. (2015) and Gehl (2011), who state that spatial design has a facilitating influence on social human behavior. An advantage of spatial interventions over social programs to strengthen sense of community is that the success of the intervention does not depend on individual choices of student and non-students to participate, as is the case with social programs and activities.

In this research, three cases are compared with each other to unravel the impact of residential spatial design on sense of community. Each case represents a particular housing type, with a mixed population of students and non-students. The case studies are located in Vinkhuizen, a neighborhood in the Western part of the city of Groningen (see map 1), and they have in common that they belong to the housing stock of the housing corporation named *Patrimonium*. Besides that, each case concerns social rented houses and apartments. Below, the three case studies are described.

- **Streets with terraced houses (Opaalstraat and Barnsteenstraat).** A terraced house is a house where the walls adjoin other houses. The houses are part of a continuous row.
- **Portico flat (Kornalijnlaan).** A portico flat is a flat where the front door opens onto a common staircase and a central hall. Usually portico flats have three to four stories.
- **Gallery flat (Parelstraat).** A gallery flat is a flat with the front door opening into an exterior walkway (gallery). The gallery flat also has a shared entrance hall.



**Map 1:** the three housing types located in the neighborhood of Vinkhuizen in the city of Groningen.  
Source: Google Maps, 2021

## 1.2. Research gaps and relevance of the research

The scientific relevance of this research is twofold. First, this research heeds to the call of both Farahani & Lozanovska (2014), and Francis et al. (2012). These researchers argue that research is needed on the spatial elements in studies on sense of community. According to them, spatial elements in studies about sense of community often are overlooked because studies on sense of community are predominantly written from a psychological or sociological perspective. Therefore, this study aims to contribute to scientific knowledge about the impact of spatial design elements on sense of community by studying three different housing types.

Secondly, this research aims to deepen the knowledge about sense of community by studying three specific cases. This aim will be achieved by implementing two unique elements in this research. On the one hand, in this research a low scalar level has been studied. On the other hand, this research focusses on a mixed residential population of both students and non-students. Below, a more profound argumentation of these two elements will be given.

First, this case study research adds knowledge to existing literature on sense of community by studying three cases at a low scalar level; the street or the housing block. Most studies unravel sense of community by studying cases on the scalar level of the neighborhood (Perkins & Long, 2002; French et al., 2014). There are reasons to assume that studying such a low scalar level is interesting. On the one hand, because sense of community is often enhanced by neighboring, which happens at the lowest scale levels (Prezza et al., 2001). On the other hand, sense of community manifests itself primarily at the low scale levels (Boitelle, 2012).

Secondly, this case study adds knowledge to existing literature on sense of community by studying a mixed population, consisting of both students and non-students. The literature on students' sense of community is limited. Only studies on the sense of community *between* students were found in databases of academic literature. Existing studies often focus, for instance, on sense of community between students on a university campus (Cheng, 2004; Kirk & Lewis, 2015). While the dynamic between student and non-student residents is often studied (Sage et al., 2012a), these studies focus on relationships between students living apart from other non-student residents in for example a purpose-built student accommodations (PBSA) (Sage et al. 2012b). Thus, the relationship between students and non-students in one neighborhood in terms of sense of community has not been studied before. Therefore, this research focusses on the sense of community *between* students *and* non-student residents living next to each other in three different types of housing.

Furthermore, this research is socially relevant as well. The range of tasks of housing corporations has broadened over the years because they are also expected to commit themselves to creating pleasant social environments and improving the quality of life in and around their housing complexes, in addition to offering high-quality housing (Vastgoedjournaal, 2014; CorporatieNL, 2017). This research provides housing associations with the tools to improve the social environment, and in particular the sense of community, through physical interventions.

Lastly, the municipality of Groningen is aiming to improve the coexistence of student and non-student residents in Groningen's neighborhoods (Gemeente Groningen *b*, n.d.), thereby making this research socially relevant as well. In order to achieve the objective to improve the existence of these two population groups, the municipality has set up social programs such as '*Leven in de Stad*'. Besides that, they also focus on institutional interventions such as limiting the granting of permits regarding converting single-family homes into student housing (Gemeente Groningen *d*, n.d.). In addition to these existing measures by the municipality to promote the coexistence of students and non-students, this study offers measures in the spatial domain.

### **1.3 Research objective and research questions**

The gaps in the existing literature on sense of community and the scientific and societal relevance of this issue have led to the formulation of a research objective. The research objective is to unravel the impact of residential spatial design on sense of community in streets and housing blocks, where the residential population consists of both students and non-students. Based on this research objective, the following research question will be central in this thesis:

*How do residential spatial design elements impact student and non-student residents' sense of community in Vinkhuizen?*

The sub-questions formulated below, support the research question formulated above:

### **Spatial design**

1a Which design elements promoting social interaction are present in the gallery flat, portico flat and the terraced houses?

1b How does spatial design influence social interactions between residents in the gallery flat, portico flat and the terraced houses?

### **Social interactions**

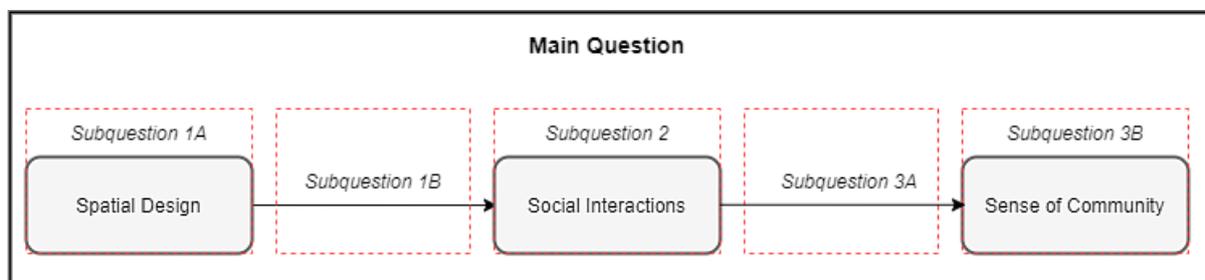
2 How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members?

### **Sense of community**

3a How do social interactions with street- and flat members influence student and non-student residents' sense of community?

3b How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community?

Figure 1 shows how the sub-questions are related to the conceptual model (figure 1 shows a simplified version of the conceptual model, see section 2.8 for a more detailed version). First, sub-questions 1A, 2 and 3B predominantly focus on one main topic (*spatial design, social interactions* and *sense of community*). Subsequently, sub-questions 1B and 3A respectively try to untangle the effect of spatial design on social interactions, and social interactions on sense of community. The answers on all sub-questions together form the answer to the main research question.



**Figure 1:** the sub-questions related to the conceptual model (Own Source)

## **1.4 Thesis outline**

Chapter two elaborates on the concepts of sense of community, social interactions and spatial design principles that stimulate social interactions. I will also present the conceptual model in this chapter. Subsequently, chapter three provides a detailed explanation of the research strategy, the research methods, and the data analysis. In this section, the ethical considerations, the case selection and the implications of COVID-19 on this research are discussed as well. In chapter four I will present the results. I will provide meaning to the data by means of analytical interpretations. Then, in chapter five, I draw conclusions in relation to the data and the theories that have been presented in chapter 2. Furthermore, I will discuss the contribution of this study for planning theory and planning practice. Finally, the reflection is included in the Appendices (Appendix A). I will reflect on the process and outcomes of this study. I will also discuss the generalizability of the conclusions.

# Chapter 2

## *Theoretical Framework*

## 2. Theoretical framework

In this chapter, the theoretical framework of this research is set out. The theories presented in this chapter are selected because they serve to set guidelines to answer the main question. First, light will be shed on the concept of sense of community. Theories and definitions on sense of community written from a relational (Sarason, 1974; McMillan & Chavis 1986) and territorial (Kim & Kaplan 2004) perspective are compared. Both perspectives are relevant to this study because this research focuses on both the social and physical aspects of sense of community.

Secondly, I elaborate on the discussion on social interactions as main driver for sense of community. To designate social interactions as main driver, I draw on the work of Jan Gehl (2010; 2011), Van Ulden et al. (2015) and Blokland (2009). Their theories are particularly relevant to this research because they link different types of contact with spatial design and sense of community. Furthermore, I will elaborate on demographic and institutional factors that, besides spatial design, stimulate sense of community. In order to solely study the impact of spatial design on sense of community I need to eliminate the influence of these factors, therefore section 2.6 is devoted to understand the mechanisms of demographic and institutional factors.

Thirdly, I will provide detail on spatial design principles that stimulate social interaction. More specific, I will elaborate on *semi-private spaces* and the influence of *heights*. I will draw on the work Williams (2005) and Van Ulden et al. (2015) since they also studied semi-private spaces and heights on the scale of the street and housing block.

Finally, the conceptual model is presented. This model is based on the theories that are discussed throughout chapter 2.

### 2.1 Defining sense of community

Sense of community is since its introduction addressed in different research fields; psychology, sociology, and urbanism (Plas & Lewis, 1996). Although there are some subtle differences between the theoretical notions in these fields, there are at least three elements that definitions have in common. These elements are, *its dynamic nature* and a *strong focus on the psychological, meaning based indicators*, and that it is used as a *normative concept*.

Sense of community has proven to be a dynamic concept in two ways. On the one hand, feelings, experiences and perceptions of an individual towards the community (*'the sense (of)'*) can change. On the other hand, the *community* itself can change over time. These mechanisms are explained below.

Chavis and McMillan (1986) describe sense of community as an individual's *experience* of a community that can change over time. Approaching sense of community as an individual's experience has two consequences. It implies that sense of community is subjective since individuals perceive and experience their community in different ways (Blokland & Nast, 2014). Furthermore, it implies that one's sense of community is not fixed since experiences towards a community can change over time. Sarason's (1974) definition of sense of community reflects the dynamic nature: *'the perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, and the feeling that one is part of a larger dependable and stable structure'* (1974, p.157). Sense of community is not fixed since *feelings* and *the willingness to maintain interdependence* can change over time. The dynamic nature is also displayed in the definition of McMillan and Chavis (1986); *"a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members needs will be met through their commitment to be together"* (p.9). This definition shows again that the feelings of members of a community can change with regard to the community.

However, Taylor and Covington (1993) argue that these changing feelings towards a community are often evoked by changes in the physical or social structure of the community itself. A community in itself is also not fixed due to, for example, changes in population composition (Lager & Van Hoven, 2019). Therefore, sense of community is a dynamic concept since a *community* is not stable over time. Figure 2 illustrates these findings: an individual's sense of community can change over time. In this study this is referred to as the continuum of sense of community.

The second element that definitions on sense of community all include are the psychological elements. Chavis and McMillan (1986) argue that sense of community is composed of four elements; *membership, influence, integration and fulfilment of needs, and a shared emotional connection*. The indicators emphasize feelings of individuals towards the community. The psychological elements are also reflected in the three components of sense of community described by Unger and Wanderman (1985). The social component includes feelings of belonging and local (strong and weak) ties (Unger & Wandersman, 1985; Plas & Lewis, 1996). The cognitive component includes residents' perception of the social and physical environment (Unger & Wandersman, *ibid*). Finally, the affective component represents the social bond between individuals (Unger & Wandersman, *ibid*). However, their indicators are all meaning based and less spatially based which implies that contextual differences between places are not taken into account in these theoretical notions.

Finally, sense of community is often illustrated as a normative concept: it is '*something*' that policymakers are striving for, because it is often portrayed as inherently '*good*'. This nature has been ascribed to sense of community because scholars associate positive *outcomes*, such as increased feelings of safety and wellbeing with sense of community (Francis et al., 2012). At first sight, the *outcomes* often seem inherently good, but a closer inspection of the *process* of the development of sense of community reveals otherwise. It is often forgotten in studies that people are also excluded when a community develops. Therefore, the outcomes of an increased sense of community are positive for a selective group (*the insiders*), the people who cannot or may not be part of the community (*outsiders*) cannot benefit from it.

## 2.2. Neglecting space in Sense of Community

Definitions on sense of community were critiqued by Farahani & Lozanovska (2014) for neglecting spatial elements. Further investigating the concept of *community* will explain why the focus of sense of community is more often on people than on the physical environment of the community. Gusfield (1975) identified two forms of community: relational and territorial. On the one hand, the relational dimension consists of relationships between residents, however, these are not bound to a geographical location. On the other hand, the territorial or geographical notion refers to geographical locations, for example neighborhoods. Gusfields' (1975) notions are not mutually exclusive.

The theory of Sarason (1974) about Sense of Community is written from a relational perspective since there is no specific reference to a location included. Sarason (1974) refers to a group of people, rather than geographical boundaries or spatial features of community. Therefore the spatial dimension in his definition is neglected. Furthermore, the work of McMillan and Chavis (1986) was used as a scientific foundation for the development for the Sense of Community Index (SCI, 2007). The index has been promoted as a tool to measure sense of community in different spatial contexts; urban, suburban, rural, tribal, workplace, schools, internet communities etc. (SCI, 2007). On the one hand, the

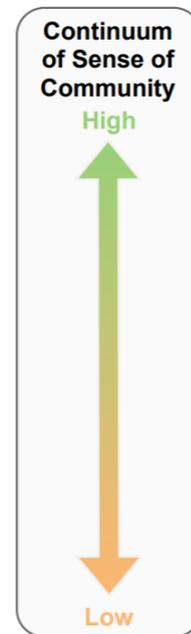


Figure 2: Continuum of Sense of community (Own Source)

index could be praised for its generality and applicability in different contexts. On the other hand, the index seems to be insensitive for spatial and contextual differences between places.

At first, theories on sense of community were predominantly centered around relational approaches. However, the critique on excluding the spatial dimension in theories on sense of community continued. Farahani & Lozanovska (2014) continuously repeat that this research field is still underexplored. Nevertheless, Kim and Kaplan (2004) included a spatial dimension in their studies: they studied the role of the physical environment on the development of sense of community. They found that the layout of the neighborhood and the architecture style positively affected residents' sense of community. Kim and Kaplan (2004) distinguished their theory on sense of community from others by applying a the relational approach and applying a territorial approach.

### **2.3 A discussion on the indicators of sense of community**

Kim and Kaplan (2004) and McMillan and Chavis (1986) both distinguished four sets of indicators for sense of community. The indicators proposed by McMillan and Chavis (1986) are strongly embedded in the relational perspective: they are all meaning based and not spatially based. On the contrary, Kim and Kaplan's indicators (2004) include a relational *and* a territorial perspective. Kim and Kaplan (2004) distinguished four domains of sense of community: *community identity*, *pedestrianism*, *social interactions* and *community attachment*. *Community identity* and *pedestrianism* reflect the territorial perspective: it includes spatial aspects such as sidewalks, architecture etc. *Social interactions* and *community attachment* reflect the relation perspective: the experiences and the perceptions.

The indicators of *social interactions* and *pedestrianism* need further elaboration since these indicators are respectively applied as the main driver for sense of community and as a spatial design principle in this study. First, I would argue that pedestrianism is a design principle rather than an indicator of sense of community since the features of *pedestrianism* overlap with some design principles that I propose in section 2.7. For example, Kim and Kaplan (2004) argue that a *pedestrian-scale*, the incorporation of a human scale in neighborhood design, stimulates a high-quality physical environment and interactions between neighbors. The indicator of *pedestrianism* functions as a spatial mean to stimulate social interactions rather to impact sense of community directly.

Secondly, I would argue that social interactions are the main driver for the development of sense of community, rather than an indicator. The function of social interactions as the main driver is stressed when taking an interactionist perspective on sense of community. This perspective implies that '*meaning is socially created through social interactions*' (Trentelman, 2009 p.205). From this point of view residents develop a deep emotional connection with the physical and social environment by conversations with fellow residents (Milligan, 1998). Given these notions of the interactionist perspective and given the fact that the indicators proposed by McMillan and Chavis (1986) are all *meaning* based, social interactions facilitate not mere sense of community, but also facilitates the other indicators that stimulate sense of community. This statement is also supported by other researchers. For example, Trentelman (2009) found a relationship between increased social interactions and an increased community attachment. Johnson et al. (2007) found that supportive social interactions positively affect individuals sense of belonging. Therefore I assume in this study that social interactions are more than an indicator of sense of community, I perceive it as an explanatory factor of sense of community.

### **2.4 Sense of community and social interaction**

The relationship between social interactions and sense of community is interesting since literature suggests that this relationship is reciprocal. On the one hand, Kim and Kaplan (2004) explain that social interactions (e.g. neighboring, or casual encounters on the street) may foster sense of community. Wilkinson (2008) found the same results when he studied rural communities in Canada. On the other

hand, Chavis and Wandersman (2002) found in their study that people with a high sense of community are more likely to interact with their neighbors. It could be that stimulating sense of community by investing in social interactions might be a reinforcing process.

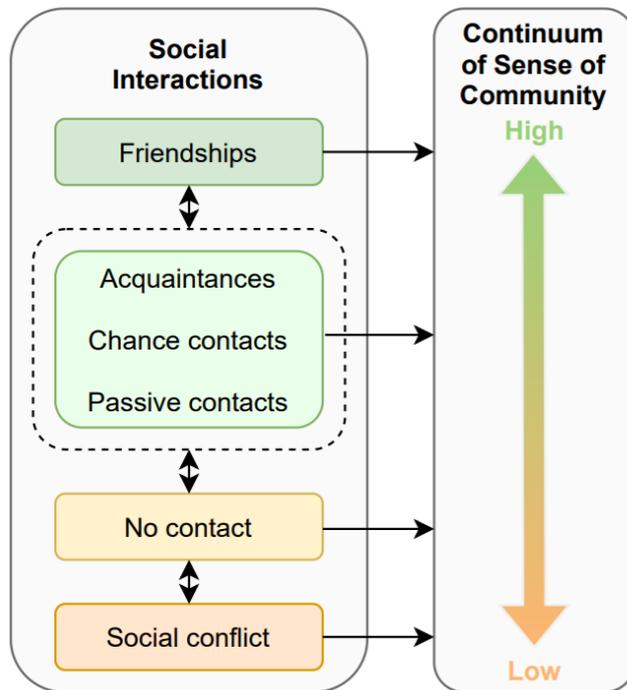
## 2.5 Social interactions

There is one important assumption underlying the relationship between social interactions fostering sense of community: the social interactions between residents need to be experienced in a positive way. I draw on the work of Jan Gehl (2010) to explain the importance of positive social interactions. Gehl (2010) describes in his book *Life between the buildings* different types of contacts. These contacts vary from high-intensity contacts to low-intensity contacts. He distinguished: *close friendships*, *friendships*, *acquaintances*, *chance contacts* and *passive contacts*. These forms are predominantly described as positive types of contact. However, what Gehl (2010) misses is that these forms, perhaps with exception of *close friendships* and *friendship*, cannot only be experienced positively, but also in a negative manner. In addition, there is also the option of no contact at all, or only a negative form of contact such as social conflicts.

Gehl (2010) shows in his work that the ladder of different types of contacts is not fixed: '*low intensity contact* (e.g. acquaintances, chance contacts and passive contact) *is also a situation from which other forms of contact can grow*' (Gehl, 2011 p.19). At first sight, low-intensity contact may seem superficial, however, they serve as meaningful and unforced kinds of contact as well as a requirement to develop deeper relationships. This study focuses predominantly on the low intensity contacts (passive, chance and acquaintances), since spatial design mainly impacts these types of social interaction (Gehl, 2011).

Blokland (2009) argues that low-intensity contacts contribute to the development of familiarity. Familiarity refers to '*both recognizing and being recognized in local spaces*' (Blokland & Nast, 2014 p.1142). In their study, Blokland and Nast (2014) found that residents who experienced great familiarity felt more at home and had greater feelings of belonging towards their neighborhood. Van Ulden et al. (2015) also found that low intensity contacts can increase the familiarity on the streets. As a result of familiarity, residents experienced a less high threshold for making contact with their fellow residents. Van Ulden et al. (2015) also concluded that residents with a higher feeling of familiarity felt more safe and at home in the community.

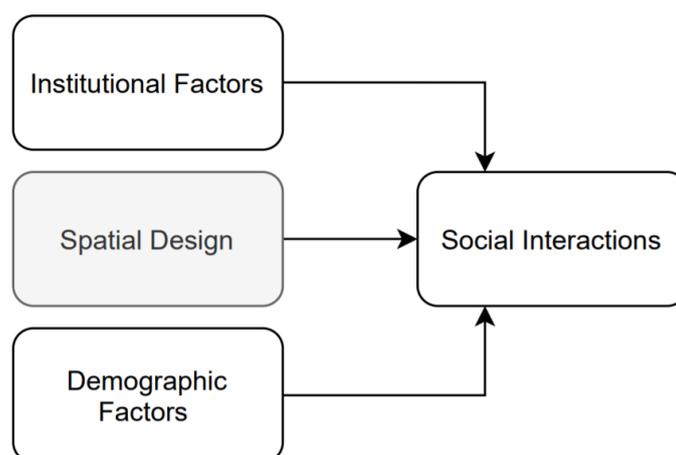
The figure 3 sums up the different types of contacts and the relationship with the continuum of sense of community. It is expected that residents who experience positive social interactions within their community will experience a higher sense of community. For it is known by a study of Kim and Kaplan (2004) that positive social interactions foster sense of community. On the contrary, it is expected that residents who predominantly experience negative social interactions will experience a lower sense of community. This expectation is based on the work of Fonseca et al. (2019) who argue that social conflicts disable the development of group cohesiveness.



*Figure 3: Different types of social interactions related to the continuum of Sense of community (Own Source)*

## 2.6 Stimulating social interactions

In this study, *social interactions* are considered the main driver for stimulating *sense of community*. *Social interactions* serve as mediating variable between *spatial design* and *sense of community*. In this study spatial design is central, however, besides spatial design, demographic and institutional factors also facilitate social interaction (Figure 4). In order to solely study the impact of spatial design on sense of community I need to eliminate the influence of these factors, therefore this section is devoted to understand the mechanisms of demographic and institutional factors. The institutional factors and the demographic factors respectively shed light on the impact of temporal (student) housing on social interactions, and on social interactions between different social groups (non-students and students).



*Figure 4: Factors that stimulate social interaction. The focus in this research is on Spatial Design (Own Source)*

### 2.6.1 Institutional factors

Chavis et al. (1986) state that length of residence positively affects sense of community. More specific, Chavis et al. (1986) found that an individual's predictions to move to another place in the future is more influential than the actual length of residence (Chavis et al., 1986). Their explanation is that residents that have lived for a long time at a specific location have had the time to build intensive relationships with fellow residents within their neighborhood. Guest et al. (2006) found that the development of social ties is dependent on the housing turnover; it appears that residential stability is favorable situation to enhance social contacts between residents.

However, these findings raise questions about equality between homeowners and renters in neighborhoods. Following the line of reasoning of Chavis et al. (1986), then residents in a neighborhood with a lot of homeownership are more likely to build a strong sense of community than residents in a neighborhood with a lot of renting units. For renters it might be uncertain whether they can stay or not and they might be hesitant to invest in relationships with their neighbors. This might be specifically the case for students who often live for a short amount of time in their temporal houses (Sage et al., 2012).

### 2.6.2 Demographic factors

Mixing social groups is an often used policy measure in order to stimulate mutual benefits (Bolt et al., 2010). For example, weak ties may develop into strong ties, which results in more trust between fellow-residents (Putnam, 2000). However, the policy measures of social mixing in neighborhood have been repeatedly criticized by researchers (Blokland & Van Eijk, 2010; Van Eijk, 2012). Blokland and Van Eijk (2010) found that *'living in the proximity of other income groups is in itself insufficient to overcome differences in social networks'* (p.313). An explanation is provided by the social identification theory of De Swaan (1995). According to De Swaan (1995; p.25) is social identification *'a process in which people come to feel that some other human beings are much 'the same' as they are and still others are more 'unlike' them. [...] The perceived similarities and differences provide a basis for affective involvement or detachment'*. This theory explains, for example, why residents from different age groups are less likely to interact with each other than residents within the same age group. The social identification theory can also be used to explain why student and non-student residents in a community do not interact with each other (often).

Munro et al. (2009) and Griffin & Holt (2005) argue that social activities primarily take place *between* students. Others (non-students) are seen as *'outsiders'*. Aalbers (2010) argues that students tend to withdraw from the community they live in; they tend to isolate themselves. This type of behavior of students decreases the potential of social interactions between them and their neighbors. Furthermore, Aalbers (2010) argues students and non-students have a hesitant attitude towards engaging in social contact with each other.

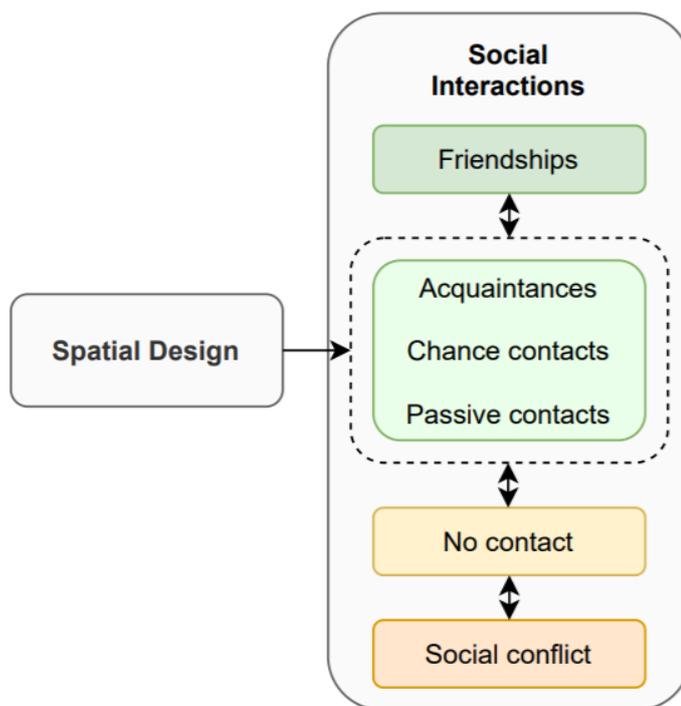
Student and non-student residents tend to live separate lives and do not have (much) contact with each other (Hubbard, 2009). Therefore, due to a lack of interaction, sense of community is then hard to establish. The social identification theory can also explain why research results of the influence of gender, age and level of education on social interactions are ambiguous (Glynn, 1981; Robinson & Wilkinson, 1995; Skjaeveland & Gärling, 1997; Prezza & Constantini, 1998; Obst et al., 2002).

### 2.6.3 Spatial design factors

There is an extensive body of literature on spatial design elements that affect the behavior of individuals (Gehl, 2010; 2011). The object of study in these studies varied from public spaces, such as parks and shopping streets (Whyte, 1980; Tonkiss, 2014) and residential streets (Gehl 2010). Gehl (2011) performed his study about the impact of design principles in the city center of Copenhagen, however, he also did some case studies in residential areas. For example, Jan Gehl (2011) distinguished

principles for the physical environment that may promote or prevent (indirect) contact between strangers. According to Gehl (2010;2011) spatial design elements that *integrate, assemble, open up* or *invite* are necessary to create lively social environments. It appears that the four design indicators are applicable for residential areas as well as shopping streets in the center of Copenhagen.

Furthermore, the studies of Jan Gehl (2011) show that spatial design specially impacts the low intensity contacts, rather than high-intensity contacts (See figure 5). Passive and chance contacts are most likely to be encouraged by spatial design. These low intensity contacts stimulate the familiarity within the neighborhood.



*Figure 5: Spatial design mainly stimulates low-intensity contacts (Own Source)*

## 2.7. Design principles

In 1961, Jane Jacobs argued that places should strive for diversity in terms of population, functions and architecture since they contribute to the development of lively places. Jacobs states (1961) that diversity will enhance liveliness, creativity, safety and social interaction. In addition, she recommends spaces with a high density of buildings and populations to enhance contact between people. At a macro level, indicators such as *diversity of functions* can be important, but at the scale level of the housing block more concrete design principles are needed. Therefore, the next sections discuss design principles that stimulate social interaction between members of a community. I will shed light on the design principles of *semi-private spaces* and *heights*.

### 2.7.1. Semi-private spaces

A community consists of private and public spaces. However, the dichotomy between public and private spaces does not have harsh boundaries. The spaces in between public and private spaces are called semi-private spaces, and they may include gardens, verandas, etc. (Van Ulden et al., 2015). Over the years, researchers have given semi-private spaces different names. For example, Oscar Newman (1996) refers to it as *defensible spaces* and Gehl (1986) calls the transition between public and private spaces *soft edges*. According to Gehl (1986) soft edges are spatial solutions to create vibrant communities as they serve as meeting places for residents.

### 2.7.1.1 Semi-private spaces and social interactions

In 2005, Williams found that transitions between the public and private realm are beneficial for stimulating contact between residents. In 2015, Van Ulden et al. (2015) studied the role of semi-private spaces on social interactions and they found that individuals living in neighborhoods with a great amount of semi-private spaces had more contact with fellow residents than individuals living in neighborhoods with no semi-private spaces. Below various mechanisms are discussed why semi-private spaces play a role in facilitating social interactions between residents.

First, semi-private spaces are places of *opportunity*, since these spaces offer a variety of different types of contact, including no contact. The individual is given the opportunity without taking away his or her autonomy to choose to withdraw from or to engage in conversations (Gehl, 1986). On the one hand, semi-private spaces offer individuals the opportunity to engage in informal contacts, such as chattering (Gehl, 2010). On the other hand, semi-private spaces offer the opportunity to host formal contacts such as 'neighborhood parties' or barbecues (Williams, 2005). This implies that a semi-private space has a 'casual' character: when an individual is not interested in interactions (casual or formal), there is also the possibility of retreating from the social realm. Thus, semi-private spaces offer a '*balance between people's determination to have essential privacy and their simultaneous wishes for differing degrees of contact*' (Jacobs, 1961, p.59).

Secondly, semi-private spaces serve as a protection as they '*can protect residents from over exposure to the community, which (e.g. over exposure) may lead to withdrawal and reduction in social interaction*' (Williams, 2005 p.198). Semi-private spaces provide individuals a choice to participate in or to retreat from conversations with fellow residents by guaranteeing privacy and territorial control (Skjaeveland et al., 1996). Van Dorst (2005) relates the protective nature of semi-private spaces to the '*prospect refuge theory*' of Appleton (1975). From an evolutionary perspective, Appleton (1975) studied locations that individuals naturally prefer to meet other individuals. Appleton (ibid.) found that individuals prefer to observe other individuals on the edges of open spaces. Van Dorst (2005) translates this theory to an urban environment. He argues that residents need a safe place where they can observe their (social) environment in order to interact with other residents. Van Dorst (2005) states that semi-private spaces are places that fit Appleton's (1975) criteria: residents can stay on their own property and can easily make contact with people passing by if they want to.

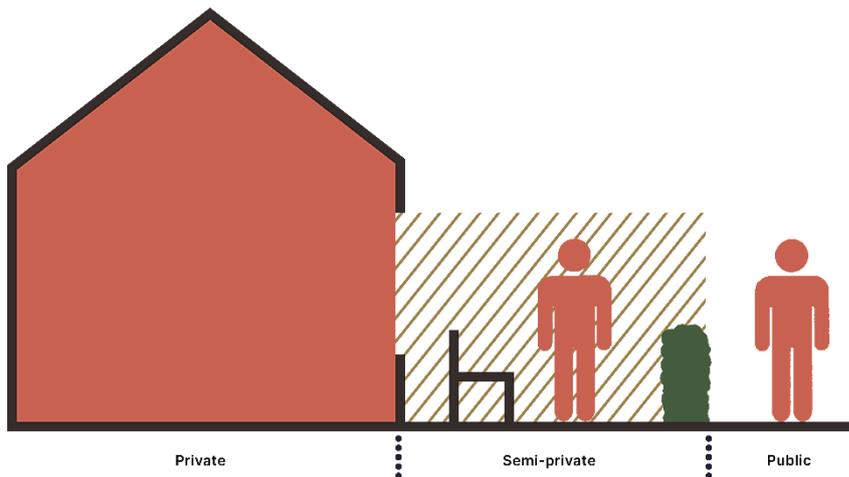
Finally, Van Ulden et al. (2015) found a relationship between semi-private spaces and the nature and quality of contacts: they found that semi-private spaces serve as a stepping stone towards high(er)-intensity and meaningful contacts. Contacts taking place in semi-private spaces are often characterized as '*anonymous*' Kearns et al. (2012). At first sight, two individuals greeting each other seems superficial, however, Van Ulden et al. (2015) demonstrate that through repetition of contact meaningful relationships can develop. They state that on the long term, these contacts contribute to an enhanced sense of community.

### 2.7.1.2 Successful designs of semi-private spaces

In the previous section the semi-private spaces has been praised for its potential to stimulate social interactions. However, Van Ulden et al. (2015) found that the potential to facilitate social interactions differed per semi-private space. At least, two factors explain this relationship. The first factor is *human behavior*; individuals use the semi-private space in a way that reduces the likelihood of social contact. The second factor is *spatial design*, the semi-private space can be arranged in such a way that it hampers the potential to facilitate social contact. These two mechanisms are not mutually exclusive. Below, I explain theories about successful spatial designs of semi-private spaces to stimulate interactions. They also show how spatial design can affect human behavior.

First, Van Ulden et al. (2005) found that interactions between residents predominantly take place in semi-private spaces with a clear demarcation. Examples of clear demarcations are low fences

and hedges between the sidewalk and the front yard (see figure 6).

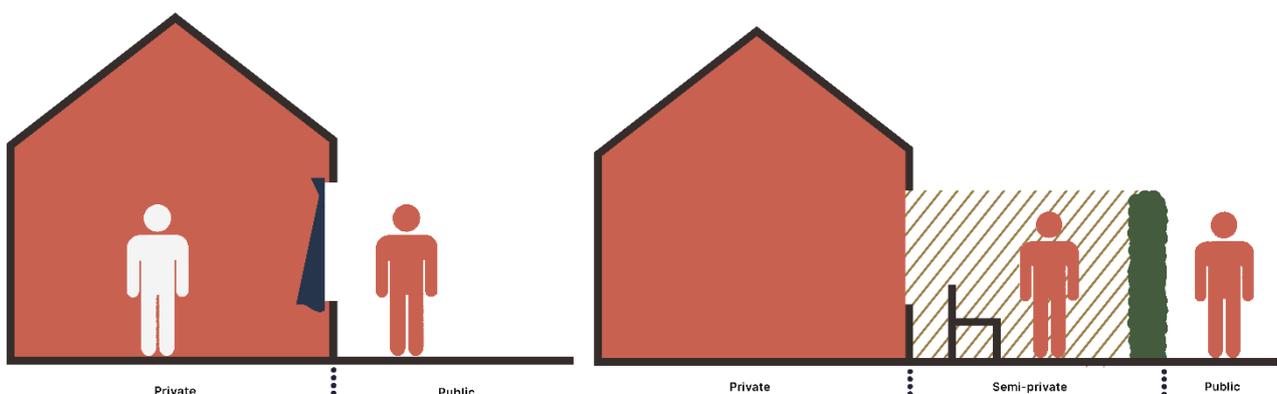


**Figure 6:** example of a clearly demarcated semi-private space (Own Source based on work of Van Ulden et al. 2015)

A clear demarcation serves to enhance feelings of security: ‘a clear demarcation strengthens natural surveillance and helps inhabitants know which people are outsiders’ (Chen, 2006 : p.32). Visitors who have no reason to be in the semi-private space will not easily enter because they might feel out of place (Van Ulden et al., 2015; Duyvendak, 2017). Furthermore, a clear demarcation also contributes to feelings of ownership. As a result, individuals may place personal items in the semi-private space. These personal expressions can lead to more community attachment (Van Ulden et al., 2015).

Secondly, Van Ulden et al. (2005) found that semi-private spaces positioned at the south or the west are more used than semi-private spaces positioned at the north or the east as individuals prefer to sit in the sun. An increased use of semi-private spaces, for example by sitting in the sun, stimulates passive contacts and it increases the potential to meet or interact with fellow residents.

Finally, the size of a semi-private space matters. On the one hand, individuals experience a lack of privacy when the semi-private space is too small. As a result, individuals tend to close the curtains (see figure 7) which blocks sight lines from inside the home to the public realm. On the other hand, individuals tend to place large fences or hedges around their front yard when the semi-private space is too large (Van Ulden et al. 2015) (see figure 8). In both cases, the semi-private spaces lose their function as a meeting place since low-intensity contacts cannot take place.



**Figure 7 (left) & figure 8 (right):** show the effect of different layouts (too small and too large) of semi-private spaces on human behavior

### *2.7.1.3 Semi-private spaces and different types of housing*

Van Ulden et al. (2005) have conducted several case studies on semi-private spaces in different types of housing (terraced houses and portico flats). They found, for example, that individuals living in terraced houses placed more personal belongings in the semi-private space than individuals living in a portico flat. An explanation is that feelings of ownership are less pronounced in semi-private spaces in portico flats: the ownership of the space inside portico flats is more diffuse.

### *2.7.1.4 Time and (semi-private) spaces*

Gehl (2011) argues that social life is not a function of the amount of people on the streets, it is rather a function of the time that people spend on streets. Gehl revealed in his street life studies in Melbourne (1980) that the more time people spend outdoors, the more frequently they meet and the more they talk. However, for people to spend a longer time in their community it is necessary that the quality of the physical residential environment is appealing and inviting. Gehl's (2011) theory on time and the likelihood for social interactions in public spaces can be translated to the spatial domain of semi-private spaces. The potential of interactions increases as residents spend more time in the semi-private space since they can (unintentionally) meet fellow street or flat members.

## *2.7.2. Heights*

### *2.7.2.1 High rise buildings and social interactions*

This study focusses on three types of housing; terraced houses, a gallery flat and a portico flat. Two of these housing types are multi-story buildings. This section elaborates on the relationship between heights and social interactions between flat members.

First, one major point of critique on multistory buildings by Gehl (2010) is that the human scale in the design is lost. He explains that individuals will lose connection with the street when they live on the fourth floor or above. As explained in section 2.5, residents who see and hear others using the spaces outside their home greatly influences their sense of community (Van Ulden et al., 2015). However, because of the large distances conversations cannot be heard and facial expressions cannot be seen properly (Gehl, 2010).

Secondly, Abu-Gazze (1997, p.63) explains that for residents on top floors *'it is too bothersome to come down and go out into public areas to join in'*. Especially, when only stairs are present in the complex and there is no elevator. Gehl (2011) supplements this line of reasoning of Abu-Gazze (1997). The likelihood of an individual leaving the house decreases as the passage through the flat takes long or difficult (Gehl, 1986; Morville, 1969). Thus, Gehl (2011) and Abu-Gazze (1997) argue that heights can negatively affect social interactions. However, Gehl (2011) also argues that regardless the floor people live on, they will move through the building. He argues that heights can have a positive effect on social interactions since it forces residents to move a considerable amount of time through the building to get in or to get out. This way, the potential to meet other residents will increase.

Third, the negative consequences of living on upper floors on social interaction are well pronounced in the literature, there are less implications for those who live on lower floors (Williams, 2005). In addition, living next to the stairwells also promotes social interaction (Homans, 1968). Baum and Valins (1977) found that residents who live close to the stairwells socialized more with neighbors from upper and lower floors than residents who live further away from the stairs.

The above three mechanisms mainly show the influence of vertical relationships in flats: it is about residents living on different floors. The following mechanism of Baum and Valins (1977) discusses a horizontal relationship: the influence of residents living on the same floor. Baum and Valins (1977) discovered that the location of the home on the floor matters for social interaction. Residents who live in the center of the floor socialize more with their direct neighbors than others.

Finally, related to heights, the high density of people in high-rise dwellings impacts social interactions. For example, Kearns et al. (2012) found that residents felt anonymous and unsafe because they did not know the people living in the high rise building. These feelings negatively affected contacts with fellow residents.

#### *2.7.2.2 Low rise buildings and social interactions*

The impact of low rise buildings on social interactions seems to be ambiguous. According to Van Ulden et al. (2015) residents in low rise buildings can wave or nod to people passing by their homes. Repetitive greetings and small interactions may eventually result in meaningful contacts. However, when residents experience lack of privacy in their home they tend to close the curtains for the windows which prevents passive contacts from taking place (Van Ulden et al., 2015). A lack of privacy is often experienced when there is a harsh boundary between the own property and the sidewalk. People passing by can directly lure into the houses, and this can make residents uncomfortable. Therefore, Jan Gehl (2010) and Van Ulden et al. (2015) propose to have a subtle transition between the public and the private realm.

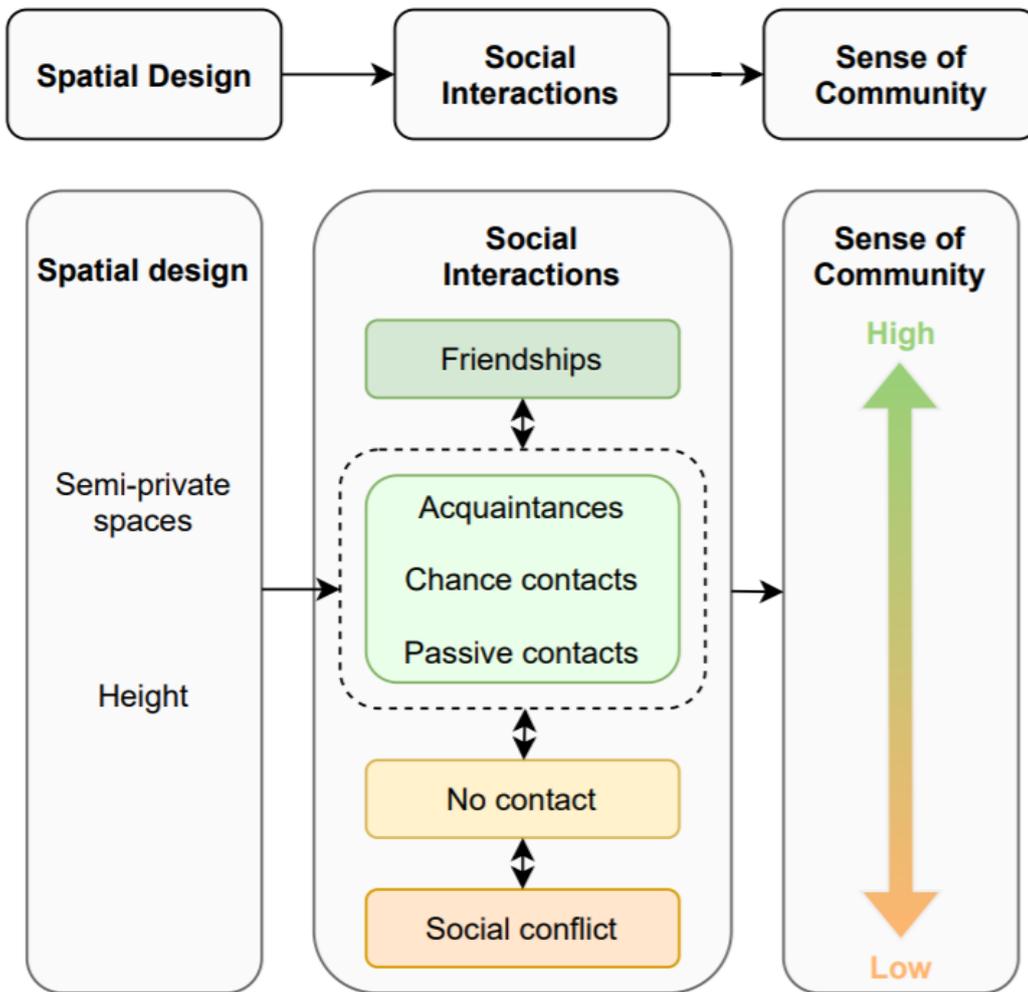
### **2.8 Conceptual model**

In the conceptual framework (Figure 9), theory on the concept of Sense of community is combined with theory on social interactions and spatial design. The conceptual framework shows how these concepts are related to each other.

The first component in the conceptual model is the spatial design; semi-private spaces and heights are the spatial design elements at study. Amongst others, Van Ulden et al. (2015), Williams (2005), and Gehl (2010; 2011) confirmed that semi private spaces and height can stimulate social interactions.

The arrow from the *spatial design* rectangle points to the low-intensity contacts in the rectangle of *social interactions* since Gehl (2011) showed that spatial design mainly impacts low-intensity contacts (Gehl, 2011). The colors of the types of social interactions illustrate, whether these contacts are experienced in a positive or negative way. On the one hand, *friendships* and *social conflicts* and predominantly experienced as positive and negative contacts (green is positive, orange is negative). On the other hand, the low intensity contacts (*acquaintances*, *chance contacts* and *passive contacts*) as well as no contact, can both be experienced in a positive and a negative manner. The arrows between the different types of contact illustrate that contacts can develop into higher or lower intensity contacts over time as has been suggested by Gehl (2010). A change on the scale of different types of contact, may also impact a resident's sense of community.

The red-green arrow illustrates a continuum of sense of community from high to low. On the one hand, it is assumed that high intensity positive social interactions have positively affect a resident's sense of community. On the other hand, it is assumed that social conflicts negatively affect a resident's sense of community. Finally, it is assumed that the impact of no contact and low-intensity contacts on sense of community depends on how residents experience these types of contact.



*Figure 9: the conceptual model showing the relations between spatial design, social interactions and sense of community*

# Chapter 3

## *Methodology*

### 3. Methodology

#### 3.1 Research strategy

The main question and the research objective were considered when determining a research strategy and data collection techniques. The objective of this research is to unravel the impact of residential spatial design on sense of community among students and non-students. The objective of the research fits with the research strategy of a *case study* since a case study allowed me to investigate the topic in detail. More specifically, this research is a *comparative case study* since different types of residential design are compared with each other. Furthermore, this study is a *multiple-case study* since three cases are compared with each other. The three cases that have been selected are; terraced houses (Opaalstraat and Barnsteenstraat), a potico flat (Kornalijnlaan) and a gallery flat (Parelstraat) in the neighborhood of Vinkhuizen. More detail about the selection of the cases is provided in the section 3.6.

#### 3.2. Data collection

This research studies the impact of spatial design, which includes both qualitative elements such as experiences of residents, and quantitative, statistical elements such as differences between, for example, students and non-students. Mixed methods were used to approach both the quantitative and the qualitative elements in this empirical study: in-depth semi-structured interviews, surveys, and observations. In addition, different methods have been applied because Yin (2013) argues that using mixed methods increases the (internal) validity of the study. Figure 10 shows how the different methods are related to the conceptual model: for each theme (*spatial design, social interaction and sense of community*) a specific research method has been chosen. In the sections below I describe why these methods have been chosen and how they have been applied.

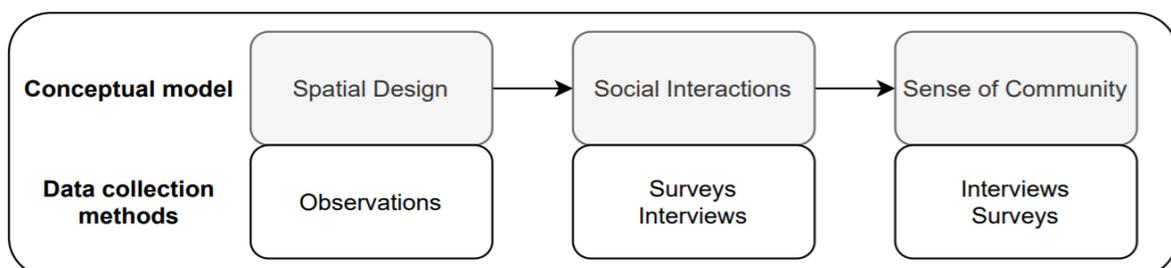


Figure 10: Data collection methods linked to the main concepts in the conceptual model

##### 3.2.1. Observations

The aim of the observations was to map all relevant spatial design principles (*semi-private spaces and heights*) of the three types of housing. These observations were the foundation of the spatial analysis (see section 4.1). The observations were *not* aimed at identifying spatial patterns in resident's behavior, such as the use of the space. As such, the observations were not subject to *observation influence* since, on the contrary to humans, spatial design cannot change its behavior due to the presence of the observer (Qaddo, 2019). Before the observations took place I made an observation checklist (see Appendix B). I also took photographs to illustrate my observations. The observations took place on 14<sup>th</sup>, 16<sup>th</sup> and the 20<sup>th</sup> of October.

Predominantly exterior semi-private spaces and heights were observed. As an outsider, I could not move freely through the housing blocks to observe semi-private spaces *inside* the flats. Therefore, I contacted housing association *Patrimonium* to get insights in the interior design of the houses. It resulted in floor plans and construction drawings of the houses.

### 3.2.2. Surveys

This study contains quantitative aspects, for example this study aims to determine differences between three types of housing in social interactions and sense of community. A research method to measure these differences are surveys (De Vaus & De Vaus, 2013). Therefore, surveys have been chosen as a research method in order to measure whether there are differences in terms of perceived sense of community and social interactions between neighbors in the three different housing types (see appendix C). Before handing out the survey, a pilot survey was handed out to friends and family in order to check that respondents could understand the survey. After the pilot, several questions have been erased or altered in order to improve the understandability.

In total, 395 notes with a link to the survey were handed out and in total 121 respondents filled in the survey. The surveys were handed out in a time frame from 14<sup>th</sup> October 2020 to the 22<sup>th</sup> of November, 2020. Table 1 opens the discussion about the representativeness of the sample. Two issues specifically stand out about the sample of the gallery flat. First, more women (45) than men (27) completed the survey. However, the expectation for the population of residents of the gallery flat was that the ratio between men and women would be more equal. Second, few pensioners (1) completed the survey and many students (44). This is also reflected in a low age average. This ratio is not representative of the population of residents in the gallery flat, as conversations with employees of *Patrimonium* revealed that besides students also elderly live in the flat. The samples of the portico apartment and the terraced houses seem to reflect the population.

|             |                          | Gallery flat | Portico flat | Terraced houses | Total |
|-------------|--------------------------|--------------|--------------|-----------------|-------|
| Gender      | Men                      | 27           | 8            | 16              | 51    |
|             | Women                    | 45           | 6            | 18              | 69    |
|             | Prefered not to disclose | 0            | 0            | 1               | 1     |
| Occupation  | Student                  | 44           | 5            | 16              | 65    |
|             | Working                  | 23           | 6            | 13              | 42    |
|             | Living on benefits       | 4            | 2            | 1               | 7     |
|             | Retired                  | 1            | 1            | 4               | 6     |
| Average age |                          | 26,01        | 33,38        | 38,38           | 30,35 |

*Table 1: descriptive overview of the respondents*

The surveys were distributed in several ways. First, a note with a QR code that lead to the survey was put in the mailboxes of all the residents in the gallery flat, the portico flat and the terraced houses. Second, a facebook message to motivate residents to fill in the survey was sent to the Facebook Grouppage of the Pareflat. Unfortunately, there were no Facebook groups for the housing complexes at the Opaalstraat, Barnsteenstraat and Kornalijnlaan. Third, I approached my friends who live in the housing blocks to complete the survey.

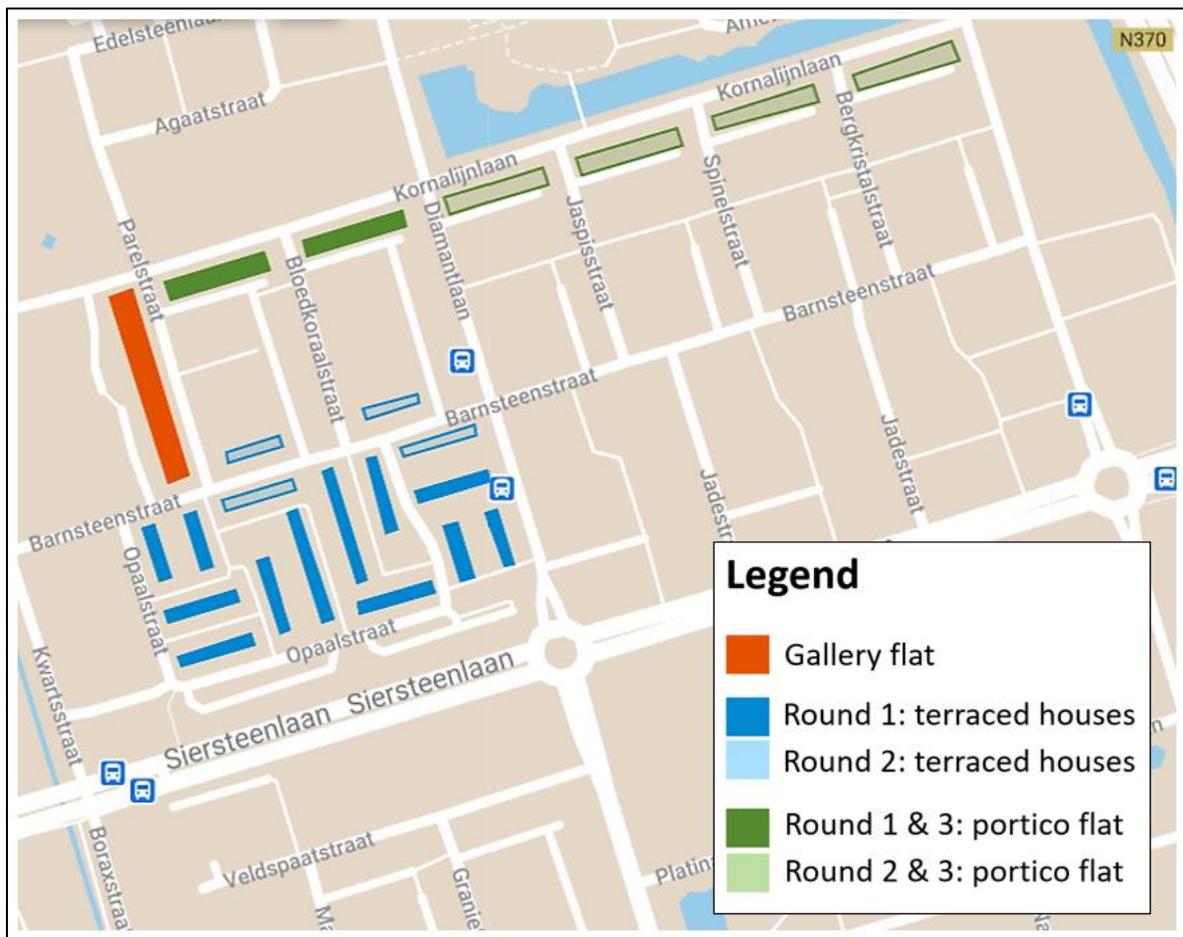
Compared to the response rates of the gallery flat and the terraced houses, the response rate of the portico flat is low. I have tried to increase the number of respondents in this group by collecting data in three different rounds (see table 2).

| Type of housing | Round(s) of gathering data   | Responses |
|-----------------|--|-----------|
| Portico flat    | <b>Round 1</b><br>48 notes with a link to the survey were handed out at two complexes on the Kornalijnlaan   | 11        |
|                 | <b>Round 2</b><br>96 additional notes with a link to the survey were handed out at four other complexes on the Kornalijnlaan   | 3         |
|                 | <b>Round 3</b><br>144 notes with a link to the survey were handed out to the portico flats in round 1 and round 2. This time, the link that directed the respondent to the survey was less complex.                | 0         |
|                 | <b>Total</b>   | <b>14</b> |
| Terraced houses | <b>Round 1</b><br>96 notes with a link to the survey were handed out to households living in one of the housing blocks on the Opaalstraat  | 26        |
|                 | <b>Round 2</b><br>28 additional notes with a link to the survey were handed out to households living in one of the housing blocks on the Barnsteenstraat.  | 9         |
|                 | <b>Total</b>   | <b>35</b> |
| Galery flat     | <b>Round 1</b><br>127 notes with a link to the survey were handed out to households living in the gallery flat on the Parelstraat. At the same day, a link to the survey was put on the Facebookgroup of the flat. | 72        |
|                 | <b>Total</b>   | <b>72</b> |

*Table 2: overview of different round in data collection*

In the first round, on 14<sup>th</sup> October 2020, notes with a QR code and a link to the survey were put through the mailboxes of 48 addresses on the Kornalijnlaan. This resulted in a total of 11 responses. In order to increase the number of responses, I looked at other portico flats in Vinkhuizen with a similar spatial design. The portico flats in the continuation of Kornalijnlaan were then selected (see map 2). In the second round, on the 20<sup>th</sup> of October, the same notes were sent through the mailboxes of 96 households and that resulted in 3 extra responses. In the third round, on the 22<sup>th</sup> of November 2020, I created a new and more manageable link for the survey. This new link has again been distributed among the residents of both portico flats on the Kornalijnlaan. That resulted in 0 extra responses. This is remarkable, however, an explanation is that residents were survey-tired as they already had received a note with a call to fill in the survey.

Compared to the number of responses of the gallery flat, the number of responses in the group of terraced houses is also relatively low. Two rounds of collecting data took place for this group. In the first round on the 14<sup>th</sup> of October 2020, 96 addresses on Opaalstraat were approached. That resulted in 26 responses. In the second round, 28 houses were approached on the Barnsteenstraat. These houses have exactly the same spatial design as the houses on Opaalstraat. These portico flats are also part of the housing stock of housing corporation Patrimonium. These addresses were approached on the 28<sup>th</sup> of October and resulted 9 responses.



**Map 2:** visualization of the different data collection rounds

### 3.2.3. Semi-structured interviews

In addition to the quantitative elements, this study also includes qualitative elements, for example how residents experience sense of community and local social contacts. In this study, the choice was made to approach these experiences and perceptions through interviews. Interviews are in line with the aim of this study: to obtain rich and detailed information about a theme, namely sense of community and experiences with local contacts. There are different types of interviews, but for this study, semi-structured interviews have been chosen. This type of interview allows the researcher to keep asking questions about topics that come up during interview and so Dearnley (2005) argues that more detailed information can emerge.

In this study semi-structured interviews were used, therefore an interview strategy was set up instead of rigid pre-defined questions. The interview strategy is particularly aimed at understanding the participant's sense of community. The interview strategy is explained in Appendix D. The interviews

were conducted from the 20<sup>th</sup> of October 2020 till the 6<sup>th</sup> of November 2020 and took 30 till 90 minutes each. Consent to use the interviews for this research was gained from all participants. In total, 13 semi-structured interviews were conducted; seven interviews have been conducted with students and six interviews have been conducted with non-student residents (see table 3).

Two groups can be distinguished from all the recruited participants. The first group was approached for an interview because they gave me their email address or telephone number in one of the questions in the survey (see appendix C question 14). After conducting the interview the snowballing method was used: the participant was asked whether he or she knew neighbors that were willing to cooperate in a semi-structured interview. The second group of participants were approached by me personally, because I was acquainted with them. This might raise questions about the validity of this study, since the second group might have given me socially accepted answers during the interview. I specifically addressed to the participants that were acquainted with me that there were no 'right' or 'wrong' answers and that their honesty would help me the most in my research. However, the potentially socially accepted answers of the acquainted participants might have compromised the internal validity of the interviews.

The transferability of the interviews is explained on the basis of the data in table 3. On the one hand, I spoke with students in different life-stages: I spoke with students who just started their studies and students who almost finished their studies. I also spoke with students in every type of housing. I would argue that the conclusions drawn of the interviews with the students could be transferred to the population of students. On the other hand, with the exception of participant 1, I only spoke with non-student residents with an age of 56 or above. I have not spoken with non-student residents with an age between 30 and 50. Their experiences with social interactions and sense of community may differ from the other non-student residents. Moreover, I have not spoken with any non-student residents in a portico flat. Therefore, I would argue that the transferability of the interviews with the non-students residents is lower than the interviews with the students.

| Referred to as:      | Type of housing of the interviewee | Gender | Age | Occupation | Recruited through                      | Interview online or live |
|----------------------|------------------------------------|--------|-----|------------|--|--------------------------|
| <b>Participant 1</b> | Gallery flat                       | Female | 26  | Working    | In response to email address in survey | Online                   |
| <b>Participant 2</b> | Gallery flat                       | Male   | 27  | Student    | Acquainted with me                     | Live                     |
| <b>Participant 3</b> | Gallery flat                       | Female | 22  | Student    | In response to email address in survey | Online                   |
| <b>Participant 4</b> | Portico flat                       | Female | 19  | Student    | In response to email address in survey | Online                   |
| <b>Participant 5</b> | Portico flat                       | Female | 20  | Student    | In response to email address in survey | Online                   |
| <b>Participant 6</b> | Portico Flat                       | Female | 21  | Student    | In response to email address in survey | Online                   |
| <b>Participant 7</b> | Terraced house                     | Female | 56  | Working    | In response to phone number in survey  | Online                   |

|                       |                |        |    |         |  |        |
|-----------------------|----------------|--------|----|---------|--|--------|
| <b>Participant 8</b>  | Terraced house | Female | 59 | Working | In response to phone number in survey  | Online |
| <b>Participant 9</b>  | Terraced house | Male   | 62 | Retired | In response to phone number in survey  | Online |
| <b>Participant 10</b> | Terraced house | Female | 81 | Retired | Snowballing method                     | Online |
| <b>Participant 11</b> | Terraced house | Male   | 83 | Retired | Snowballing method                     | Online |
| <b>Participant 12</b> | Terraced house | Male   | 24 | Student | Acquainted with me                     | Live   |
| <b>Participant 13</b> | Terraced house | Female | 25 | Student | In response to email address in survey | Live   |

**Table 3:** descriptive overview of the interviews

### 3.3. Data analysis

#### 3.3.1. Surveys

The data on sense of community and social interactions were all measured on an ordinal scale: the survey contained statements with five answer categories: *strongly disagree* to *strongly agree* (see Appendix C). To facilitate the data analysis, the five categories have been reduced to three categories: *disagree*, *neutral* and *agree*. The amount of response in the categories of *strongly disagree* and *strongly agree* were too small to properly compare these different categories.

Nonparametric tests have been chosen to analyze the data. Analyzing the data via a parametric test was not possible as I would have violated its conditions. I measured the data on an ordinal scale and therefore it was not possible to compare means, it was however, possible to compare mean ranks. Furthermore, the sample was not normally distributed and the sample was too small. Therefore, non-parametric tests have been chosen. More specific, I used the Kruskal-Wallis H test and the Mann Whitney U test.

In this study, I wanted to determine if there were significant differences between three groups (terraced houses, portico flats, gallery flats). For example, I wanted to understand differences between the three housing types and sense of community and social interactions. Therefore, I used the Kruskal-Wallis H test since this test allowed me to determine differences between more than two groups. However, the Kruskal-Wallis H test could not explain which housing types statistically differed from each other; it only shows that at least two groups differed from each other (Leard Statistics, 2018). Therefore, the Mann Whitney U test was used as a post-hoc test. The Mann-Whitney U test was used to compare differences between two types housing.

The Kruskal Wallis H test and the Mann Whitney U test have also been used to test differences in sense of community and social interactions between student and non-student residents. However, I want to address a potential threat to the external validity of the data of the surveys: there might be another competing independent variable to explain differences in sense of community and social interactions between student and non-student residents, namely the variable of different personalities. This extraneous variable may be competing with other variables to explain differences in social interactions and sense of community.

#### 3.3.2. Semi-structured interviews

The interviews were all manually transcribed in the software program of Word. To unravel participant's sense of community and experiences with social interactions a content analysis and a narrative analysis

was performed. A content analysis of the interviews has been chosen since this method helped me to unravel patterns, similarities and differences *within* and *between* the interviews (Drisko & Maschi, 2016). A narrative analysis has been chosen since this method helps me to interpret experiences and stories (Smith, 2016). Coding was used as a strategy to analyze the content and the narrative of the interviews. Both inductive and deductive codes have been used since Silver and Lewins (2014) argue that using both type of codes will make the analysis more robust: it uses the strengths of both coding types while easing their weaknesses. First, using a deductive coding system, codes were generated based upon the theoretical framework. Secondly, the first two transcribed interviews were used to develop more inductive codes. The codebook with deductive pre-defined codes were supplemented with inductive codes. The code trees in Appendix D show that hierarchical codes are used in this study. A hierarchical coding system has been chosen over a flat coding system since a hierarchical coding system helped me to organize and order different topics in the interview (Allen, 2017).

### **3.4. Consequences of COVID-19**

The corona virus has a major impact on our society. In The Netherlands, people are instructed to stay at home and to avoid social contact. These measures have had three effects on this research. First, The pandemic has changed people's daily lives: residents stay at home more often and if they want to go outside, they often stay in the local community. These changes also have two *possible* consequences for the social environment in the neighborhood. First, residents of a community see each other more than in the 'standard' situation, because they spend more time in the local community. Second, residents of a community see each other less than in the 'standard' situation, because they stay at home a lot. It is also possible that these two situations coexist. This research is also about the social environment of communities, it is therefore necessary to realize that the results of my survey are a snapshot of how residents appreciate their social interactions in a time of a health crisis. To get a complete picture of the social environment in and around the three blocks of houses, this research must be repeated during or once the pandemic is over. Secondly, it was not possible to distribute the survey from door-to-door. This is a method with often a high response rate (Clifford et al., 2016). However, due to the measures taken by the government, this distribution method was not entirely responsible. That is why many different distribution methods have been chosen, in order to still achieve a high response rate. Finally, although a number of interviews were conducted "live" (3), the majority of the interviews were conducted online (10). Facial expressions and body language are more difficult to capture on a screen. It was also sometimes difficult to understand each other during the interview, my or the participant's internet connection was unstable.

### **3.5. Ethical considerations**

During this research I carefully considered every step in the project. I respected the Dutch code of conduct for research integrity in the following ways. The first is informed consent (Dowling, 2016). Before conducting the interviews, I explained the goal and a brief summary of the research to the participants. I explained that participating is voluntary and that they could withdraw without any reason at any moment during the interview. I also asked whether I could record the interview, and I explained how I would take care of their (personal) data. Then, the participant filled in an informed consent form, however, due to the fact that ten interviews were conducted 'online', I got their permission verbally. The transcribed interviews and the recordings were stored in a password protected folder on my laptop. Only I had access to this folder. The recordings, the transcriptions and the personal data, such as email addresses and phone numbers will be deleted when the research is graded and finished.

### 3.6 Case selection

This study is about the impact of different types of residential spatial design on sense of community, and it takes differences between student and non-student residents into account. In order to study this mixed population of students and non-students, I decided to do my research in the city of Groningen. This city has been chosen since it has the highest percentage of students compared to all other Dutch cities (Groningen, 2020): 25% of the population in Groningen consists of students.

In section 2.6, I described that besides spatial design also institutional and demographic factors can influence social interactions. In order to solely study the impact of residential spatial design I had to attenuate the influence of demographic and institutional factors. With the intention to limit the effect of the institutional factors, I chose to compare three types of housing that were owned by the same housing association. I called several housing associations to find out whether they had a portico flat, gallery flat and terraced houses in their housing stock which were also inhabited student and non-student residents. Housing corporation *Patrimonium* had these three types of housing in their housing stock, all in one neighborhood, namely Vinkhuizen. They even had multiple gallery flats in their housing stock but, with the exception of the gallery flat on the Parelstraat, they did not meet the condition with regard to a mixed population. These gallery flats were mainly intended for students and this study examines a mixed population of students and non-students. Therefore, the gallery flat at the Parelstraat, the portico flat at the Kornalijnlaan and the terraced houses at the Opaalstraat and the Barnsteenstraat were selected since they aligned with the criteria for this research (see map 1):

- The different types of housing must be inhabited by student as well as non-student residents;
- The institutional aspects must be comparable for each housing block;
- The demographic aspects must be comparable for each housing block;
- The spatial design and architecture of the housing blocks must differ.

The external validity of this case study raises some questions. On the one hand, I would argue that the results of this study are difficult to generalize because this study investigated a specific case: the impact of residential spatial design on sense of community in studentified neighborhood. On the other hand, the former statement needs to be nuanced, since I would also argue that differences in social contact and sense of community between the three housing types are found under comparable circumstances: the institutional and the demographic setting in the three types of housing were comparable while the spatial design of the three types of housing differed. I would therefore argue that this study shows some general principles that could be generalized for gallery flats, portico flats, and terraced houses with a mixed population of student and non-student residents.

### 3.7 Case description

Vinkhuizen is a neighborhood located on the west side of the city of Groningen. The neighborhood was built at the end of the sixties (Patrimonium, n.d). The appearance of the district is mainly determined by straight streets with terraced houses and many apartments in portico and gallery flats. In Vinkhuizen, there are more rental properties than owner-occupied homes, with the rental properties mainly owned by housing corporations (Basismonitor Groningen, 2018).

The quality of *living together* in Vinkhuizen is below the municipal average (Basismonitor Groningen, 2018). Residents are less active in terms of social activity and involvement than elsewhere in the city. Particularly, feelings of responsibility towards the physical and the social environment are below the municipal average. The active commitment to the neighborhood also scores below average (Basismonitor, 2018).

The terraced houses, the gallery flat and the portico flat in this study are all owned by housing association *Patrimonium*. The portico flat and the terraced houses were built in 1969 and the gallery

flat was built in 1972. The rent varies between 540 and 632 euros: all three types of housing are examples of social housing (Patrimonium, n.d.). All the three housing types have a mixed population: students, working residents, residents living on benefits and retirees.

# Chapter 4

## *The Results*

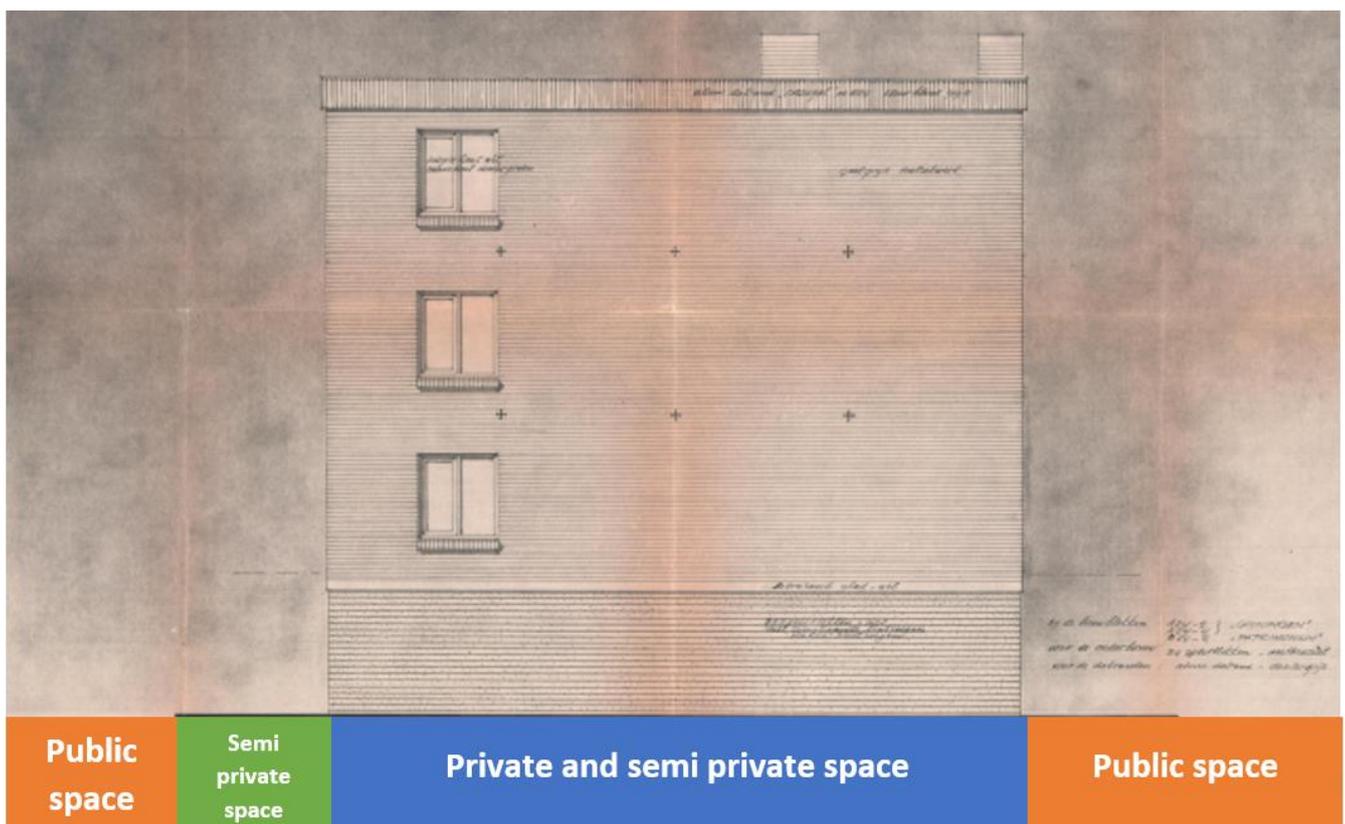
## 4. Results

### 4.1 Spatial design

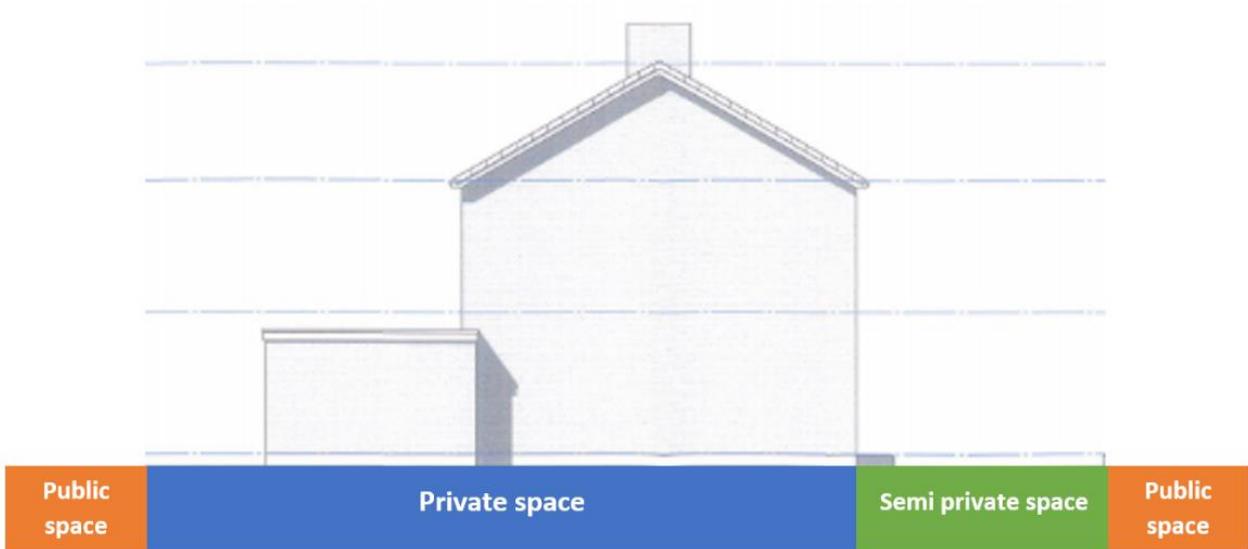
The spatial analysis examines the three different housing types. First I describe the semi-private spaces and subsequently the height of the three housing types. Then, I will elaborate on the impact of spatial design on social behavior. Theories that were proposed in chapter 2 are either nuanced or highlighted by statements of the interviewees. As has been explained in section 3.2.1, the spatial analysis is based on observations and photographic material.

First, the gallery flat on Parelstraat has nine floors and can accommodate 127 households. The portico flat on Kornalijnlaan has three floors. Each portico flat offers accommodation for six households. The houses on Barnsteenstraat and Opaalstraat have a ground floor and an upper floor. The living rooms of the portico flat and the terraced houses are oriented towards the street. In the gallery flat, the kitchen is faced towards the street.

Second, all three types of housing have semi-private spaces in the design. The diagrams below (figure 11, 12 and 13) show these spaces.



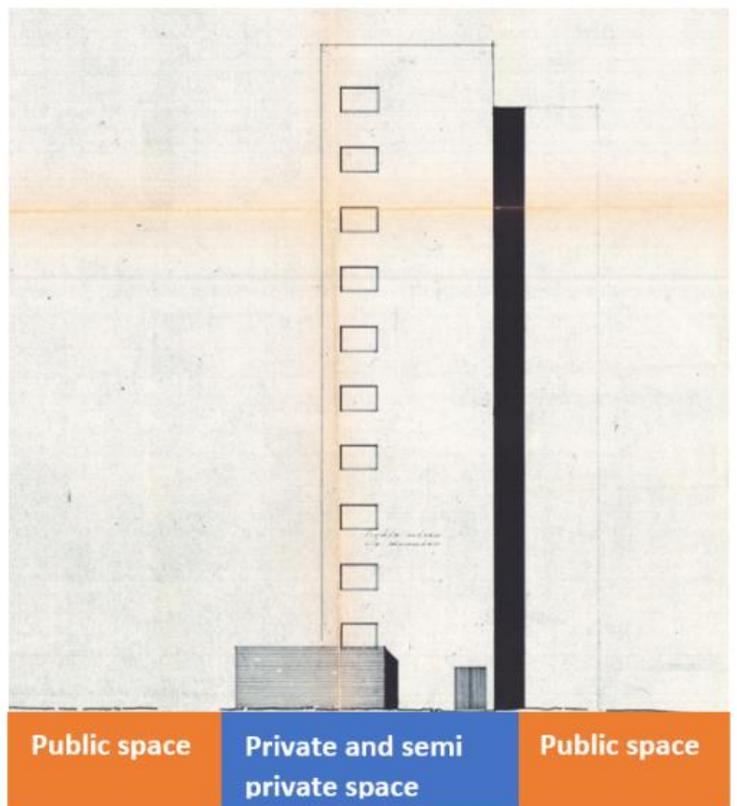
*Figure 11: Public, Private and Semi-private spaces in the portico flat*



*Figure 12: Public, Private and Semi-private spaces in the terraced houses*

The semi-private spaces in the gallery flat consists of the communal entrance hall, four elevators, two staircases, the gallery and the halls near the sheds. In the portico flat, the staircase, the communal entrance and halls to the sheds and the communal green space at the front of the flat are considered as the semi-private spaces. For the terraced house, only the front garden is considered a semi-private space. The gallery flat and the portico flat have more semi-private spaces than the terraced houses.

As has been stated in section 2.7.1, Williams (2005) found that these subtle transitions between public and private spaces are beneficial for stimulating contact between residents. However, whether these semi-private spaces function as a meeting place depends on the design and use of the semi-private space. The studies of Van Ulden et al. (2015) show that a clear demarcation and the appropriation of the semiprivate space by placing personal items is evidence of a successful semiprivate space as a meeting place. The sections below explain how these domains are reflected in the design of the gallery flat, the portico flat and the terraced houses.



*Figure 13: Public, Private and Semi-private spaces in the gallery flat*

#### 4.1.1 Clear demarcation

It became clear from the observations that there are differences between the three different types of housing in the manner in which the semi-private space is demarcated. The demarcation of the semi-private space from the private and the public space is clear in the portico and in the gallery apartment. However, there are differences in the demarcation of the semi-private space with the public space. The demarcation of the semi-private spaces in the gallery and portico flat are described first and subsequently light will be shed on the demarcation of the semi-private spaces in the terraced houses.

First, the gallery and the portico flat have a clear demarcation of the semi-private space with the public space and the private space. The main entrance only allows residents living in the flat to enter the complex (see photo 1 and 2). The gallery illustrates a sharp, yet clear demarcation of the private domain and the semi-private gallery (see photo 3).



*Photo 1: Clear demarcation of the public and semi-private space through an entrance in the gallery flat  
(Own Source)*



*Photo 2: Clear demarcation of the public and semi-private space through an entrance in the portico flat (Google Maps, 2020)*



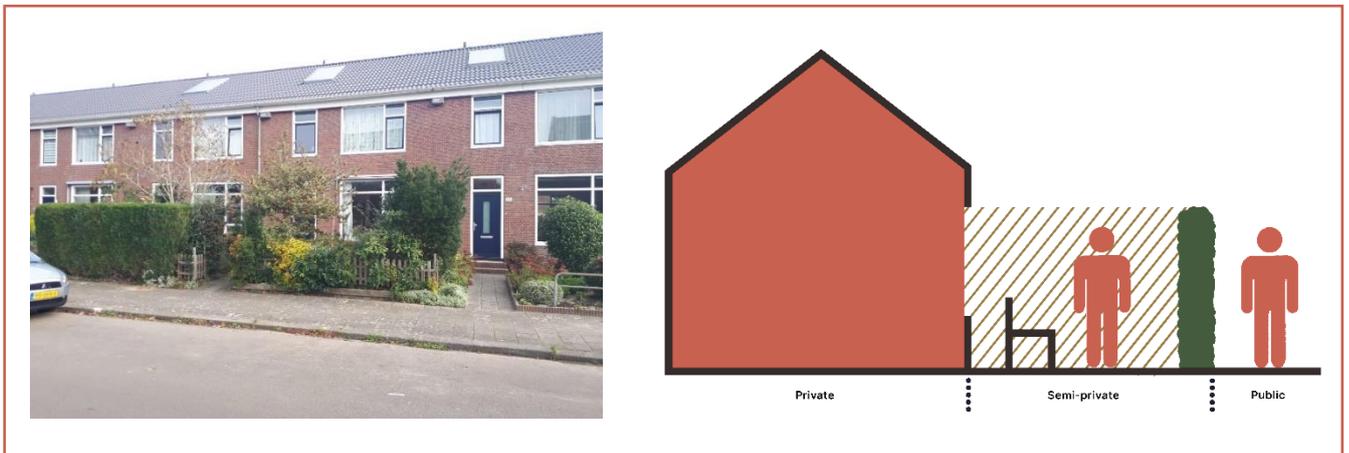
*Photo 3: Clear and harsh demarcation of the private and semi-private space in the gallery flat (Own Source)*

On the contrary to residents living in a terraced house with a front yard, residents living in a gallery flat have fewer possibilities to screen the semi-private space in front of their house to create privacy. This is mainly due to the fact that the gallery is narrow and because of its main function as a logical passage for residents to enter and leave their dwellings. Since few adjustments can be made to the exterior, on the gallery, a number of households have made adjustments on the inside of their home to still create the feeling of privacy: curtains and masking tape block the sight through the windows (see photo 4). This type of behavior is in line with the findings of Van Ulden et al. (2015) who found that people who experience a lack of privacy tend to close the curtains.



*Photo 4: the windows are covered and prevent passive contacts (Own Source)*

Second, the semi-private space at the terraced houses, the front garden, show three different forms of demarcation. These three forms correspond with the three types of semiprivate spaces that Van Ulden et al. (2015) distinguish. Figure 14 shows the first form of demarcation: residents demarcate their front yard with high and sight-blocking hedges. These high hedges limit sightlines from the house to the public realm; they prevent that passive contacts can take place. The semi-private space in this form loses its function as a potential meeting place.



**Figure 14:** residents demarcate their front yard with high and sight-blocking hedges. This corresponds with the theory of Van Ulden et al. (2015). (Own Source)

Figure 15 also indicates that residents shield their semi-private space from the public space. However, this time, low fences and hedges are used to demarcate the semi-private space from the public realm. According to Van Ulden et al. (2015) this form of demarcation is the most fitting to stimulate interactions: sightlines from inside the home to the outside are maintained and a feeling of privacy is guaranteed. However, figure 15 shows that although the spatial conditions of the semi-private spatial are favorable, the curtains are closed: sight lines from the inside to the outside are blocked. Photo 5 shows an example of a front yard where there is an unclear marking of the semi-private space. The semi-private space is only demarcated by the piece of grass, but is not further demarcated by a fence.



**Figure 15:** A clearly demarcated semi-private space. This corresponds with the theory of Van Ulden et al. (2015) (Own Source).



*Photo 5: a semi-private space with an unclear demarcation (Google Maps, 2020)*

#### **4.1.2 Appropriating semi-private spaces**

It became clear from the observations that residents appropriate semi-private space to varying degrees. In the portico and gallery flat, the semi-private space seems to be least appropriated by the placement of personal items. An explanation could be that sense of ownership of the semi-private spaces in the portico and gallery flat is not properly addressed. Yet, there were a number of residents from the gallery flat who appropriated the space by hanging flower boxes on the gallery or by placing a doormat on the gallery (see photo 6 and 7).



*Photo 6 & 7 : appropriating semi-private spaces in the gallery flat (Own Source)*

More expressions of appropriation were visible in the front gardens. There was often a bench, or more personal items were displayed (see photo 8). Yet this was not the case for every home, photo 5 again shows that not every resident explicitly appropriates the semi-private space.



**Photo 8:** *personal items in the semi-private space of a terraced house (Own Srouce)*

#### **4.1.3 Semi-private spaces and behavior**

Studies of van Ulden et al. (2015) and Skjaeveland and Garling (1997) show that a semi-private space can stimulate social interactions between fellow residents. However, by analyzing the interviews it became clear that there are nuances to this proposition: some semi-private spaces evoke more social interactions between residents than others. Section 4.1.4 *use and time* is devoted to explaining why some semi-private spaces in the portico and gallery flat evoke more interaction than others by elaborating on the use of the space and the time spent in the space. Section 4.1.5 *Semi-private spaces and autonomy* is devoted to the front yard as a place for interactions.

#### **4.1.4 Use and time**

The use of the spatial design and behavior of residents play a role in explaining why some semi-private spaces in a gallery and portico flat are more suitable for interaction than others. The semi-private spaces in the gallery and portico flat are dominated by movements to get in or to get out the flat. These movements are often of short duration and they are goal-oriented: leaving or entering one's dwelling. Yet, there are subtle differences in the use of the semi-private space in the portico and gallery flat, which lead to interaction between residents.

Passing through and targeted movements mainly take place in the portico flat. The semi-private space in the portico flat is not used for stationary activities, such as reading a book while sitting. Participant 6, living in a portico flat, says about the communal space in front of her front door: *“you don't just put a chair there or whatever, I'm not going to sit there”*. A narrative analysis of the transcript of participant 6 demonstrates that she acts out of functional considerations (*“it is a narrow space and it is dark”*), but also informal institutional considerations (*“nobody does it”*). The function of the semiprivate space is limited here to passing through movements, residents from the portico flat accidentally have to meet for social contact. The stairwell in the gallery flat is used in the same way as in the portico flat: it is dominated by purposeful and passing-through movements where residents have to meet spontaneously.

Nevertheless, in contrast to the entrance and the staircases, the gallery appears to have a light residential function (*verblijfsfunctie*). For example, participant 2 living in the gallery flat indicates: *“Sometimes I see people putting their chairs on the gallery, and then just chill in the sun. I think that it's quite funny!”*. More stationary activities, compared to the portico flat appear to take place at the gallery, which increases the chance of interaction. For example, participant 3 living in the gallery flat

indicates: *“If someone is sitting in the sun or standing on the gallery, for example doing chores or something, well then you have to pass them. You don't do that without saying hi, you just don't!”*

Strongly related to the use of the space is the time that residents spend in the semiprivate spaces. As has been stated in section 2.7.1.4, Gehl (2011) has argued that the probability of social interactions is not just a sum of the people present in the space, however it strongly depends on the time that residents spend in a space. The content analysis of daily rhythms of different participants confirm Gehl's (2011) statement, but it also appears that the effect of how long people stay in a semi-private space on the social interactions between residents varies per type of semi-private space. For example, residents only spend a short time on the staircases: they mainly move in this space to enter or leave the building. For example, participant 5, living in a portico flat says: *“You see each other in a flash when I go upstairs and the other person goes downstairs. It all happens really quick! Then I only say ‘hi’. But sometimes when I stand at the entrance of the flat and another person puts his bike away, then we spend more time together. We sometimes talk or I hold the door for that person or we walk the stairs together, things like that”*.

#### **4.1.5 Semi-private spaces and autonomy**

The front yard is a place where residents intentionally choose to interact with other residents: it is a place where relaxed and unforced forms of communication take place. Participant 7 says about her front yard: *“When I sit there (in the front yard), they sometimes start a conversation with me, it doesn't always have to come from me. Well, if I want to talk to someone on the street, well then I will engage. But if I don't feel like, then I won't. I really don't have to!”*. Conversations in the front yard take place in a relaxed manner. On the contrary, in the elevator conversations sometimes start because of feelings of discomfort. Participant 3 says: *“[...] in the elevator you also have a little bit longer and you also stand really close to each other. Then it also becomes a bit uncomfortable when it is quiet for a long time, I really don't like that, so I often start a conversation”*. The small space of the elevator and the relatively long time standing next to another evokes social interactions.

In section 2.7.1.1, it was explained that Skjaeveland et al. (1997) argued that semi-private spaces respect an individual's choice to participate in or withdraw from conversations with fellow residents by guaranteeing territorial control and privacy. However, this statement needs to be nuanced since participant 3 had the feeling that her choice to engage was undermined. There are differences in semi-private spaces and the extent to which the resident feels that his or her choice is being respected to engage or not in conversations. In this study, it appears that a semi-private space in the form of a front yard respects an individual's choice, while that applies less to elevators.

#### **4.1.6 Students and the semi-private space**

The populations of the terraced houses and the flats are diverse: students, working and retired people and people receiving benefits live there. These groups are in different stages of life and have different daily rhythms. These differences in daily rhythms influence the use of the space in and around the housing. The statement of participant 5, a student living in a portico flat, underlines this.

*“Maybe we (the participant and her working flatmate) have a different day schedule. Look, I can imagine that my neighbor goes to work really early in the morning, and well yes, at that moment I am still asleep. Oh and take for example my lectures, they are online now, but otherwise I would not leave the flat until 11 am, yeah well, by that time my neighbor has already left the building. So, I really do not see that neighbor very often. Oh and that neighbor will come home at 5 pm, and I will go home after my two hours of lectures. It is not often that I am busy until 5 pm [laughter]”*.

This student has a different daily routine than her working neighbor. At different times they make use of the semi-private space, the staircases, and therefore hardly meet each other. The semiprivate space loses its function as a meeting place when the daily rhythms of different social groups in time and space are "out-of-sync". These results are in line with the results of the study by Lager et al. (2016). They describe that diverging daily rhythms in time and space of young adults and seniors influence feelings of a generational gap resulting in a lower sense of belonging.

A second finding from interviews with students in the different housing types is that the function of a semi-private space can be extended to the *inside* of the home. Various student participants mentioned during the interviews that the halls and kitchen in their homes serve as meeting places. For example, participant 13, a student in a terraced house comments:

*"I also have five other roommates. We don't really have a common room here. Everyone just has their own room but we see each other in the kitchen. That is nice, we also have a chat with each other. [...] Yes, when we are there in the kitchen, that is where we often meet. We often have conversations there. But that's it, when we want our privacy again, then we just go back to our own rooms and we do our own thing".*

The halls and kitchen seem to be given the function of a semi-private space: it is a casual meeting place for him and his housemates. The student can retreat from the 'semi-private spaces' to go to his own private room.

#### **4.1.7 Heights and social behavior**

The stories of the interviewees revealed that height is linked to the social behavior of residents in two ways. First, height can be a barrier to the stimulation of low-intensity contacts. In section 2.7.2, it was argued that Gehl (2010) emphasized that height affects negatively passive contacts: conversations are difficult to understand, and facial expressions are more difficult to capture from a great height. Participant 9 who previously lived in a portico flat and now lives in a terraced house, underscores the line of reasoning of Gehl (2011): he describes that seeing and hearing contacts are easier to establish in his current dwelling.

*"Well look, I am just sitting here (in the terraced house) by my window, and I can look outside, I see other people passing by and when I see acquaintances I wave at them. But that was not really possible in the portico flat, or at least it was not easy. At that time (when he lived at the portico flat) we lived on the third floor, you know, it really was not easy to wave at people. Well, and look at me now! [laughter]"*.

Seeing passers-by on the street that the participant does not know yet and seeing people who are already known is made more difficult by the limited view in the portico flat. Height seems to have a negative effect on low-intensity contacts.

Secondly, residents in the gallery apartment seem to make horizontal rather than vertical connections. Participant 2 says he recognizes his flat members on his gallery, however, this is not the case for the flat members who live on other floors.

*"I would recognize the people who live on my gallery. But only to the middle elevator. But, let's say, all people who live below or above me, well, I actually have no idea who live there!"*.

The above quote shows that there is little contact and little recognition between the different floors. The horizontal connections thus seem to surpass the vertical connections in a gallery flat. However, the statement that horizontal connections, the recognition contacts on the same gallery, are dominant

in a gallery flat needs some nuance. This is evident from the above quote mentioned above, and also from the following quote from participant 3 living in a gallery apartment (see figure 16 for a visual explanation).

*“One time I take the elevator on the left side of the building and the other time I take the elevator in the middle of the flat. All the houses on the right side of my gallery, well, I actually don't see those people. Because we are on the left side of the gallery, and I don't know anyone on the right side. I never go there”.*

The quotes above show that recognition-contacts on the same gallery are also limited. The quotes also show that where the respondents recognize their flatmates is strongly related to the use of the space and the walking lines in the space.

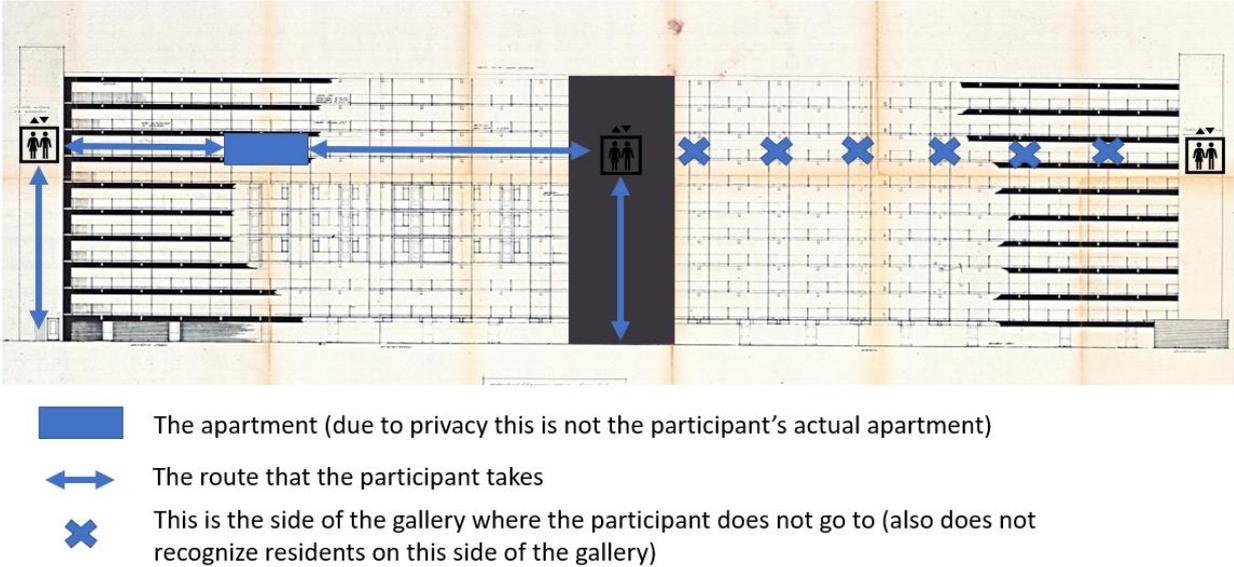


Figure 16: visual explanation of the statement of participant 3

**4.1.8 Mechanisms and conditions of spatial design**

The table 4 summarizes the content of section 4.1.1 till 4.1.7. Two general mechanisms and three conditions for semi-private spaces and heights are identified. The mechanisms and condition can be re-read in the indicated sections.

| SECTION | SPATIAL DESIGN FEATURE                          | WHEN DO SEMI-PRIVATE SPACES AND HEIGHTS STIMULATE SOCIAL INTERACTIONS?   |
|---------|---|--|
| 4.1.4   | Semi-private spaces<br><i>General mechanism</i> | <b>The success of semi-private spaces depends on the use of the space</b> <ul style="list-style-type: none"> <li>Consequence only functional use (passing through): the potential to meet fellow residents decreases</li> <li>Consequence functional and place for activities: the potential to meet fellow residents increases</li> </ul>         |
| 4.1.4   | Semi-private spaces<br><i>General mechanism</i> | <b>The success of semi-private spaces depends on the alignment of daily rhythms of the residents</b> <ul style="list-style-type: none"> <li>Consequence 'out-of-sync' daily rhythms: the potential to meet fellow residents decreases</li> <li>Consequence alignment of daily rhythms: the potential to meet fellow residents increases</li> </ul> |

|       |                     |           |  |
|-------|---------------------|-----------|--|
| 4.1.1 | Semi-private spaces | Condition | <p><b>A harsh boundary and an unclear demarcation between private and semi-private spaces is unfavorable</b></p> <ul style="list-style-type: none"> <li>• Response feelings: lack of privacy</li> <li>• Response behavior: taping windows, closing curtains etc.</li> <li>• Consequence: passive contacts cannot take place</li> </ul> |
| 4.1.5 | Semi-private spaces | Condition | <p><b>Semi-private spaces must respect individual's choice to withdraw or engage in social interactions</b></p> <ul style="list-style-type: none"> <li>• Consequence if this condition is not met: potential feelings of discomfort</li> <li>• Consequence if this condition is met: relaxed and unforced conversations</li> </ul>     |
| 4.1.7 | Heights             | Condition | <p><b>The influence of height on social interactions is negative when the connection of the home with the street is lost</b></p> <ul style="list-style-type: none"> <li>• Consequence: passive contacts cannot take place</li> </ul>   |

*Table 4: summarizing schematic overview of general mechanisms and conditions of the design principles*

## 4.2 Social interactions

This thesis places great emphasis on *social interactions* as the main driver to stimulate sense of community. By means of surveys and interviews, results have been collected on social interactions in the three different housing types. In this section three main topics with regard to social interactions are presented. First, the results on the desire with regard to social interactions with other local residents are discussed. Attention is paid to demographic factors: differences in age, gender and stages of life are taken into account. Secondly, different locations where social interactions take place are discussed for each housing type. This section also examines the nature and appreciation of these contacts. Finally, light will be shed on differences and similarities with regard to social interaction between the different housing types. Both feelings and behavior are taken into account.

### 4.2.1 Wish for social interactions

Demographic factors can influence the meeting of neighbors. That is why this study has tested the influence of a number of these demographic factors on social interactions: gender, age and stage of life are discussed. A total of 121 respondents completed the survey: 69 of the respondents are women and 51 of the respondents are men. 1 respondent preferred not to disclose its gender. The results of a Mann Whitney U test showed that men and women do not differ significantly when it comes to the desire to meet other residents ( $p = 0,14$ ) (see Appendix C for the statistical analysis).

The influence of age on respondents' desire to interact with neighbors was also tested. The age of the respondents ranged from a minimum of 18 years old to a maximum of 82 years old. The mean age of the respondents was 30.35 years (see section 3.2.2 for a discussion on the representativeness of the sample). This low average resulted from the fact that many more young adults completed the survey: 58% of the respondents are 25 years old or younger. The age categories used for testing are: 18 to 25 years old, 26 to 65 years old and 66 and older. This categorization was chosen because a distinction had to be made between *young adults* (18-25), *adults* (26-65) and *seniors* (66 and older). The *adult* category has a wide range, but yet it was chosen since with a step-by-step transition of 10 years, there would be too few cases in each category.

A Kruskal-Wallis H test showed that there was a statistically significant difference in the wish for contact score between the different age groups,  $X^2 = 15,019$ ,  $p \approx 0,00$ , with a mean rank wish for contact score of 47,98 for 18-25, 67,68 for 25-65, and 86,30 for 66+. As a post-hoc test I used a Mann Whitney U test. The results of the Mann Whitney U test showed that the following age categories differ

significantly from each other: 18-25 with 26-65 ( $p \approx 0,00$ ), and 18-25 with 66+ ( $p \approx 0,00$ ) and 26-65 with 66+ ( $p = 0,03$ ). It implies that the young adults desire less social contacts in the street and flat than older adults and seniors.

Linked to age is the variable of *life stage*. The phases of life that have been distinguished in this study are: being a student, working, receiving benefits and being retired. The results of the influence of *life stage* on the wish to meet other local residents resemble the above mentioned outcomes of the influence of *age*. A Kruskal-Wallis H test showed that there was a statistically significant difference in a desire for contact score between the groups in different life stages,  $X^2 = 17,827$ ,  $p \approx 0,00$ , with a mean rank desire for contact score of 47,67 for students, 63,51 for working residents, 81,14 for residents living on benefits, and 89,75 for retirees. A Mann Whitney U test was used as a post-hoc test. The results of the Mann Whitney U test showed that the following groups categories differ significantly from each other: students and working residents ( $p \approx 0,00$ ), students and residents who live on benefits ( $p \approx 0,00$ ), students and retirees ( $p \approx 0,00$ ), and working residents and retirees ( $p = 0,02$ ). The results show that again students desire less social contacts in the street and flat than non-student residents.

The stories of the interviewees help to explain why students and non-students differ in their desire to contact people from their flat or street. They also provide a more nuanced picture of the wish for contact: sometimes respondents do have a need for contact, but only with specific target groups. Lack of identification appears to play a role in the need for contact.

#### **Participant 11**

*“Look, it's great that students live here, but I don't feel the need to make contact very intensively, and I don't think they are either. I don't think that those students want to drink coffee with a 80+ man [laughter]”.*

#### **Participant 8**

*“I have no contact with them (the students) because they have their own age group. They interact with each other and we with the people here. We always greet them and they always greet me, but that's it. They (the students) are not unfriendly, but our contact with older neighbors is different. [...] We (the participant and the neighbors of the same age) have a different type of contact, I know a lot more about my neighbors than about the students”.*

The statements of participant 11 and 8 are in line with the findings of Aalbers (2010) who argues that non-student residents find it difficult to approach and contact students, because they are "not like them". Feelings of belonging to a different social group are reflected in the statement of participant 6 since she refers to the students with 'they'. The same mechanisms apply to the group of students: they find it difficult to identify with non-students. In addition, as the quote of participant 12 points out, the social networks of students are also located at a different scale level than the street or flat: it is more stretched out over the city, this is in line with the findings of Rauws and Meelker (2019) .

#### **Participant 12**

*“Well, no, I don't really have a need for contact with people from the street. [...] At the moment I am still very much involved in the 'student world' and that's where I get my contacts from”.*

#### **Participant 3**

*“[...] with the elderly in my flat, well, I can't identify with them at all, it is difficult for me to empathize with them and I really feel more at home with the students now”.*

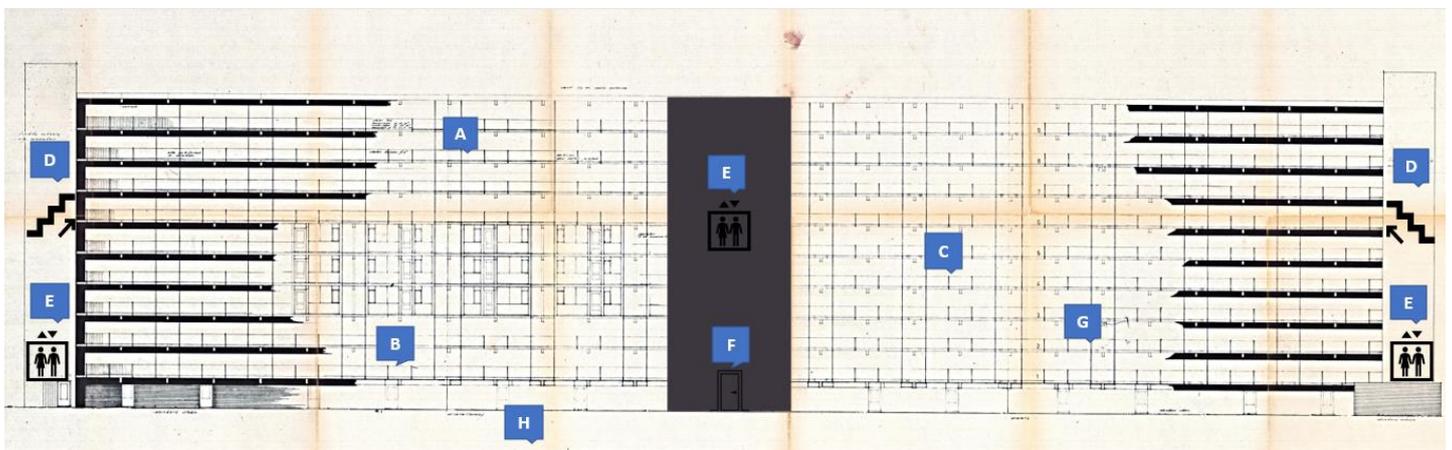
#### 4.2.2 Locations and types of contacts

In this section, different locations in and around the three housing types are distinguished. These locations are then linked to the scale of different types of social interactions. First, in the three different housing types, 8 different places can be differentiated where residents have contact with their flat and street members. These types of contacts are schematized in table 5. Figures 17 to 19 show these contacts on a schematic map.

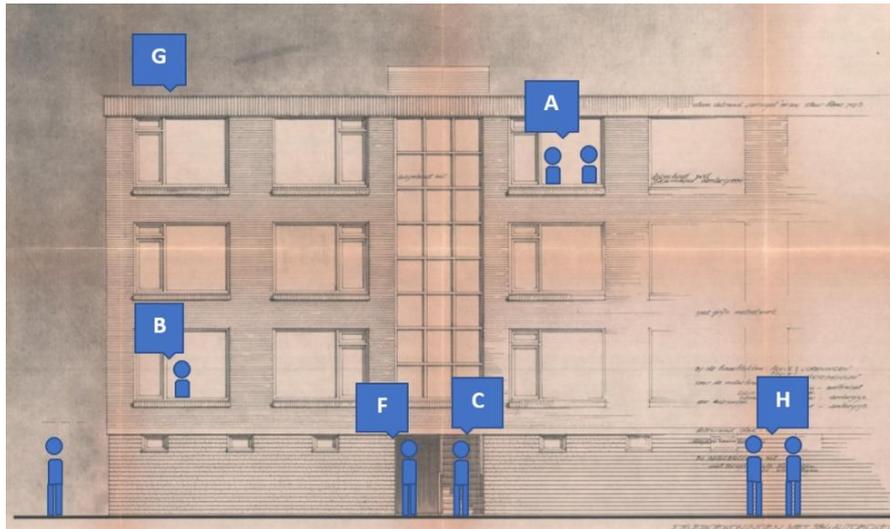
| Location in the housing designs |   |                       | Housing types                          |                                     |                                     |
|---------------------------------|---|-----------------------|--|-------------------------------------|-------------------------------------|
| Location on the map             | Location  | Spatial domain        | Percentage respondents Terraced houses | Percentage respondents Gallery flat | Percentage respondents Portico flat |
| A                               | In house  | Private               | 20,7%                                  | 14,3%                               | 7,1%                                |
| B                               | From inside the house to the street               | Private - public      | 18,6%                                  | 6,1%                                | 7,1%                                |
| C                               | On the gallery                                    | Semi-private          | x*                                     | 74,3%                               | x                                   |
| D                               | On the staircases                                 | Semi-private          | x                                      | 71,4%                               | 92,9%                               |
| E                               | In the elevator                                   | Semi-private          | x                                      | 72,9%                               | x                                   |
| F                               | At the entrance hall                              | Semi-private          | x                                      | 58,6%                               | 85,7%                               |
| G                               | From the gallery/balcony/front yard to the street | Semi private - public | 58,6%                                  | 12,9%                               | 21,4%                               |
| H                               | On the street                                     | Public                | 86,2%                                  | 70,0%                               | 85,7%                               |

x\* means that this type of data is not possible for that kind of housing type

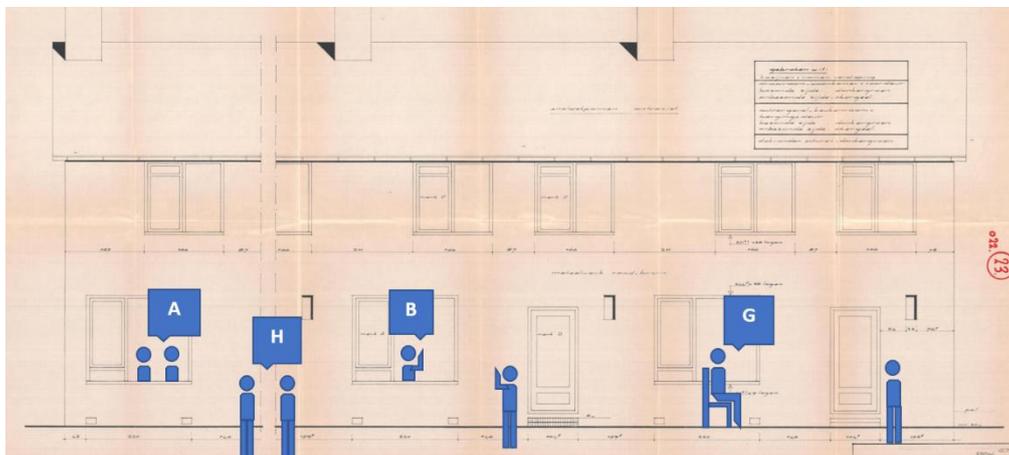
**Table 5:** overview of locations in the different housing types where contacts take place



**Figure 17:** visual overview of locations in the gallery flat where contacts take place



*Figure 18 : visual overview of locations in the portico flat where contacts take place*



*Figure 19 : visual overview of locations at the terraced houses where contacts take place*

Most social contacts with fellow flat and street members take place in the public and semi-private spatial domain. Contacts in the private domain take mostly place by respondents who live in a terraced house. This applies least to respondents who live in a portico flat.

In addition, it is remarkable that only a small proportion of the respondents who live in a portico flat and a gallery flat have contact from inside their house with people on the street (see B in table 5). This percentage is higher for respondents who live in terraced houses. One explanation for this is that the street is more visible from the living room of the terraced house. Due to the height of the building and the physical barrier of the gallery, the homes in the portico flat and the gallery flat lose the connection with the street (Gehl, 2010).

Second, in table 6 the locations where the respondents have contact with fellow residents are set against the scale with different types of contact. It becomes clear that space is a reflection of the social relationships that take place there. This is in line with the findings of Madanipour (2003). He says that a type of space, public or private, is strongly related to the social relationships that take place there. The results of this research also show that this also applies to the semi-private space. It is a place where mainly positive low intensity contacts take place. In the private spheres, the home, more intimate social relationships take place.

|                                  |                  | Private |   | Semi private |   |   |   |   | Public |
|----------------------------------|------------------|---------|---|--------------|---|---|---|---|--------|
|                                  |                  | A       | B | C            | D | E | F | G | H      |
| Positive High intensity contacts | Friendships      | ✓       | ✓ | ×            | × | × | × | ✓ | ×      |
| Positive Low intensity contacts  | Acquaintances    | ✓       | ✓ | ✓            | ✓ | ✓ | ✓ | ✓ | ✓      |
|                                  | Chance Contacts  | ×       | ✓ | ✓            | ✓ | ✓ | ✓ | ✓ | ✓      |
|                                  | Passive contacts | ×       | ✓ | ✓            | ✓ | ✓ | ✓ | ✓ | ✓      |
| No contact                       | No contact       | ✓       | ✓ | ✓            | ✓ | ✓ | ✓ | ✓ | ✓      |
| Negative forms of contact        | Social conflicts | ×       | × | ×            | × | × | × | × | ✓      |

✓ means that there is contact in that type of space

× means that there is no contact in that type of space

*Table 6: schematic overview of the types of contacts and the location*

Furthermore, stories of the interviewees also indicate that low intensity contacts between the street and flat members have grown into high intensity contacts over time. Participant 11 living in a terraced house says the following:

*“That (the friendships with the people from their street) has grown over time. Look first, we didn't know Klaas and Jannie \*, and Jan and Thea\* and those people over there. Anyway, you greet each other once, have a chat and that's how things have grown. [...] First we waved or met each other on the street, and also in the (front) garden, then we sat in the sun and they passed by. Well then you talk to each other. When we got to know each other better. We also took chairs and then sat with them in the (front) garden and we also came together for coffee”.*

\* Klaas an Jannie, Jan and Thea are not their real names, due to privacy their names have been changed.

The relationship with some of this respondent's street members was initially mainly characterized by low intensity contacts that took place in the public and also semi-private space. Due to repeated contact in the public space, their contact has changed to a relationship with high intensity contacts. These findings are in line with the findings on repetitive contacts of Van Ulden et al. (2015) and Gehl (2010).

### 4.2.3 Social interactions and the three housing types

The statistical analysis indicates that there are differences in forms of interaction between the three housing types, see table 6. In this section, a distinction is made between the feeling with regard to contacts (whether a respondent recognizes and knows his fellow street and flat members) and the behavior that is expressed as a result of those interactions (greeting and having a chat).

On the one hand, a Kruskal-Wallis H test showed that there was a statistically significant difference in recognizing fellow street and flat members between the residents in the three types of housing,  $X^2 = 14,756$ ,  $p \approx 0,00$ , with a mean rank desire for contact score of 68,81 for residents living in a terraced house, 77,54 for residents living in a portico flat, 49,85 for residents living in a gallery flat. A Mann Whitney U test was used as a post-hoc test. The results of the Mann Whitney U test showed that the following groups categories differ significantly from each other: a portico flat and a gallery flat ( $p \approx 0,00$ ) and a terraced house and a gallery flat ( $p \approx 0,00$ ). The feeling of recognizing fellow residents is more pronounced among respondents who live in a terraced house or in a portico flat, than among respondent who live in a gallery flat. There are two possible explanations.

The first explanation is that the residents in a gallery flat meet their fellow residents less often in semi-private and public spaces than residents in a terraced house or portico flat (see table 5, letters B to H). The percentages of the contacts in the gallery flat are, with the exception of the private domain (A), all lower than the percentages for the residents in the terraced houses and the portico flat. This has a detrimental effect on the feeling of recognizing other residents in the gallery apartment since Blokland (2009) argues that frequent and repetitive low-intensity contacts contribute to the development of familiarity: "*both recognizing and being recognized in local spaces*" (Blokland & Nast, 2014 p. 1142)). Secondly, scale and size seems to be an important criterion for recognizing other flat and street residents. Participant 2 from the gallery apartment says: "*This (the flat) is very massive. A lot of people live in this flat. So there are a lot more people I don't know or recognize*". Jacobs (1961) argued that a high density of people contributes to an impulse in social life. To a certain extent, Jacobs' (1961) statement holds true, since the chance of meeting someone in or around the complex is greater. However, at the same time, the quote shows that a high concentration of people in one place can lead to feelings of anonymity and at the expense of feelings of familiarity.

A final consideration towards feelings with regard to contacts is the relationship between knowing fellow residents and the housing type. A Kruskal-Wallis H test showed that there was a statistically significant difference in knowing fellow street and flat members between the residents in the three types of housing,  $X^2 = 18,371$ ,  $p \approx 0,00$ , with a mean rank desire for contact score of 69,50 for residents living in a terraced house, 81,25 for residents living in a portico flat, 47,92 for residents living in a gallery flat. A Mann Whitney U test was used as a post-hoc test. The results of the Mann Whitney U test showed that the following groups differ significantly from each other: a portico flat and a gallery flat ( $p \approx 0,00$ ) and a terraced house and a gallery flat ( $p \approx 0,00$ ). Respondents from a portico and a terraced house have the feeling that they know their flat and street members more than respondents who live in a gallery flat.

In contrast, the results of the Kruskal Wallis H test show that the residents of the three housing types do not significantly differ from each other when it comes to behavior: greeting ( $p = 0,43$ ) and chatting with fellow street and flat members ( $p = 0,12$ ). It therefore seems that the feeling of recognizing and knowing other street and flat members is not reflected in social behavior of respondents. This finding differs from the findings of Van Ulden (2015) and Blokland and Nast (2014), who say that (repetitive) recognition contacts and acquaintance contacts contribute to more contact between residents. The reason for the deviating result in this study compared to the results of Van Ulden et al. (2015) and Blokland and Nast (2014) may be due to the perceived differences and similarities between residents. Due to the varied populations (e.g. students, working residents, residents receiving benefits and pensioners) in the streets and the flats, it is difficult for respondents

to identify each other. Although familiarity can be high, this is not reflected in the behavior because perceived differences between respondents can lead to detachment (De Swaan, 1995).

### 4.3. Sense of community

#### 4.3.1 Relational perspective

In section 2.3 various indicators of sense of community by Kim and Kaplan (2004) and McMillan and Chavis (1985) have been explained. Two of these indicators, *influence* and *pedestrianism*, have not come up in the stories of the interviewees. The other domains are briefly discussed below. First, the interviewees often indicate that *membership* and a *shared emotional connection* are of value to their sense of community.

#### Participant 7

*"It just gives me a bit of a social feeling, you are seen and I see others. I know how they are doing and what is going on in their lives and vice versa. Yes, I feel like that I am seen by others, in a positive way! [laughter]"*.

Membership is about feelings of belonging and a feeling of relatedness to fellow street and flat members (McMillan & Chavis, 1986). This feeling often manifests itself by taking fellow residents into account and taking care of them. Participant 6, a student living in a portico flat says the following about this:

*"But suppose we want to throw another house party after the corona era, it is helpful and neat to coordinate that with each other (with the residents living below and above her). So that's what we do, we also asked for the phone numbers of the people who live above and below us so that we can notify them. You just ring the doorbell, send an app or throw a note through their letterbox. I think that's also a bit of that feeling, that you take each other into account"*.

In addition, membership is about whether residents are part of the community (*insiders*) or not (*outsiders*) (McMillan & Chavis, 1986; Griffin, 2005). Participant 9, living in a terraced house is aware of this and immediately tries to make new residents feel welcome and integrate them into "their" community.

*"Well look, a young couple have just come to live here, and we made them a present. We do those things for each other. And well, again they recently moved in, but they are directly admitted in this street"*.

Second, local social networks are also an important part of the sense of community feeling of the interviewees. Recognizing and knowing fellow residents contributes to sense of community. For example, participant 8 living in a terraced house says:

*"I have a good feeling here, I feel really comfortable. It is familiar here, I know the people I feel comfortable. Yes we take care of each other, we are just like a very big family!"*.

The quality of the relationship, whether an individual trusts the other, is important for developing a sense of community. This was also emphasized in the research of Jason et al. (2016).

Third, the interviewees often cite *the fulfillment of needs* as an important aspect of their sense of community. The quotes below show examples of type of small favors and how the interviewees feel when exchanging small favors.

### **Participant 7**

*“Yes there is a neighbor, who asked if I wanted to watch her house because she would go away for a month. Well, of course I do, I don't mind at all!”.*

### **Participant 9**

*“A couple of houses away from us, well there is this woman and she is half blind. We occasionally do something for her, we do some cleaning jobs or we paint her garden fence, such things”.*

### **Participant 10**

*“Yes and we help each other a bit. For example, if Peter\* needs groceries, then we get some more groceries at the supermarket, that's no problem, that's actually a lot of fun!”.*

*\*Peter is not his real names, due to privacy his name has been changed.*

Two observations can be derived from the above mentioned quotes about the exchange of small favors. First, these small favors mainly take place from individual to individual or from couple to couple. Second, these small favors were mainly mentioned by older interviewees who live in a terraced house. Yet that does not imply that younger residents and residents living in a flat do not engage in or value the exchange of small favors.

In addition to the small favors, large-scale activities were also organized, such as street barbecues. These barbecues were organized by interviewees who lived in a terraced house. Interviewees who lived in a gallery or portico flat did not mention these large-scale communal activities. An explanation is that these street barbecues often took place in semi-private spaces (front yard) and public spaces (squares). The semi-private spaces in the portico and gallery flat are not designed to host such activities. The same applies for the public space in front of the gallery and portico flat, it contains respectively a parking lot and a street dominated by cars. The interviewees also indicate that the organized joint activities occur less often than the small favors in which a small group is involved. An explanation of why large-scale collaborative activities are less common is given partly by participant 8, she says:

*“We organized a street barbecue together for the entire street, everyone was allowed to come! We also approached the students and they came too! It was really fun [...] and at one point, we organized that about 3 or 4 times and then we thought now someone else could do that instead of us. And of course everyone promised directly ‘I will do it’, but the following year we did it again. And then, nobody picked it up again”.*

This quote illustrates that the communal barbecues were dependent on the actions of participant 8 . The other residents did not take the lead to organize the barbecues.

It thus appears that the development of sense of community is also partly related to own investments and actions. Besides the fact that sense of community has a strong relationship with feelings, sense of community is also expressed by taking action. For example, participant 12 living in a terraced house indicates:

*“You just have to contribute yourself. I think that is also very important with a community feeling, that you participate in it yourself”.*

However, in some cases feelings of a sense of community are not expressed: the feeling is not converted into actions. This does not mean that one's sense of community completely vanishes or deteriorates. Participant 7, who lives in a terraced house says that for her the feeling of having a sense

of community alone is sufficient and satisfying enough.

*“We often discuss and say to each other ‘we are going to do something together’. For example a street party or something, but that's more an idea. It just stops there. We don't actually do it. But I don't really mind that, it does not bother me, I already have that feeling!”*

#### **4.3.2 Territorial perspective**

This section is devoted to the territorial perspective (Gusfield, 1975). Different geographic entities where sense of community takes place are discussed. The stories of the interviewees suggest that the scale level is important in developing sense of community. The scale level at which sense of community develops, depends on a the type of housing the respondent lives in, and more specifically for students, on the living situation (having roommates or not). First, light will be shed on the housing situation and subsequently the importance of the geographical entities per housing type for sense of community will be explained.

First, the majority of the students, regardless of the type of housing they live in, develop a community feeling for the *home*. The fact that the sense of community feeling of students is concentrated *inside* the house is related to the fact that they live with other housemates. For example, participant 13, a student living in a terraced house indicates:

*“Now I live with four others in the house so you actually already have four kind of neighbors with whom I have contact”*.

The roommates of this participant ‘function as street members’. The contacts of this participant with her housemates mainly consist of low-intensity contacts. The community moves inside the house. The semi-private space, which moves inside the student house, also plays a role in developing a sense of community feeling inside the home. As mentioned earlier in section 4.1.6, the semi-private space in the house, the halls and the kitchen serves as a casual meeting place for the students.

Second, participants experience sense of community at various geographic entities in and around their residential complexes. Participants from a gallery flat indicate that they mainly feel connected to their gallery. On the other hand, respondents living in a portico flat feel mainly connected to their portico flat and the respondents from the terraced houses mainly feel connected to their street.

#### **Participant 3 – Resident of the Gallery Flat**

*“I feel most connected to my gallery, not so much with the flat itself. Just the gallery. Because I see those people much more often and I know who lives next to me. I don't know everyone in my flat, but at least I know about the people who live with me at my gallery”*.

#### **Participant 5 – Resident of the Portico Flat**

*“For me it also depends on how big the community is. Look, if I take my entire street, I would not call that a community feeling, nothing is organized there or whatever. That is also not the case within our flat, but at least I do know the people who live here. I feel more connected to our flat than with the street. This portico flat is kind of our place”*.

#### **Participant 7 – Resident of the Terraced house**

*“I don't have a strong connection with the neighborhood. [...] Here in the street I actually know everyone, well, I know who lives here. That just feels familiar and comfortable”*.

What stands out in the above mentioned quotes is that feelings of sense of community is mainly experienced at the lower scale levels: the home and street (and gallery). Sense of community at neighborhood and neighborhood level was not mentioned. These findings are in line with the conclusions of Boitelle (2012). These quotes also show that the scale at which a respondent experiences his or her sense of community is also strongly linked to knowing fellow street and flat members. Knowing and recognizing fellow neighbors strengthens the sense of familiarity and trust. These results are in line with the findings of Van Ulden (2015) and Jason et al. (2016).

#### *4.3.3 Dynamic nature of sense of community*

Literature studies have shown that sense of community is in nature dynamic (Sarason, 1974; McMillan & Chavis, 1986). This study also suggests that one's sense of community changes over time. Changes in sense of community are explained by the influence of negative social interactions and subsequently by different life stages and corresponding needs.

First, it is assumed, based on the theories of Fonseca et al. (2019), that negative contacts with local residents can reduce sense of community. Nevertheless, the this study suggests that this negative effect is limited and temporary. In the quote below, participant 10 elaborates on a social conflict with her neighbor. The conflict has not yet been resolved and the little contact that still takes place with the neighbor is perceived negatively by the participant.

*“I will not be put off, well at that moment, then it was really not pleasant, then at that moment I felt really frustrated. I didn't really want to leave my house at the time because I didn't really want to run into her. [...] Yes, I just felt less comfortable here in the street, I felt being watched by her. Anyway, I still love living here. I really wouldn't want to leave here. It (feeling good in the street) is also picking up again. And it helps that I also have very pleasant contacts with the people across the street”.*

When the conflict started, this participant did not feel comfortable seeing her neighbor on the street. Still, the effect of the negative interaction on her feeling of being at home in her street is temporary, even though the conflict has a more permanent character. It seems that the positive contacts with other people in the street work as a coping mechanism.

Secondly, one's sense of community is not fixed since various (student) participants suggested that they felt that their wish to be included in a community will change over time. Their wish to belong to a community also seems to change with the life stage of the individual. Participant 1 says the following:

*“I could imagine if I have a family later on, then I will ask the neighbors to keep an eye on my children when they are playing outside. Or that I can take groceries from the store and bring them to my neighbors when they are not able to. You can count on each other, indeed”.*

#### *4.3.4 Reciprocal relationship*

Studies show that the relationship between social interactions and sense of community is reciprocal (Kim & Kaplan, 2004; Wilkinson, 2008; Chavis & Wandersman, 2002). However, the results in this study are more nuanced. First, the influence of social interactions on the sense of community feeling is examined more closely and then light will be shed on the effect of sense of community on social interactions.

First, the results from a Kruskal Wallis H test indicate that there was not a statistically significant difference in feeling at home between fellow residents and recognizing flat and street members ( $p = 0,16$ ). This finding differs from the results of Van Ulden et al. (2015), because they indicate that recognition contacts contribute to a higher familiarity on the street and to more sense of

community. However, the stories and experiences of the interviewees provide a more nuanced picture of the influence of recognition contacts on sense of community. Participant 3, living in a gallery apartment indicates:

“ [...] I also recognize people here in this flat and I do exchange words with them, that makes a difference to how I feel at home. I think if I didn't recognize anyone here and it would be much more individual here, I would really feel very uncomfortable. Then I would really feel less at home”.

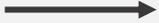
Recognition contacts are important for this participant to feel good in the flat. The participant believes that feeling at home is already reinforced by low-intensity contacts. It implies that the value of recognition contacts on sense of community can differ per individual.

Furthermore, the results of a Kruskal Wallis H test show that there was a statistically significant difference in levels of knowing fellow residents between residents who answered *disagree*, *neutral* or *agree* to the following statement ‘*I know the residents in my street/flat*’:  $X^2 = 10,863$ ,  $p \approx 0,00$ , with a mean rank desire ‘*knowing*’ score of 46,15 for *disagree*, 60,29 for *neutral*, and 68,02 for *agree*. A Mann Whitney U test was used as a post-hoc test. The results of the Mann Whitney U test showed that the following groups categories differ significantly from each other: respondents who answered *disagree* and *neutral* ( $p = 0,03$ ), respondents who answered *disagree* and *agree* ( $p \approx 0,00$ ). It implies that the respondents feel more at home between fellow residents when they have the feeling they know their street and flat residents.

Secondly, light will be shed on the opposite relationship; the effect of sense of community on social interactions between street and flat members. The results of a Kruskal Wallis H test show that there was not a statistically significant difference in the frequency of greeting other residents between residents who *disagreed*, *agreed* or were *neutral* towards the statement that they felt at home between their fellow residents:  $X^2 = 2,441$ ,  $p = 0,31$ . Respondents who felt at home between fellow residents did not greet their street and flat members more than residents who did not feel at home between fellow residents. However, the results from a Kruskal Wallis H test point out that there was a statistically significant difference in the amount of small talks with other residents between residents who *disagreed*, *agreed* or were *neutral* towards the statement that they felt at home between their fellow residents:  $X^2 = 9,311$ ,  $p \approx 0,00$ , with a mean rank score of 50,55 for *disagree*, 45,33 for *neutral*, and 64,36 for *agree*. A Mann-Whitney U test showed that there was a significant difference ( $U = 811,500$ ,  $p \approx 0,00$ ) in small talks between group that answered *neutral* to the statement ‘*I feel at home between my fellow street/flat members*’ compared to the group who answered *agree*. This implies that respondents who feel more at home between their fellow residents talk more to fellow-residents. The effect of feeling at home with the street and flat members is therefore mainly expressed on the somewhat higher types of contact: greeting is more casual and easy than chit-chatting with others.

#### 4.4 Schematic overview of the results

Table 7 presents the main results of this study. The results are linked to the conceptual model and the sub questions. The table also indicates in which sections the results occurred, if you want to re-read the results or get a more profound discussion on the results please go back to these sections.

| Section 4.1   | Section 4.1   | Section 4.2  | Section 4.3  | Section 4.3  |
|---|---|--|--|--|
| <p><b>Sub question 1A</b></p> <p><i>Which design elements that promote social interaction are present in the gallery flat, portico flat and the terraced houses?</i></p>  | <p><b>Sub question 1B</b></p> <p><i>How does spatial design influence social interactions between residents in the gallery flat, portico flat and the terraced houses?</i></p>  | <p><b>Sub question 2</b></p> <p><i>How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members?</i></p>  | <p><b>Sub question 3A</b></p> <p><i>How do social interactions with street- and flat members influence student and non-student residents' sense of community?</i></p>  | <p><b>Sub question 3B</b></p> <p><i>How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community?</i></p>  |
|   |    |   |   |   |
| <p><b>Semi-private spaces</b><br/>The gallery flat contained the greatest amount of semi-private space. It also had the most variations in semi-private spaces: elevator, entrance hall, staircases etc. The terraced houses contained the least amount of semi-private space and it this type of space was limited to the front yard.</p> <p><b>Demarcation of semiprivate spaces</b><br/>The semi-privates spaces in the portico and gallery flat are clearly demarcated. The semi-private spaces in the terraced houses show more variation in types of demarcation.</p> <p><b>Appropriating semi-private spaces</b><br/>Placing personal items in the semi-private spaces occurred more</p> | <p>The impact of spatial design elements (semi-private spaces and heights) on social interactions between residents is dependent on <b>use</b> and <b>time</b>.</p> <p>Spatial design mainly positively impacts <b>low-intensity contacts</b>.</p> <p><b>Conditions for semi-private spaces</b></p> <ol style="list-style-type: none"> <li>1. Semi-private spaces lose their function as promotor of social interactions when daily rhythms of students and non-students in time and space are "out-of-sync" through moves of residents.</li> <li>2. Semi-private spaces promote social interactions when they are clearly demarcated.</li> <li>3. Semi-private spaces must respect individual's choice to withdraw or engage in social interactions</li> </ol> <p><b>Condition for heights</b></p> <ol style="list-style-type: none"> <li>1. Great heights hamper</li> </ol> | <p>Whether residents engage in local contacts highly depends on their <b>wish for social interactions</b>.</p> <p>Non-student and student respondents find it <b>difficult to socially identify</b> with each other, which might hamper social interactions between these social groups.</p> <p><b>Differences between housing types in feelings and social behavior</b></p> <ul style="list-style-type: none"> <li>- <b>Feeling:</b> Respondents from a portico and a terraced house have the feeling that they recognize their flat and street members more than respondents who live in a gallery flat.</li> <li>- <b>Feeling:</b> Respondents from a portico and a terraced house have the feeling that they know their flat and street members more than respondents who live in a gallery flat.</li> <li>- <b>Behavior:</b> no differences in greeting and chatting between the housing types.</li> </ul> <p>Participants have <b>different motivations</b> for engaging in contact with fellow street and flat members.</p> <ul style="list-style-type: none"> <li>- functional</li> <li>- fun</li> </ul> | <p>The effect of <b>negative contacts on sense of community seems temporary</b>. Positive social interactions can be used as a coping strategy.</p> <p>Low-intensity contacts are valuable to student and non-student residents to feel that they belong in the community.</p> <p>Respondents feel more at home between fellow residents when they have the feeling they know their street and flat members.</p> | <p><b>Territorial perspective</b><br/>The <b>scale level</b> at which participants develop their sense of community differs per housing type.</p> <ul style="list-style-type: none"> <li>- Terraced house: street</li> <li>- Portico flat: flat</li> <li>- Gallery flat: gallery</li> </ul> <p>More specific, students can develop a sense of community <i>within</i> their house.</p> <p><b>Relational perspective</b><br/>Feelings of trust, membership, and exchange of small favors develop participant's sense of community</p> <ul style="list-style-type: none"> <li>- Non-students participants valued the exchange of small favors, this applied to a lesser extent for younger participants.</li> <li>- Spatial design can facilitate in hosting large communal activities.</li> </ul> <p>Sense of community is experienced in</p> <ol style="list-style-type: none"> <li>1. <b>Feelings.</b> For example, feelings of comfort and belonging in the</li> </ol> |

|  |  |   |  |  |
|--|--|---|--|--|
| <p>at the terraced houses than in the portico and gallery flat.</p> <p><b>Heights</b><br/>The gallery flat on Parelstraat has 9 floors. The portico flat has 3 floors. The terraced houses have a ground floor and an upper floor.</p> | <p>the development of passive contacts (residents lose the connection to the street)</p> | <p>Low-intensity contacts primarily take place in the semi-private and public realm. High intensity contacts predominantly take place in the private realm.</p> |  | <p>community.</p> <p><b>2. Actions/behavior.</b><br/>For example, exchanging small favors was part of participant's sense of community: spatial design can facilitate (e.g. semi-private spaces and barbecue).</p> |
|--|--|---|--|--|

*Table 7: A schematic overview of the main results*

# Chapter 5

## *Conclusions & Discussion*

## 5. Conclusion and discussion

This thesis is centered around the following research question: *how do residential spatial design elements impact student and non-student residents' sense of community in Vinkhuizen?* The objective of this research was to unravel the social impacts of socio-spatial housing designs. In order to answer the main question, five sub-questions were formulated. The paragraphs below answer the sub-questions and the main question.

Sub-question 1A was '*Which design elements that promote social interaction are present in the gallery flat, portico flat and the terraced houses?*'. The spatial analysis pointed out that *semi-private spaces* and *heights* varied in their amount and degree between the three housing types. The gallery flat and terraced houses contained respectively the greatest and the least amount of private spaces. This concerns the total amount of surface of the semi-private spaces, but also the amount of different types of semi-private spaces (the gallery flat included staircases, elevators and an entrance and the terraced houses only contained a front yard). In addition, the gallery flat and the terraced houses respectively have the most and the least number of floors.

Sub-question 1B was '*How does spatial design influence social interactions between residents in the gallery flat, portico flat and the terraced houses?*'. The question is answered on the basis of the conclusions drawn below. The first conclusion is that spatial design elements play a facilitating role in stimulating social interactions, rather than that it directly stimulates social interactions. More specific, the second conclusion is that spatial design predominantly affect the development of low-intensity contacts. This conclusion is in line with the findings of Gehl (2010).

This study distinguished two general mechanisms that explain how semi-private spaces facilitate or hamper social interactions. On the one hand, and also the third conclusion is that the success of semi-private spaces to facilitate social interactions depends on how residents use the space. This is in line with the findings of Neutens et al. (2012). On the other hand, and also the fourth conclusion is that the success of semi-private spaces to facilitate social interactions depends on the alignment residents' daily rhythms. This conclusion is a deepening of the findings of Gehl (2011) who argues that social life is a function of time spend in places. However, Gehl (2011) did not take into account the influence of different daily rhythms of residents. However, conclusion four is in line with the findings of Lager et al. (2016) since they describe that diverging daily rhythms in time and space of young adults and seniors influence feelings of a generational gap resulting in a lower sense of belonging.

Semi-private spaces and heights function as a promotor of social interactions under three general conditions. Semi-private spaces facilitate contact when they are clearly demarcated. This is in line with findings of Van Ulden et al. (2015). Additionally, semi-private spaces facilitate contact when the semi-private space respects an individual's choice to engage or to withdraw from the social realm. The third condition applies to heights; height will have a positive influence on social interactions as long as the connection to the street is preserved. This is in line with the findings of Gehl (2010) who argues that implementing the human scale in spatial designs is important to stimulate contact between people.

Sub-question 2 was *How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members?* The question is answered on the basis of the conclusions drawn below. The fifth conclusion is that the development of social interactions between residents highly depends on the wish to engage social interactions. Students are less likely to engage in social interactions than non-student residents. The sixth conclusion is that student and non-student residents are most likely to interact with individuals belonging to '*their*' social group. This conclusion aligns with the social identification theory of De Swaan (1995) and specifically, this is in line

with the findings of Aalbers (2010) who states that student and non-student residents are hesitant to get involved in social contact with each other. The seventh conclusion is that spaces (public, semi-private and private) reflect the type of contacts of the resident that take place. On the one hand, in the semi-private and public space, mainly low-intensity contacts take place. On the other hand, mainly high-intensity contacts take place in the private domain. This is in line with the findings of Madanipour (2003). He indicates that a type of space, public or private, is strongly related to the social relationships that take place there.

Sub-question 3A was '*How do social interactions with street- and flat members influence student and non-student residents' sense of community?*'. The question is answered on the basis of the conclusions drawn below. The eighth conclusion is that negative forms of social interaction indeed have a negative effect on sense of community. The negative effect of negative social interactions on sense of community was confirmed by Fonseca et al. (2019), however, this study nuances this effect by stating that this effect is temporary. An explanation for the limited and temporary effect is that positive social interactions are used as a coping mechanism. The ninth conclusion is that the relationship between social interactions and sense of community is not straightforward. On the one hand, the positive effect of recognizing fellow residents on sense of community was not statistically significant. This statement is in contrast with the findings of Van Ulden et al. (2015) who argue that familiarity increases sense of community. However, on the other hand, the value of recognition contacts on the sense of community has been confirmed on an individual level.

Sub-question 3B was '*How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community?*'. The question is answered on the basis of the conclusions drawn below. Conclusion number ten is that residents can develop feelings of sense of community on different (particularly low) scalar levels. The statement that sense of community mainly takes place at low scale levels is in line with the findings of Boitelle (2012). Nevertheless, this study is more specific, because it relates specific scales to the different housing types. The participants in this study in the terraced houses, portico flat, and gallery flat, experienced sense of community respectively on street, flat, and gallery level. Conclusion number eleven is that sense of community is experienced through *feelings* and *actions*. Feelings mainly concern feelings of trust, membership and belonging. These feelings were valued by both students and non-students for developing a sense of community. Actions (behavior) mainly concern the exchange of small favors. Non-student residents value small favors for the development of a sense of community.

The above mentioned sub-questions and respectively their answers gave guidance to answer the research question. It became clear that spatial design has a facilitative role in fostering sense of community rather than a direct impact on sense of community. Social interactions serve as mediating factor between spatial design and sense of community. It is important to make the impact of spatial design on social interactions concrete: the spatial design elements, semi-private spaces and heights, predominantly impact low-intensity contacts.

The spatial design is facilitating for two reasons. First, the potential of *semi-private spaces* and *heights* to facilitate social interaction comes into its own under certain conditions. However, implementing these conditions does not guarantee that contact will actually take place. The two mechanisms distinguished in this study (that the success of semi-private spaces depends on the *use* of the space and the *time* people *spend* in it), show that individuals can use the semi-private space in a way that it reduces the likelihood of social contact. This is in line with the findings of Gehl (2010) who addressed the human factor in his spatial design studies. Human (spatial) behavior thus also proves to be an important factor in the success or failure of semi-private spaces and heights to stimulate contact. Secondly, and related to the point of human behavior, spatial design is facilitative because it is subject to social processes. The function of semi-private spaces and height to promote social interaction decreases when residents do not want contact with fellow residents. Although the influence of spatial

design on people who do not need contact is being attenuated, it can be of value for residents who *do* have a wish for contact. For residents who do have a need for social interactions, spatial design can, literally and figuratively, offer space to facilitate social interactions (e.g. a place for hosting a barbecue).

In this research, the different housing types with the mixed population of students and non-students were the study object. This study underlines that students, compared to non-student residents, have little desire to interact with fellow street and flat members. The temporary housing situation and the life stage can explain why students have little ambition to engage in social interactions. Furthermore, this study confirms the findings of Aalbers (2010) who states that student and non-student residents are hesitant to engage in contact with each other. Contacts predominantly take place *between* students. In this study the social identification theory of De Swaan (1995) explains why this is the case: students and non-student resident find it difficult to socially identify with each other. Therefore, this study is in line with the findings of Blokland and Van Eijk (2010) who argued that living in close proximity of "*others*" does not directly imply that social boundaries are bridged.

The fact that, on the one hand, social interactions contribute to a sense of community, but on the other hand, the contact between students and non-student residents is difficult to establish, raises questions about successful development of sense of community feelings in streets and flats with a mixed population of student and non-student residents. However, it is important to realize that these questions are based on an assumption that sense of community should be stimulated and strived for in every street, or housing block. This study opens the discussion about this assumption because this research shows that not every resident, especially students, has a wish for social interactions and sense of community. However, for those who do have a need for social interactions and a sense of community, the spatial design of semi-private spaces and heights can play a facilitating role.

Taking into account that students and non-student residents in this study are less likely to engage in social interactions with each other it would be interesting to see if the effect of spatial design on social interactions is more profound and emphasized when the population in the housing types is more homogeneous, for example only students. I would suggest a follow-up study with the same set-up as this study, but with a homogeneous group to better determine the effect of semi-private spaces and height.

In addition, this study provides a number of generic mechanisms and conditions under which semi-private spaces and heights can facilitate social interaction. A follow-up study can focus on *one* spatial element (either *semi-private spaces* or *heights*) to formulate more specific conditions.

## 5.2 Shortcomings and limitations

This research, however, is subject to several limitations. I will first describe the shortcomings related to (the gathering of) the data and subsequently I will elaborate on the limitations regarding the results and the interpretation of the data.

I would distinguish at least two shortcomings related to (the gathering of) the data. The first shortcoming is related to the quantitative and qualitative data gathering about residents living in a portico flat. The group of interviewees living in the portico flat consists only of students, I did not speak to any non-student residents in the portico flat. Although I have quantitative data on the perceptions and experiences of non-student residents in portico flats, the qualitative data is missing: I have no information on how non-student residents in portico flats ascribe *meaning* to events and experiences. The implication is that I cannot draw conclusions about the students experiences relative to the experiences of the non-student residents in the portico flat.

Second, due to an error in the formulation of a statement in the survey, important data is missing: how non-student residents evaluate the number of students in their street or flat. The statement was formulated as follows: "I think the amount of students in my flat/street is good." This question was only posed to non-student residents. The options varied from *completely disagree* to

*completely agree*. I assumed that the respondents thought that there were too many students living in his street or flat if he had filled in *completely disagree*. However, this assumption is incorrect. It is also possible that respondents who fill in "*completely disagree*" may feel that they would like more students in the street or flat. In addition, this statement was also misleading because the word "*good*" was used (see Appendix C, question 9). Therefore, this question has been removed and has not been included in the analysis. Therefore, no firm statements can now be made about how non-student residents feel about students. Yet, I could use the interviews to get a better overview.

I would distinguish at least two shortcomings related to the results and the interpretation of the data. First, it is crucial to take into account that the results of my survey are a snapshot of how residents appreciate their social interactions in a time of a health crisis: the data was gathered in a timeframe that residents were encouraged to stay at home and to limit their social contacts. This causes implications since this research is about social interactions between residents. Therefore, I would suggest to repeat this research once the pandemic is over.

Secondly, to measure the impact of the spatial design on sense of community it was important that the institutional and demographic factors were comparable between the three housing types, however I cannot guarantee that all demographic characteristics between the three housing types are equal. I did not question the type of personality (e.g. extravert-introvert) and background (e.g. born in a city or a village) in the surveys and could not correct for that in the statistical tests. During the interviews I asked several questions about their original hometown, however not on a detailed level. It is also possible that I have only spoken to interviewees who like to surround themselves with other people. For follow-up research, it is also interesting to include the variables *personality* and *personal background* to measure their impact on sense of community.

## **5.2 Planning theory and practice**

According to Van Dijk et al. (2014), a number of goals are pursued in the discipline of spatial planning. One goal is that planning should be *action-oriented*. *Action-orientation*, implies that planners should purposefully change places that are of valuable to people through spatial interventions. This study contributes to this objective because concrete conditions are proposed that can improve the social environment in a street and flat. Furthermore, the discipline of socio-spatial planning is about understanding the human factor in planning (University of Groningen, n.d.). This study contributes to this research field since it studied a spatial phenomenon (the spatial design of three types of housing) and explored its impact on a social phenomenon (social interactions and sense of community).

The conclusions and results of this study are interesting for housing associations since they are expected to deal with the social environment in addition to physical buildings (Vastgoedjournaal, 2014; CorporatieNL, 2017). Sense of community is part of the social environment. This research provides mechanisms and conditions under which social processes can be stimulated by means of physical interventions. The results are also relevant for the municipality of Groningen, because they are committed to promoting the coexistence of student and non-student residents in neighborhoods (Gemeente Groningen, n.n.). At the moment, the municipality of Groningen only focuses on social interventions and programs, but this study also offers information about spatial design principles that can contribute to enhanced social environments in studentified neighborhoods.

# Chapter 6

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# Chapter 7

## *Appendices*

# Appendices

## Appendix A: Reflection

### Process

The process of gathering the quantitative data did not go off without a hitch. I would have liked use a door-to-door strategy to deliver the surveys, however, because of the situation regarding the corona virus, I did not think that was a responsible choice. Still, I suspect that I could have reached more respondents if I had delivered the surveys at the homes of the residents. My experience with previous data collection is that people are more likely to fill out a survey when they have seen the researcher or when they have had a chat with the researcher.

I am satisfied with the way I used the conceptual model as a guideline for the entire study. The conceptual model is built up through the theoretical framework and I then linked the conceptual model to different methods of data collection. In the chapter on the results I have also maintained the structure of the conceptual model. Furthermore, the sub-questions were embedded in the conceptual model (see figure 1).

In this study a total of seven students were interviewed. At the time of the research I was also a student myself, I was an insider. On the one hand, this was an advantage, because as an insider I ask more detailed questions and empathize with their world more easily. On the other hand, I had to remind myself not to make assumptions about student behavior.

I underestimated the process of finetuning my thesis, it took more time than I had hoped for. I could have gotten a lot more sleep if I had started finetuning a bit sooner in the process. Still, over all, I am satisfied with managing my time in the process of writing my thesis. I was capable to hand in my thesis on time and I was able to work besides writing my thesis.

### Outcomes

Finally, this section discusses and reflects on the extent to which this research can be generalized for other streets, portico and gallery flats with a mixed population of students and non-students. There are a number of arguments for why the results of this case study *can* and *cannot* be generalized.

The first set of arguments is related to the samples. On the one hand, the samples from the respondents give the portico and gallery flat a realistic representation of the inhabitants of these housing complexes (see table 1). On the other hand, the gallery's sample is less representative and does not accurately reflect reality. Few pensioners and seniors completed the survey, while conversations with the housing corporation revealed that the proportion of older people in the flat is large (unfortunately they could not provide me with exact numbers).

The second set of arguments is related to the context. This research took place in the neighborhood of Vinkhuizen. This neighborhood has a low socio-economic status. The question arises whether the results and the conclusions in this study about social interaction and sense of community are also valid for other neighborhoods with a low socio-economic status and for neighborhoods without this status. On the one hand, these results and conclusions would also be valid for other neighborhoods with and without this status, because Stokkom and Toenders (2010) argue that the social environment (e.g. social capital and interactions) of neighborhoods with a low socio-economic status is little different from neighborhoods without this status. According to Stokkom and Toenders (2010) residents are motivated to make something of the neighborhood together. On the other hand, Wacquant (2008) suggests that the social environment (e.g. social bonding and social cohesion) of neighborhoods with a low socio-economic status deviates from neighborhoods without this status. Residents in neighborhoods with a low socioeconomic status live much more individually according to

Wacquant (2008).

The third set of arguments is related to the case selection. Literature studies showed that in addition to spatial design, institutional and demographic factors also influence the stimulation of social interactions and sense of community (Blokland & Van Eijk, 2010; Guest et al., 2006). In order to eliminate the influence of these variables as much as possible, the three cases have been carefully selected: the institutional and demographic factors between the three housing types are comparable, while the spatial design differed each time. Differences between the three housing types in sense of community are found under comparable circumstances. However, I cannot guarantee that specific and unique personal characteristics of residents in the three types of housing are the same (e.g. being an extravert or an introvert). In this study, personality traits were not taken into account, which might also have explained differences in perceived sense of community.

Taking all these sets of arguments into account I would argue that the results of this research can be generalized for other neighborhoods with a mixed population of students and non-students. Every neighborhood is institutionally and demographically different, however, this study proposed general mechanisms and conditions that can be applied in other neighborhoods as well. For example, the mechanism that the success of semi-private spaces to stimulate social interactions is dependent on the use of the space and the time in space is probably applicable for other housing complexes and streets with a mixed population of student and non-student residents.

## Appendix B: Checklist Spatial design principles

| DESIGN PRINCIPLE          | INDICATORS  | GEOGRAPHICAL ENTITY | CHECK | NOTES |
|---------------------------|---|---------------------|-------|-------|
| <b>SEMI-PRIVATE SPACE</b> | The presence of a semi-private space <ul style="list-style-type: none"> <li>• How is the space maintained?</li> </ul>   | House / Block       |       |       |
|                           | Demarcation of semi-private space <ul style="list-style-type: none"> <li>• How is the semi-private space demarcated?</li> <li>• Demarcation promoting or limiting sight lines?</li> <li>• Privacy?</li> </ul>                                 | House / Block       |       |       |
|                           | Placement of personal belongings in semi-private space <ul style="list-style-type: none"> <li>• What kind of personal belongings?</li> </ul>  | House / Block       |       |       |
|                           | Position towards the sun  | House / Block       |       |       |
|                           | The size of the semi-private space  | House               |       |       |
| <b>HEIGHT</b>             | The number of stories <ul style="list-style-type: none"> <li>• More than four floors?</li> <li>• Sight lines?</li> </ul>  | House               |       |       |
|                           | Position of the house on the floor <ul style="list-style-type: none"> <li>• Living in the center of the floor?</li> <li>• Living close to stairs?</li> <li>• Living close to elevator?</li> <li>• Amount of neighbors in a street?</li> </ul> | House               |       |       |

*Table 8: observations checklist*

# Appendix C: Surveys

## Survey for residents living in a portico or gallery flat

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Alvast bedankt voor het invullen van deze enquête! Dit project heeft als doel om meer inzicht te krijgen in hoe studenten en 'stadjers' samen leven in Vinkhuizen. Onderwerpen als *'elkaar ontmoeten'* en *'het thuisvoelen in de straat'* komen in deze enquête naar voren. Uw deelname is cruciaal om mijn masterscriptie tot een succes te maken. Ik zou het enorm op prijs stellen als u 4 minuten van uw tijd wilt besteden aan het invullen van deze enquête.

Ik hoop van harte op uw deelname. Alvast bedankt!

Daniëlle Hartman  
Masterstudent Sociale Planologie, Rijksuniversiteit Groningen

Aarzel niet om contact op te nemen per e-mail als u suggesties of opmerkingen hebt over deze vragenlijst (d.m.hartman@student.rug.nl).

---

1 Wat is uw geslacht?

- Man
- Vrouw
- Anders
- 

2 Wat is uw leeftijd?

\_\_\_\_\_

---

3 Hoe lang woont u op uw huidige adres? (in jaren)

\_\_\_\_\_

---

4 In wat voor type woning woont u?

Een portiekflat



Een galerijflat



---

5 Op welke verdieping woont u?

\_\_\_\_\_

---

6 Welke van de onderstaande situaties omschrijft uw situatie het beste?

Ik ben student

Ik werk

Ik ontvang een uitkering

Ik ben gepensioneerd

---

*Display This Question:*

*If Welke van de onderstaande situaties omschrijft uw situatie het beste? = Ik ben student*

7 Geef aan wat van toepassing is voor u.

|   | Nooit                 | Zelden                | Soms                  | Vaak                  | Heel Vaak             |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hoe vaak heeft u contact met uw burens?                                 | <input type="radio"/> |
| Hoe vaak heeft u contact met niet-studenten die bij u in de flat wonen? | <input type="radio"/> |

*Display This Question:*

*If Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ben werkend*

*Or Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ontvang een uitkering*

*Or Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ben gepensioneerd*

8 Geef aan wat van toepassing is voor u.

|  | Nooit                 | Zelden                | Soms                  | Vaak                  | Heel vaak             |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hoe vaak heeft u contact met uw burens?                              | <input type="radio"/> |
| Hoe vaak heeft u contact met studenten die bij u in de straat wonen? | <input type="radio"/> |

*Display This Question:*

*If Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ben werkend*

*Or Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ontvang een uitkering*

*Or Welke van de onderstaande situaties omschijft uw situatie het beste? = Ik ben gepensioneerd*

9 Geef aan in hoeverre u het eens bent met de volgende stelling\*

|  | Helemaal oneens       | Oneens                | Niet mee eens, niet mee oneens | Eens                  | Helemaal mee eens     |
|--|-----------------------|-----------------------|--------------------------------|-----------------------|-----------------------|
| Het aantal studenten in mijn flat is precies goed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>          | <input type="radio"/> | <input type="radio"/> |

*\*this question has not been taken into account in the analysis of the data. See the 'Methodology' section.*

10 Geef aan in hoeverre u het eens bent met de volgende stellingen

|  | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal mee<br>eens  |
|--|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik herken de mensen die bij mij in de flat wonen.                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Wanneer ik bewoners uit mijn flat tegenkom dan groeten we elkaar.            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ken de mensen die bij mij in de flat wonen.                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik maak regelmatig een praatje met mijn burens wanneer we elkaar tegenkomen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik beschouw (enkele) mensen uit mijn flat als vrienden.                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar overlast van de mensen die bij mij in de flat wonen.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

11 Geef aan in hoeverre u het eens bent met de volgende stellingen

|   | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|---|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik heb behoefte aan contact met de bewoners uit mijn flat.                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar het contact dat ik met mijn burens heb over het algemeen als prettig.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar het contact dat ik met de bewoners uit mijn flat heb over het algemeen als prettig. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

12 Waar vindt er contact (*groeten, knikken, gesprekken, etc.*) tussen u en de bewoners van uw flat plaats? (u kunt meerdere antwoorden aankruisen)

- In huis
- Op het balkon
- In het trappenhuis
- In de lift
- In de portiek
- Op de galerij
- Op de parkeerplaats
- Op straat
- Anders, \_\_\_\_\_

---

13 Geef aan in hoeverre u het eens bent met de volgende stellingen

|   | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|---|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik voel me thuis tussen de andere bewoners van mijn flat. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik voel me thuis in mijn flat.                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben tevreden met mijn woning.                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben tevreden met mijn woonomgeving.                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik voel me verbonden met mijn woonomgeving.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben trots op mijn woonomgeving.                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

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14 Mag ik u benaderen voor een follow-up interview? Vul hieronder dan uw e-mailadres en/of uw telefoonnummer in. U zou mij hier enorm mee helpen!

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15 Wilt u op de hoogte gehouden worden van de resultaten vul hieronder dan uw e-mailadres in. Als u nog iets kwijt wil over ontmoetingen en/of het thuisvoelen in uw straat, dan mag u dat ook in onderstaande tekstvak invullen.

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Bedankt voor het invullen!

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## Survey for residents living in a terraced house

Alvast bedankt voor het invullen van deze enquête! Dit project heeft als doel om meer inzicht te krijgen in hoe studenten en 'stadjers' samen leven in Vinkhuizen. Onderwerpen als *'elkaar ontmoeten'* en *'het thuisvoelen in de straat'* komen in deze enquête naar voren. Uw deelname is cruciaal om mijn masterscriptie tot een succes te maken. Ik zou het enorm op prijs stellen als u 4 minuten van uw tijd wilt besteden aan het invullen van deze enquête.

Ik hoop van harte op uw deelname. Alvast bedankt!

Daniëlle Hartman  
Masterstudent Sociale Planologie, Rijksuniversiteit Groningen

Aarzel niet om contact op te nemen per e-mail als u suggesties of opmerkingen hebt over deze vragenlijst (d.m.hartman@student.rug.nl).

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1 Wat is uw geslacht?

- Man
- Vrouw
- Anders

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2 Wat is uw leeftijd?

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3 Hoe lang woont u op uw huidige adres? (in jaren)

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4 Welke van de onderstaande situatie omschrijft uw situatie het beste?

- Ik ben student
- Ik werk
- Ik ontvang een uitkering
- Ik ben gepensioneerd

Display This Question:

**If** Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ben student

5 Geef aan wat van toepassing is voor u.

|   | Nooit                 | Zelden                | Soms                  | Vaak                  | Heel vaak             |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hoe vaak heeft u contact met uw burens?                                   | <input type="radio"/> |
| Hoe vaak heeft u contact met niet-studenten die bij u in de straat wonen? | <input type="radio"/> |

Display This Question:

**If** Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ben werkend

**Or** Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ontvang een uitkering

**Or** Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ben gepensioneerd

6 Geef aan wat van toepassing is voor u.

|  | Nooit                 | Zelden                | Af en toe             | Vaak                  | Heel vaak             |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Hoe vaak heeft u contact met uw burens?                              | <input type="radio"/> |
| Hoe vaak heeft u contact met studenten die bij u in de straat wonen? | <input type="radio"/> |

Display This Question:

If Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ben werkend

Or Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ontvang een uitkering

Or Welke van de onderstaande situatie omschrijft uw situatie het beste? = Ik ben gepensioneerd

7 Geef aan in hoeverre u het eens bent met de volgende stelling

|  | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|--|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Het aantal studenten in mijn straat is precies goed. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

8 Geef aan in hoeverre u het eens bent met de volgende stellingen

|  | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|--|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik herken de mensen die bij mij in de straat wonen.                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Wanneer ik bewoners uit mijn straat tegenkom dan groeten we elkaar.          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ken de mensen die bij mij in de straat wonen.                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik maak regelmatig een praatje met mijn burens wanneer we elkaar tegenkomen. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik beschouw (enkele) mensen uit mijn straat als mijn vrienden.               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar overlast van de mensen die bij mij in de straat wonen.             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

9 Geef aan in hoeverre u het eens bent met de volgende stellingen

|   | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|---|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik heb behoefte aan contact met de bewoners uit mijn straat.                                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar het contact dat ik met mijn burens heb over het algemeen als prettig.                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ervaar het contact dat ik met de bewoners uit mijn straat heb over het algemeen als prettig. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

10 Waar vindt er contact (groeten, knikken, gesprekken, etc.) tussen u en de bewoners van uw straat plaats? (u kunt meerdere antwoorden aankruisen)

- In huis
- In de voortuin
- Op de parkeerplaats
- Op straat
- Anders, \_\_\_\_\_

11 Geef aan in hoeverre u het eens bent met de volgende stellingen

|   | Helemaal oneens       | Oneens                | Niet mee eens,<br>niet mee oneens | Eens                  | Helemaal eens         |
|---|-----------------------|-----------------------|-----------------------------------|-----------------------|-----------------------|
| Ik voel me thuis tussen de andere bewoners van mijn straat. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik voel me thuis in mijn straat.                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben tevreden met mijn woning.                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben tevreden met mijn woonomgeving.                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik voel me verbonden met mijn woonomgeving.                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |
| Ik ben trots op mijn woonomgeving.                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>             | <input type="radio"/> | <input type="radio"/> |

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12 Mag ik u benaderen voor een follow-up interview? Vul hieronder dan uw e-mailadres en/of uw telefoonnummer in. U zou mij hier enorm mee helpen!

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13 Wilt u op de hoogte gehouden worden van de resultaten vul hieronder dan uw e-mailadres in. Als u nog iets kwijt wil over ontmoetingen en/of het thuisvoelen in uw straat, dan mag u dat ook in onderstaande tekstvak invullen.

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Bedankt voor het invullen!

## Justification of the survey questions

| Hoofdthema          | Subthema               | Vraag/stelling in de enquête  | Gerelateerd aan deelvraag   | Verantwoording van de vraag  |
|---------------------|------------------------|---|---|--|
| Algemene informatie | Persoonlijke kenmerken | Wat is uw geslacht?   | Niet specifiek gerelateerd aan één of twee deelvragen. Deze data is nodig om verbanden te leggen tussen verschillende variabelen van <i>sociale interacties</i> . | Vaststelling van persoonlijke kenmerken. Ook kan ik dan uitsluiten of demografische persoonlijke kenmerken invloed hebben op sociale interactie of niet aangezien de literatuur daar niet eenduidig over is. |
| Algemene informatie | Persoonlijke kenmerken | Wat is uw leeftijd?   | Niet specifiek gerelateerd aan één of twee deelvragen. Deze data is nodig om verbanden te leggen tussen verschillende variabelen van <i>sociale interacties</i> . | Vaststelling van persoonlijke kenmerken. Ook kan ik dan uitsluiten of demografische persoonlijke kenmerken invloed hebben op sociale interactie of niet aangezien de literatuur daar niet eenduidig over is. |
| Algemene informatie | Persoonlijke kenmerken | Welke van de onderstaande situaties omschrijft uw situatie het beste? | Niet specifiek gerelateerd aan één of twee deelvragen. Deze data is nodig om verbanden te leggen tussen verschillende variabelen van <i>sociale interacties</i> . | Deze data is nodig omdat ik nu gemakkelijk een analyse kan maken tussen verschillende groepen mensen: studenten, werkenden, gepensioneerden, en mensen die een uitkering ontvangen.                          |
| Algemene informatie | Persoonlijke kenmerken | Hoe lang woont u op uw huidige adres? (in jaren)                      | Niet specifiek gerelateerd aan één of twee deelvragen. Deze data is nodig om verbanden te leggen tussen verschillende variabelen van <i>sociale interacties</i> . | Vaststelling van persoonlijke kenmerken. Ook kan ik dan uitsluiten of demografische persoonlijke kenmerken invloed hebben op sociale interactie of niet aangezien de literatuur daar niet eenduidig over is. |
|                     |                        |   |   |  |
| Ruimtelijk ontwerp  | Woningtype             | In wat voor type woning woont u?                                      | Niet specifiek gerelateerd aan één of twee deelvragen. Deze   | Deze data is nodig om de drie woningtypes op verschillende vlakken   |

|                            |                           |  |   |  |
|----------------------------|---------------------------|--|---|--|
|                            |                           |  | date is nodig om verbanden te leggen tussen verschillende variabelen van <i>sociale interacties</i> en <i>sense of community</i> .                      | met elkaar te kunnen vergelijken.  |
| <b>Ruimtelijk ontwerp</b>  | Schaal en hoogte          | Op welke verdieping in uw flat woont u?  | Deelvraag 1b: How does spatial design influence social interactions between residents in the gallery flat, portico flat and the terraced houses?        | Deze data is nodig om vermoedens en theorieën over de negatieve invloed van het wonen op grote hoogte op sociale interactie te bevestigen of juist te ontkrachten.   |
|                            |                           |  |   |  |
|                            |                           |  |   |  |
| <b>Sociale interacties</b> | Frequentie en doelgroepen | Hoe vaak heeft u contact met uw burens?  | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data laat zegt iets <u>of</u> er überhaupt contact is tussen bewoners.  |
| <b>Sociale interacties</b> | Frequentie en doelgroepen | Hoe vaak heeft u contact met niet-studenten die bij u in de straat/flat wonen? | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data laat mij weten <u>of</u> er überhaupt contact is tussen specifieke doelgroepen.<br><br>Deze data is nodig om iets te kunnen zeggen over verschillen tussen studenten en niet-student bewoners.<br><br>Deze data is nodig om vermoedens en theorieën over sociale identificatie tussen studenten en niet-studenten te bevestigen of juist te ontkrachten. |
| <b>Sociale interacties</b> | Frequentie en doelgroepen | Hoe vaak heeft u contact met studenten die bij u in de straat/flat wonen?      | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data laat mij weten <u>of</u> er überhaupt contact is tussen specifieke doelgroepen.<br><br>Deze data is nodig om iets te kunnen zeggen over verschillen tussen studenten en niet-student bewoners.<br><br>Deze data is nodig om  |

|                            |                      |  |   |   |
|----------------------------|----------------------|--|---|---|
|                            |                      |  |   | vermoedens en theorieën over sociale identificatie tussen studenten en niet-studenten te bevestigen of juist te ontcrachten.  |
| <b>Sociale interacties</b> | Doelgroepen          | Het aantal studenten in mijn flat is precies goed.                       | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze vraag is verwijderd, zie de 'methodologie' sectie.   |
| <b>Sociale interacties</b> | Type contact, gevoel | Ik <u>herken</u> de mensen die bij mij in de straat/flat wonen.          | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn flat/straatgenoten.<br><br>In het theoretisch kader heb ik een ladder gemaakt van verschillende sociale interacties, aan de hand van deze data kan ik een inschatting maken hoe bewoners scoren op deze ladder.<br><br>Ook zegt deze data iets over het concept <i>familiariteit</i> . |
| <b>Sociale interacties</b> | Type contact, gedrag | Wanneer ik bewoners uit mijn flat/straat tegenkom dan groeten we elkaar. | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn buurtgenoten.  |
| <b>Sociale interacties</b> | Type contact, gevoel | Ik <u>ken</u> de mensen die bij mij in de flat/straat wonen.             | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn buurtgenoten.<br><br>In het theoretisch kader heb ik een ladder gemaakt van verschillende sociale interacties, aan de hand van deze data kan ik een  |

|                            |                              |   |   |   |
|----------------------------|------------------------------|---|---|---|
|                            |                              |   |   | inschatting maken hoe bewoners scoren op deze ladder.   |
| <b>Sociale interacties</b> | Type contact, gedrag         | Ik maak regelmatig een praatje met mijn burens wanneer we elkaar tegen komen.   | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn buurtgenoten.  |
| <b>Sociale interacties</b> | Type contact, gevoel         | Ik beschouw (enkele) mensen uit mijn flat/straat als vrienden.                  | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn buurtgenoten.  |
| <b>Sociale interacties</b> | Type contact                 | Ik ervaar overlast van de mensen die bij mij in de flat/straat wonen.           | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij iets over <u>de aard</u> van het contact dat de bewoner heeft met zijn buurtgenoten.  |
| <b>Sociale interacties</b> | Beleving en ervaring contact | Ik heb behoefte aan contact met de bewoners uit mijn flat/straat.               | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data vertelt me iets over de persoonlijkheid van de respondenten. Sommige respondenten hebben (om redenen) minder behoefte aan lokale contact.<br><br>Deze data kan gecombineerd worden met informatie over persoonlijke kenmerken (leeftijd, geslacht, bezigheid etc.) om nuanceringen of juist accenten aan te brengen in de behoefte aan contact. |
| <b>Sociale interacties</b> | Beleving en ervaring contact | Ik ervaar het contact dat ik met mijn burens heb over het algemeen als prettig. | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with                           | Deze data leert mij hoe bewoners de contacten ervaren.<br><br>Aan de hand van deze data kan ik de relatie   |

|                            |                              |  |   |   |
|----------------------------|------------------------------|--|---|---|
|                            |                              |  | street- and flat members?   | tussen positieve sociale interacties en een positief gevoel van sense of community toetsen. Ook de omgekeerde, potentiële negatieve relatie kan getoetst worden.  |
| <b>Sociale interacties</b> | Beleving en ervaring contact | Ik ervaar het contact dat ik met de bewoners uit mijn flat/straat heb over het algemeen als prettig. | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert mij hoe bewoners de contacten ervaren.<br><br>Aan de hand van deze data kan ik de relatie tussen positieve sociale interacties en een positief gevoel van sense of community toetsen. Ook de omgekeerde, potentiële negatieve relatie kan getoetst worden.  |
| <b>Sociale interacties</b> | Locatie                      | Waar vindt er contact tussen u de bewoners van uw flat/straat plaats?                                | Deelvraag 2: How do student and non-student residents in the gallery flat, portico flat and the terraced houses interact with street- and flat members? | Deze data leert bij <u>waar</u> in het huizenblok de ontmoetingen tussen bewoners plaatsvinden.<br><br>Aan de hand van deze data en de informatie of de respondent in een rijtjeshuis, portiek- of galerijflat woont, kan gekeken worden of er verschillen zitten tussen 'sociale ruimtes' in de verschillende huisvestingstypes. |
|                            |                              |  |   |   |
| <b>Sense of Community</b>  | Relational perspective       | Ik voel me thuis tussen de andere bewoners van mijn flat/straat.                                     | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community?     | Deze vraag is geschreven vanuit relationeel perspectief. Deze data leert mij iets over <i>membership</i> met <u>mensen</u> . Daarnaast kan deze data, gecombineerd met andere uitkomsten, meer inzicht brengen in de rol van <i>sociale identificatie</i> bij het thuisvoelen bij andere mensen.                                  |

|                           |   |  |   |   |
|---------------------------|---|--|---|---|
| <b>Sense of Community</b> | Relational perspective, Territorial perspective | Ik voel me thuis in mijn straat.   | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community? | Deze vraag is geschreven vanuit relationeel en territoriaal perspectief. Deze data leert mij iets over <i>membership</i> met de <u>fysieke ruimte</u> .                                   |
| <b>Sense of Community</b> | Relational perspective, Territorial perspective | Ik ben tevreden met mijn woning.   | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community? | Deze vraag is geschreven vanuit relationeel en territoriaal perspectief. Deze data leert mij iets over <i>community attachment</i> met de <u>fysieke ruimte</u> .                         |
| <b>Sense of Community</b> | Relational perspective, Territorial perspective | Ik ben tevreden met mijn woonomgeving.   | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community? | Deze vraag is geschreven vanuit relationeel en territoriaal perspectief. Deze data leert mij iets over <i>community attachment</i> met de <u>fysieke ruimte</u> .                         |
| <b>Sense of Community</b> | Relational perspective, Relational perspective  | Ik voel me verbonden met mijn woonomgeving.  | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community? | Deze vraag is geschreven vanuit relationeel en territoriaal perspectief. Deze data leert mij iets over <i>community attachment</i> met de <u>fysieke ruimte</u> .                         |
| <b>Sense of Community</b> | Relational perspective, Relational perspective  | Ik ben trots op mijn woonomgeving.   | Deelvraag 3b: How do student and non-student residents in the gallery flat, portico flat and the terraced houses perceive their sense of community? | Deze vraag is geschreven vanuit relationeel en territoriaal perspectief. Deze data leert mij iets over <i>community attachment</i> met de <u>fysieke ruimte</u> .                         |
|                           |   |  |   |   |
| <b>Afsluiting</b>         |   | Wilt u graag de uitkomsten van het onderzoek inzien? Vult u dan hier uw emailadres in: | n.v.t.  | Deze vraag is gesteld om te voldoen aan de ethische codes van onderzoek doen; ik wil transparant zijn. Voor de respondenten die daar behoefte aan hebben, heb ik een 'factsheet' gemaakt. |

|                   |  |   |        |  |
|-------------------|--|---|--------|--|
| <b>Afsluiting</b> |  | Mag ik u benaderen voor een follow-up interview? Vul hieronder uw emailadres en/of telefoonnummer in: | n.v.t. | Deze vraag is gesteld om het zoeken van respondenten voor de interviews te vergemakkelijken. |
|-------------------|--|---|--------|--|

*Table 9: justification of the survey questions*

## Statistical analysis of the data

\* = significant at a significance level of 5%. Every test was tested 2-tailed.

A Mann Whitney U test was used to determine differences between men and women and the wish for social interactions.

|                         | Gender | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P    |
|-------------------------|--------|----|-----------|--------------|----------------|------|
| Wish for social contact | Men    | 48 | 62,05     | 2978,5       | 1317,5         | 0,14 |
|                         | Women  | 65 | 53,27     | 3462,5       |                |      |

**Table 10:** Results Mann Withney U test; no differences between men and women in the wish for social interaction

A Kurskal-Wallis H test to determine differences between:

- different age groups and the wish for social interaction;
- different types of occupation and the wish for social interaction.

|            |                    | Wish for social interaction |           |           |       |
|------------|--------------------|-----------------------------|-----------|-----------|-------|
|            |                    | N                           | Mean rank | Kruskal H | P     |
| Age        | 18-25              | 66                          | 47,98     | 15,019    | 0,00* |
|            | 25-65              | 42                          | 67,68     |           |       |
|            | 65+                | 5                           | 86,3      |           |       |
| Occupation | Student            | 61                          | 47,67     | 17,827    | 0,00* |
|            | Working            | 40                          | 63,51     |           |       |
|            | Living on benefits | 7                           | 81,14     |           |       |
|            | Retired            | 6                           | 89,75     |           |       |

**Table 11:** Results Kruskal Wallis H test; significant differences between age and wish for contact and occupation and wish for contact

A Mann Whitney U test was used as a post hoc test to determine differences between the age groups.

|                         | Age group | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P     |
|-------------------------|-----------|----|-----------|--------------|----------------|-------|
| Wish for social contact | 18-25     | 66 | 46,97     | 3100         | 889            | 0,00* |
|                         | 26-65     | 42 | 66,33     | 2786         |                |       |
| Wish for social contact | 18-25     | 66 | 34,52     | 2278         | 67             | 0,00* |
|                         | 66+       | 5  | 55,6      | 278          |                |       |
| Wish for social contact | 26-65     | 42 | 22,85     | 959,5        | 56,5           | 0,03* |
|                         | 66+       | 5  | 33,7      | 168,5        |                |       |

**Table 12:** Results Mann Withney U test; significant differences between age groups and the wish for social interaction

A Mann Whitney U test was used as a post hoc test to determine differences between the occupation groups.

|                             | Occupation         | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P     |
|-----------------------------|--------------------|----|-----------|--------------|----------------|-------|
| Wish for social interaction | Student            | 61 | 45,17     | 2755,5       | 864,5          | 0,00* |
|                             | Working            | 40 | 59,89     | 2395,5       |                |       |
| Wish for social interaction | Student            | 61 | 32,44     | 1979,00      | 88,00          | 0,00* |
|                             | Living on Benefits | 7  | 52,43     | 367,00       |                |       |
| Wish for social interaction | Student            | 61 | 32,06     | 1955,5       | 64,5           | 0,00* |
|                             | Retired            | 6  | 53,75     | 322,5        |                |       |
| Wish for social interaction | Working            | 40 | 22,8      | 912          | 92             | 0,15  |
|                             | Living on benefits | 7  | 30,86     | 216          |                |       |
| Wish for social interaction | Working            | 40 | 21,83     | 873          | 53             | 0,02* |
|                             | Retired            | 6  | 34,67     | 208          |                |       |
| Wish for social interaction | Living on benefits | 7  | 5,86      | 41           | 13             | 0,26  |
|                             | Retired            | 6  | 8,33      | 50           |                |       |

**Table 13:** Results Mann Withney U test; significant differences between occupation and the wish for social interaction

A Kurskal-Wallis H test to determine differences between:

- residents living in different types of housing and recognizing fellow residents;
- residents living in different types of housing and knowing fellow residents;
- residents living in different types of housing and greeting fellow residents;
- residents living in different types of housing and chatting with fellow residents.

|                              | Portico flat |           | Gallery flat |           | Terraced house |           | Kruskal-Wallis H | P    |
|------------------------------|--------------|-----------|--------------|-----------|----------------|-----------|------------------|------|
|                              | N            | Mean Rank | N            | Mean Rank | N              | Mean Rank |                  |      |
| Recognizing fellow residents | 14           | 77,54     | 72           | 49,85     | 29             | 68,81     | 14.756           | ,00* |

|                                       |    |       |    |       |    |       |        |             |
|---------------------------------------|----|-------|----|-------|----|-------|--------|-------------|
| <b>Knowing fellow residents</b>       | 14 | 81,25 | 71 | 47,92 | 29 | 69,5  | 18.371 | <b>,00*</b> |
| <b>Greeting fellow residents</b>      | 14 | 62,11 | 72 | 55,39 | 29 | 62,5  | 1.700  | 0,43        |
| <b>Chatting with fellow residents</b> | 14 | 63,18 | 72 | 53,31 | 29 | 67,16 | 4.245  | 0,12        |

*Table 14: Results Kruskal Wallis H test; significant differences between recognizing with different housing types and knowing with different housing types*

A Mann Whitney U test was used as a post hoc test to determine differences between the groups.

|                                     | Housing type          | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P            |
|-------------------------------------|-----------------------|----|-----------|--------------|----------------|--------------|
| <b>Recognizing fellow residents</b> | <i>Portico</i>        | 14 | 60,75     | 850,5        | 262,5          | <b>0,00*</b> |
|                                     | <i>Gallery</i>        | 72 | 40,15     | 2890,5       |                |              |
| <b>Recognizing fellow residents</b> | <i>Portico</i>        | 14 | 24,29     | 340          | 171            | 0,16         |
|                                     | <i>Terraced house</i> | 29 | 20,9      | 606          |                |              |
| <b>Recognizing fellow residents</b> | <i>Gallery</i>        | 72 | 46,20     | 3326,5       | 698,50         | <b>0,00*</b> |
|                                     | <i>Terraced house</i> | 29 | 62,91     | 1824,5       |                |              |

*Table 15: Results Mann Withney U test; significant differences portico flat and gallery flat, and the terraced houses and the gallery flat with recognition contacts.*

A Mann Whitney U test was used as a post hoc test to determine differences between the groups.

|                                 | Housing type          | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P            |
|---------------------------------|-----------------------|----|-----------|--------------|----------------|--------------|
| <b>Knowing fellow residents</b> | <i>Portico</i>        | 14 | 64,68     | 905,5        | 193,5          | <b>0,00*</b> |
|                                 | <i>Gallery</i>        | 71 | 38,73     | 2749,5       |                |              |
| <b>Knowing fellow residents</b> | <i>Portico</i>        | 14 | 24,07     | 337          | 174            | 0,22         |
|                                 | <i>Terraced house</i> | 29 | 21        | 609          |                |              |
| <b>Knowing fellow residents</b> | <i>Gallery</i>        | 71 | 45,19     | 3208,5       | 652,5          | <b>0,00*</b> |
|                                 | <i>Terraced house</i> | 29 | 63,5      | 1841,5       |                |              |

*Table 16: Results Mann Withney U test; significant differences portico flat and gallery flat, and the terraced houses and the gallery flat with knowing fellow residents.*

A Kurskal-Wallis H test to determine differences between:

- recognizing fellow residents and residents perceiving different levels of ‘feeling at home’;
- knowing fellow residents and residents perceiving different levels of ‘feeling at home’.

|                                     | <i>Feeling at home</i> |           |         |           |       |           | Kruskal-wallis H | P            |
|-------------------------------------|------------------------|-----------|---------|-----------|-------|-----------|------------------|--------------|
|                                     | Disagree               |           | Neutral |           | Agree |           |                  |              |
|                                     | N                      | Mean Rank | N       | Mean Rank | N     | Mean Rank |                  |              |
| <b>Recognizing fellow residents</b> | 10                     | 56,06     | 39      | 50,15     | 63    | 60,5      | 3.612            | 0,16         |
| <b>Knowing fellow residents</b>     | 49                     | 46.15     | 34      | 60,29     | 28    | 68,02     | 10.863           | <b>0,00*</b> |

*Table 17: Results Kruskal Wallis H test; significant differences between knowing and different levels of feelings at home*

A Mann Whitney U test was used as a post hoc test to determine differences between the groups.

|                                 | <i>Feeling at home</i> | N  | Mean Rank | Sum of Ranks | Mann-Whitney U | P            |
|---------------------------------|------------------------|----|-----------|--------------|----------------|--------------|
| <b>Knowing fellow residents</b> | <i>disagree</i>        | 10 | 19,6      | 196          | 141            | 0,19         |
|                                 | <i>neutral</i>         | 38 | 25,79     | 980          |                |              |
| <b>Knowing fellow residents</b> | <i>disagree</i>        | 10 | 22,3      | 223          | 168            | <b>0,01*</b> |
|                                 | <i>agree</i>           | 63 | 39,33     | 2478         |                |              |
| <b>Knowing fellow residents</b> | <i>neutral</i>         | 38 | 43,26     | 1644         | 903            | <b>0,03*</b> |
|                                 | <i>agree</i>           | 63 | 55,67     | 3507         |                |              |

*Table 18: Results Mann Withney U test; significant differences between different degrees of knowing fellow residents and feelings of being at home*

A Kurskal-Wallis H test to determine differences between:

- residents perceiving different levels of ‘feeling at home’ and greeting fellow residents;
- residents perceiving different levels of ‘feeling at home’ and chatting with fellow residents.

| <i>Greeting fellow residents</i>      |          |          |                  |                         |              |
|---------------------------------------|----------|----------|------------------|-------------------------|--------------|
|                                       |          | <b>N</b> | <b>Mean Rank</b> | <b>Kruskal-Wallis H</b> | <b>P</b>     |
| <b>Feeling at home</b>                | agree    | 63       | 59,05            | 2,441                   | 0,31         |
|                                       | neutral  | 39       | 51,13            |                         |              |
|                                       | disagree | 10       | 59,05            |                         |              |
| <b>Chatting with fellow residents</b> |          |          |                  |                         |              |
| <b>Feeling at home</b>                | agree    | 63       | 64,36            | 9,311                   | <b>0,00*</b> |
|                                       | neutral  | 39       | 45,33            |                         |              |
|                                       | disagree | 10       | 50,55            |                         |              |

**Table 19:** Results Kruskal Wallis H test; significant differences between different degrees of feeling at home and chatting with fellow residents

A Mann Whitney U test was used as a post hoc test to determine differences between the groups.

|                        | <b>Chatting with fellow residents</b> | <b>N</b> | <b>Mean Rank</b> | <b>Sum of Ranks</b> | <b>Mann-Whitney U</b> | <b>P</b>     |
|------------------------|---------------------------------------|----------|------------------|---------------------|-----------------------|--------------|
| <b>Feeling at home</b> | <i>disagree</i>                       | 10       | 26,85            | 268,5               | 176,5                 | 0,34         |
|                        | <i>neutral</i>                        | 39       | 24,53            | 956,5               |                       |              |
| <b>Feeling at home</b> | <i>disagree</i>                       | 10       | 29,2             | 292                 | 237                   | 0,20         |
|                        | <i>agree</i>                          | 63       | 38,24            | 2409                |                       |              |
| <b>Feeling at home</b> | <i>neutral</i>                        | 39       | 40,81            | 1591,5              | 811,5                 | <b>0,00*</b> |
|                        | <i>agree</i>                          | 63       | 58,12            | 3661,5              |                       |              |

**Table 20:** Results Mann Withney U test; significant differences between different degrees of feeling at home and chatting with fellow residents

## Appendix D: Interviews

### Interview strategy

This thesis used semi-structured interviews as a method to understand participant's sense of community, their experiences with local contacts and their use of residential space. The main focus during the interviews, however, was on sense of community since this concept contains multiple psychological aspects that could not be analyzed by means of a survey.

In order to unravel participants' sense of community an interview strategy was set up. I distinguished three main topics: *sense of community*, *social interactions*, and *(the use of) residential spatial design*. Each topic contained one main question and various keywords. These are shown below in table 21 and table 22.

| MAIN TOPIC                 | MAIN QUESTION  |
|----------------------------|--|
| <b>SENSE OF COMMUNITY</b>  | <i>Can you tell me something about how you feel in your street/flat?</i><br>- <i>Kunt u mij iets vertellen over hoe u zich voelt in uw straat?</i>                         |
| <b>SPATIAL DESIGN</b>      | <i>Can you tell me something about the street/flat you live in?</i><br>- <i>Kunt u mij iets vertellen over de straat/flat waar u woont?</i>                                |
| <b>SOCIAL INTERACTIONS</b> | <i>Can you tell me something about your contacts with fellow street/flat residents?</i><br>- <i>Kunt u mij iets vertellen over het contact met uw straat- flatgenoten?</i> |

*Table 21: the three main questions related to the main themes in this study*

| MAIN TOPIC  | KEYWORDS                            | COMPONENTS   |
|---|-------------------------------------|--|
| <b>SENSE OF COMMUNITY</b><br><b>SOCIAL INTERACTIONS</b> | <i>Defining sense of community</i>  | Geographical entity<br>People<br>Buildings<br>Feelings and emotions                        |
| <b>SENSE OF COMMUNITY</b>                               | <i>Feelings and emotions</i>        | Sense of belonging<br>Emotional connection<br>Feelings of pride<br>Attachment<br>Community |
| <b>SENSE OF COMMUNITY</b><br><b>SPATIAL DESIGN</b>      | <i>House and direct environment</i> | Appreciation<br>Use of the space   |
| <b>SPATIAL DESIGN</b><br><b>SOCIAL INTERACTIONS</b>     | <i>Locations</i>                    | Private spaces<br>Semi-private spaces<br>Public spaces                                     |
| <b>SOCIAL INTERACTIONS</b>                              | <i>Networks and contacts</i>        | Social groups<br>Frequency<br>Location   |

|  |                                 |
|--|---------------------------------|
|  | Appreciation<br>Type of contact |
|--|---------------------------------|

**Table 22:** keywords and components related to the main themes

The main questions invite participants to tell their story since they cannot, or at least not that easy, answer only *yes* or *no* to these questions. The questions are also very broad, which means that the participant has a lot of freedom to talk about various things. The main questions are formulated in such a way that participants can choose to respond from a more territorial perspective or a more relational perspective. For example, when I asked the question ‘*Can you tell me something about how you feel in your street/flat?*’, participants can choose to tell me something about their relationships with others (*relational*) or they could tell me something about feelings towards their house and their direct environment (*territorial*).

If participants talked more about their relationships with fellow residents then I could ask them more about the *social interactions*. If participants talked more about feelings towards their house and the environment then I then I could ask them more about (*their use of*) *the spatial design*. Thus, as table 22 shows, the main questions and the keywords are interlinked and sometimes overlap: they are formulated in such a way that I could easily shift between different topics without losing track of the aim of the interview.

## Informed consent

This informed consent form includes a signature from the participant. However, the majority of the interviews were held online. In the cases of the online interviews I discussed the informed consent form with the participant and he or she *verbally* confirmed the statements.

---

**Master Thesis** | Understanding the impact of different residential designs on sense of community.

*Participant:* I declare that I have been informed about:

- The aim and the methods of the research

*Participant:* I understand that I have the following rights during the interview:

- I can stop my cooperation to this research at any moment and without giving any reason.
- The data will be processed anonymously
- The recordings will be deleted after the transcription of the interview.

*Participant:* I declare that I:

- Join this research project completely voluntary.
- Allow the results of this interview to be used in a report or scientific publication.
- Grant permission to record this online interview by way of a video/voice-record.

Signature: .....

Name: .....

Date: .....

*Researcher:*

- I declare that I informed the participant about the aim and the methods of the research
- I declare that I informed the participant about his/her rights during the interview.
- I am prepared to interview the participant: I am prepared to answer questions properly.

Signature: .....

Name: .....

Date: .....

## Code book

| Code group                 | Code         | Subcode  | Occur-ence               | Inductive or deductive                                 | Representative quote   |
|----------------------------|--------------|--|--------------------------|--|--|
| <b>Sense of community</b>  | Scale        | <ul style="list-style-type: none"> <li>City</li> <li>Neighborhood</li> <li>Street</li> <li>Block/story</li> <li>Own dwelling</li> </ul>  | 2<br>7<br>18<br>19<br>21 | Deductive (McMilan & Chavis, 1986)                     | <i>I feel more connected to my gallery, not so much with the flat itself. Just the gallery. Because I see those people much more often and I know who lives next to me. I don't know about everyone in my flat, but at least I know about the people who live with me at my gallery.</i>                             |
|                            | Feelings     | <ul style="list-style-type: none"> <li>Emotional connection physical environment</li> <li>Emotional connection physical environment and people</li> <li>Emotional connection people</li> </ul> | 13<br>29<br>42           | Deductive (McMilan & Chavis, 1986; Kim & Kaplan, 2004) | <i>[...] Look and I also recognize people here in this flat and I do exchange words with them, that makes a difference to how I feel at home. I think if I didn't recognize anyone here and it would be much more individual here, I would really feel very uncomfortable. Then I really feel much less at home.</i> |
|                            | Behavior     | <ul style="list-style-type: none"> <li>(Planned) social interactions</li> <li>Small favors</li> </ul>  | 5<br>9                   | Deductive (McMilan & Chavis, 1986; Kim & Kaplan, 2004) | <i>A couple of houses away from us, well there is this woman and she is half blind. We occasionally do something for her, we do some cleaning jobs or we paint her garden fence, such things.</i>  |
| <b>Social interactions</b> | Appreciation | <ul style="list-style-type: none"> <li>Positive</li> <li>Neutral</li> <li>Negative</li> </ul>  | 29<br>10<br>8            | Inductive  | <i>"I will not be put off, well at that moment, then it was really not pleasant, then at that moment I felt really frustrated. I didn't really want to leave my house at the time because I didn't really want to run into her. [...]"</i>   |

|                       |                         |   |                          |                                |   |
|-----------------------|-------------------------|---|--------------------------|--------------------------------|---|
|                       | Location                | <ul style="list-style-type: none"> <li>• Private Spcae</li> <li>• Semi-private space</li> <li>• Public space</li> </ul>   | 14<br>44<br>13           | Inductive                      | <i>First we waved or met each other on the street, and also in the (front) garden, then we sat in the sun and then they passed by. Well then you talk to each other. When we got to know each other better we also took chairs and then sat with them in the (front) garden and we also came together for coffee.</i> |
|                       | Social networks         | <ul style="list-style-type: none"> <li>• Social groups</li> <li>• Location network</li> </ul>   | 22<br>8                  | Deductive (Kim & Kaplan, 2004) | <i>[...] With the elderly in my flat, yeah well, I can't identify with them at all, it is difficult for me to empathize with them and I really feel more at home with the students now.</i>   |
|                       | Type of contacts        | <ul style="list-style-type: none"> <li>• Friendships</li> <li>• Acquaintances</li> <li>• Chance contacts</li> <li>• No contact</li> <li>• Social conflicts</li> </ul> | 7<br>12<br>29<br>42<br>4 | Deductive (Gehl, 2011)         | <i>[...] Look and I also recognize people here in this flat and I do exchange words with them [...]</i>   |
|                       | Wish for social contact |   | 15                       | Inductive                      | <i>Well, no, I don't really have a need for contact with people from the street. [...]</i><br><i>At the moment I am still very much involved in the student world and that's where I get my contacts from.</i>  |
|                       | Reason for contact      | <ul style="list-style-type: none"> <li>• For practical reasons</li> <li>• For fun</li> <li>• Space evokes contact</li> </ul>  | 5<br>17<br>16            | Inductive                      | <i>'[...] in the elevator you also have a little bit longer and you also stand really close to each other. Then it also becomes a bit uncomfortable when it stays quiet for a long time, I really don't like that, so I often start a conversation.'</i>  |
| <b>Spatial design</b> | Semi/private space      | <ul style="list-style-type: none"> <li>• Experience (feelings)</li> <li>• Use (behavior)</li> </ul>   | 21<br>23                 | Inductive                      | <i>Look one time I take the left elevator and the other time I take the elevator in the middle. All the houses</i>  |

|                          |                     |   |                  |                                 |  |
|--------------------------|---------------------|---|------------------|---------------------------------|--|
|                          |                     |   |                  |                                 | <p><i>on the right side of my gallery, well I actually don't see those people.</i></p> <p><i>Because we are on the left side of the gallery, and I don't know anyone on the right side. I never go there.</i></p>  |
|                          | Height              | <ul style="list-style-type: none"> <li>• Experience (feelings)</li> <li>• Use (behavior)</li> </ul>                             | 18<br>24         | Inductive                       | <p><i>Well look, I am just sitting here (in the terraced house) by my window, and then I can look outside, I see other people passing by and when I see acquaintances I wave at them. But that was not really possible in the portico flat, or at least it was not easy.</i></p> |
| Personal characteristics | Gender              |   |                  |                                 | -  |
|                          | Age                 |   |                  |                                 | -  |
|                          | Length of residence | <ul style="list-style-type: none"> <li>• Actual</li> <li>• Planned</li> </ul>   | 13<br>13         | Deductive (Chavis et al., 1986) |  |
|                          | Occupation          | <ul style="list-style-type: none"> <li>• Student</li> <li>• Working</li> <li>• Living on benefits</li> <li>• Retired</li> </ul> | 7<br>3<br>0<br>3 | Inductive                       | -  |
|                          | Personality         | <ul style="list-style-type: none"> <li>• 'Extravert'</li> <li>• 'Introvert'</li> </ul>  | 4<br>2           | Inductive                       | <p><i>I love to surround myself with people. I just love it! [...] (his wife:) Well, you know, I don't, I need some time for myself. I like it, but not all the time.</i></p>  |
|                          | Background          | <ul style="list-style-type: none"> <li>• Birth place (village or city)</li> <li>• Education</li> </ul>                          | 6<br>11          | Inductive                       | <p><i>Well, I grew up in a small village, that was quite different from the city life here.</i></p>  |

**Table 23:** code book

Code trees

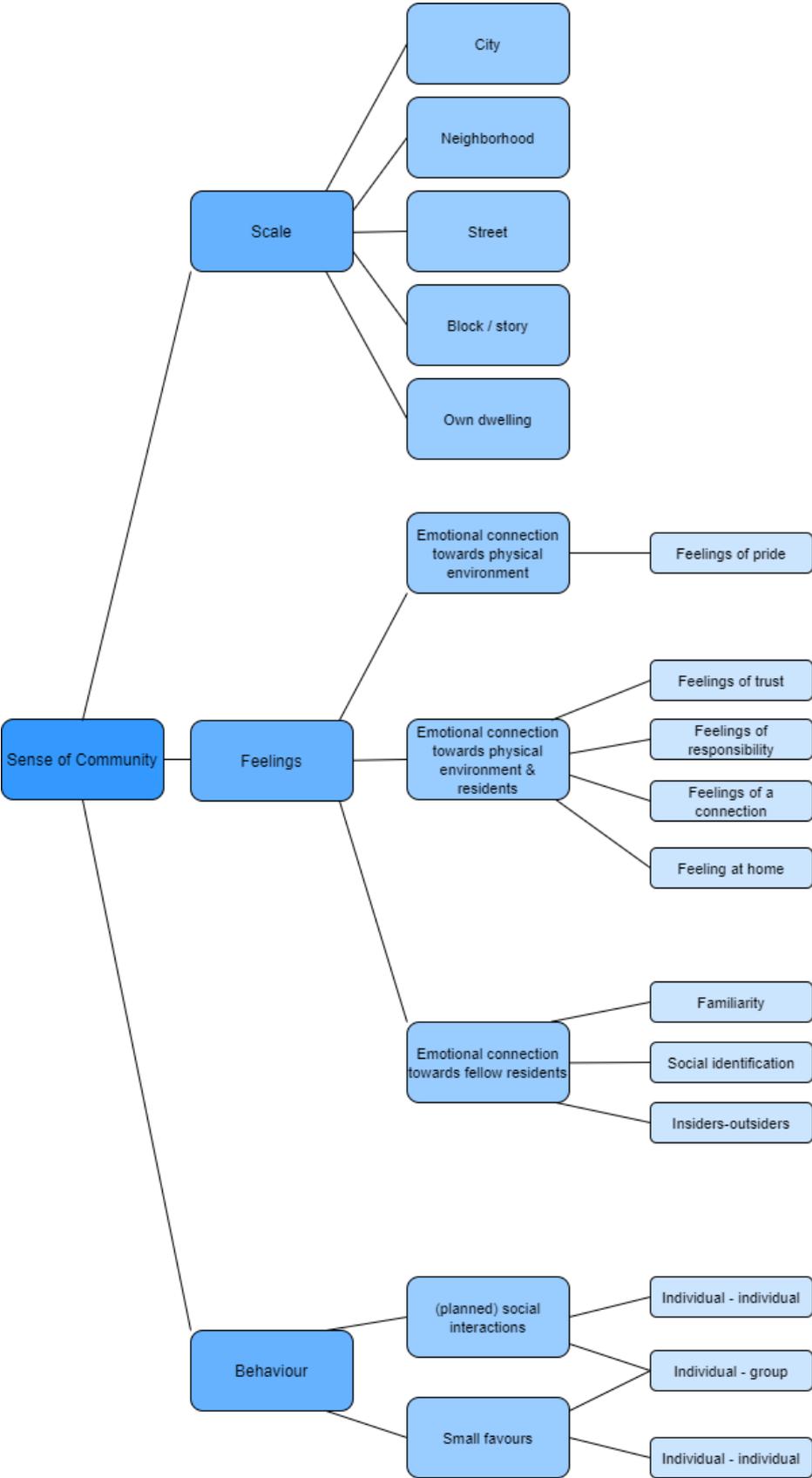
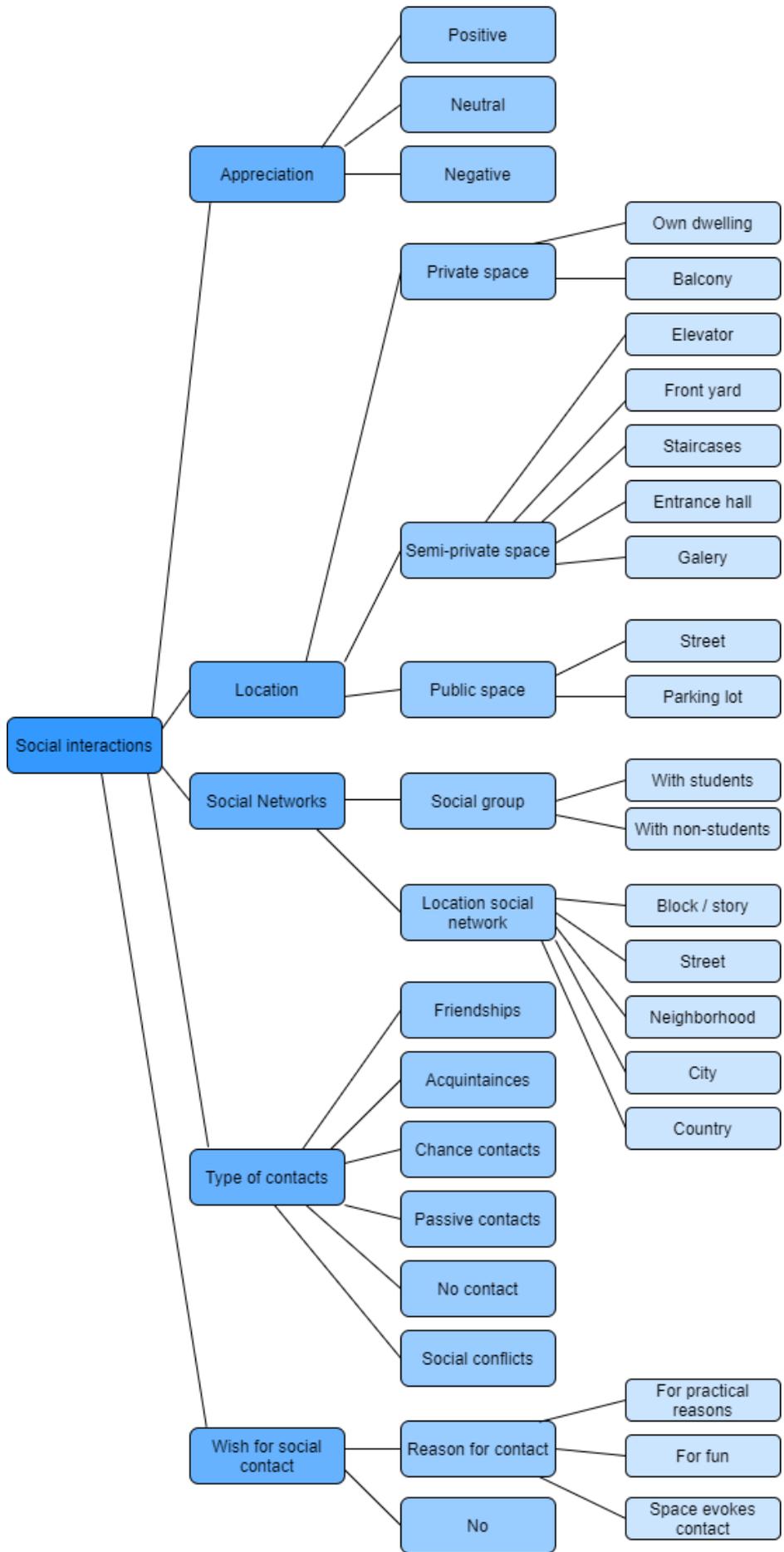


Figure 20: code tree sense of community



*Figure 21: code tree social interactions*

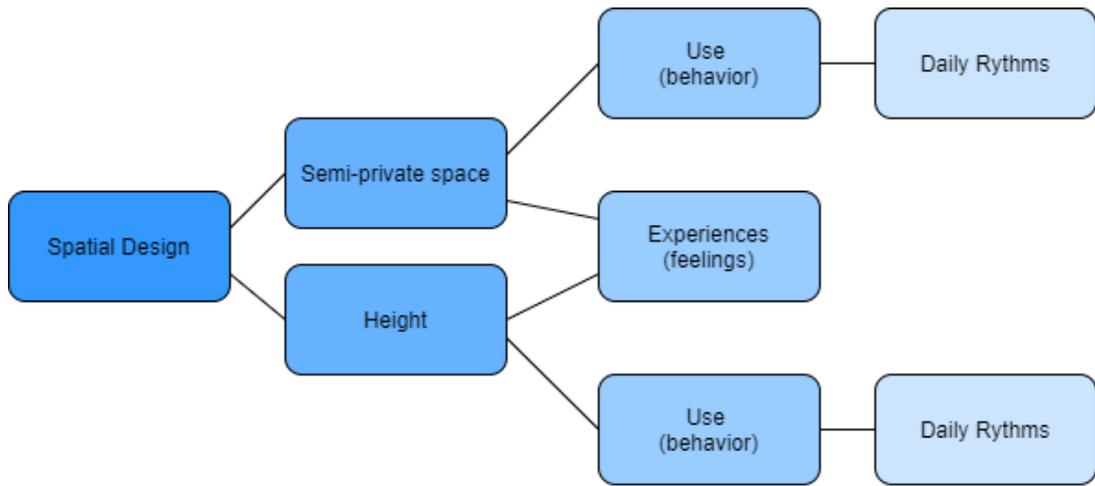


Figure 22: code tree spatial design

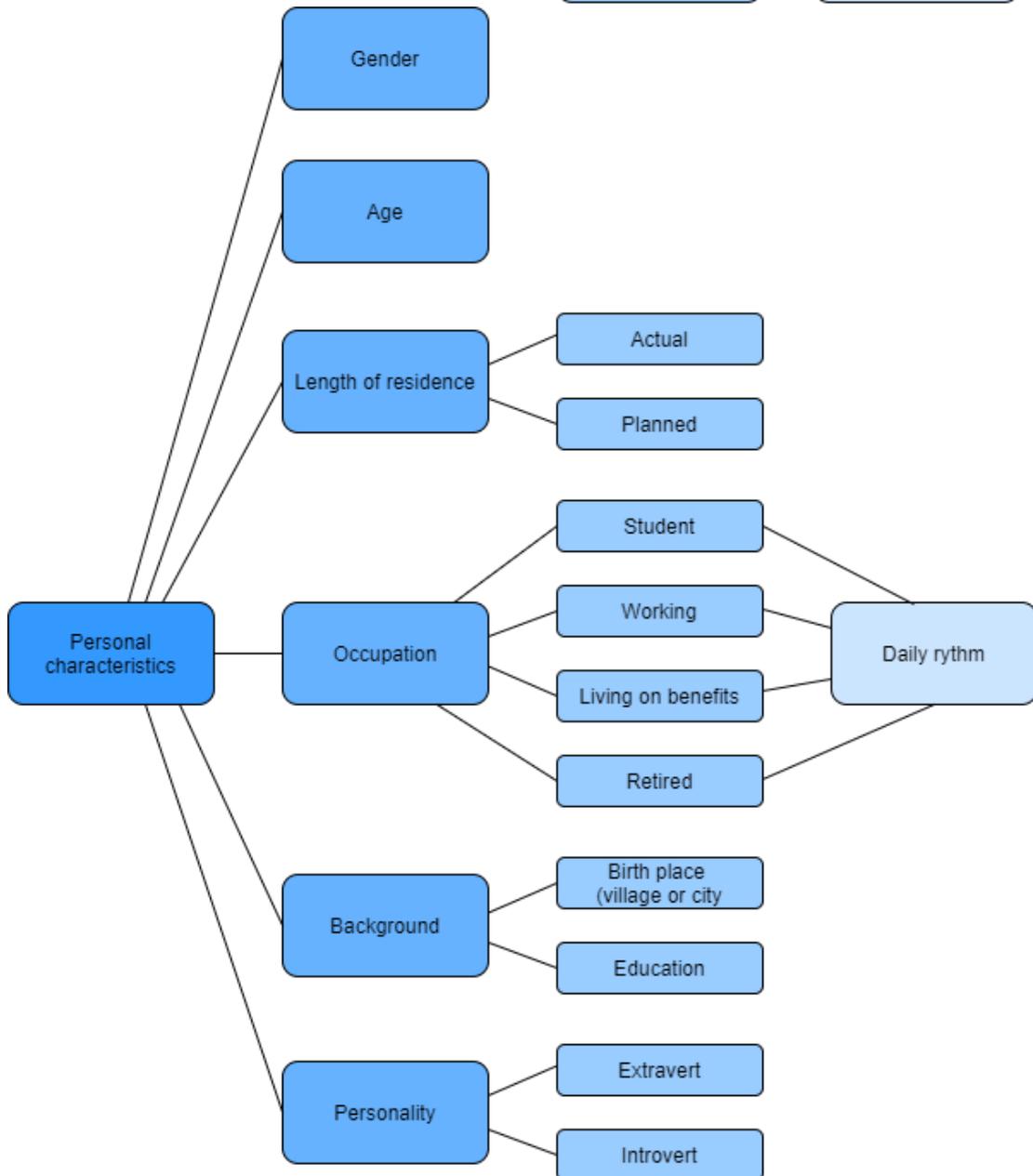


Figure 23: code tree personal characteristics

## **Interview transcripts**

The transcripts are available at request. Please send an email to [d.m.hartman@student.rug.nl](mailto:d.m.hartman@student.rug.nl) if you want to read the transcripts.

## Appendix E: How did I work on my thesis?



*Photo 9: me working on my thesis*