

# AGEING SOCIALLY

THE ROLE OF SOCIAL INFRASTRUCTURE ON ELDERLY PEOPLE'S  
CAPABILITY TO AGE-IN-PLACE

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## Colophon

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## English abstract

In 2018, the Dutch national government launched the programme “Langer Thuis” in which they formulate the ambition to facilitate elderly people with the opportunity to remain in their own home as they age. They argue that elderly people need independence to achieve this, which can be facilitated through the enhancement of their social environment. To achieve this, the government aims to have more cooperation between health care professionals. In academic literature, elderly people remaining in their own home rather than moving to a residential health care facility is discussed as the concept of ageing-in-place. To facilitate ageing-in-place, age-friendly neighbourhoods should be designed, which includes places that facilitate opportunities to meet others. Places that facilitate social interactions are part of the social infrastructure of a neighbourhood. The aim of this research is to explore the role of social infrastructure in ageing-in-place through the lens of the capability approach. The capability approach revolves around the individual resources and endowments that can be transformed into capabilities through contextual conversion factors.

A case study was conducted of the community centre *Buurten Bij Bernlef* in Groningen with a focus on the cards club that takes place there. Through a qualitative mixed-methods approach of participant observations and semi-structured interviews, which were analysed with thematic open coding in ATLAS.ti, the resources and endowments, conversion factors and capabilities that are relevant within the context of social infrastructure were analysed.

The resources financial capital, an adequate community centre, supportive friends and family, biographical identity, and personal nature can dictate an elderly person’s ability to use social infrastructure. Furthermore, the conversion factors of accessible built environment and proximity of services and amenities are needed to facilitate social infrastructure. Meaningful social contacts as a beneficial conversion factor for ageing-in-place can be enhanced through social infrastructure. Lastly, the three key capabilities for independence in later life of enjoying a fulfilling social life, being mobile, being comfortable in your own home, which plays a central role in ageing-in-place, can all be facilitated through social infrastructure.

Although social infrastructure must be considered as a broader network, the community centre can be considered a vital node of social infrastructure. Therefore, the approach in the programme “Langer Thuis” should recognize the vital importance of community centres and include a broader network in their cooperation to enhance the social environment of elderly people.

Key words: capability approach; age-in-place; social infrastructure; community centre; third place.

## Nederlandse samenvatting

In 2018 heeft de Nederlandse overheid het programma “Langer Thuis” gelanceerd, waarin zij de ambitie formuleert om de mogelijkheid van ouderen om langer in hun eigen huis te blijven wonen faciliteert. De overheid stelt dat ouderen zelfstandigheid nodig hebben om dit te bereiken en dat dit gefaciliteerd kan worden door het versterken van de sociale omgeving. Om dit te bereiken wil de overheid meer samenwerking tussen zorgprofessionals. In de academische literatuur wordt ouderen die thuis blijven wonen in plaats van verhuizen naar een verzorgingstehuis gevangen onder “ageing-in-place”. Om “ageing-in-place” te faciliteren moeten leeftijdsvriendelijke buurten worden ontworpen, die ook plekken om anderen te ontmoeten bevatten. Plekken die sociale interacties faciliteren zijn onderdeel van de sociale infrastructuur van de buurt. Het doel van dit onderzoek is om de rol van sociale infrastructuur op “ageing-in-place” te onderzoeken door de lens van de “capability approach”. De “capability approach” draait om de individuele bronnen die kunnen worden omgezet in mogelijkheden door omzetcfactoren.

Er is een casestudy gedaan van het buurtcentrum Buurten Bij Bernlef in Groningen met een focus op de kaartclub, die daar plaatsvindt. Door een kwalitatieve gemengde methoden benadering van deelnemer observaties en semigestructureerde interviews, die werden geanalyseerd door thematische open coding in ATLAS.ti, zijn de bronnen, omzetcfactoren en de mogelijkheden die relevant zijn in de context van sociale infrastructuur geanalyseerd.

Bronnen, zoals financieel kapitaal, een adequaat buurtcentrum, ondersteunende vrienden en familie, biografische identiteit en persoonlijke aard, kunnen invloed hebben op ouderen hun mogelijkheid om deel te nemen in sociale infrastructuur. Daarnaast, zijn de omzetcfactoren toegankelijke bebouwde omgeving en nabijheid van diensten en voorzieningen nodig om sociale infrastructuur te faciliteren. Betekenisvolle sociale contacten als een voordelige omzetcfactor voor “ageing-in-place” kunnen versterkt worden in sociale infrastructuur. Ten slotte, worden de drie centrale mogelijkheden voor zelfstandigheid van ouderen, zoals een sociaal leven hebben, mobiel zijn, en comfortabel zijn in je eigen huis, ook gefaciliteerd in sociale infrastructuur.

Hoewel sociale infrastructuur moet worden gezien als een breder netwerk, dat ook zorgprofessionals, lokale vervoersinitiatieven, en ondersteunende vrienden en familie bevat, is ook een buurtcentrum een belangrijk onderdeel van het netwerk van sociale infrastructuur. Derhalve moet de aanpak van het programma “Langer Thuis” ook het belang van buurtcentra erkennen en een breder netwerk opnemen in hun samenwerkingsverband om de sociale omgeving van ouderen te versterken.

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## 1. Introduction

The Netherlands is dealing with an ageing population and the share of elderly people, who are 65 years old and older, is steadily increasing. In 2023, the Dutch Central Statistical Bureau (hereinafter: CBS) calculated that 20.2% of the total Dutch population is 65 years old and older (Centraal Bureau voor de Statistiek, no date). Moreover, not only is the absolute number of elderly people in the Dutch population increasing, but also the relative pressure of this share of elderly people is expanding. In 2022, CBS published that the grey pressure in the Netherlands was 34%, meaning that for every elderly person who is 65 years old or older there are roughly three people of working age (between 20 and 65 years old). Furthermore, CBS projected that the pressure in the coming years will increase to almost 50%, indicating that in future there will be roughly two people of working age for every person who is 65 years old or older (Centraal Bureau voor de Statistiek, no date). This increasing share of elderly people puts specific demands, such as the development of a health care system that can deal with the effects of ageing or the adaptation of housing for elderly people, on Dutch society and creates new challenges to deal with the greying population. It is projected that these expenses will increase with 126% between 2018 and 2040, reaching €43 billion in 2040. Furthermore, it also creates and expands challenges concerning the mental health of older adults, as it is expected that roughly 1.5 million elderly people in the Netherlands will experience loneliness in 2040 (Ministerie van Volksgezondheid, Welzijn en Sport, 2018; Rijksinstituut voor Volksgezondheid en Milieu, 2019).

Moreover, CBS found that an increasing share of elderly people remains in their own home as they age rather than move to a dedicated residential care unit. In 2018, 92% of the elderly people who were 75 years old or older were living in their own home independently (Centraal Bureau voor de Statistiek, 2022). Additionally, the Dutch national government portrayed in their programme “Langer Thuis” that elderly people have the wish to remain in their own home as they age for as long as possible (Ministerie van Volksgezondheid, Welzijn en Sport, 2018). However, the reason for the elderly people to prefer their own home to a residential care unit lies not only within their own home, but also with a pleasant neighbourhood and the availability of facilities in the neighbourhood (Centraal Bureau voor de Statistiek, 2020). In order to facilitate elderly people in this wish and accommodate for the demographic trend that elderly people are remaining in their own home as they age, the Dutch national government believes there is a broad range of criteria that can contribute to a better quality of life for elderly people at home. Apart from the provision of elderly care at home and facilitating the adaptation of the homes of elderly people, the Dutch national government also recognizes in their programme the importance of a sturdy social network for elderly people. The government believes enhancing the social environment of elderly people can ultimately contribute to their ability to be independent in their own home. In order to achieve this, the government argues there should be more cooperation with and between health care professionals in the neighbourhood (Ministerie van Volksgezondheid, Welzijn en Sport, 2018).

Similarly, in academic literature there is also an expanding focus on providing elderly people with the opportunity to age-in-place. Ageing-in-place is a concept, which is centred around the idea that older people remain in their own home and community as they age rather than move to a residential care unit (Wiles et al., 2012; Lager and

Huigen, 2015). Rather than constraining one's scope to the elderly person's house when discussing their ability to age-in-place, one should expand their view and also take into consideration how the neighbourhood and community can affect an elderly person's ability to remain in their own home as they age (Oswald et al., 2011; Wiles et al., 2012). Therefore, it is of vital importance that within the field of urban planning there is an increased focus on the design and research of age-friendly cities (Yarker, 2022). In terms of older adults, an age-friendly city means that neighbourhoods and communities should provide a supportive environment that enables these older adults to age actively (Fitzgerald and Caro, 2016). One aspect of an age-friendly city is also the provision of social infrastructure, which consists of places where people can meet and subsequently foster social connections (Scharlach and Lehning, 2013; Klinenberg, 2018). As social connections and interaction are a vital aspect to ageing-in-place, this thesis shall focus on the relationship between social infrastructure and ageing-in-place (World Health Organization, 2007a; Ministerie van Volksgezondheid, Welzijn en Sport, 2018).

Furthermore, this thesis adopts the theoretical lens of Amartya Sen's capability approach (2001) and henceforth builds upon Meijering, Van Hoven and Yousefzadeh (2019), who have investigated elderly people's capability to be independent in life, by exploring how social infrastructure can contribute to the aforementioned capability. The capability approach highlights the significance of the individual's resources and endowments, as well as the importance of contextual conversion factors. The capability approach as a theoretical lens allows for a more individualized approach to ageing-in-place and can therefore facilitate a more in-depth approach to ageing-in-place (Sen, 2001; Meijering, Van Hoven and Yousefzadeh, 2019). The aim of this thesis is to explore to what extent social infrastructure can function as a conversion factor for elderly people to obtain the capability to age-in-place. Additionally, the key contributions of this thesis are to investigate how social infrastructure influences the aforementioned key capabilities of ageing-in-place, as well as to provide insight into how social infrastructure can function more effectively within the neighbourhood in terms of ageing-in-place. As the capability has a more individualized approach previous academic research has focussed on the capabilities of the individual elderly person. However, this thesis aims to expand the focus to the whole neighbourhood in which the elderly person resides. In this neighbourhood, social infrastructure plays a vital role on age-friendliness. Thus, this research has an expanded use of the capability approach by exploring to what extent social infrastructure plays a role on elderly people's capability to age-in-place.

Considering the vital importance of social connections, and therefore social infrastructure, within the field of age-in-place, as well as the unique opportunities the theoretical lens of the capability approach can provide an opportunity to research the aforementioned relationship, the following central research question of this thesis was formulated:

*To what extent can social infrastructure contribute to elderly people's capability to age in place?*

As a support to the primary research question of this thesis the following secondary research questions were formulated, which follow the structure that is provided by the capability approach:

- What resources and endowments are needed for elderly people to utilize social infrastructure to age-in-place?
- To what extent can social infrastructure provide the conversion factors to age-in-place?
- What capabilities can elderly people achieve through social infrastructure to ultimately reach the capability to age-in-place?

To answer these research questions a case study was conducted of the community centre Buurten Bij Bernlef in Groningen. A mixed-method qualitative research approach of both participant observations and semi-structured interviews, which were analysed through thematic open coding in ATLAS.ti, was utilized. It was found that in the context of social infrastructure elderly people need the resources of financial capital, an adequate community centre, supportive friends and family, biographical identity, and personal nature, to utilize the social infrastructure to age-in-place. In the conversion factors it was found that the social infrastructure has both conversion factors that are needed for social infrastructure to exist, but also there are conversion factors that are facilitated within social infrastructure. Lastly, social infrastructure can contribute to all three key capabilities of independence, which is central to ageing-in-place, namely enjoying a fulfilling social life, being mobile, and being comfortable in your own home. With regards to the programme “Langer Thuis” the results showed that the Dutch national government should consider a broader network of social infrastructure than health care professionals for cooperation and should acknowledge the vital importance of community centres.

Firstly, chapter 2 provides the theoretical background of the concepts of social infrastructure and ageing-in-place, as well as an outline of the capability approach. Chapter 3 discusses the methodology of a case study research design and a mixed-methods data collection approach. Moreover, in chapter 4 the results are presented structured along the secondary research questions. Chapter 5 discusses the implications of the results for the broader network of social infrastructure in the neighbourhood. Lastly, chapter 6 provides the conclusions of this research and chapter 7 provides an overview of the limitations and recommendations for future research.

## 2. Theoretical framework

The aim of this thesis is to explore the role of social infrastructure in elderly people’s capability to age-in-place. Therefore, this chapter will provide the theoretical background of Amartya Sen’s capability approach, ageing-in-place, and social infrastructure.

### 3.1. Capability approach

The capability approach is a theoretical lens which includes the individual and conceptual aspects that influence people’s lives. Hence, it revolves around both the resources and endowments each individual has, such as financial capital and education, as well as the contextual circumstances that can constrain and expand the scope of agency an individual experiences. In order to assess what an individual is able to do there is a need to assess both the individual resources and endowments, as well as the contextual conversion factors that can influence the capabilities an individual has to make certain choices (Sen, 2001; Meijering, Van Hoven and Yousefzadeh, 2019). A schematic overview of the capability approach can be found in Figure 1. The capability approach is rooted in social justice theory and concerned with providing people with the ability to achieve their aspirations, to develop their full potential, and the extent to which they achieve well-being from the options that are available to them (Robeyns, 2005; Munck and Zimmermann, 2008; Alexander, 2016; Bigonnesse and Chaudhury, 2022) Therefore, the approach is also appropriate to assess to what extent elderly people have the potential to fulfil the aspiration of being independent and remaining in their own home and community as they age.

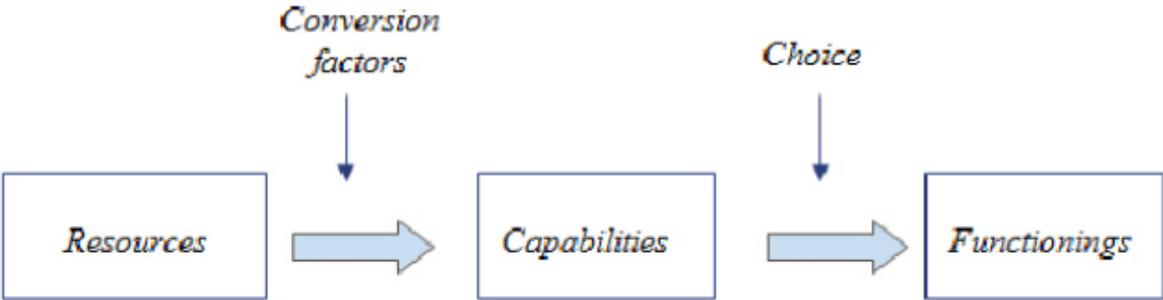


Figure 1: Schematic overview of the capability approach (Verd and López Andreu, 2011).

The approach allows for a more individualized view on how individuals perceive and value their capabilities. As it distinguishes the resources and endowments of each individual, and discusses the contextual conversion factors from the perspective of each individual, it allows for the exploration of the meaning and value each elderly person attaches to this socio-economic context (Meijering, Van Hoven and Yousefzadeh, 2019). Furthermore, in order to achieve the highest quality of life for a person there is a need to focus on the capabilities that are most valuable to them. Therefore, the capability approach leaves room for an individualized approach as there is a need to look at the capabilities that are most valuable to them (Sen, 1993; Nussbaum, 2003; King, 2007)

Ultimately, the individual's resources and endowments in combination with the conversion factors determine the capabilities that are available to the individual. From these available capabilities an individual has the agency to choose whether to use the capability that is available to them. The actual choices the individual makes within the context of the capabilities that are available to them are known as functionings (Meijering, Van Hoven and Yousefzadeh, 2019). Hence, the extent to which a person can choose their most desired functioning is dependent on the capabilities available to them, which are rooted in their individual resources and endowments, as well as the contextual conversion factors (Anand and van Hees, 2006; Stephens, Breheny and Mansvelt, 2015). Moreover, when discussing the capabilities of the elderly, it is important to take into consideration that their current capabilities can be dependent upon choices and achievements earlier in life. Hence, it is vital to also look at the biographical dimension of the opportunities and choices available to older adults (Lloyd-Sherlock, 2002).

### 3.2. Ageing-in-place

This research revolves around the capability of elderly people to age-in-place. Ageing-in-place is an ongoing dynamic process that can enable an elderly person to remain in their own home and community as they age, rather than move to a residential care unit, which is often seen as the ideal and has been found to be regarded as the ideal and preferred aspiration by elderly people (Means, 2007; van Hoof et al., 2021; Bigonnesse and Chaudhury, 2022). As people age, elderly people experience a stronger emotional attachment to their home and neighbourhood and therefore enabling elderly people to remain in their home and neighbourhood as they age can result in enhanced well-being and more social connectedness (Wiles et al., 2012). Furthermore, elderly people aspire to retain their independence and autonomy as they age, which can be achieved through ageing-in-place (Callahan, 1993; Frank, 2002)

Many discussions within the field of ageing in place are centred around the home and the necessity to create a housing stock which facilitates older adults to remain in their home. However, there is increasing focus on the fact that not only the home, but also the environment beyond the home, namely the neighbourhood and community are vital to be able to age in place (Phillips, Ajrouch and Hillcoat-Nallétamby, 2010; Oswald et al., 2011; Wiles et al., 2012). The quality of these environments can make the ability of older adults to remain at home as they age more or less obtainable (Breheny and Stephens, 2010; Vasunilashorn et al., 2012; Sixsmith et al., 2017; Finlay, Esposito, et al., 2021; Finlay, McCarron, et al., 2021) When discussing the ability of older adults to age in place both the neighbourhood conditions, such as the objective indicators of suitability and safety, as well as individual functional capacity are deemed important (Lawton, 1982). Nevertheless, subjective feelings about the neighbourhood should not be disregarded in terms of older adult's satisfaction with living at home (La Gory, Ward and Sherman, 1985). Therefore, to support ageing in place, it is essential to not only consider housing options but also transportation, recreational activities and amenities, cultural engagement, and social interaction, as the socio-spatial context of the neighbourhood and community can shape older people's satisfaction, happiness, and quality of life

(Kozma and Stones, 1983; Barresi, Ferraro and Hobey, 1984; Wahl and Weisman, 2003). Although, living at home can provide elderly with more independence, when ignoring the neighbourhood and community context of ageing in place remaining at home can lead to social isolation and disempowerment among elderly people (Oldman and Quilgars, 1999; Plath, 2008; Sixsmith and Sixsmith, 2008; Milligan, 2009; Barrett, Hale and Gauld, 2012; Rabiee, 2013).

The fact that the experience of older adults with regards to ageing in place is much broader than their residential environment suggests that there is a need for a more holistic and integrated approach to designing our cities (Oswald et al., 2011; Greenfield, 2012). Rather than seeing ageing in place merely as remaining within the same community, urban planning has adopted the new focus on active ageing as well (World Health Organization, 2007b; Phillips, 2018). Within this newly found focus on policy development, older adults should also be empowered to participate in the local community and the places in which older adults live should facilitate social interactions and enhance the sense of community (Buffel and Phillipson, 2018; Lovell, 2018). Cities can be an appropriate arena for older adults to age in place if they are planned in accordance with the needs of the elderly. In short, there is a need to plan for age-friendly cities (van Hoof et al., 2018).

The design of age-friendly cities should include all generations and therefore should refrain from prioritizing one generation over another (Mustaquim, 2015; van Hoof et al., 2018). With regards to older adults that means that cities should provide a supportive environment that enables residents to age actively within the neighbourhood and community. This includes a wide range of opportunities for community engagement (Fitzgerald and Caro, 2016). The World Health Organisation states that an age-friendly city should promote ageing actively, which includes allowing elderly citizens to participate in the socio-physical environment. The features of a well-designed age-friendly city can be distributed over eight domains of urban life, namely outdoor spaces and buildings, transportation, housing, civic participation and employment, respect and social inclusion, social participation, communication and information, and community support and health services (World Health Organisation, 2007, 2015). On a neighbourhood level, there is a need for elderly people to live among likeminded individuals in terms of cultural, social, and religious background. However, to overcome the issues that segregation brings with it, the built environment should also facilitate the interactions of older adults with others from different backgrounds. Ultimately, these social interactions could lead to community building, which can foster an increased sense of belonging and community among elderly people, as well as inter-generationally (van Hoof et al., 2018). Therefore, cities should promote social connection and facilitate opportunities to meet others (Świąder, Szewrański and Kazak, 2016, 2017; Rémillard-Boilard, Buffel and Phillipson, 2017)

### 3.3. Social infrastructure

Social infrastructure are places where precisely these social connections are facilitated (Yarker, 2019). In the field of infrastructure, the first thing that sparks to mind is often physical infrastructure. However, the infrastructure stretches beyond solely physical infrastructure and also encompasses social infrastructure, which is a type of infrastructure that is often overlooked (Gregory, 2018; Yarker, 2019). Infrastructure is

often seen as technological networks that are an integral part of the facilitation of urban life (Latham and Layton, 2019). Across these different fields infrastructure are the networks and systems that support urban life. Therefore, it can be concluded that infrastructure are the structures and systems that allow social, economic, political, and cultural life to exist. Ultimately, infrastructure is about the facilitation of activity in the city. In the case of more technological physical infrastructure this can be about the distribution of water or electricity, but it can also extent beyond this and include the facilitation of social connection and interaction. In the case of the facilitation of social connections, it is called social infrastructure, which can consist of networks of spaces, facilities, institutions, and groups. Therefore, it can be concluded that one specific type of social infrastructure, such as a community centre, is rooted within a broader network of services and amenities (Latham and Layton, 2019).

Layton and Latham (2022) argue that there are four ways in which the concept of social infrastructure can be put to use. Although all the four ways to use the concept of social infrastructure have their merit, in this thesis the focus lies on the infrastructures of social life. Social infrastructure are places within the public and quasi-public environment that shape the way people interact by fostering the social connections between people and facilitating social interactions (Yarker, 2019; Klinenberg, 2020; Layton and Latham, 2022). Hence, social infrastructure can be described as places that allow people to keep social interactions, develop social connections, and maintain relationships (Yarker, 2022) Furthermore, Gregory (2018) defines social infrastructure as *'[...] the range of activities, organisations, and facilities supporting the formation, development and social relationships in a community.'* (p. 11). Examples of social infrastructure include community spaces, such as community hubs and village halls, public spaces, such as parks, and commercial spaces, such as shops and cafes (Yarker, 2019). Therefore, social infrastructure often has other functions than facilitating social life, yet this precise facilitation is a central component of how they can offer their primary function (Latham and Layton, 2019). Social infrastructure also includes third spaces, which can be defined as any space that has the potential to facilitate social connections and thereby foster the building of social capital. Moreover, third spaces are always located outside of one's home and workplace, which are respectively known as first and second spaces (Oldenburg, 1999; Yarker, 2019). However, for older adults who are retired their third places, such as community centres for seniors, can start to function as second places, because they do not have a place of employment any longer (Oldenburg, 1999; Fong et al., 2021).

Although social infrastructure should be starkly distinguished from the concept of social capital, social infrastructure can be seen as places where social capital is formed (Yarker, 2019). Therefore, as both concepts are closely related, though different, it is vital to shortly explore the concept of social capital. As social infrastructure is closely related to social connections, it is vital to understand the concept of social capital. Social capital can be defined as a set of resources that individuals can access through their social networks, social contacts, reciprocity, trust, and shared norms (Bourdieu, 1986; Coleman, 1988; Putnam, 2001). Social capital reflects on the existence of social connections and the potential and quality of additional resources that can be obtained through these social connections (Portes, 1998). Social networks have the potential to facilitate activities within a community and these activities have the potential to create mutually beneficial social interactions within the community (Kearns and Forrest, 2000;

Putnam, 2001; Stedman, 2002). Social networks can consist of both strong ties, which are relationships between people who know each other well (such as family and friends), and weak ties, which are connections between people who are less well-known to each other (such as neighbours who occasionally chat) (Granovetter, 1973). This also relates to the distinction between 'bonding' and 'bridging' social capital. 'Bonding' social capital refers to connections between people with strong ties who are part of the same homogeneous community, while 'bridging' social capital refers to connections between people with weak ties who are often part of heterogeneous communities (Putnam, 2001; Filipovič Hrast and Dekker, 2009). Additionally, 'linking' social capital refers to connections between residents and authorities (Szreter and Woolcock, 2004).

In terms of ageing-in-place both 'bridging' and 'bonding' social capital and strong and weak ties are of vital importance to elderly people to age-in-place (Yarker, 2019). However, older adults are more dependent upon a high level of social capital within their own neighbourhood and community, as they face more physical and social limitations to create social connections that go beyond the borders of their own neighbourhood and community. Hence, it can be said that older adults rely more on 'bonding' social capital rather than 'bridging' social capital (Carstensen, 1995). On the other hand, social capital that originates from local contacts are in particular valuable to older adults as it can play an important role in their well-being through the reduction of social isolation and loneliness by providing a source of social support and the increase of resilience (Lager, Van Hoven and Huigen, 2015; Bagnall, 2018). Both 'bridging' and 'bonding' social capital leaves the possibility for older adults to develop strong and weak ties (Yarker, 2019). Both types of ties have been found to be of great importance to older adults. Therefore, in terms of networks of social support older adults are not solely limited to their strong ties with family, but also gain value from networks with a broader scalar of actors, such as neighbours (Phillipson, 2001). Not only can weak neighbourhood contacts have a stronger effect on the provision of support for older adults than strong ties with family, but also older adults with wider ties in the community and neighbourhood tend to have lower levels of loneliness than older adults with more limited and private social networks (Scharf and De Jong Gierveld, 2008; Gray, 2009; Gardner, 2011; Yen et al., 2012; Bigonnesse, 2017). Hence, it is vital to take the creation of spaces in which these forms of social capital can be facilitated into consideration. Therefore, facilitating elderly people to age-in-place should move beyond the walls of older adults' homes and appraise third spaces – or in other words social infrastructure – in the neighbourhood (Yarker, 2019).

Although research has shown that indeed social capital and therefore social infrastructure can contribute to the well-being of elderly people, the mere existence of social infrastructure does not in itself constitute to this result (Fong et al., 2021). The social infrastructure should provide a sense of insideness, attachment, and belonging to the elderly people to provide a solid basis for them to engage with each other in these third spaces and thereby create the social connections that are needed for their increased well-being (Relph, 2008).

#### 2.4. Age-in-place in the capability approach

Ageing-in-place can be placed within the context of the capability approach. The resources and endowments that are important is dependent on the situation of the

individual. The resources and endowments an individual has available can ultimately be translated through the right conversion factors into a capability. When an individual has less resources available, they are less likely to reach their aspired capabilities. In the field of ageing-in-place often financial capital, the availability of a community centre, and supportive friends and family can play a vital role (Robeyns, 2017; Meijering, Van Hoven and Yousefzadeh, 2019).

There are four conversion factors that can either enable or constrain the individual's capability to age-in-place, namely individual characteristics, accessible built environment, proximity of services and amenities, and meaningful social connections (Bigonnesse and Chaudhury, 2022). The individual characteristics that are specifically related to ageing-in-place are the physical and mental changes older adults experience as a result of ageing. The physical characteristics are related to their health status, functional abilities, and mobility. The mental characteristics revolve around the extent to which older adults have agency and are resilient (Hitlin and Elder, 2006; Marshall and Clarke, 2010; Wahl and Oswald, 2010; Wahl, Iwarsson and Oswald, 2012; Portegijs et al., 2014; Stephens, Breheny and Mansvelt, 2015; Van Der Vorst et al., 2016; Dannefer and Huang, Mgs, 2017). Furthermore, there is a need to provide accessible built environment, meaning that the neighbourhood should ultimately support elderly's mobility and independence (World Health Organization, 2007b; Annear et al., 2014; Granbom et al., 2016; Smith et al., 2016). Apart from other features in neighbourhoods that should be adapted to provide age-friendly neighbourhoods for older adults, such as accessible public places and a pedestrian-friendly environment, there should also be an emphasis on buildings and services that facilitate the independence, social participation, and mobility of older adults (Chaudhury et al., 2012; Yen et al., 2012). Furthermore, the services provided in this accessible built environment should be in close proximity for older adults (Bigonnesse and Chaudhury, 2022) There are various services and amenities that have been found to be important to older adults. Among these, and most importantly for this research, are places that provide opportunities for social connections, such as cafés, restaurants, and community centres (Bigonnesse, 2017; Bigonnesse and Chaudhury, 2022). Therefore, it is vital to conduct research on the impact of these services and amenities on ageing-in-place, which this research aims to do by exploring to what extent the needed conversion factors for ageing-in-place can be found in social infrastructure (Annear et al., 2014; Van Dijk et al., 2015; Cerin et al., 2017; Bigonnesse and Chaudhury, 2022). Lastly, meaningful social connections can be regarded as a conversion factor for ageing-in-place (Bigonnesse and Chaudhury, 2022). Social interactions for older adults can stem from both the social fabric in the neighbourhood, as well as social connections with family and friends. Both these types of interactions can be beneficial for older adults in terms of ageing-in-place as they can lead to increased social support, a reduction of social isolation, and encourage social participation. Although both types of social interaction can be valuable for older adults, the interactions within the neighbourhood are under-documented (Gardner, 2011; De Donder et al., 2012; Yen et al., 2012; Wrzus et al., 2013; Lager, Van Hoven and Huigen, 2015; Bigonnesse, 2017; Bigonnesse and Chaudhury, 2022). Therefore, this research will focus on the social interactions that take place in public spaces of social infrastructure. In order to assess the effect of the social infrastructure on the capability to age-in-place, one should consider the role these four conversion factors play in ageing-in-place. This research explores how social infrastructure is related to the conversion factors.

Being independent is often seen as the central aspiration for older adults in later life, especially in the ageing-in-place policy discourse (Bigonnesse and Chaudhury, 2022). Independence can be influenced by social support, social connections, and social participation (Wiles et al., 2012; Annear et al., 2014). Independence – and therefore ageing-in-place – can be seen as both a capability and a functioning, which also is shaped by other capabilities. In the case of independence as a capability, it allows one to assess to what extent an individual is able to live independently. This research utilizes this view of independence as a capability, as the aim is to research to what extent an elderly person is able to remain at home and in their own community as they age (Sen, 2001). It is found in previous research that the capability to be independent should often be seen as the overarching central capability for older adults (Grewal et al., 2006; Gilroy, 2008; Van Ootegem and Spillemaeckers, 2010; Ryan, Wretstrand and Schmidt, 2015; Yeung and Breheny, 2016).

Meijering, Van Hoven and Yousefzadeh (2019) have found that there can be three key capabilities defined that contribute to the overarching capability of independence, namely being comfortable in one's own home, enjoying a fulfilling social life, and being mobile. These three key capabilities can be seen as the main and key factors that can contribute to elderly people's overarching aspiration to age-in-place. However, it does not suffice to merely explore what elderly people aspire and what factors contribute to this. Rather, there is a need to expand and investigate to what extent the place in which these people live can enable them to do so (Duff, 2011). Therefore, it is of vital importance to not only take the capabilities available to the elderly person into consideration, but also take heed of the contextual conversion factors available to them, which can influence the individual's capability to be independent and by proxy to age-in place (Ryan, Wretstrand and Schmidt, 2015; Yeung and Breheny, 2016).

Within the research into ageing and ageing-in-place, there has often been a focus on creating a broader view of the capabilities of elderly citizens (Grewal et al., 2006; Yeung and Breheny, 2016; Gopinath, 2018). Rather, this research aims to start from the perspective of the conversion factor, in this case social infrastructure, and explore the effect of this conversion factor on the lives of elderly people. Furthermore, the capability approach allows for the inclusion of the value and perception of elderly people. Yet, existing research in which elderly people are asked how they value and perceive the conversion factors they use and the capabilities that stem from them is limited (Gopinath, 2018; Meijering, Van Hoven and Yousefzadeh, 2019). Therefore, there is a need to investigate the conversion factor of social infrastructure as well as the capability of ageing-in-place from the perspective of elderly people themselves.

#### 2.4. Conceptual model

Figure 2 includes a conceptual model of the theoretical concepts as described above and aims to provide an overview of the relationships between the aforementioned concepts. The capability approach will be used as a theoretical lens to analyse the relationship between social infrastructure and ageing-in-place. Therefore, both social infrastructure and ageing-in-place as concepts will be placed within the realm of the capability approach.

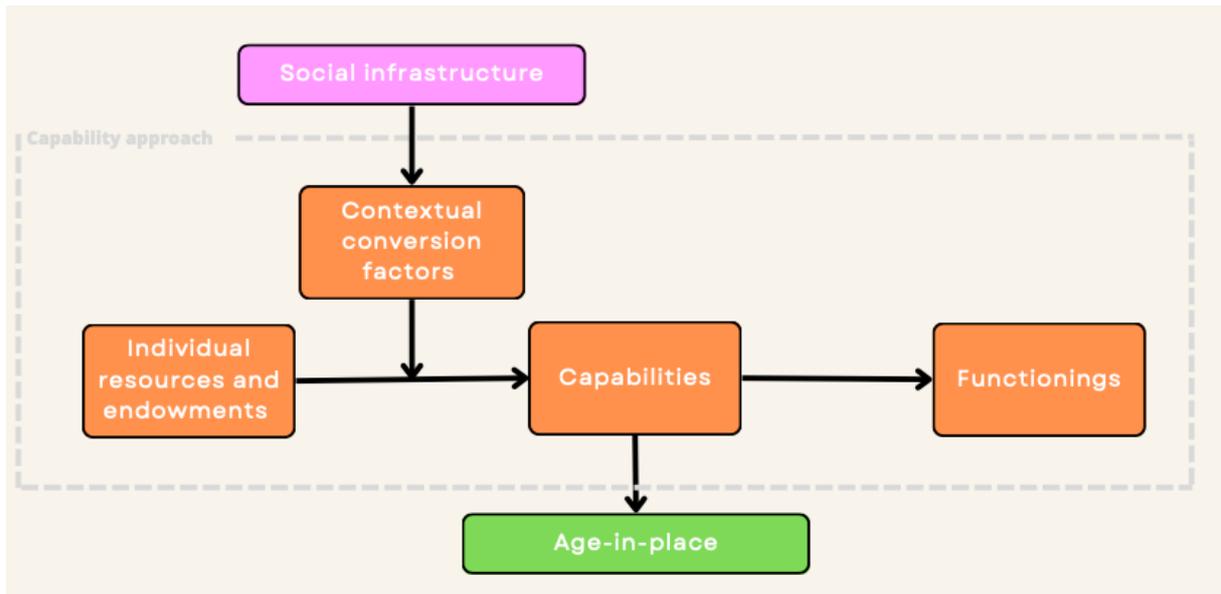


Figure 2: conceptual model (author, 2023).

## 3. Methodology

### 3.1. Research design: singular case study

It was decided to follow a case study research design, as this research aims to explore one specific example of a social phenomenon that relates to a specific group of people, namely the relationship between the phenomena of social infrastructure and ageing-in-place for elderly people. When studying social phenomena one can follow both an extensive, which revolves around a large number of instances, or an intensive approach, in which one specific example of the phenomenon is studied. Within the intensive approach the selected example of the social phenomenon is called a case. Therefore, this approach is also often called a case study. The benefit of choosing to follow an intensive approach is that it allows for a more in-depth and detailed exploration of the selected case. Apart from a focus on the specific details of a case, the research design of case study also leaves room for the natural context in which a case takes place (Swanborn, 2010). Through the utilization of the capability approach as the theoretical lens of this research, this study aims to individualize and contextualize the capability of ageing-in-place. The resources and endowments can differ per individual and the conversion factors are dependent on the context in which the conversion factors play a role (Sen, 2001; Meijering, Van Hoven and Yousefzadeh, 2019). Hence, it is appropriate to choose a research design that leaves more room for the exploration of the details of the individual and the natural context of the case. The selection of a case study research design was seen as the most logical choice for this research.

Furthermore, this research follows the design of a singular case study. An integral part of a case study research design is the selection and the identification of the specific case. To make a decision in this regard, one should consider whether it is more appropriate to conduct a singular case study rather than a multiple case study. Within a singular case study, the study is based on one case. A multiple case study revolves around several cases (Swanborn, 2010). The distinction between the two should consider the breadth and depth of the research that is feasible within the resources that are available to the research (Clifford et al., 2016). As mentioned above, in this research it was preferred to give more attention to an in-depth study of the role of social infrastructure on elderly people's capability to age-in-place rather than a broad study of these phenomena. The reason for this preference is rooted in the nature of the capability approach as a theoretical lens. There should be room for the exploration of the individual and contextual differences that can ultimately influence the capabilities that are available to a person. Therefore, it was decided in this research to focus on a singular case study, as this would leave more room for the researcher to explore the individual and contextual details in greater detail, as there was more time available to get familiarized with the personal situation of each elderly person in the selected case.

Although a singular case study is most appropriate considering the choice for a more in-depth study of the phenomenon, it should still be considered carefully whether the singular case study is representative to make conclusions about the phenomenon. Therefore, Yin (2014) developed five rationales in which a singular case study can be acceptable for the conduction of a solid scientific study. Among these five rationales is the selection of a case that is representative and typical of the phenomena. Therefore, for

the selection of a case for this research it was vital to find a case that can be characterized as social infrastructure and a case that was used by elderly people who age-in-place. Furthermore, as the basis of this research is the programme “Langer Thuis” of the Dutch national government, it is vital to find a place that is located in The Netherlands. For this research, it was chosen to focus on a case in Groningen, which is a major city in The Netherlands that is dealing with the greying of their demographic distribution. In the city of Groningen, the neighbourhood of Paddepoel is one of the neighbourhoods with a large share of elderly people who are remaining in their own home as they age (Gemeente Groningen, 2021). Hence, it was decided to find a case of social infrastructure for elderly people in this neighbourhood. For a case of social infrastructure it was vital to find a place that facilitates social connections for elderly people though this might not be the primary function of this place (Latham and Layton, 2019; Yarker, 2019). This was found in the case of Buurten Bij Bernlef, which is a community centre and restaurant in the neighbourhood in which social activities are organized for, among others, elderly people (Website Buurten Bij Bernlef, no date). Though it is not their explicit objective to facilitate social connections for elderly people, their activities in which elderly people can take part are an opportunity for these elderly people to meet others in the neighbourhood.

### 3.1.1. Buurten Bij Bernlef

As mentioned before, Buurten Bij Bernlef is a community centre and restaurant that is located on the ground floor of the Bernlef-building in the neighbourhood of Paddepoel in Groningen and is owned by WerkPro, which is an organization that facilitates social participation of people. Therefore, WerkPro provides an employee who serves as the daily manager of the place. The manager is, among other things, tasked with the organization of activities in the community centre. On upper floors the Bernlef-building consists largely of apartments where elderly people can live independently (De Huismeesters, no date). Although activities in Buurten Bij Bernlef revolve largely around elderly people, the manager of the ground floor does not actively discourage other inhabitants of the neighbourhood to make use of the restaurant and community hub. Reality is that most of the users of Buurten Bij Bernlef are elderly inhabitants of the neighbourhood. Yet, the manager also admitted that the activities in the community centre are mostly promoted to the older population of the neighbourhood (Manager Buurten Bij Bernlef 2023, personal communication, 17 May). This resulted in the fact that Buurten Bij Bernlef has become a place for mostly elderly people and a place where activities are organized in which only elderly people participate.

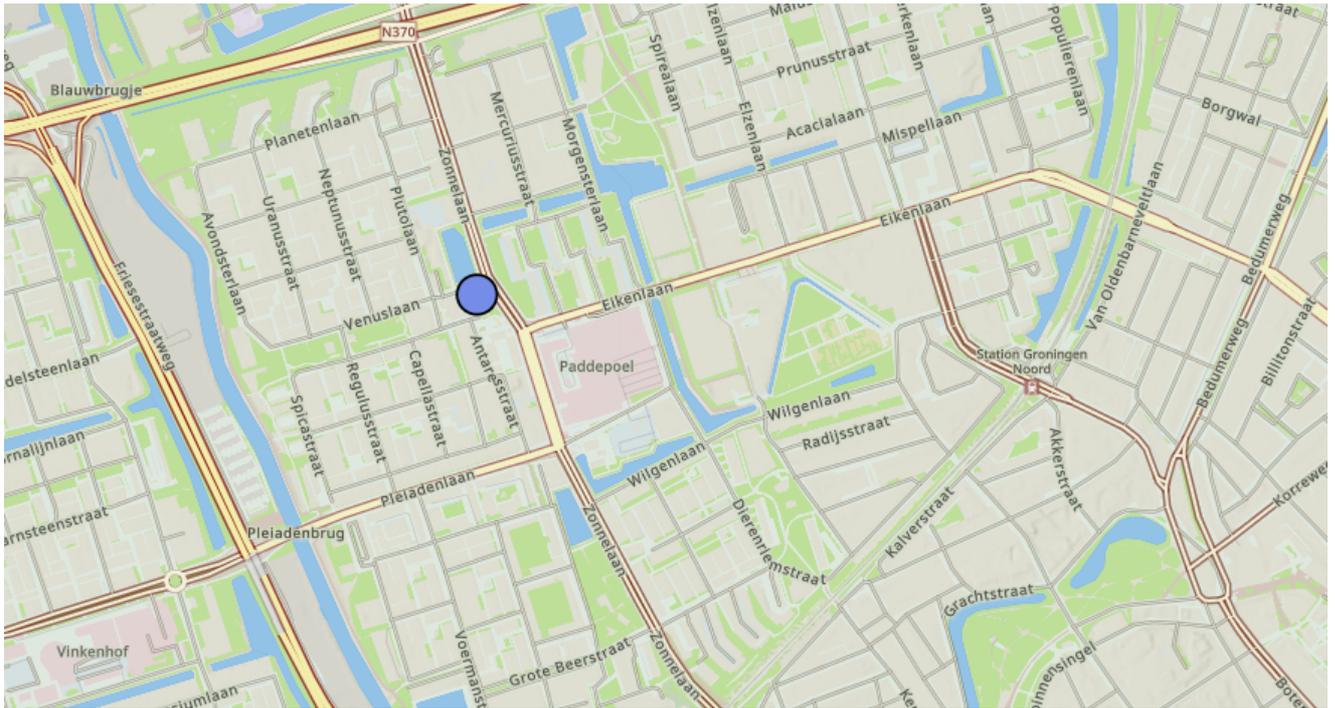


Figure 3: Purple dot signifies the location of Buurten Bij Bernlef within the neighbourhood of Paddepoel (Adapted from National Geographic, no date)

Buurten Bij Bernlef has multiple primary functions. Firstly, the place functions as a restaurant that offers relatively cheap meals to mainly elderly people. Next to providing people with the opportunity to dine in the restaurant, they also facilitate a meal delivery service for elderly people in the neighbourhood who face difficulties reaching the restaurant. Secondly, Buurten Bij Bernlef functions as a community centre where people from the neighbourhood can get together. In the function of Buurten Bij Bernlef as community centre, it functions as a place where activities are organized (Website Buurten Bij Bernlef, no date). As explained above the initial objective of the place was not to solely provide activities for elderly people, yet through participation policies and the demographic characteristics of the neighbourhood the activities in the community centre revolve mainly around elderly people (Manager Buurten Bij Bernlef 2023, personal communication; Gemeente Groningen, 2021).

There are activities at Buurten Bij Bernlef each day of the week. Two types of activities can be distinguished at Buurten Bij Bernlef, namely activities that are organized by WerkPro and activities that are self-organized by elderly people. On the one hand, WerkPro themselves organize activities that are often guided by their employees or volunteers. Examples of activities that are organized by WerkPro include bingo, a seasonal market, and a professionally guided group for elderly people who face difficulties living by themselves. On the other hand, there are activities that are self-organized by elderly people. In these activities WerkPro only has the task to allow the elderly people to use the community centre as a place for the activities. The administrative organization and the physical organization fall on the elderly participants of the activity. Examples of the self-organized activities include a cards club, a Rummikub club, and a support club for hearing impaired people (Website Buurten Bij Bernlef, no date).

For this research, it was chosen to focus on the participants of the cards club that takes place on Wednesday afternoon. This cards club is self-organized, and the organization of the activity currently falls to two women who take care of the (financial) administration, the organization of special events with holidays, and the provision of drinks and snacks during the activity. The cards club started roughly 20 years ago and was established by some elderly people who wanted to live independently from professional care in the neighbourhood of Paddepoel, but still benefitted from the opportunity to meet with other elderly people to play cards. The cards club focusses on the game of “klaverjassen”, which can be compared to bridge and organize an afternoon to play cards every week. Next to this, they organize a special afternoon around Christmas and Easter when they also buy a small present for their participants. In order to participate, the elderly people pay a yearly fee of €10, - and an entrance fee of €4, - for the activity on Wednesday afternoon. Additionally, the elderly person can contribute €1,10 to receive a cup of coffee or tea each week (Chairman Cards Club 2023, personal communication).

## 4.2. Data Collection Method: participant observations and semi-structured interviews

A mixed-methods approach was used for the collection of data for this research. By using a multiple methods approach to gather data the researcher can collect a richer and stronger array of evidence. Furthermore, it allows for triangulation of evidence, meaning that the information that is found by one source can be corroborated by using another source (Yin, 2014). Therefore, the study that is based on multiple different data sources is more valuable than a study that relies on one data source.

The two qualitative methods that were chosen to use for this study are participant observation and semi-structured interviews (Yin, 2014). Firstly, the participant observations were used to gain a preliminary understanding of the activities and social connections that were facilitated during the cards club, as there were no publicly accessible documents about this. Secondly, the interviews were used to corroborate the findings from the observations and to gain a more in-depth understanding of the meaning elderly people attached to the cards club.

### 4.2.1. Participant observation

In participant observation the observer is at the same time a participant of the activity that is researched. In contrast, direct observation requires the observer to be completely detach from the activities they are observing (Yin, 2014). Participant observations were preferred over direct observations because it was not possible to gain access to the activities of the cards club if you would not participate in the activity. Furthermore, it was suggested that remaining on the side-line would create a sense of distrust among the elderly people towards the researcher, which could ultimately lead to difficulties during the interviews.

Of course, the mixing of the position of participant and observer should not be done without careful consideration. There is a possibility that the observer adapts an advocacy role and support for the activity during the participation and thereby loses their objectivity (Yin, 2014). In this case, the observer has no affinity with playing cards or a strong emotional connection with the participants. Therefore, the participation did

not distract from the observation. Furthermore, the participation aspect can distract the observer from the observation (Yin, 2014). This was mitigated during this research by the observer merely participating in the conversations and not in the cards game. Lastly, it was considered that the activities can be dispersed through the whole community centre and the observer cannot be everywhere at the same time (Yin, 2014). This limiting factor of participant observation was dealt with by the observer changing tables every 15 minutes to observe all the participants of the cards club.

The participant observations took place every week over a period of 7 weeks between the 26<sup>th</sup> of April 2023 and the 7<sup>th</sup> of June 2023. During the observations the observer made short notes of the most important observations. After the activity, the observer wrote a detail report of all observations. Subsequently, the observer made a document with a summary of all observations that were observed on multiple occasions and made an overview of observations that could be considered more as outliers.

#### 4.2.2. Semi-structured interviews

Secondly, semi-structured interviews were conducted with ten elderly participants of the cards club. The aim of the interviews was to have an open-ended casual conversation with the interviewees about their experiences with the activities of the cards club and to gain a deeper understanding of the meaning the interviewees attach to the social connections that stem from the activities of the cards club. Therefore, the interviews had a strong basis of the observations that were already established through the participant observations, yet still left room for probing to find the deeper meaning of the experiences elderly people have at the cards club and how this influences their experience with ageing-in-place. For this semi-structured interviews are the most appropriate as these allow the researcher to gain an in-depth understanding of certain facts, while still having room to address certain facts in greater detail than others (Yin, 2014; Farthing, 2016).

For the interviews an interview guide, which can be found in appendix I, was created, which included questions about all the topics that should be addressed to gain an understanding of the role of the cards club on ageing-in-place, as well as find out more information about other social activities elderly people take part in that can influence their capability to age-in-place. The interview guide started with interview questions that are more friendly for the interviewee to gain more trust between the interviewer and interviewee. Secondly, the interview continued with questions that satisfy the need for information that can contribute to answering the research questions, such as questions about the interviewee's experience with ageing-in-place and the cards club (Yin, 2014). Lastly, the closing questions gave the interviewee the opportunity to contribute information that was not previously addressed by the interviewer.

The participants of the interviews were recruited among the participants of the cards club. After a brief introduction during the participant observations, the elderly people were approached with an information flyer, which can be found in appendix II, about the research and the interviews. After this, the elderly people were asked to approach the interviewer when they were willing to participate in the research. Ultimately, ten participants of the cards club were willing to participate in an interview. Two women

were only willing to participate in the interview if they could be interviewed together, which was approved by the researcher.

The interviews were conducted in Dutch, as this was the mother tongue of both the researcher and the interviewees. Moreover, the interviewees were most comfortable in expressing themselves in Dutch. Ultimately, the audio recordings of the interviews were also transcribed in Dutch. However, the researcher is proficient in both English and Dutch and therefore was able to translate the quotes that were used in this thesis for the purpose of this English document. Furthermore, the interviews were conducted in the setting of *Buurten Bij Bernlef*, which is a space that is both accessible to the elderly people and where the elderly people already feel comfortable.

#### 4.3. Data analysis method: thematic open coding in ATLAS.ti

The transcription of the interviews and reports of the observations were analysed using the software ATLAS.ti, which allows the researcher to code documents. In the case of qualitative research methods, it is common to analyse the collected data through the method of coding. The method of coding was applied on the transcription of the interviews and conversations were divided into fragments with each fragment receiving one or more codes. Firstly, the fragments received 'in vivo' codes that show what the fragment was about. Secondly, the 'in vivo' sub-codes received an 'axial' code to find the overarching connections between the sub-codes (Swanborn, 2010; Urquhart, 2013).

The 'axial' codes followed the approach of thematic coding, where the 'sub-quotes' were grouped by similar themes. The applied codes can be grounded in both existing theory, using important themes that were already established as important in existing academic literature, as well as induced from the data itself, when information was found to be important next to the existing knowledge in theory (Clifford, French and Valentine, 2010; Swanborn, 2010). A code tree, that provides an overview of the codes that are applied in this research, can be found in appendix III.

#### 4.4. Ethical considerations

Before the participant observations started the participants of the cards club were asked for their verbal consent for the presence of the researcher, which all participants ultimately gave. The participants of the interviews all gave written consent for the participation in the interviews. The Dutch version of the consent form, which was presented to the interviewees, can be found in appendix IV. Apart from consent for the participation in the interview, the consent form also includes consent to make an audio-recording of the interview, as well as an explication of the right the participant has as an interviewee. As mentioned before, the participants received a flyer with extensive information about the research. Moreover, before the consent form was signed by the participants, they were offered the opportunity to ask additional questions about the research to the researcher.

During the recruitment of participants, it was found that some participants of the cards club were dealing with some mental struggles, such as an early stage of dementia and depression. The inclusion of these people in your research requires more ethical consideration than the inclusion of elderly adults without these mental struggles. At this

stage, it was not possible for the researcher to provide the participant with the extra consideration that they need and deserve. Therefore, even though they expressed they were willing to participate, it was concluded to not include them in the research. Furthermore, there were some participants in the cards club who expressed to have distrust of institutions, such as a university. Therefore, it was also not possible to include them in the research, as they were not willing to work with a researcher from a university. However, it should be mentioned that both these mental struggles and the distrust can influence the experience people have during the cards club and with regards to ageing-in-place.

The researcher has positioned herself as an objective researcher of the case of the cards club Buurten Bij Bernlef. The researcher had not previous affiliation with either the cards club or Buurten Bij Bernlef. Moreover, the researcher had no ties within the neighbourhood of Paddepoel. Yet, with regards of the position of the researcher it should be mentioned that at the time of conducting this research she was 24 years old. Therefore, she herself is not familiar with the effects of ageing-in-place and has no experience with how social infrastructure can play a role in this. The analysis of qualitative data always requires a certain degree of interpretation of the data by the researcher. Therefore, it is unavoidable that the subjective perception has an influence on the interpretation by the researcher. As the researcher is a younger person, the interpretation can be different than the interpretation by an elderly person. However, the researcher made an explicit effort to stay as close to the words of the elderly people as possible and has confirmed her interpretation with the elderly people on multiple occasions.

## 4. Results

In this chapter the results of the conducted research are discussed. Therefore, it will explore how the activities in the community centre Buurten Bij Bernlef as a place of social infrastructure can contribute to elderly people’s capability to age-in-place. Firstly, a brief overview of the interviewed participants will be provided. Furthermore, Sen’s capability approach was used to assess the role of this case of social infrastructure on elderly people’s capability to age-in-place. The utilization of the capability approach allows the distinction between individual resources and endowments and contextual conversion factors (Sen, 2001; Meijering, Van Hoven and Yousefzadeh, 2019). Hence, the chapter shall follow the structure of the capability approach by firstly exploring the resources and endowments, then continue with the conversion factors, and lastly discuss the capabilities of elderly people that are influenced by the activities in Buurten Bij Bernlef.

### 4.1. Overview of interviewed participants

Table 1 provides an overview of the participants of activities at Buurten Bij Bernlef who were interviewed for this study. The table also shows their age, living situation, and all forms of social infrastructure they make use of or participate in.

Participant	Age	Living situation	Activities
Herman	78	In Bernlef-building together with his wife	Card club; Zonnebloem
Geert	69	Alone in a single-family home in Selwerd	Activity for elderly who need help; Wijkbedrijf Selwerd; Zorggroep Groningen
Dries	84	Alone in Bernlef-building	Card club
Miep	91	Alone in Bernlef-building	Card club
Piet	90	Alone in an apartment in Selwerd	Card club; card club elsewhere; volunteering
Alma (dual interview with Nellie)	87	Alone in a single-family home in Paddepoel	Cards club
Nellie (dual interview with Alma)	89	Alone in Bernlef-building	Card club; Rummikub club
Jolanda	67	In a single-family home in Paddepoel with her husband	Card club; Dutch class for immigrants
Maria	81	Alone in Bernlef-building	Card club
Ans	87	Alone in an apartment in Selwerd	Card club

Table 1: Overview of interviewed participants (author, 2023).

The average age of interviewees is 82.3 years old, which implies that the participants includes both elderly people in their fourth age (with an active life and little age-related impairments) and elderly people in their fourth age (with more age-related impairments and care needs) (Meijering, Van Hoven and Yousefzadeh, 2019). Furthermore, it includes

both people who live in the same building as the community centre Buurten Bij Bernlef, as well as people who live elsewhere in the neighbourhoods Paddepoel and Selwerd. Thus, there is a possibility to assess if the relationship to the social infrastructure is dependent on proximity. Lastly, it should be noted that social infrastructure is not the only node of social infrastructure the interviewees mentioned to utilize, which indicates that Buurten Bij Bernlef should not be considered in isolation of other facilities in the neighbourhood.

#### 4.2. Individual resources and endowments

Firstly, Meijering, Van Hoven and Yousefzadeh (2019) found that there is a broad range of resources and endowments that can determine the elderly persons capability to remain in their own home as they age. In this research it was found that three of these resources also play a role in an elderly person's ability to participate in social infrastructure, namely financial capital, an adequate community centre, supportive friends and family. Additionally, it was found that the resources of biographical identity and personal nature play a role in the ability to participate.

Firstly, it is vital that the community centre, such as Buurten Bij Bernlef, in which the activities take place is adequate. Indeed, the importance of availability of a community centre was echoed by the interviewed elderly people. Furthermore, for an *adequate* community centre the interviewees mentioned various prerequisites. Firstly, the community centre should not only provide room for the actual activity, but also provide storage for the necessities of the activity. Miep said about this:

*"Well, like I said, that everything [the necessities] you need is provided there [the community centre]. That is what I would want."* (Miep)

She said that bringing the necessities for a painting club was a barrier for her to participate in the painting club. Therefore, providing a storage space for the necessities of the activities at the community centre can make it easier for elderly people to participate.

Secondly, the community centre should be located in a place where elderly people are motivated to go to. It is beneficial if the social activities take place in a space where elderly people regularly walk by. It is thought that this could lower the barrier for elderly people to participate in the activities, as it is more visible to them what activities are taking place and which other people are participating in them. About this topic Maria said:

*"That is much nicer. People walk in. They see more. Here they see nothing. Yeah, the window a little bit, but otherwise nothing."* (Maria)

In this quote Maria compares the older situation in which activities were organized in the hallway to the new situation where the activities are held in the separate restaurant and community centre of the Bernlef-building. She says that in the old situation more people would walk by and spontaneously join the activity that was taking place at that moment. In the new situation, there is not a route which people can take spontaneously. Therefore, it leaves less room for the recruitment of new participants for the activity

through these spontaneous interactions while running into each other. Furthermore, she also indicated valuing a place where they could see who was walking by, because this facilitates a stronger connection to the overall social fabric of the neighbourhood. From this it can be concluded that designing a community centre that facilitates the weak ties with neighbours in the sense of Granovetter (1973) is indeed felt as an important aspect to these elderly adults who make use of the community centre.

Furthermore, supportive friends and family are vital for elderly people to be able to participate in social infrastructure. It was found among these elderly people that especially help from family members was prevalent. This support could be divided in both help with physical impairments and help with mental problems. In the context of social infrastructure, the support of friends and family is mostly important for elderly people who are dealing with mental problems. For instance, Ans recently lost her husband and recalled about that time:

*“When I lost my husband, that was a dark time. I was depressed. My daughter said: Mom, you need to go to a psychologist. That really helped. She taught me how to deal with my grief.”* (Ans)

Ans' daughter encouraged her to seek professional help in order to deal the depression she developed. Part of the help she needed was eventually facilitated through the connections she made social infrastructure. Although the help of a family member did not directly take away the mental problems she was dealing with, it did provide her with a vital steppingstone to get the help that could be provided in social infrastructure.

Similarly, Geert also recalled that the help and support he received from his family members was a steppingstone to receive the help that was needed to deal with the mental problems he was facing at the time. After suffering a subdural hematoma his sister found out that he was also dealing with a hoarding addiction and loneliness. Due to a negative experience with organizations for help in the past, he was hesitant to seek help himself. About the support he received from his sister and her husband he said:

*“Yes, sometimes you just need to seek help, but my sister and her husband really found the help for me here.”* (Geert)

His sister and her husband found a care organization in Groningen that helped Herman to get the psychological care, as well as the introduction in the social fabric of the neighbourhood that he needed. After this, Geert received help to organize his house and to join in various social activities in the neighbourhood. Geert and Ans's experiences indicate that although family members can not directly provide the help that is needed for the elderly people to deal with the mental problems they are facing, they can provide them with them with the indirect introduction to the facilities in social infrastructure that can provide them with a higher quality of life in their capability to age-in-place.

Lastly, with regards to the resources that were found by Meijering, Van Hoven and Yousefzadeh (2019) and that also play a role in participation in social infrastructure, money and income can play a role in the ability of elderly people to participate in the activities of the social infrastructure. In the case of the cards club the participants pay €4,- per month as contribution and an additional €1,10 if they want to drink a cup of

coffee or tea during the break. About the extent to which these costs play a role in people's ability to participate Miep said:

*"No, I think we don't have to pay a lot." (Miep)*

Yet, Herman also said:

*"For me it does not matter, paying or not. It's just you have to be able to afford this."  
(Herman)*

As indicated, the interviewees do not believe that the participation fees put a high toll on their financial capital as a resource. However, as Herman mentioned the extent to which this is true is dependent on the individual. Although he is able to afford his participation, he perceives that if this was not the case the lack of financial capital can be an obstacle to participate in the cards club. Therefore, it is vital to recognize that elderly people who can benefit from a community centre as social infrastructure can lack the financial capital to participate.

Aside from the aforementioned resources that were pre-defined by (Meijering, Van Hoven and Yousefzadeh, 2019), this research found that biographical identity and personal nature can also play a role in elderly people's ability to participate. Firstly, in the case of biographical identity in order for elderly people to participate in the activities of the social infrastructure it is vital that there is a certain extent of shared identity between them. As indicated by Relph (2008) engagement in the activities in social infrastructure is dependent on the sense of insideness and belonging of the participants. In the case of the cards club, it was found that a majority of the interviewed elderly people used to play cards during their younger years. Hence, playing cards is something they identify themselves with and it is an activity that they aspire to continue sharing with others as they age. When asked about why he participates in the cards club Dries said:

*"I participate in the cards club because I love playing cards. I have been playing cards for years." (Dries)*

Similarly, Miep said about playing cards:

*"My husband and I, we used to have friends and, in the evening, Saturday evening, we would play cards together." (Miep)*

Dries and Miep both recollected that playing cards is an activity they have enjoyed since they were young. Therefore, it can be concluded that the activity of playing cards had become part of their identity to a certain extent. Ultimately, they decided to participate in the cards club because identify the activity and they aspire to share their valued activities with others who also like playing cards. From these experiences, it can be concluded that indeed the extent to which elderly people share a certain identity trait influences their ability to use the social infrastructure to reach the capability to age-in-place.

As previously also concluded by Lloyd-Sherlock (2002), the biographical history of an older adult can have an influence on the choices they make in later life. In a similar fashion, Nellie perceives that now there is a decile in participants of the cards club because younger people did not play cards when they were young.

*“Younger people do not start to participate. They don’t play cards.” (Nellie)*

Lastly, it was found that the personal nature of people also influences their engagement with the activity in the social infrastructure. Most interviewed elderly people indicated that they have always enjoyed social interactions. For instance, Piet said:

*“I attach value to staying busy and being around other people because that was my job. I was a nurse, and my job was to be around people. That stays with you.” (Piet)*

On the other hand, Geert said that due to bad experiences in the past it was not in his nature to seek out social contacts:

*“Yes, I think, I had fewer good experiences with help organizations in the past. For example, during a few years in my youth in Zeist. In hindsight that was completely unnecessary.” (Geert)*

Because of this experience Geert had he was less inclined to seek help and push himself to find the social connections he needed outside of his own home. As discussed above, eventually he needed the help from his sister and her husband to overcome this obstacle from the past to start to participate in social infrastructure. Piet discussed that being social and enjoying social interactions outside of his own house is something he always valued and continues to value to this day. From this one can conclude that being a social creature is in Piet’s personal nature. Therefore, he experienced a lower threshold to start to participate in the social infrastructure’s activities. On the other hand, because of negative experiences in the past, Geert was more hesitant to start to participate in the activities of the social infrastructure. Yet, he was desperately in need of the help and benefits it could offer him and eventually needed the help of his family to start to participate. Thus, one’s personal nature can make it either easier or more difficult to start to participate in social infrastructure.

Hence, one can conclude that apart from the aforementioned resources previously defined by Meijering, Van Hoven and Yousefzadeh (2019) biographical identity and personal nature are resources of vital importance for the ability of elderly people to use the social infrastructure to their benefit in order to gain the capability to age-in-place. Therefore, these resources and especially the difference in the availability of these resources of elderly people should be taken into consideration when providing social infrastructure for elderly people in the neighbourhood. Moreover, it should be considered that it is not apparent that elderly people will find their way to the activities in the spaces of social infrastructure, which can require other social services in the neighbourhood for them to overcome the obstacles they face. Therefore, a broader network of social infrastructure is required in the neighbourhood. This broader perspective shall be explored more extensively in a later section of this thesis.

### 4.3. Contextual conversion factor

As discussed above individual resources and endowments are of vital importance to reach the aspired capability of ageing-in-place. Yet, contextual conversion factors are needed to convert the resources into the aspired capability. Bigonnesse and Chaudhury (2022) found that there are four conversion factors that are needed for elderly people to age-in-place, namely: individual characteristics, accessible built environment, proximity of services and amenities, and meaningful social connections. All these four conversion factors were found to play a role in the community centre of Buurten Bij Bernlef. On the one hand, some conversion factors play a role in the facilitation of the activities of the conversion factors. The extent to which the conversion factors are present determine the ability of elderly people to participate in the activities. On the other hand, there are conversion factors that are the result of the existence of social infrastructure. These conversion factors ultimately have an effect on the capability to age-in-place.

#### 4.3.1. Facilitation of social infrastructure

Firstly, the physical characteristics of a person determines their ability to participate in the activities in social infrastructure. The physical characteristics of the participants of the cards club differs heavily, which led to a different level of mobility among the participants. It was found that the participants who do not reside in the Bernlef-building have a higher level of mobility than the participants who live in an apartment in the building. Persons with better physical characteristics tend to be more mobile and therefore are able to use spaces of social infrastructures that are located further away from them. For instance, Miep indicated that the distance to the Trefkoel, which is another community centre in Paddepoel, became an obstacle for her participation in activities there:

*“No, I got a feeling of, no, I’m not going there [Trefkoel] anymore.” (Miep)*

Distance is a factor that elderly people take into consideration when deciding to use the social infrastructure. When their psychical state declines this becomes more prevalent and the places that are further away from them become less accessible to them. Therefore, the physical characteristic of a person can influence their mobility, which can dictate their decision to participate.

Similarly, Bigonnesse and Chaudhury (2022) found that proximity to services and amenities is an important conversion factor for ageing-in-place. The previous result further deepens the importance of proximity by showing that the need for proximity is dependent on the physical characteristics of elderly people and their subsequent mobility. Some elderly people are more able to reach places that are located further away from them than others. Thus, when deciding where social infrastructure should be placed it should be assessed where elderly people live that are less able to reach those places without assistance. Yet, if this proximity cannot be provided for the elderly adults who are in need of it, one should consider of the availability of transportation initiatives in the neighbourhood. This revolves around a broader network of social infrastructure, which shall be discussed more in-depth in a later section.

Furthermore, the mere existence of these activities, such as the cards club, is dependent on the physical characteristics of the elderly adults. When asked about the organization of the activities, Miep said:

*“Alma would be better at this [organizing the cards club] because she can walk.”* (Miep)

As the cards club is a self-organized activity the existence of the activity is dependent on elderly people who are able to take on the responsibility of organizing the club. From Miep’s answer one can conclude that it is believed that the physical state of the organizer needs to be good to successfully fulfil the tasks of the organizer, such as the bring the necessities and buy new products needed for the activity.

Lastly, sudden physical decline can lead to the elderly person not being able to attend the activity anymore. During the research period Nellie became terminally ill, which led to the general practitioner advising her to take a step back. Although reducing her participation in activities was advised for her health, this was not liked by Nellie:

*“I’m not allowed to put energy into anything anymore. Yeah, he said I should just enjoy myself. I’m not even allowed to clean anymore. It is a punishment for me.”* (Nellie)

Moreover, Bigonnesse and Chaudhury (2022) pre-defined that accessible built environment. This research found that accessibility of the community centre also plays a vital role in the ability of elderly people to participate in the activities. Furthermore, it was found that accessibility can be divided in internal and external accessibility. The internal accessibility of the community centre is important with the regards to the use of tools that can help elderly people to be mobile, such as a walker or a mobility scooter. The community centre should provide elderly people with the opportunity to enter the building with the amenity that helps them to be mobile. Miep recollected about her usage of a mobility scooter:

*“Yes, I go inside with my mobility scooter. I can turn as much as I want.”* (Miep)

Miep indicated that she needs to be able to move around the community centre while using the mobility scooter. Thus, accessible built environment as a conversion factor should also include the internal accessibility of the building while using a tool to aid one’s mobility.

Furthermore, the community centre should also externally be accessible for elderly people. This includes the fact that elderly people should feel comfortable to move around the neighbourhood. Most interviewed people reached Buurten Bij Bernlef, albeit assisted by tools to increase their mobility, such as a mobility scooter or a walker. Other participants were still able to reach the community centre by bicycle. However, some other participants mentioned that they lost the ability to cycle due to physical decline. Other participants had to use local transportation initiatives, such as buses to reach the activities. One participant still had his own car. Yet, many others already lost their driving license due to extensive physical decline. The manner in which elderly people are able to reach social infrastructure dictates the external accessibility of the built environment, as the experience of moving around the neighbourhood differs per mode of transport.

Moreover, the interviewed elderly people perceived the community centre to be less accessible during the dark. Alma said about the distance between day and night:

*“And when it’s late. I lived about, well, 10 minutes away, but still. At night, I didn’t dare to go anymore.”* (Alma)

From Alma’s experience one can conclude that the time of day was a factor on her decision to participate in an activity organized in social infrastructure. The darkness of the night made her feel unsafe and uncomfortable to travel to the place of social infrastructure. Therefore, when providing accessible activities for elderly people in social infrastructure it is vital to consider the time of the activity. Even so, Alma also indicated that this situation could be different if she could travel together with another person. She answered when asked about the possibility of walking together with another person:

*“Yes, my neighbour. Go there together, go home together. Yes, as long as someone else is with me.”* (Alma)

The presence of another person when walking to the activity at night would make Alma feel safer and more comfortable. Hence, it can be beneficial for elderly people to be provided with another person to accompany them when they want to attend an activity. Especially when the activity is organized in a situation that the elderly person does not feel entirely comfortable with, such as an activity in the evening.

#### 4.3.2. Benefits of social infrastructure

Apart from conversion factors that are needed for the facilitation of elderly people’s participation in the activities in social infrastructure, the activities can also provide elderly people with conversion factors that have been found to be needed for to reach the capability to age-in-place. The activities in the community centre can provide elderly people with meaningful social connections. As previously defined, social infrastructure are inherently places that facilitate social connections. A process which can lead to a higher level of social capital (Yarker, 2019; Klinenberg, 2020; Layton and Latham, 2022). Indeed, it was found that Buurten Bij Bernlef was primarily used to gain more social connections. When asked about why Geert found it important to go to Buurten Bij Bernlef, he said:

*“To be among people. I think that is the most important reason. I used to be quite lonely.”* (Geert)

However, making social connections was not the first reason to join the cards club for all interviewed participants. Rather, similar to Latham and Layton (2019)’s notion that the primary function of social infrastructure is never to make social connections, these interviewees indicated that they joined because they wanted to play cards. Although the primary objective of their participation was to play cards, they found that social connections were a natural consequence of the activity. Dries commented about this dynamic:

*“Making some conversations comes naturally when playing cards. It has to be a part of it. Otherwise, it becomes boring.” (Dries)*

Similarly, Jolanda said:

*“I went for the game, to play cards. And then for the social contacts.” (Jolanda)*  
The activities in Buurten Bij Bernlef, such as the cards club, do not only facilitate the opportunity for elderly people to play games or undertake the activities provided there, but also to make social connections at the same time. Indeed, it can be observed that on a surface-level the main operations in the space are not fully centred around making social connections, but the facilitation of social connections is the very motor these activities operate on (Latham and Layton, 2019).

Furthermore, the facilitated social connections in the community centre can be seen as *meaningful*. Although strong ties with family and friends are important for elderly people, the added value of social infrastructure in the lives of elderly people comes in the form of weak ties with other people in the neighbourhood (Granovetter, 1973; Yarker, 2019). For them it is of vital importance to have a small activity that provides them with something to do during the afternoon. Piet said about this:

*“A lot of people have the same thing as me. They want to be away for an afternoon. If you are alone, you need to look for something to stay busy as much as possible. That is important for a lot of people. [...] Then they are busy for a little while. We have something to do then.” (Piet)*

The weak ties facilitated in social infrastructure are meaningful to the lives of older adults, because they cannot solely rely on their stronger ties (friends and family) to provide them with the social connections they need for an afternoon. Some interviewees mentioned they do not want to become a burden on their strong ties and do not want to rely on them too much for their needed social connections. Miep said about the relationship with her children:

*“I would like them [her children] to visit more often. But yea, I don’t want to ask them for that.” (Miep)*

Similarly, Alma also said in her interview that she finds it difficult that her daughter is not able to visit her more often due to time limitations on her daughter’s end. Maria even contemplated the possibility of moving in with her daughter, but decided against that because she does not want to be a burden on her daughter’s life. She said:

*“Yes, and then they sometimes say you can also go live with your daughter. I say that will not happen. No, I don’t like that. [...] Well, I just think the children have their own people, their own friends and they have their own, no, I don’t want that.” (Maria)*

The social connections created during the activities in the community centre can provide elderly people with the weak ties that are needed to stay busy during the afternoon without feeling like a burden on their stronger ties. Elderly people perceive that their strong ties, especially their children, have their own lives in which they do not want to interfere to have some social connections during the day. Therefore, providing elderly people with other options to have social connections is vital.

Moreover, the weak ties that are facilitated in the community centre can also provide elderly people with mental support that they could not find among their stronger ties. Herman recollected that he found it difficult to accept his new physical situation after his spinal cord injury. His friends also found it difficult to accept his decline, which made it difficult for Herman to share his mental difficulties with regards to accepting his new situation. In fact, he had the contacts with his friends declined, because his friends found it difficult to face his physical decline:

*“Yes, contacts. That is for me now, after what happened to me, I don’t have any contacts anymore. It is more that they [friends] have contact with my wife. They ask her how I am.”*  
(Herman)

The weak ties at the community centre did not have a pre-conceived notion of his physical state and therefore it was easier to not have attention on the effects of his spinal cord injury. He said that he used the cards club to forget about his situation and to become more positive again:

*“That’s why I’m here. To play games together with others. Because I don’t want to think about what happened to me.”* (Herman)

He indicated that he wants to have less focus on his physical decline. He recollected that it was easier to do so with weak ties:

*“I’m super happy when I can talk to them and laugh with them. Because they like that I make jokes. [...] But the most important thing is to make jokes and jokes with someone you don’t know. And they will accept you. That calms your heart, you know. You are happy then, right? When they accept that you are funny, you know, that makes you happy.”* (Herman)

The weak ties that are facilitated in the community centre give additional meaning to the life of elderly people, because there is less focus on their physical decline. Thus, it can be concluded that weak ties can provide a type of mental support that stronger ties cannot provide to the elderly person.

Although the social connections made in social infrastructure start as weak ties, it is not fixed that these connections remain as such. The weak social connections that are formed in social infrastructure can develop into stronger social connections in the form of friendship. Geert developed a stronger connection with one of the men he met at Buurten Bij Bernlef. He now invites him to his own house to cook and listen to music together. He said about this developed friendship:

*“Yes, the contacts here are also long-term. We see each other more often. [...] That is a regular occurrence.”* (Geert)

In addition to the fact that elderly people do not want to be a burden on their stronger ties, it can be concluded that social infrastructure provides elderly people with social connections that are meaningful to them, as they can provide them with a small afternoon activity and different mental support than strong ties are able to do. Furthermore, the weak ties in social infrastructure have the potential to develop into strong ties. Therefore, the benefits of social infrastructure in terms of conversion factors

needed for ageing-in-place come in the form of meaningful social connections (Bigonnesse and Chaudhury, 2022).

#### 4.4. Capabilities

This research was centred around the capability of elderly people to age-in-place. Indeed, the majority of interviewed participants of the cards club stipulated that they would prefer in their own home rather than move to a residential care unit. Miep said about the prospect of moving to a residential care unit:

*“For me then it is going wrong. When I have to move to a care home. When I can’t be helped here anymore.”* (Miep)

In similar fashion, Dries and Piet commented that they would rather die than move to a residential care unit:

*“Yes, I want to live here longer. They can carry me away here.”* (Dries)

*“I hope it will never come to that. I would rather die.”* (Piet)

The wish of these elderly people is to remain in their own home until their death. However, they do recognize that as their capacity to sustain themselves decreases they have no other option than move to a residential care unit. Miep says about this:

*“When I can’t leave the house anymore and I can’t do what I actually want. I mean now I also can’t do everything, but I can still take care of myself. Yes, I say as long as I can take care of myself, I stay.”* (Miep)

She talks about the eventuality that she might not be able to take care of herself any longer. In this case, she recognizes that there might not be another option than to move to a residential care unit. However, she sees this eventuality as a last resort, and she would rather remain in her own home until her death.

In order to remain in one’s own home it is vital to be able to take care of oneself. Therefore, in order to remain in their home, it is important that these elderly people remain independent. Hence, for the capability to age-in-place, it is vital to be capable to be independent. Meijering, Van Hoven and Yousefzadeh (2019) found that there are three central capabilities to independence, namely enjoying a fulfilling social life, being mobile and being comfortable in your own home. In this research it was found that social infrastructure – in this case Buurten Bij Bernlef – contributes to all three capabilities to a certain extent.

Firstly, and most importantly, social infrastructure can contribute to elderly people’s capability to enjoy a fulfilling social life. As discussed above the social infrastructure can provide elderly people with meaningful social contacts, which at first come in the form of weak ties and have the potential to transform into strong ties. To enjoy a fulfilling social life, it is vital for elderly people to get out of their house and meet other people. Geert commented about this:

*“But you shouldn’t be behind the geraniums. Because it won’t get any better with that. And also, you shouldn’t be on the computer all day. Because it also won’t get any better with that.” (Geert)*

Geert recollected that his life has gotten better since he participated in the activities in community centres. The social connections facilitated in the community centres had benefit to his life and he has learned that finding social connections outside of the house was beneficial for dealing with the problem he was previously facing.

Furthermore, it should be considered that the social connections that are created in Buurten Bij Bernlef are different than the social connections that elderly people get from friends and family. As discussed before there is a difference between strong and weak ties. Yet, it is precisely this difference that is of vital importance to the creation of a fulfilling social life for elderly people, as older adults benefit greatly of enjoying a broad variety in types of social connections during the day. Herman recollected about his situation after his spinal cord injury:

*“Friends could never accept my situation or would want to accept that this happened to me.” (Herman)*

At the same time, he said about the social interactions he has in Buurten Bij Bernlef:

*“The most important thing is to make jokes with someone you don’t know. They will accept you.” (Herman)*

In the social connection he has in Buurten Bij Bernlef Herman found something he could not find among his friends, namely acceptance of his physical situation after his spinal cord injury. Moreover, Miep said that the social interactions that are created in Buurten Bij Bernlef also helped her with her mental situation after the death of her husband. She said about sharing the grieving period with another woman who recently lost her husband:

*“Yes, we share the pain. [...] I have her, and she has me. And, well, then we got over it and we didn’t have to grieve together anymore.” (Miep)*

Buurten Bij Bernlef made it possible to meet another elderly person who was going through the same situation as her, which was a type of mental support that her children could not offer at the time. Therefore, it can be concluded that Buurten Bij Bernlef as social infrastructure adds to the fulfilling social life of elderly people because it allows them to meet with others who are going through a similar phase of life with similar major life events. Hence, elderly people’s social life becomes more whole in places such as this through social connections with people of a similar age.

Lastly, the fact that Buurten Bij Bernlef provides elderly people with a fulfilling social life is felt by the elderly people because it helps them to deal with the loneliness they can experience while living at home alone. Geert commented that it helped him combat his loneliness and depression and also Piet found that the activities at Buurten Bij Bernlef helped him to deal with the loneliness he could experience at home.

Secondly, the activities at Buurten Bij Bernlef can help elderly people to be more mobile through helping each other to reach places that were previously inaccessible to them,

which can ultimately lead to them being more independent (Meijering, Van Hoven and Yousefzadeh, 2019). Indeed, the interviewed elderly people in this research also found that increased mobility can lead to more independence in a later age. Herman said:

*“Independence is important. I need to be able to reach places independently.”* (Herman)

Hence, it can be concluded that the capability to be mobile is central to the independence of elderly people. Furthermore, as discussed before the mobility of elderly people is central to elderly people’s opportunity to participate in the activities of Buurten Bij Bernlef and subsequently enjoy the benefits it brings them. Although the factor of mobility is relevant for the participation in activities in Buurten Bij Bernlef, the activities can also increase the capability of elderly people to be mobile. It was found that some participants would undertake activities with other participants. She would join another woman in her car to undertake some outings together:

*“She had a little car, and we would go to the flea market together. [...] And sometimes we had to go to Steenwijk and that’s what we did. [...] And yes, we would go everywhere in that little car.”* (Miep)

Before Miep met the woman she would join in her car, she was not able to do the activities she would do with the car. Miep herself at that point did not have a car. Yet, meeting the woman at Buurten Bij Bernlef and joining her in her car also made Miep more mobile and increased the number of places that were in her reach. Therefore, the social connections that are fostered in Buurten Bij Bernlef can allow elderly people to meet up with another elderly person who is more mobile and thereby increase their own mobility.

Furthermore, being on the street with another person can make the elderly person feel more secure and more confident to go somewhere. Therefore, this increased confidence on the street can lead to increased mobility. As mentioned before, Alma mentioned that she feels more comfortable to go out at night and with bad weather when she is accompanied by another person. Similarly, Miep said that she almost fell with her mobility scooter and that she now does not feel comfortable to make use of the scooter. Yet, she also recognizes that the mobility scooter does increase the places where she can go. About the use of her mobility scooter, she said:

*“I haven’t used it yet this year. Only when I was with another person last week.”* (Alma)

She didn’t use the mobility scooter when she didn’t have another person to go with. However, because she was able to join another person, she met at Buurten Bij Bernlef, she felt more secure to use it, as she knew that someone would be near her to seek help in case she would fall. Hence, it can be concluded that when the social connections that are created in social infrastructure are taken outside, it can lead to a stronger sense of security among the elderly people to go outside, which will ultimately increase the opportunity of the elderly person to be more mobile.

Lastly, in order to be independent it is vital that the elderly person feels comfortable in their own home (Meijering, Van Hoven and Yousefzadeh, 2019). Although the places of social infrastructure are per definition located outside of one’s own home, as they can also be seen as third places rather than first places, the social connections that are found

in third places do have an effect on the quality of life a person experiences in their first place (Oldenburg, 1999).

The most speaking example of how social infrastructure can influence a person's experience in their first place comes from Nellie, who was terminally ill at the time of conducting the interviews and could some weeks not participate in the cards club. Whenever she was not there, others would later call her and check how she was feeling to see. This made her feel safer at home, because she knew that someone would know if she was not feeling well. She said about this:

*"Yes, it made me feel safer. [...] A lot of people called me. And some even visited me."* (Nellie)

Others would call her to check-in on her, which made her feel safer and therefore more comfortable in her own home. Furthermore, the social connections she formed at home even led to visitors in her apartment. This made her feel appreciated even when she was at home:

*"They brought me flowers and a tasty fruit basket. [...] It's nice that all of that is possible here. That they still like you. [...] I say you are not a number. That's very important."*  
(Nellie)

For her it was vital to experience in her own home that people still cared about her and that she was not forgotten. Similarly, Piet said that the activities at Buurten Bij Bernlef breaks the day of being home alone and thereby make him feel less lonely when he is alone at home. Hence, the good experiences an older adult has as a result of the activities at Buurten Bij Bernlef can translate to the elderly person feeling more comfortable in their own home.

## 5. Discussion

In the programme “Langer Thuis” the Dutch national government stipulated that a large part of the challenge concerning ageing-in-place should be discussed on a local or regional scale. Moreover, they acknowledge that what is needed for ageing-in-place is more independence among elderly people and a stronger social environment in which they operate. In order to achieve these goals, they propose an approach to facilitate care takers working together on a neighbourhood level. Even though they do recognize the vital importance of the social environment on elderly people’s independence, their proposition is mainly focused on creation a network of health care professionals (Ministerie van Volksgezondheid, Welzijn en Sport, 2018). Yet, based on the results of this research, it can be argued that the social environment of elderly people is much broader than the health care professionals who are active in the neighbourhood. Therefore, in order to truly facilitate the independence of elderly people through the enhancement of the social environment of the neighbourhood, a much broader scope should be considered.

Social infrastructure cannot be considered in isolation. Rather, as previously argued by (Latham and Layton, 2019), available social infrastructure should be seen as a network of structures and systems that facilitate social, economic, political, and urban life. Where in the field of technological infrastructure, such as electricity and water provision, there often is a focus on the network of a whole, in social infrastructure there is a tendency to focus on the success of one specific part in the network. The network of social infrastructure consists of various spaces, facilities, institutions, and groups. Therefore, unlike the goals of the Dutch national government in their programme “Langer Thuis”, it does not suffice to only focus on the health care professionals when aiming to enhance the social environment of the neighbourhood to ensure the independence of elderly people.

Although this research also was limited to the scope of Buurten Bij Bernlef, from the results it became clear that a place like Buurten Bij Bernlef cannot be seen in isolation and should be considered within the network that supports the social urban life of elderly people in the neighbourhood of Paddepoel. Many elderly people need other social services that are available in the neighbourhood in order to participate in the activities at Buurten Bij Bernlef or to find other aspects that are needed for them to remain independent, which cannot be gained from the activities at Buurten Bij Bernlef.

Firstly, it should be noted that the aim of this critical reflection on the programme “Langer Thuis” is not to trivialize the importance of health care professionals in the neighbourhood for elderly people who age-in-place. In fact, the results of this research further underlined the vital importance of precisely these health care professionals. They can be seen as a central point within the neighbourhood for the elderly people who live at home and need some extra help. An example of such a health care service in the neighbourhood of Paddepoel is Zorggroep Groningen, who are the first contact point for help-seeking elderly people and facilitate the distribution of these elderly people to other places and services in the network of social infrastructure that can offer the help that is needed. Hence, the participation of some elderly people at Buurten Bij Bernlef was at first dependent on the introduction of a health care professional with broad knowledge of the facilities that are available to the elderly people. For an elderly person

the network of social infrastructure too large to oversee the option that are available to them. Additionally, going to these places that are still unfamiliar to them can be unlike their personal nature and daunting to some elderly people. The health care professional has a key role in this as first contact point and can help elderly people to overcome the obstacles they face when initially seeking help in the network of social infrastructure.

Apart from health care professionals, local transport initiatives are an integral part of the social infrastructure network that facilitates elderly people with the capability to age-in-place. As elderly people age there is a high likelihood that they will face a decline in mobility due to a change in their physical characteristics. Yet, it was also found by Meijering, Van Hoven and Yousefzadeh (2019) that being mobile is a key contribution to elderly people's capability to remain independent and therefore retain the ability to age-in-place. Therefore, local transportation initiatives, such as the taxis of WelMobiel and Buurttaxi Selwerd & Paddepoel in Groningen, play a key role in the network of social infrastructure to increase the capability of elderly people to be mobile. Although these local transport initiatives have the potential to broaden the accessible social environment within and beyond the borders of the neighbourhood, the programme "Langer Thuis" fails to acknowledge the integral part they play and the importance of including these initiatives in the conversation and cooperation that the government is only willing to have with the health care professionals in the neighbourhood.

Thirdly, as this research focused on the role of a community centre, in this case Buurten Bij Bernlef, it is vital to underline the importance of these places in the social infrastructure network. Independence is experienced by the interviewed elderly adults as the central prerequisite of ageing in place. Additionally, Meijering, Van Hoven and Yousefzadeh (2019) argued that for elderly people enjoying a fulfilling social life, being comfortable in one's own home, and being mobile are central to the capability of being independent. Within this research it was found that participating in the activities in a community centre can contribute to all three central capabilities to independence. Therefore, it is vital to provide these types of activities for elderly people in the neighbourhood and include the organization of social activities in the conversation with health care professionals. The needs of elderly people who live at home go beyond the realm of solely health related issues and the social activities in places of social infrastructures can provide elderly people to form more social connections in the neighbourhood, which can provide older adults with valuable benefits that the health care professionals that are only being considered in the programme "Langer Thuis" cannot provide.

Lastly, although community centres can provide elderly people with different social connections than friends and family, the provision of supportive friends and family fulfils a vital role in the broader network of social infrastructure. Friends and family can provide elderly people with an important steppingstone to start to participate in the activities in social infrastructure. Without supportive friends and family, the elderly person might not be able to find the places in which these activities are organized or not find the courage to overcome the obstacles they can face with initial participation.

In short, the results show that elderly people who live at home have a broad range of needs and the proposition of Dutch national government to have more cooperation among merely health care professionals is a one-sided answer to the challenge elderly people who age-in-place face. The complete broad network of social infrastructure,

which includes local transport initiatives, community centres, and health care professionals, should be taken into consideration when proposing an enhancement of the social environment to strengthen elderly people's capability to be independent.

## 6. Conclusion

In the context of social infrastructure, resources and endowments can dictate the extent to which the elderly person is able to participate in social infrastructure. In their study, Meijering, Van Hoven and Yousefzadeh (2019) already found various individual resources and endowments that were relevant for elderly people who were ageing-in-place. Indeed, financial capital, an adequate community centre, and supportive family and friends were also found to have an impact on the extent to which elderly people can utilize social infrastructure to reach the capability to age-in-place. Supportive friends and family function as a steppingstone for the elderly person to overcome the obstacles they face when participating in social infrastructure. Furthermore, an adequate community centre is vital for the elderly person to use social infrastructure to age-in-place. An adequate community centre includes storage of the necessities of the activities and a place where elderly people are motivated to participate in the activities. Next to the resources and endowments that were pre-defined by Meijering, Van Hoven and Yousefzadeh (2019), it was found that in the specific case of social infrastructure both biographical identity and personal nature are relevant. Elderly people are more inclined to participate in the activities in social infrastructure when they have a biographical history of participation in a similar type of activities. Similar to Lloyd-Sherlock's (2002) conclusion, the choice older adults make in later life can be influenced by the experiences they had when they were younger. Furthermore, personal nature is a relevant resource for elderly people to participate in the activities in social infrastructure. Some elderly people have a more social nature than others, which can lead to them attaching more value to finding social connections in the neighbourhood. Moreover, some elderly people feel more confident to start to participate in social infrastructure than others, which can stem from a more extroverted nature or experiences with social services and amenities in the past.

Furthermore, it was found that the conversion factors for ageing-in-place that were previously defined by Bigonnesse and Chaudhury (2022) also have an influence within the elderly people's utilization of social infrastructure to reach the capability to age-in-place. However, in the context of social infrastructure the conversion factors can be divided in conversion factors that facilitate participation in the activities and beneficial conversion factors for ageing-in-place that occur as a result of the activities. Firstly, social infrastructure needs to be in close proximity to the elderly person, as elderly people can face difficulties participating in it due to physical decline as a result of ageing. However, the extent to which this is true is dependent on the level of physical decline the person faces, because some older adults are more able to overcome the distance to the places of social infrastructure than others. Furthermore, social infrastructure should be both internally and externally accessible to the older person. The internal accessibility is vital for the usage of tools that aid mobility, such as mobility scooters and walkers. The external accessibility ensures that the elderly person is comfortable to move around the neighbourhood, even in compromising circumstances, such as at night.

Additionally, social infrastructure can also bring forth beneficial conversion factors for the elderly person to reach the capability to age-in-place. The conversion factor that was pre-defined by Bigonnesse and Chaudhury (2022) that is specifically facilitated in social infrastructure are meaningful social connections. The weak social connections in social infrastructure differ from the strong social connections with friends and family, because

it can provide elderly people with a distraction from everyday reality, such as physical impairments. Elderly people cannot find this acceptance among their strong ties, because they see how the elderly person has declined making it more difficult to move away from the reality they are facing. Furthermore, elderly people are often in need of social connections during the day. Yet, they do not want to feel like a burden on their strong ties. Therefore, the weak ties in social infrastructure can provide them with the small social connections during the day without relying on their strong ties. Due to the different nature of the social connections in social infrastructure than the pre-existing social connections of elderly people, it can be concluded that participating in social infrastructure brings additional value in terms of conversion factors for ageing-in-place to the elderly person.

Lastly, elderly people indeed aspire to retain the capability to age-in-place and independence is vital to do so. Meijering, Van Hoven and Yousefzadeh (2019) found that within elderly people's capability to remain independent three key capabilities play a role, namely enjoying a fulfilling social life, being mobile, and being comfortable in one's own home. Social infrastructure can play a role in all three capabilities and therefore influence elderly people's capability to remain independent and age-in-place. Firstly, the activities can provide elderly people with the opportunity to enjoy a more fulfilling social life. It is vital for elderly people to get outside the house and make social connections elsewhere, as these interactions can bring them support and understanding they cannot find among friends and family and help them with loneliness they can experience when they live alone. Furthermore, the social connections facilitated in social infrastructure can also help them to be more mobile, as they can go to other places together or help each other to feel more confident to be mobile outside the house. Lastly, although the place of social infrastructure is outside of their house, the social connections can also help the elderly people to feel more comfortable in their own house, as they check on each other when a person does not show up for an activity or visit each other when they are not feeling well.

The aim of this thesis was to expand the focus of the capability approach from the individual to the neighbourhood level. The facilitation of participation in social infrastructure lies not solely within the individual but it also dependent upon the design of the neighbourhood and the manner in which these public places are provided. Furthermore, the conversion factor of meaningful social connections and the capability to age-in-place can be enhanced within social infrastructure on a neighbourhood level. Hence, when discussing the capability to age-in-place it is vital to consider the neighbourhood context in which the individual resides. Yet, the community centre as a place of social infrastructure, such as in this case Buurten Bij Bernlef, does not stand on its own. Rather, as previously concluded by Layton and Latham (2022), social infrastructure should be seen as a broader network of spaces, facilities, institutions, and groups that facilitate social urban life. Therefore, the community centre that organizes activities for elderly people cannot be seen in isolation from other nodes in the network of social infrastructure that have an influence on the lives of elderly people who age-in-place. In fact, the participation of elderly people in these activities, and thereby the benefits they can extract from this to reach the capability to age-in-place, can be dependent on the support they receive from other nodes in the network, such as health care professionals, local transportation initiatives, and supportive friends and family. Next to the influence these other nodes can have on the participation of elderly people in

a community centre, the other nodes can also influence elderly people's capability to age-in-place on their own. A fact which the Dutch national government fails to acknowledge in their programme "Langer Thuis", as they only mention the influence of health care professionals in the neighbourhood can have on elderly people to age-in-place (Ministerie van Volksgezondheid, Welzijn en Sport, 2018).

This research found that the activities for in community centre as a place of social infrastructure can contribute to the capability of elderly people to age-in-place. Therefore, it can be concluded that these activities for elderly people deserve the classification of a vital node in the network of social infrastructure for elderly people. Furthermore, it recognizes the importance of other nodes in the network of social infrastructure for elderly people in the neighbourhood. Hence, it is recommended that the Dutch national government reviews their approach to enhance the social environment of elderly people to facilitate them to age-in-place and include other networks in the cooperation and conversation than solely health care professionals. Lastly, the results of this research urge the Dutch national government to recognize the important contribution the activities for elderly people in community centers can have for elderly people's capability to age-in-place and include these activities in their approach to facilitate the aspiration of elderly people to remain in their own home for as long as possible.

## 7. Recommendations for future research

The recruitment of participants for the interviews resulted in some limitations, as some participants of the activities faced mental problems, which could have an effect on mental competence to make the decision to participate in the interview. As the inclusion of these people in a research project should be approached with the utmost delicateness, it requires great ethical consideration and more facilitation of support to do so. Therefore, it was decided to not include these people in this research, as the available resources were too limited to provide the extra care and consideration they need. However, it is recognized that precisely mental problem can lead to a different interaction elderly people have with social infrastructure and the value social infrastructure can have on their life. Therefore, it is recommended that future research should include people who deal with mental problem to explore the difference social infrastructure can make on their capability to age-in-place. Additionally, some elderly people did not want to participate in the interviews because of distrust of institutions, such as a university. As these people were adamant about their decision, their decline of the invitation to participate was respected. Yet, it is recognized that a distrust of institutions can also lead to a distrust of institutions that facilitate the places of social infrastructure and can therefore influence the relationship these elderly people have with the places of social infrastructure. Therefore, this absence of these people in this research should be considered when implementing the conclusions of the research. Although it might prove difficult, it is believed that future research would benefit greatly from the perspective of these people and therefore it is recommended research should continue to attempt to explore the experiences these people have in social infrastructure.

Moreover, it was found that social infrastructure should be viewed as a broad network of spaces, facilities, institutions, and groups that can contribute to elderly people's capability to age-in-place. Yet, this research does solely consider the activities at the community centre Buurten Bij Bernlef. Although this has led to some vital and valuable conclusion on the role these activities specifically play in elderly people's capability to age-in-place, time constraints did not allow for further consideration of the role other nodes in the network of social infrastructure play for the facilitation of the capability to age-in-place. Therefore, it is recommended for future research to further explore the role of other nodes in the network of social infrastructure with relation to the capability of ageing-in-place.

Lastly, due to the available time for this research project it was only possible to conduct a singular case study of community centres and the community centre Buurten Bij Bernlef was chosen as a single case. Although it was a conscious choice to focus on a single case, as this leaves more room for an in-depth exploration of the meaning behind interactions rather than a broader shallower set of observations of interactions, the conclusions can be corroborated by exploring them in the light of another case of activities for elderly people in a place of social infrastructure. Hence, it is recommended that the contribution of other activities in places of social infrastructure can make to the capability of elderly people to age-in-place should be further researched.

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# Appendices

## Appendix I: Interview guide

### **Interview guide – elderly people**

45 minuten

#### **Openingsvragen (10 min)**

##### **Buurten Bij Bernlef**

1. Hoelang komt u al naar Buurten Bij Bernlef/de kaartclub?
2. Wat vindt u van de Buurten Bij Bernlef/de kaartclub?  
[groepsamenstelling/ gender/ andere generaties/ meer mensen/ sfeer]

##### **Thuis**

1. Waar woont u?  
[Paddepoel/ ergens anders]
2. Wat is de samenstelling van uw huishouden?  
[alleen/ samen met een partner]

#### **Kernvragen (30 min)**

1. Wat vindt u van in de wijk wonen?
2. Hoe graag wilt u in de toekomst in deze wijk willen wonen?
3. [indien ze in de wijk willen blijven wonen] Wat heeft u nodig om in de wijk te blijven wonen?
4. Van welke faciliteiten in de wijk maakt u gebruik?
5. In hoeverre maken deze faciliteiten het makkelijker om in de wijk te blijven wonen?
6. In hoeverre dragen de activiteiten bij Buurten Bij Bernlef/de kaartclub bij aan het wonen in de wijk?

#### **Sluitingsvragen (5 min)**

1. Heeft u nog iets toe te voegen wat nog niet gezegd is?
2. Hartelijk dank voor uw deelname.



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### **Informatieblad - Research Ethics Committee (REC)**

in master thesis:

Thema: Rol van sociale infrastructuur voor ouderen in de mogelijkheid om langer thuis te blijven wonen.

Geachte heer, mevrouw,

Hartelijk dank dat u uw medewerking wilt verlenen aan mijn master thesis.

#### **Master thesis**

Nederland – in het bijzonder een provincie als Groningen – is een vergrijzende samenleving. Het beleid omtrent de woonsituatie van 65-plussers is steeds vaker gefocust op de mogelijkheid van deze inwoners om thuis te blijven wonen in plaats van het verhuizen naar begeleide verzorgingstehuizen. Daarom is er ook in groeiende mate belangstelling op de inrichting van de omgeving – met name de wijk – om deze doelstelling mogelijk te maken. Zo heeft de Nederlandse overheid bijvoorbeeld in 2018 het programma “Langer Thuis” gelanceerd, waarin ook het belang van sociale participatie in de buurt door ouderen wordt benadrukt. Tegelijkertijd wijst onderzoek uit dat sociale isolatie onder ouderen een van de valkuilen is van het beleid met betrekking tot thuis blijven wonen.

Sociale infrastructuur zijn plekken buiten het huis of de werkplek waar sociale connecties worden gefaciliteerd. Een voorbeeld van een dergelijke plek is Buurten Bij Bernlef, waar het mogelijk wordt gemaakt om samen te komen en connecties te leggen. Op deze plek vinden verschillende activiteiten plaats, waar ouderen samen kunnen komen. Zo vindt er op de woensdagmiddag enerzijds een zelf-georganiseerde kaartclub plaats en anderzijds een begeleide club voor mensen uit de wijk met een hulpvraag. Dit onderzoek zal focussen op deze beide activiteiten.

Het doel van dit onderzoek is om te onderzoeken in hoeverre deze twee activiteiten die kunnen worden gezien als sociale infrastructuur bijdragen aan de mogelijkheid van de deelnemers aan deze activiteiten om thuis te kunnen blijven wonen.

#### **Vertrouwelijkheid en rechten van deelnemers**

- Er zullen notities en een audio-opname tijdens het interview worden gemaakt.
- U heeft het recht om de audio-opname, alsmede het gehele interview op elk moment te stoppen.
- U kunt verzoeken een kopie van de notities van het interview te ontvangen en u heeft de mogelijkheid hierin correcties te maken, dan wel enig materiaal te verwijderen.
- De informatie die u aanlevert zal vertrouwelijk op een afgesloten plaats, dan wel in een met een wachtwoord beveiligd document op mijn computer worden bewaard tot één jaar na het afronden van mijn onderzoek.
- De informatie die u aanlevert zal worden gebruikt voor mijn master thesis voor de master Society, Sustainability & Planning aan de Rijksuniversiteit Groningen.
- Tenzij u hiervoor toestemming verleent, zal uw naam of andere informatie aan de hand waarvan u geïdentificeerd kan worden als een deelnemer aan dit onderzoek niet gebruikt worden in dit onderzoek of andere publicatie die voort kunnen komen uit dit project.

Als deelnemer heeft u het recht om:

- uw deelname af te zeggen;
- vragen niet te beantwoorden;
- de audio-opname op elk moment te stoppen;
- het interview op elk moment te beëindigen;
- uw deelname aan het onderzoek terug te trekken tot het moment dat de bachelor scriptie voltooid is;
- op elk moment tijdens uw deelname vragen te stellen over het onderzoek; en
- materialen die niet gebruikt mogen worden te verwijderen.

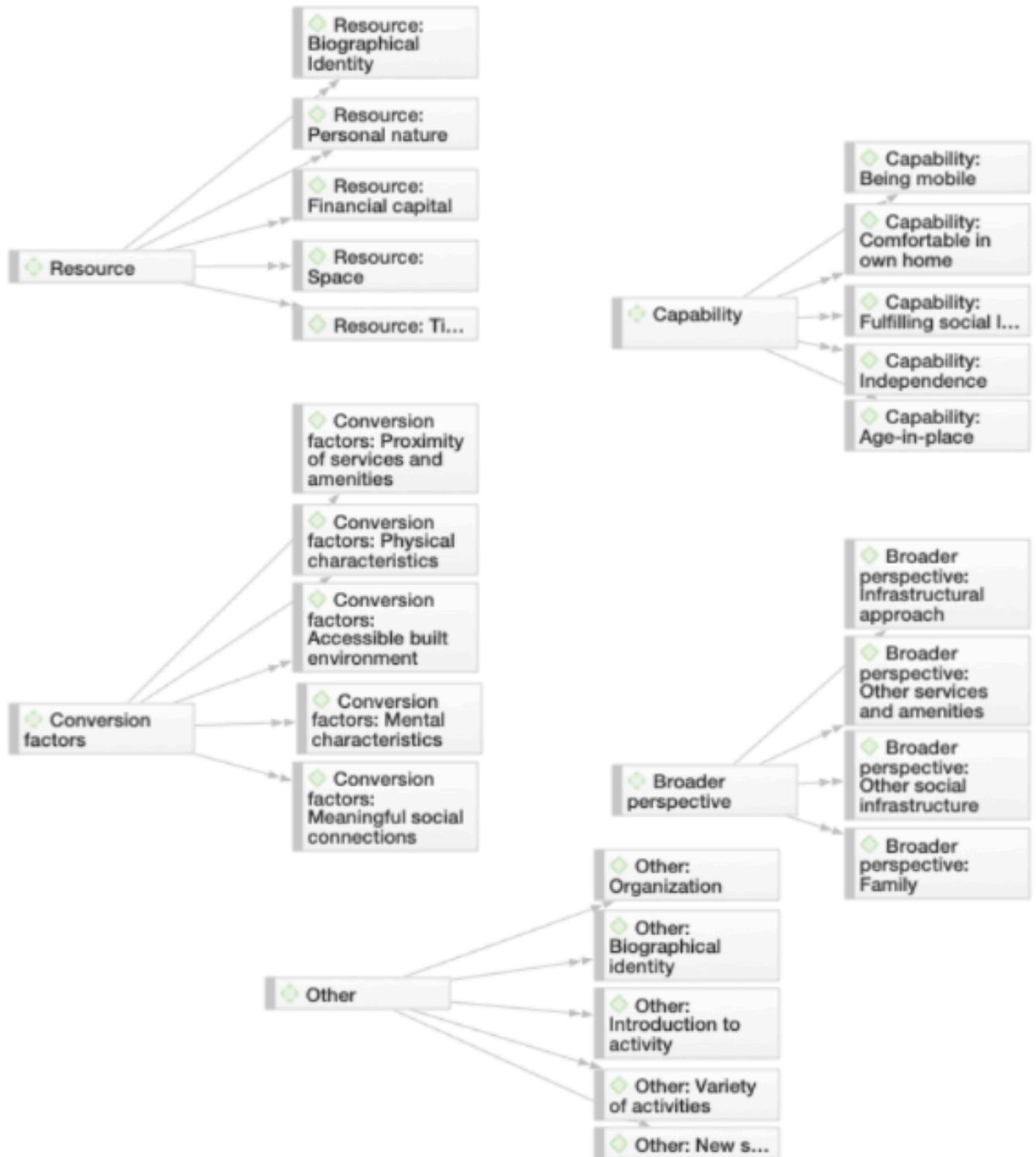
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Ik wil u nogmaals hartelijk danken voor uw deelname aan dit onderzoek. U kunt contact met mij opnemen indien u vragen heeft.

Met vriendelijke groet,

Anouck Berghof

## Appendix III: Code tree



## Appendix IV: Consent form



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### Toestemmingsverklaring deelname - Research Ethics Committee (REC)

In master thesis:

Thema: Rol van sociale infrastructuur voor ouderen in de mogelijkheid om langer thuis te blijven wonen.

*Nederland – in het bijzonder een provincie als Groningen – is een vergrijzende samenleving. Het beleid omtrent de woonsituatie van 65-plussers is steeds vaker gefocust op de mogelijkheid van deze inwoners om thuis te blijven wonen in plaats van het verhuizen naar begeleide verzorgingstehuizen. Daarom is er ook in groeiende mate belangstelling op de inrichting van de omgeving – met name de wijk – om deze doelstelling mogelijk te maken. Zo heeft de Nederlandse overheid bijvoorbeeld in 2018 het programma “Langer Thuis” gelanceerd, waarin ook het belang van sociale participatie in de buurt door ouderen wordt benadrukt. Tegelijkertijd wijst onderzoek uit dat sociale isolatie onder ouderen een van de valkuilen is van het beleid met betrekking tot thuis blijven wonen.*

*Sociale infrastructuur zijn plekken buiten het huis of de werkplek waar sociale connecties worden gefaciliteerd. Een voorbeeld van een dergelijke plek is Buurten Bij Bernlef, waar het mogelijk wordt gemaakt om samen te komen en connecties te leggen. Op deze plek vinden verschillende activiteiten plaats, waar ouderen samen kunnen komen. Zo vindt er op de woensdagmiddag enerzijds een zelf-georganiseerde kaartclub plaats en anderzijds een begeleide club voor mensen uit de wijk met een hulpvraag. Dit onderzoek zal focussen op deze beide activiteiten.*

*Het doel van dit onderzoek is om te onderzoeken in hoeverre deze twee activiteiten die kunnen worden gezien als sociale infrastructuur bijdragen aan de mogelijkheid van de deelnemers aan deze activiteiten om thuis te kunnen blijven wonen.*

- Ik heb het blad met de aanvullende informatie over dit onderzoek gelezen en begrepen.
- Ik heb de mogelijkheid gehad opmerkingen te maken over dit onderzoek. Ik tevreden met de antwoorden die ik hierop heb gekregen.
- Ik begrijp dat deelname aan dit onderzoek vrijwillig is en dat ik het recht heb om mijn deelname aan dit onderzoek terug te trekken tot het moment dat dit onderzoek ingeleverd is, en dat ik het recht heb om individuele vragen in het onderzoek niet te beantwoorden.
- Ik begrijp dat deelname aan dit onderzoek vertrouwelijk is. Zonder mijn voorafgaande toestemming zal geen materiaal, dat mij kan identificeren als deelnemer aan dit onderzoek, gebruikt worden.
- Ik begrijp dat deze data ook gebruikt kan worden in artikelen, boeken, gepubliceerde en ongepubliceerde werken en presentaties.
- Ik begrijp dat alle informatie die ik aanlever vertrouwelijk zal worden bewaard op een afgesloten plek of in een met een wachtwoord beveiligd document op een met een wachtwoord beveiligde computer.

Omcirkel JA of NEE voor het volgende:

Ik geef toestemming dat er een audio-opname wordt gemaakt van het interview JA / NEE

Ik wil graag anoniem blijven voor dit onderzoek JA/ NEE

#### **Indien JA**

Mijn voornaam mag gebruikt worden voor dit onderzoek JA/ NEE

---

**OF**

Ik kies zelf een pseudoniem dat gebruikt mag worden voor dit onderzoek JA/ NEE

Pseudoniem: \_\_\_\_\_

**“Ik ga akkoord met mijn deelname aan dit individuele interview en bevestig mijn ontvangst van de toestemmingsverklaring, alsmede het informatieblad over dit onderzoek”**

Handtekening deelnemer: \_\_\_\_\_ Datum: \_\_\_\_\_

**“Ik ga akkoord met de voorwaarden als vermeld op het informatieblad en ik zal ervoor zorgen dat er geen schade wordt geleden bij een deelnemer aan dit onderzoek”**

Handtekening onderzoeker: \_\_\_\_\_ Datum: \_\_\_\_\_