The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities

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The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities

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Abstract

New Zealand, like many other countries, is experiencing a significant change in its population. According to Statistics New Zealand (2015), the number of people aged 65 and over (65+) is on the rise, having doubled since 1980, and the number is likely to double again by 2036 (Statistics New Zealand, 2013). Retirement villages are a relatively new residential-type that caters for this ageing population. Demand for this form of housing by a small but increasing number is influenced by the growth in the number of people living beyond retirement age and because of a lack of other appropriate alternatives. Relocating to such housing requires many residents to adjust to an entirely new environment and lifestyle. Place attachment is understood to support successful adjustment to a new condition, aiding older adults to age contentedly in their new surroundings and as a result, age in place.

This research highlights the relationships between architectural features and people's sense of place attachment, arguing that place and space are important variables for how older adults feel about ageing in a retirement village. The key questions in this research are: *What are the design features in planned retirement villages that can enhance the satisfaction of residents, the sense of place they feel and their attachment to it?* Finding the answers to these questions requires understanding how a sense of place attachment develops, the degree to which each causal factor affects this sense, and also the effects between factors. A total of 22 residents of a recently completed retirement village in Wellington, all aged 65+, were recruited through purposive and snowballing sampling. Data were collected through a mixed-methods approach using photovoice and semi-structured interviews. The aim was to explore at two scales, those of the home and of the neighbourhood, the features of a physical environment that older adults consider important for enhancing place attachment and facilitating ageing in place.

The findings reveal that themes such as age-friendly design and autonomy related to the functionality of space (place dependence) were important in enhancing older adults attachment to place. Findings from this research also show that having an

open/semi-open layout of internal space, large windows and plenty of sunlight, accessible large closet and storage space, shared/public green space and accessible and age-friendly design of entry, bathroom and kitchen area are features most participants found to be important in raising their sense of attachment to where they live.

This research suggests that retirement villages could be an option for older adults to age in place and to ensure that they can develop a sense of attachment it is important to hear their voice and engage potential users at an early stage in the design process.
The outcomes of this study could aid older adults when looking for a suitable retirement village or even alternative housing. They could also serve other researchers in the fields of gerontology, architecture and interior design to address the gap in the literature as to which physical features lead to enhancement of place attachment for the older generation.

Keywords: Older adults, place attachment, retirement villages, photovoice, ageing in place, living experience

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Chapter 1: Introduction and Overview

1.1 Introduction

The world's population is ageing; every country in the world is experiencing growth in the number and proportion of older persons. According to a recent report, 8.5 per cent of people worldwide are aged 65 and over (65+), and this percentage is predicted to increase to 17 per cent by 2050 (Goodkind, & Kowal, 2016). The projection in New Zealand is that a quarter of the country's residents, or about 1.35 million people will be 65+ by 2050 (Saville-Smith et al., 2009; Statistics New Zealand, 2013). This clearly reflects the global ageing population and represents a demographic transition. Population ageing is typically considered a positive demographic transition usually associated with successful social and economic development (Guzmán, Pawliczko, Beales, Till, & Voelcker; United Nations & Social Affairs, 2015). However, this demographic transition is also expected to have a significant social, economic and political impact on the availability of resources, community services, pensions, health care, the workforce and the provision of alternative housing for older people (Davey, 2006). The impact of this demographic shift was first felt in the 1960s and continued through the 1970s, and has led to changes in the demands for housing, maternity services and schools (Saville-Smith et al. 2009).

Many older adults want to stay in their existing homes and neighbourhood as they grow older, referred to as ageing in place, and many countries are helping them pursue this goal through different policies (Scharlach & Lehning, 2013; Vasara, 2015; Wiles, Wild, Kepa, & Peteru, 2011). In New Zealand for example, both the *New Zealand Positive Ageing Strategy* (NZ PAS, Goal 5) and the *Health of Older People Strategy* (HOPS) are primarily focused on policies related to ageing in place. The aim is to assist older New Zealanders and encouraging them to remain in their home for as long as they can before moving to a care facility (Dalziel, 2001). This notion might be sensible in theory, but it also brings up the issue of place attachment and the best time to move. Additionally, it raises questions about the extent to which the current housing stock is suitable for older

people's needs (Costa-Font, Elvira, & Mascarilla-Miró, 2009). More recently, however, ageing in place has been used in relation to assisted living schemes and in particular, retirement village schemes (Ball et al., 2004). The latter is based on those aged 65+ moving earlier rather than later so that they see the retirement village as a desirable location for ageing in place.

Scholars have questioned the appropriateness of the existing housing stock in New Zealand in relation to older people (Saville-Smith, James, Warren, & Coleman, 2009) and others have argued that it falls short of being fully appropriate (Yavari, 2019). Considering the number of rooms as an indicator of house size in New Zealand (Khajehzadeh & Vale, 2017), the majority of the housing stock is too large for the needs of older people (Buckland, 2009), being mainly three or more bedrooms (Statistics New Zealand, 2013). Nearly 80 per cent of those aged 65+ are either living with only a partner or on their own (Statistics New Zealand, 2013; Saville-Smith et al., 2009).

Moreover, living with extended family members is often no longer a viable choice for older adults as they generally have a desire for independence. This may partly reflect the cultural values placed on self-reliance and independence in New Zealand society (J. Davey, 2006). In addition to the poor condition of some New Zealand housing because of maintenance and repair problems, these seem to be the main barriers to ageing in place for older adults (Saville-Smith, James, & Fraser, 2008). As a result, it seems plausible that many of the older generations will either have to move to a smaller house or to some type of supported living option, including moving into a retirement village. For older adults to age in a new place successfully, it could be beneficial to have the capacity to develop a sense of attachment to their new homes (Falk, Wijk, Persson, & Falk, 2013; Sugihara & Evans, 2000). Place attachment is defined as an "effective bond or link between people and specific places" such as a person's home or their surrounding neighbourhood (Hidalgo & Hernandez, 2001, p. 274).

There is clear evidence that age brings an increasing attachment to the social and physical environment (Buffel et al., 2014). Research shows that older adults spend more

time in their immediate environment[1] (O'Hehir, 2014; Parker et al., 2004), therefore the neighbourhood becomes more significant as an important place of ageing (Buffel et al., 2012; Hagestad & Uhlenberg, 2005). Spending more time in the immediate neighbourhood is probably the result of the shift from work to retirement and having more time at home. In addition, diminishing health and physical mobility means older adults have less energy and time to take part in "demanding activities far from home" (Droogleever Fortuijn, 2010). While older adults spend more time in their immediate environment, forming a sense of attachment to place may help create a sense of home and maintain self-identity, which in turn supports successful adjustment to the contingencies of ageing (Falk et al., 2013). Multiple factors, including environmental design, determine how these important psychosocial processes unfold when older adults relocate. However, studies on the extent to which the experience of place attachment may vary between different types of location remain underexplored in ageing research.

Although the definition of sense of place nominally includes the physical environment, most empirical research has over-emphasised the social construction of sense of place and treated the potentially important role of the physical environment for place meanings and attachment in a superficial manner, suggesting these are product of shared behaviour and cultural processes (Stedman, 2003: Sugihara & Evans, 2000). The purpose of this study is, therefore, to deepen the understanding and examine the role of architectural features in fostering place attachment, through which older people create a sense of home in a new residential environment (a retirement village) and as a result, facilitate successful ageing in place.

1.2 Who is Old?

There is no particular point in a person's life when they become 'old'. One of the newest challenges society faces as the baby-boomers ages is the appropriate term for people in their retirement years (Smith & Cartlidge, 2011). Most retirees dislike the labels "senior", "senior citizen" and "elderly". Interestingly, the Spanish language has

[1] The Immediate environment (the building in which you live or work, and the area very close to it) (Richards & Schmidt, 2013)

four different age grouping terms: the young *(Jovenes*), middle age (*Mediana edad*), third age (*Tercera edad*) and the old (*Mayors/Viejos*). English lacks common use of comparable terms to distinguish the third age from old, although this term has appeared in the *University of the Third Age*[2] (U3A, 2015), which is also active in New Zealand.

There is an ongoing debate as to which age group defines being old. The primary method used to determine the age of older persons is the age of retirement. Previously, there have been three defined age transitions in life: childhood, adulthood and old age. However, Neugarten (1974) claims this is incorrect as there is now a fourth definition of the 'young-old', or those aged 67–75 years, which comes before old age those who are 75 and over. In New Zealand, older people are described as "those 65 years of age and over. People between 65 and 80 are sometimes called 'young-old', and people over 80 are called 'old-old'"(Koopman-Boyden, 2011). For this study, the term older adults will be used when referring to people who are 65+. This is the official age of retirement, where a person can begin to draw pension and is currently the age at which people are eligible to enter most retirement villages (Koopman-Boyden, 2011).

1.3 Ageing In Place (AIP)

Ageing in place (AIP) is a popular term and a key factor in current public ageing policy (Wiles et al., 2011; Wiles et al., 2012). It was historically defined as growing old while living in the same home and community, possibly with some level of support (Curryer, 2016; Davey, de Joux, Nana, & Arcus, 2004; Durrett, 2009; Howden-Chapman et al., 2005). Normie (2011, p. 45) referred to AIP as foremost a "paradigm for successful ageing" that is aimed at "enabling older people to remain at home in their community and avoid institutional care for as long as possible". However, this idealised notion of

[2] U3A is an adult education movement (originally a French and British movement) working to connect people in their third age to come together and continue learning. They define the third age as: "…a time in your life (not necessarily chronological) where you have the opportunity to undertake learning for its own sake. There is no minimum age, but a focus on people who are no longer in full-time employment or raising a family."

ageing in place may not correspond to the everyday lives of the community-dwelling older adult (Milligan, 2012).

Central to the ageing in place process is the notion of place and how space becomes place through place attachment. The relationship between older adults and their environment with the inference that ageing in place has to do with place attachment has been based on the assumption of familiarity with their environment (Brick, 2011; Grimmer, Kay, Foot, & Pastakia, 2015). This raises the question of how ageing in place relates to people who have relocated to a new, more suitable housing environment. Can they become familiar with this environment and age in a new place? Phillips, Walford, and Hockey (2012) argue that place attachment can develop in an unfamiliar environment through appropriate aesthetics and usability and in time, through shared memories.

Additionally, the concept of ageing in place takes into consideration the changing needs of older people and their preferences as they age, and these changes sometimes require the older person to move to an entirely new place. Boldy, Grenade, Lewin, Karol, and Burton (2013) corroborates this argument and confirms that ageing in place is not limited to familiar places or locations where older people have been living for a long time but that it can happen in an entirely new place.

> *Ageing in place is concerned with enabling people to live in a place that maximizes their sense of self-fulfilment and preferred lifestyle: familiar surroundings (supported living environment, own home, neighbourhood, community, etc.), an entirely new place, or even different places at different life stages.* (Boldy et al., 2013, p. 118)

Ageing in place is not a one-size-fits-all concept. It has taken on a variety of different meanings as older adults are choosing to revitalise the way they age and the housing in which they choose to do this (Blumenstock, 2006; Bronstein, Gellis, & Kenaley, 2011). According to the Senior Resource for Aging in Place (2005), more recently ageing in place refers to the approach of the housing industry in creating accommodation for older adults to relocate in their later stages of life. This location does not have to be a residential house, it can be any housing chosen to enhance the lives and activities of the occupant. The idea also indicates that the person continues to reside in that same

dwelling for the remainder of their lifetime. More recently, ageing in place has been used in relation to assisted living schemes and in particular retirement villages (Ball et al., 2004), where individuals enter at the initial phase of ageing and can remain within the location with services being provided as required. This is the definition of ageing in place in this thesis.

The definition of ageing in place lacks consensus and conceptual clarity around it due to an undercurrent of different theoretical views. Among the four dominant views is the functionalist perspective where an older adult is perceived as a person with declining function. Therefore in order to facilitate ageing in place, the literature is more concerned with ways of fixing the physical environmental factors that might limit the ability to age in place, for example, by using technology to support AIP (Kim, Gollamudi, & Steinhubl, 2017). The second is the phenomenological perspective that focuses on the experience of living from the older person's viewpoint, as well as the experience of place through a sense of belonging, place attachment and the meaning of home. The third perspective is the structuralist perspective where the lives of older adults are shaped by society, causing inequalities and stratification within the society. Therefore, the literature is focused on empowering older adults and social inclusion as a mechanism for AIP (Burns, Lavoie, & Rose, 2012). Finally, the ecological perspective, also known as the interactional and systematic perspective, is influenced by the work of Lawton and Nahemow (1973) and their competence-press model. In this model, older adults are seen as part of a series of constant complex transactions with their environment (Novek, Morris-Oswald, & Menec, 2012). From this perspective, AIP can be achieved by focusing on establishing a balance between competence and environmental press, or in other words, the demands of the environment and ability of the individual (Greenfield, 2012).

1.4 Study significance and implications

There has been little research that looks at the effect of physical features on the formation and enhancement of place attachment in retirement villages. The concept of place attachment is considered important as it may support well-being in ageing. The current study aims at providing a theoretical basis for appropriate retirement village design, including housing, for older adults. The outcome of this research could

aid in the design of forms of housing, which would help older adults age in place. It also deals with the gap in the literature regarding the importance of physical features on the enhancement of place attachment.

1.5 Thesis Structure

In this chapter (Chapter 1) the study has been contextualised by briefly discussing population ageing as a global phenomenon and its relation to housing. Chapter 1 has also defined the concept of ageing in place for this study and provided a definition for older adults. Chapter 2 discusses the two strands within this research and outlines the literature on retirement villages and place attachment. The chapter ends by presenting the gap in knowledge. Chapter 3 then examines the aims and objectives of the research, its methodology, data coding and analysis. It also discusses the suitability of research methods and provides a short description of the research case study site. Chapter 4 presents the results of the semi-structured interviews and photo-voice explorations and debates the findings in light of the existing literature. Chapter 5 concludes the research and addresses the research questions, highlighting the research limitations and suggesting opportunities for further studies or related research.

Chapter 2: Literature Review

A literature review forms the first research component of this thesis and is centred on the two important concepts of retirement village communities and place attachment. The chapter starts with outlining the retirement village concept in New Zealand. It then proceeds to give an overview of the key theories and terms associated with place and place attachment, its predictors and dimensions. It also reviews the literature on ways of measuring place attachment.

2.1 The Retirement Village (RV)

Advances in medical technology are making people live longer. Having a good quality of life may also be linked to the physical environment where people live, meaning that as a person ages, there should be an optimal living option. When an older adult considers moving to a new place, developing attachment to the new locality is an important step in beginning a relationship with the place which may, in turn, help the older adult stay longer in that place. Creating a housing option that supports the concepts of place attachment may be an essential element that older adults are missing in current housing. Subsequently, senior communities are becoming a popular area of research, especially assisted living facilities such as retirement villages, as demand for such housing increases and older adults suggest these places provide a viable alternative lifestyle to that in the broader community. Retirement villages are residential clusters with access to a range of services which usually offers some level of support and care, such as a hospital and rest homes. According to the New Zealand Retirement Villages Act 2003: Section 6:

> *A retirement community is a purpose-built community which contains two or more residential units, with the function of providing residential accommodation together with services and access to ancillary facilities, for which residents agree to pay, a capital sum.*

2.1.1 Retirement villages and change to allow ageing in place

The concept of retirement village facilities has changed. There is a general agreement that ageing in place is preferable for older adults and that a retirement community can support this effort since it is core to the philosophy of assisted living (Blumenstock, 2006; Bronstein et al., 2011; Chapin & Dobbs-Kepper, 2001). Formerly, retirement villages promoted the concept of "resort-style living" to people in their 50s and older, and barely anything was mentioned about what would happen once an resident could no longer live independently. Usually, people had to relocate and move out of their family home and into a village, and as their needs increased often had to relocate two or three more times (Jackson, 2016). The design and development of such villages is very different today as the focus is instead on ensuring retirement villages that can maximise the independence of residents by offering self-contained or serviced units with hospital facilities on the same site. The idea is that residents can move from independent living through to residential care as their needs change (JLL Research and Consulting, 2017). Doing this facilitates a continuum of care for residents as they age and therefore facilitates ageing in place (Jackson 2016). Howe, Jones, and Tilse (2013) looked at two continuing-care retirement villages in the UK and found that provision of care facilities on site would contribute to a higher level of satisfaction with residents since they could consider staying at the village rather than moving to a nursing home.

2.1.2 Reasons for relocation to a retirement village

Aside from an ageing population, there are several drivers responsible for the increase in demand for retirement villages and why people move to such villages. Generally, older adults prefer to age in their homes (Yavari, 2019) since they usually develop a strong sense of belonging to and familiarity with a place. However, with the majority of older adults experiencing some sort of physical limitations, they may consider home modification or relocation. In international literature, three factors have been found to influence the voluntary relocation of older adults to retirement communities. These are the 'push', 'pull' and 'overlapping' factors (Bäumker et al., 2012; Bekhet, Zauszniewski, & Nakhla, 2009).

Reasons like the cost of maintenance, health and mobility issues, social isolation, and planning ahead for the future could be factors that 'push' an older adult out from their previous place of residence. In a study of 517 randomly selected older adults in Australia, pushing factors were identified as support, home maintenance and the need for accessible, nearby facilities and health care support (Crisp, Windsor, Butterworth, & Anstey, 2013).

There are other reasons that could 'pull' an older adult toward retirement villages such as the sense of security and community offered (Graham & Tuffin, 2004), the availability of health services and also, the location. The third 'overlapping' factor suggests that both push and pull reasons may induce someone to move to a retirement village (Bäumker et al., 2012; Bekhet et al., 2009; Gilleard & Higgs, 2005).

2.1.3 Retirement villages in New Zealand

The term retirement village in both New Zealand and Australia refers to a 'continuing care retirement community' (CCRC) whereas in the UK it means 'sheltered housing' (Howe et al., 2013). Retirement villages in New Zealand have existed since the 1990s, and their origin can be traced back to England and the USA. They began as charitable trusts providing facilities for low-income older people (Greenbrook, 2005), and at the start, the model was designed primarily to support the frail and dependent older person.

Many retirement villages in New Zealand belong to the Retirement Villages Association (RVA) which is a voluntary based membership association of village managers, operators and developers across the country (Retirement Villages Association New Zealand, 2013). These villages are regulated and monitored under the Retirement Village Act 2003 (James & Saville-Smith, 2011). The people who occupy these places have a license-to-occupy agreement with the owners of the village. Among the main characteristics of such communities are that residents must be partially or fully retired, the community has an age-related eligibility criteria, and they are offered shared services or amenities (Marans, Hunt, & Vakalo, 1984).

Looking at studies of retirement villages in New Zealand and the experiences of older adults transitioning into these communities generally shows a positive experience.

Grant (2006) interviewed 121 retirement village residents in New Zealand who reported that their village living experience was positive, secure and supportive, which helped them develop a sense of belonging. Hayward (2012:100) looked at the transition experience within two retirement village in New Zealand and found that "transition is not a one-off event to which residents adapt (or not), but one that has an on-going impact on their lives and is multi-layered". Hayward also found a significant difference regarding the definition of home among independent older adults and some supported living participants in retirement villages, with the former showing a higher level of attachment toward their house by referring to it as a home.

Thornton (2000) refers to international retirement village industry as one that has seen massive growth over the past two decades. New Zealand seems to be following this global trend and has one of the biggest proportions of ageing in residential care. According to the 2016 New Zealand Retirement Village Database (NZRVD), most retirement villages in New Zealand are becoming larger with an average village size of 149 units in new village developments compared to an average of 69 units in operating villages (JLL Research and Consulting, 2017). Referring to the same report, of the 383 retirement villages in New Zealand, the greatest proportion is in the Auckland Region at 32 per cent, followed by Canterbury and Wellington at nearly 12 per cent each (Table 2.1). This might be partially due to the shortfall of 71,000 homes in New Zealand, with half needed in Auckland city alone (Miller, 2017), raising demand for other alternative forms of housing. Of the proportion of the population aged 75+ living within retirement villages, 14.3 per cent are in the Wellington region, with the largest 17.4 per cent in the Bay of Plenty region.

Table2. 1 Distribution of retirement villages in New Zealand, 2016 (Source: NZRVD, 2016)

	Operating villages by region 2016				
	Counts			National (Per cent)	
Region	Village No.	Unit No.	Estimated Residents	Village No.	Unit & Resident No.
Auckland	84	9,098	11,827	22	32
Canterbury	72	3,328	4,326	19	12
Wellington	36	3,314	4,308	9	12
New Zealand	383	28,168	36,618		

As stated by the NZRVD 2016, the key driver in the demand for retirement village units over the next 50 years will be New Zealand's ageing population. The highest growth rates for residents aged 75+ years are projected to occur between 2028 and 2043, growing from 485,800 in 2028 to 783,600 in 2043, a growth of almost 300,000 residents over a 15-year time frame (Figure 2.1). Figure 2.1 shows that with a penetration rate (PR)[3] of 12 per cent, New Zealand needs an additional 73,062 retirement village units by 2068 and if the industry can achieve a higher penetration rate of 16 per cent the number of additional units needed by 2068 would be 97,415 units. These numbers make it imperative to ensure that the design of both the new units and village complexes can aid ageing in place.

[3] *"Penetration rates provide an indication of an area's residents' supportiveness and demand for retirement village accommodation and helps to indicate future unit demand potential for sub-areas of New Zealand"* (NZRVD, 2016).

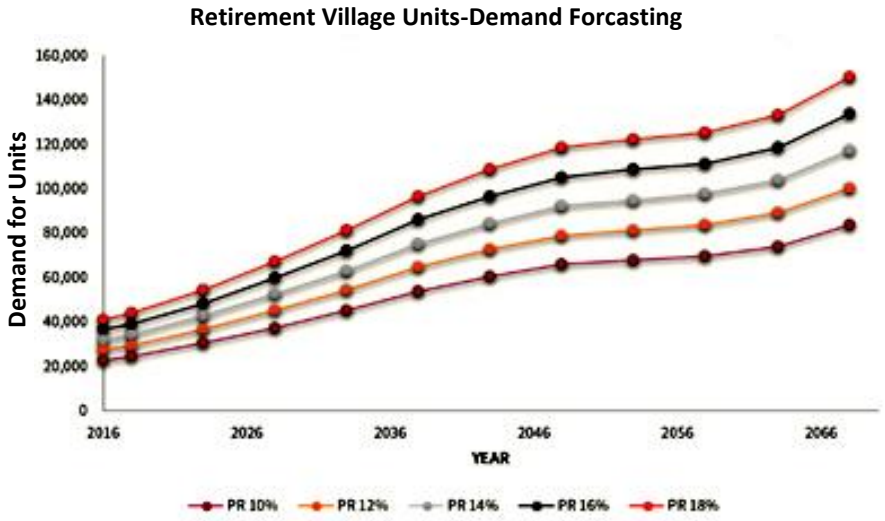


Figure 2. 1 Forecasts for the estimated retirement village unit demand between 2016 and 2068 (Source: NZRVD, 2016)

2.2 Place Attachment

By the end of the 1950s, the field of environmental psychology had developed due to the growing need for the discipline to address the spatial–physical environment. Although there has always been interest in the importance of environmental variables on behaviour (Wohlwill, 1970, p. 311), a lack of attention has been paid to the physical and spatial settings within the studied behaviour.

Initial studies in this emergent field were more concerned with the psychological impact of the physical features of a particular setting. Interest in the field of environmental psychology grew further in the 1970s and 1980s. From the beginning, the critical characteristics of the field were its interdisciplinary connection with other disciplines such as geography and architecture, as they shared an interest in the relationship between the environment and people.

During the 1950s, and around the same time that a need to study the spatial–physical environment was felt, another similar movement started in the field of architecture, which was termed architecture psychology. The integration between psychology and architecture led to the highly influential publication *The Image of the City* by Kevin Lynch (1960). Lynch, an urban planner, proposed that the occupants of cities could explain their physical context by creating a mental map of the city.

In 1974, David Canter, in his book *Psychology for Architects,* highlighted the need for architects and designers to be aware of the psychological impact of the environments they create. In his 1977 study, which proved the concept of place had emerged in the field of environmental psychology, Canter viewed place as "…a quality of location determined by a system of experience that incorporates the social, personal and culturally significant aspect of situated activities" (1996, p. 117).

2.2.1 Defining the concept of place attachment

It is difficult to grasp the meaning of place attachment. Although physical space may be a relatively undifferentiated territory, when people – either through group or cultural processes – assign meaning to space, it becomes a place (Low & Altman, 1992). A place thus transforms from being an absolute resource for goal realisation to an essential part of each person (Williams, Patterson, Roggenbuck, & Watson, 1992). Earlier, a human geographer by the name of Tuan (1974) described places as centres of meaning formed by experiences of those places. He also stated that as a person becomes familiar with a space that space becomes a place. The place is thus the human meaning attached to space. Phenomenologically, place can be defined as "any environmental locus in and through which individual or group actions, experiences, intentions, and meanings are drawn together spatially" (Manzo & Devine-Wright, 2013). The way Tuan conceptualised space is purely as a social construct, and he did not attempt to explain further how meaning is created and ascribed to place.

> *What begins as undifferentiated space becomes a place as we get to know it better and endow it with value… From the security and stability of place we are aware of the openness, freedom, and threat of space, and vice versa. Furthermore, if we think of space as that which allows movement, then, the place is pause; each pause in movement makes it possible for a location to be transformed into place. (Tuan, 1977)*

A significant amount of literature has tried to define what makes a place meaningful so that attachment forms as a result (Lewicka, 2011; Manzo, 2005; Mazumdar & Mazumdar, 2004; Patterson & Williams, 2005). Schroeder (1991) differentiated the connotation behind "preference" and "meaning" and stated how preference refers to "the degree of liking for one landscape compared to another" while meaning is "the

thoughts, feelings, memories, and interpretations evoked by a landscape" (1991, p. 11). Seeing the world as a series of places instead of merely open spaces sheds light on the human-environment attachment (Cresswell, 2014). In the context of this study, a place is defined as including the physical setting, the individual's internal psychological and social processes, and the activities that have been undertaken there (Relph, 1976; Stedman, 2003a).

A variety of parallel conceptions have been used to define the concept of place attachment. Tuan (1974) entitled these feelings "topophilia", meaning love of place, as this signified the emotional bond between a place and a person. Other terms for this relationship include: "rootedness" (Relph, 1976; Tuan, 1990), "place identity" (Proshansky, Fabian, & Kaminoff, 1983), "insideness" (Relph, 1976; Rowles, 1990), "homeland" (Nostrand & Estaville, 2001) and "place attachment" (Low & Altman, 1992). The relationship created has also been referred to as a sense of place, place satisfaction and place dependence, with each being slightly different in their implications (Lewicka, 2010), although the exact differences are not clear. For the purpose of this research place attachment will be used to express such a relationship.

There are a number of definitions of place attachment within the literature (Table 2.2), but the common theme is the mention of "bond" or "link" between people and places. Hidalgo and Hernandez (2001) defined place attachment as a positive affective bond between an individual and a specific place or thing that influences personal identity by providing comfort, familiarity and security to the individual. The main characteristic of this bond is that the individual has a tendency to maintain closeness to this place.

Table2. 2 Definitions of place attachment

YEAR	AUTHOR	DEFINITION
1983	Shumaker & Taylor	*"A positive affective bond or association between the individuals and their residential environment."*
1992	Parmelee	*"…a set of feelings about a geographic location."*
1992	Hummon	*"Emotional involvement with places."*
1996	Twigger-Ross & Uzzell	*"Affective bond or link between people and specific places."*
1997	Kaltenborn	*"…complex affective bonding with the physical environment."*
2003	Kyle, Graefe, Manning, & Bacon	*"The extent to which [an] individual values or identifies with a particular environmental setting."*
2007	Hernandez, Hidalgo, & Salazar-Laplace	*"… the affective link that people establish with specific settings, where they tend to remain and where they feel comfortable and safe."*
2010	Florek Morgan Scannell & Gifford	*"…affective links that individuals establish with places."* *"Experience of a long term affective bond to a particular geographic area and the meaning attributed to that bond."* *"…the bonding that occurs between an individual and their meaningful environment."*

As part of place attachment, a place can range in scale from any environmental feature such as furnishing to a room, building, neighbourhood, city, landscape or region (Lewicka, 2011; Seamon, 2013).

2.2.2 Understanding place attachment

Before reviewing the literature on place attachment, a definition of the concept of sense of place and its relationship with place attachment will be presented. The two terms are broadly used to define the interaction between human beings and place and the impact of that place on people, particularly in the field of environmental psychology. Many of the quoted authors have used the terms interchangeably, in spite of the significant differences their meanings convey. In general terms, place

attachment is a subset of the sense of place concept (Hashem, Abbas, Akbar, & Nazgol, 2013; Jorgensen & Stedman, 2001). Stedman (2002) suggested using the concept of place attachment instead of sense of place, as the latter was an ambiguous concept that was difficult to define and measure. In the people and place relationship, and assuming that the sense of place is a general feeling towards place, then the positive emotions that people have for the place is place attachment (Hashem et al., 2013). If a person has negative feelings about a place, they may feel indifferent towards it and possibly try to avoid it, but when they feel positive about a place it becomes important to them, and they feel responsible for it. If a person spends more time in a place and develops stronger emotional feelings for it, this constitutes the creation of place attachment (Hashem et al., 2013). Although positive emotions and sentiments are frequently associated with place attachment and people–place bonding, Tuan (1977), and Scannell and Gifford (2010) state that negative emotions can generate powerful experiences, and feelings such as fear or loss can also be associated with a place. Based on Relph's (1976) seven ways of sensing place, Shamai (1991) suggested there were three major phases of the sense of place: belonging to a place (the weakest level), place attachment and commitment towards a place (the strongest level). He further categorised the intensity of feeling and behaviour into seven levels (Figure 2.2).

Figure 2. 2 Levels of intensity of feeling and behaviour related to place (Source: Shamai, 1991)

There are numerous different definitions and components of place attachment. Differences are based on the predictors of place attachment (*see section 2.2.4*).

Dimension refers to a type of attachment or the reason behind the attachment (Brehm, Eisenhauer, & Krannich, 2006). Traditional research on place attachment has consistently used a two-dimensional model. This is composed of the emotional or social feelings associated with a place, or place identity, and the functional or physical attachment to the place, which equates with place dependence (Anton & Lawrence, 2014; Brown & Raymond, 2007). Place dependence usually develops first followed by place identity. Some of the more inclusive and important multidimensional models of place attachment are presented in Table 2.3. The two most recent frameworks, which form the theoretical bases of this research, are explained in more detail.

Table2. 3 A multidimensional framework of place attachment

	Authors of the frameworks	**Character**	**Differences**
1	*(Shumaker & Taylor, 1983)*	Place attachment is defined as a bond between a person and their residential environment.	As Clayton (2003) and Mazumdar & Mazumdar (2004) pointed out, place attachment is barely defined in this model as the focus is on residential rather than a variety of places.
2	*(Low & Altman, 1992)*	Place attachment is composed of places, actors and psychological processes.	The levels are inseparable unlike the Scannell & Gifford (2010a) (PPP) framework where the levels are related but still distinct.
3	*(Scannell & Gifford, 2010) (PPP) framework*	Person: cultural group and individual Place: social, civic attachment, physical attributes: natural environment Process: affect, cognition, behaviour.	The two models (3–4) are conceptually similar, but 1- the psychological process is not a separate dimension in the model of Raymond et al. 2- Scannel and Gifford's model was tested at a community scale and Raymond's et al. at a regional scale.
4	*(Raymond, Brown, & Weber, 2010)*	Personal: place identity and place dependence Community: Family bonding, friend bonding Environment: nature bonding	

A noteworthy example of conceptual frameworks is Scannell and Gifford's (2010) tripartite model. Figure 2.3 compares it with that of Raymond et al. (2010). For psychologists Scannell and Gifford (2010), place attachment occurs at the point where place, person, and process (PPP) meet. The first dimension of place is divided into the two categories of the social and physical and is the object of attachment to place characteristics: what is the attachment to, and what is the nature of this attachment? The second dimension includes the cultural group or individual and is the actor of the attachment: who is attached and to what extent is the attachment based on individually and collectively held meaning? The third dimension is the sentimental and emotional qualities of the relationship that a person has with a place: how are the effects, cognition and behaviour manifested in the attachment? Lin and Lockwood (2014b) suggest a similar but different tripartite model: effective, functional and cognitive.

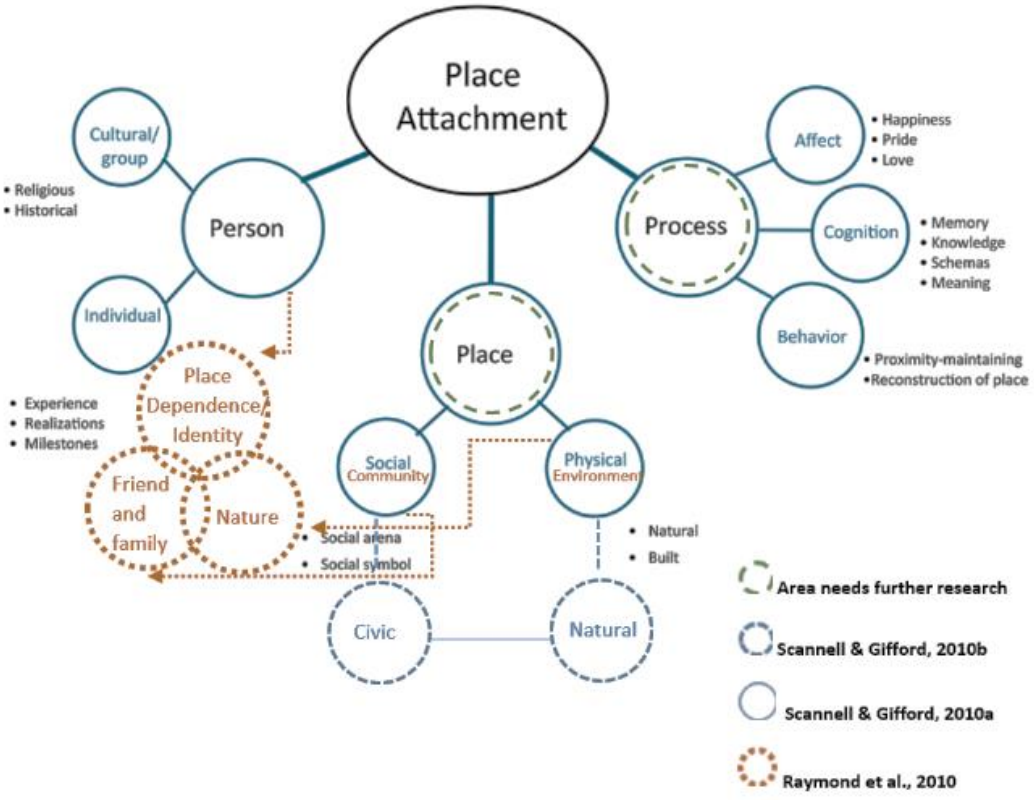


Figure 2. 3 Comparison between Tripartite model of place attachment by Scannell & Gifford, 2010a to Raymond et al., 2010 model by Author

Conceivably the physical place is the most important dimension of place attachment, as it is the starting point (Scannell & Gifford, 2010). When defined as a "meaningful location", places have social dimensions as well as an obvious physical base. From a constructivist's viewpoint, the physical aspect of a place only has meaning because it has been socially constructed (Brehm et al., 2006; Burley, 2007). It seems there was more interest in the social aspects of place attachment, stemming from the cultural and behavioural condition rather than the physical features (Brehm et al., 2006; Lewicka, 2011). Given the PPP framework, it seems some researchers have placed more emphasis on the personal part at the expense of place and have disregarded the process and the mechanism through which place attachment evolves (Lewicka, 2011). There seems to be knowledge of how and how much people are attached to places but relatively little about the places and process through which that attachment happens. Some researchers have contested this over-emphasis on the effect of individual differences regarding place attachment, and Droseltis and Vignoles (2010) have proposed that rather than focusing on people, different places need to be examined.

Within the *place* dimension of place attachment, the focus of much research has been on the social aspects. It could be argued that the emphasis on the social side of place attachment might be rooted in the history of the concept and the fact that much environmental research is a continuation of community studies (Fried, 1982). This was highlighted by Gustafson (2006), who felt that place has been treated as a container of social processes in sociological and community studies rather than as an independent aspect. Lewicka (2011) also stated that "…sense of place has been viewed as a social construction, a product of shared behavioural and cultural processes rather than the result of perceptual and cognitive processes rooted in physical characteristics of settings" (2011, p.#). The same idea has also been criticised by Stedman (2003a) in the widely cited paper, *Is it really just a social construction? (2003a).* His research tested the characteristics of an environment, place attachment and satisfaction, human use of the environment, and constructed meanings, concluding that landscape attributes are important in constructing meanings for places and that these constructions are not

solely social (Stedman, 2003a). Hidalgo and Hernandez (2001) have stated that most literature on place attachment has only focused only on the existence and strength of social ties and has ignored the physicality of the place. “From this perspective, we might be led to assume that place attachment is in reality, attachment to the people who live in the place.” (Hidalgo & Hernandez, 2001, P.275) Kaplan (1984) postulated that in order to understand people’s relationships to a place, it is necessary to consider more than economic factors and social relationships. He further suggests that since they only explain a small proportion of the variance behind place attachment, the focus should rather be on the intangibles or, in other words, the physical features that make the environment easy to become attached to.

However, a recent switch of interest has led to the creation of measurements that address both the physical and social level of place attachment. Hidalgo and Hernandez (2001) explored the social and physical aspects of place attachment at the three different scales of the home, neighbourhood and city. To determine attachment, they examined the extent to which residents would miss a particular person, place or a thing. They discovered that place attachment was stronger at the home and city levels but less important at the neighbourhood level, and that although social and physical attachment both influence the overall bond, the social attachment was stronger than the physical attachment. They also found that age and gender are factors that influence place attachment. Their analysis revealed that females develop stronger attachment to house, neighbourhood and city compared to males and that attachment was generally greater with age. Lin and Lockwood (2014b) investigated attachment to significant natural areas. They found evidence for generalised and localised forms of the sense of place in natural areas, and that this was based on a tripartite model inclusive of effective, functional and cognitive attachment. Their study thus assessed the different forms, sources and spatial contexts of place attachment.

As presented previously in Table 2.3 the model of Raymond et al. (2010) is conceptually similar to the PPP framework, but in their model, place attachment is defined by the five dimensions of **place dependence, place identity, nature bonding, family bonding and friend bonding**. These dimensions can be organised into the three poles of the personal, community and environment. Raymond et al. (2010) argue that the PPP

model of Scannell and Gifford overlooks how the social and physical dimensions of place interact with personalised attachment and support self-identity. Their five dimensions are briefly explored below.

Personal Pole

- Place dependence

Congruent transaction or "place dependence" was defined by (Moore & Graefe, 1994) as a component of place attachment that plays an important role in decisions about relocating. People make choices about their new environment as they appraise how the new place will meet their range and types of needs (Kleit & Manzo, 2006). Place dependence could be formed through autonomy, by maintaining an individual's independence and control of their life – aspects which are important for older adults (Bronstein et al., 2011; Peace, Holland, & Kellaher, 2011; Williams & Vaske, 2003).

- Place Identity

Just as a particular style of clothes, a favourite beer, or the way an interior is decorated is part of a person's identity, and perhaps one they would like others to notice, a particular place can also be perceived as reflective of personal identity. Place identity generally refers to how the physical and symbolic features of a location contribute to the sense of self or personal identity (Proshansky et al., 1983). Physical features that bring a unique identity to a place tend to increase place attachment (Shamsuddin & Ujang, 2008). Space becomes an important personal place through a feeling of control and the place having meaning (Anton & Lawrence, 2014; Brown & Raymond, 2007; Williams & Vaske, 2003). This is closely linked with identity process theory (Breakwell, 1993), which is defined as the formation of identity through continuity, behaviour related to attachment, self-esteem and distinctiveness, which may help with an increased feeling of attachment (Anton & Lawrence, 2014).

Community pole

- Friend bonding

This is defined as a connection with a place reliant on friendship or membership. The construct of social bonding asserts that social ties to a setting are developed through shared experiences in the place (Mesch & Manor, 1998). Mesch and Manor (1998) observed that the more close friends and neighbours their respondents had nearby, the higher their level of attachment was to the place. Hillcoat-Nallétamby and Ogg (2014) found that decisions made by older adults who consider moving at a later stage of life may be shaped by a desire to attach to people rather than an attachment to the original dwelling. Wiles, Leibing, Guberman, Reeve, and Allen (2012) also stated that the social components of the living environment were important in ageing in place.

- Family bonding

This is defined as a connection to place that is reliant on the family connections, which may relate to family history and interests, belonging and family concerns. It allows the opportunity to nurture a relationship with family (Raymond et al., 2010).

Environmental pole

- Nature bonding

Connection and association with a natural environment, or nature bonding, is related to time and the experience of a natural environment and is unconnected with residential history. Nature or the physical setting provides a receptacle for social experiences and as a result, there is a bond.

A recent study by Lies et al., (2017) at a Midwestern senior co-housing community in the USA shows that for the five dimensions of place attachment, friend bonding and nature bonding were the dominant design features that assisted the residents with place attachment. Friend bonding was promoted by design features that encouraged spontaneous, proposed and organised interaction such as an individual home front

porch and clustered parking. Nature bonding was enhanced by design features that allowed connection and interaction with nature such as large windows and a communal garden (Lies, Kang, & Sample, 2017). The same study found place dependence was related to design features to do with autonomy and transition such as individual home kitchen and closets, while design features that enabled personalisation and connection to the past helped place identity, like individual home display spaces and having a back porch. Family bonding was connected to policies, rather than to the physical environment.

Another study by Lies et al. (2019) examined the presence of older adults' place attachment in comparison to the urban and rural co-housing community in the USA and found that in the rural community, design features related to nature bonding and friend bonding were more prevalent to older adults. However, in the urban community, design features that were related to place dependence or functionality of space, nature bonding and friend bonding were more frequently mentioned by participants (Pereira, Lies, & Kang, 2019).

2.2.3 The importance of place attachment

There is no agreement in the literature about how place attachment is defined but it is considered important for the ageing process (Milligan, 2012; Tanner, Tilse, & De Jonge, 2008). Relph (1976) claimed that place attachment was a fundamental human need, and there is agreement in the literature about the reciprocal relationship between the wellbeing of older people and their ability to experience place attachment (Low & Altman, 1992; J. L. Wiles et al., 2009). Rubinstein and Parmelee (1992) suggested the three reasons why place attachment was important for older people were to maintain a sense of continued capacity and autonomy, to retain consistency and continuity during times of change, and to keep the past alive.

Others have discussed how the significance of place attachment may vary over the course of life but that in general, it has benefits for individual physical and psychological well-being (Ramkissoon, Mavondo, & Uysal, 2018; Scannell & Gifford, 2017) and health – especially mental health – through the relationship with social identity and self-esteem (Giuliani, 2003; Proshansky et al., 1983; Uzzell, Pol, & Badenas,

2002). A number of studies have also referred to the association between place attachment and pro-environmental behaviours (Devine-Wright & Howes, 2010; Ramkissoon et al., 2018; Ramkissoon, Smith, & Weiler, 2013). Pro-environmental behaviour aims to improve environmental quality and minimise negative impacts on the environment (Steg & Vlek, 2009). Vaske and Kobrin (2001) surveyed a community in Colorado and found a positive link between place identity and environmentally responsible behaviours, such as recycling or conserving water. Place attachment can assist with adjustments due to ageing, as it can create a sense of home and help the older adult uphold self-identity (Falk et al., 2013). More broadly, place attachment is seen as a contributing factor in enriching people's lives with meaning, value and significance (Giuliani, 2003). Sugihara and Evans (2000) surveyed 67 older adults in a Continuing Care Retirement Community (CCRC) in the USA in order to look for an affinity between place attachment and design features and found that it had a mediating role in the social milieu. Their research revealed the accessibility of a nearby gardening area, the probability of unplanned social encounters and a short walking distance from the residence to the main activity centre increased social interaction and consequently contributed to place attachment.

Other studies have suggested that designing an environment that could assist the creation of place attachment leads to more use of space and facilitates ageing in place. Zavotka and Teaford (1997) interviewed 11 residents in an assisted living facility and suggested that if older adults cannot find a personal attachment to a place, the space will not be used. Wiles et al. (2011) concluded that ageing in place can be more satisfactory in the presence of attachment. Higher community attachment can also encourage local residents to become social and politically involved in preserving the physical and social features of their neighbourhood, such as its green areas (Comstock et al., 2010; Lewicka, 2005). However as Wiles et al. (2012) mentioned, there are negative sides to strong place attachment, especially when someone gets so comfortable they do not want to move, even when this would be in their best interest. Strong place attachment could also decrease mobility, and hence restrict life opportunities (Fried, 2000). Durrett (2009) remarked that older adults who relocated to a new housing option would never feel fully satisfied in their later life unless they

developed an attachment to their new home and community and had a level of control so as to deal with their future concerns.

2.2.4 Predictors of place attachment

Attachment to place is understood to be influenced by a number of factors, which are collectively understood as predictors. Predictors are aspects of attachment which can have a significant impact on the strength of the bond, even if a person is not aware of them. These predictors have been categorised into socio-demographic, social and physical (Lewicka, 2010, 2011) (Table 2.4).

Table2. 4 Predictors of place attachment

Predictors: mechanisms of attachment	Socio-demographic	Proxy measures: Length of residence, house ownership (Brown, Perkins, & Brown, 2003, 2004; Lewicka, 2005; 2010), physical personalisation. These approaches do not offer direct insight into place-based attachment and the source of these attachments (Lewicka, 2010).
	Social	Community ties and sense of security are social predictors of place attachment (Lewicka, 2005, 2010; Brown et al., 2004; Mesh & Manor, 1998).
	Physical environment	The number of physical features that may affect attachment are numerous, and examples include; The effect of living in a New Urbanism settlement rather than a traditional one (Kim & Kaplan, 2004). Building size or type (Gillis; Lewicka, 2010). Gated versus open communities (Wilson-Doenges, 2002) Unique characteristics, safety and accessibility.

2.2.4.1 Sociodemographic predictors

Previous studies have shown that sociodemographic predictors can have a positive effect on place attachment. These include the length of residency at a place (B. Brown, Perkins, & Brown, 2003; Lewicka, 2005), social contact with neighbours and memories gained from emotional experiences and possessions (Shenk et al., 2004; Lewicka, 2009). On the other hand, earlier Stedman (2002), found no effect of length of residence on place attachment. Home ownership is also a consistent predictor of place attachment (Brown et al., 2003; Mesch & Manor, 1998). Other variables, such as level

of education and social and economic status, have shown an inconsistent relationship with place attachment that is at times positive and at times negative (Lewicka, 2005). An example of this is that higher education more often shows a negative relationship with attachment (Lewicka, 2005) but can sometimes results in a higher level of attachment (Krannich & Greider, 1984).

2.2.4.2 Social predictors

Although not the focus of this study, social predictors of place attachment are one of the strongest predictors of place attachment, being linked to the availability of local social ties (Fried, 1982; Lewicka, 2010; Mesch & Manor, 1998). Social ties require time to develop, and this may explain why older residents in a place tend to report higher place attachment compared to younger residents who are more likely to be socially mobile, have fewer local social ties, have spent less time in the community and as a result of all factors have less place attachment (Hidalgo & Hernandez, 2001; Pretty, Chipuer, & Bramston, 2003). Sense of security is often studied as a positive social predictor of place attachment (Brown et al., 2003; Lewicka, 2010). Other positive social predictors of place attachment are community ties and the extent and strength of neighbourhood ties, perhaps as measured by the number of friends or relatives in the neighbourhood and participation in informal social activities (Kasarda & Janowitz, 1974; Lewicka, 2005).

2.2.4.3 Physical environmental predictors

Given the focus of this study, predictors in the physical environment category will be explored in more detail. Environmental predictors that facilitate or hinder place attachment are numerous. At the same time, there are concerns over how they could be measured. The physical qualities of a place tend to be studied in three ways. The first utilises objective measures, for example, comparing how attachment of place might differ with architecture or urban features, such as building size or density (Gifford, 2007a; Hur, Nasar, & Chun, 2010; Lewicka, 2010). The second is estimation made by a qualified commentator who normally observes people or objects within or outside a building based on a specific professional background, and might, for example, record spatial cleanliness and the presence of litter. The third is subjective and

estimates by asking participants directly for their perception of a place (Gifford, 2007b; Lewicka, 2011). An excellent example of where participants were involved in a study of physical features is the study by Hur et al (2010). The group estimated the basic physical parameters of the area such as building density by using a geographic information system (GIS) and satellite images and later correlated these with the results of a survey of residents' satisfaction.

Physical attributes may also influence place attachment indirectly by facilitating social contacts. An example is a study by Sugihara and Evans (2000) where physical features like close walking distance to a central activities building, access to an enclosed outdoor garden and small distances between neighbours were the best predictors of place attachment. The significant effect of the physical environment on the feeling of being at home or a sense of a homelike environment in a residential setting was pointed out by Marsden (1999). From this, it seems possible to have measurements of place attachment that, in turn, might lead to design recommendations. Important physical attributes that could be predictors of place attachment are discussed below.

2.2.4.3.1 Building density and community size

Defining density is difficult due to its complex characteristics. Two common definitions are population density, which can be defined as the number of people per area and residential density, which is based on the number of dwelling units in an area. The relationship between predictors, such as building size and housing type and place attachment is both direct and indirect through facilitating social ties. Increased building density may have a direct negative psychological and social effect and may lead to a sense of crowding and consequently have a negative effect on people's satisfaction. Although in an urban context, density and development levels may foster social interactions and eventually enhance place attachment, in non-urban and recreational areas, people may desire a lower level of development. High-rise buildings, with their higher densities, are generally accused of having a negative consequence on the life of most people. However, Gifford (2007a) in a study of the consequences of living in a high rise building in Canada, underlined the complex character of the relationship between the size of the building and what people felt, this being tempered by factors like physical location and demographic variables, thus emphasising the complex

character of the relationship. Gifford, therefore, warned against making simple conclusions. Kearney (2006) undertook a survey (N=361) in Washington where he explored the impact of residential building density and shared natural areas on the satisfaction of residents with their neighbourhood and found both factors had no significant effect on neighbourhood satisfaction, and thus on community residential attachment. Gillis, 1977 interviewed 442 residents of public housing projects in two midsized Canadian cities. He looked at high rise residential buildings and found that attachment to different floors was dependent on gender, as women preferred the lower levels and men felt more attached to apartments on higher floors.

Increased density may lead to a sense of feeling crowded. A review of the relevant literature by Lewicka (2011) found a negative linear relationship between the size of community and level of place attachment, with residents of most traditional places such as villages and small towns reporting the highest attachment. This is supported by some very old research where Wirth (1938) had argued that the level of community attachment diminishes as the community size increases. The same factor is further supported by New Zealand studies that highlight a strong bias toward standalone houses and lower density living (Haarhoff et al., 2012; Saville-Smith & James, 2010). Smaller population size can simultaneously increase community attachment by facilitating more intimate, meaningful social connections (McKnight, Sanders, Gibbs, & Brown, 2017). Janowitz (1974) compared community attachments based on a linear model of population size and density against a systemic model of social connection, finding that the social connectedness that developed between people while living in a given place was a more powerful predictor of community attachment than population size or density of the community population. Beckley (2003) postulated that as the scale of a place extends beyond a person's social network, the attachment will be more heavily influenced by physical factors.

2.2.4.3.2 Green areas

Public gardens and open spaces are thought to hold different meanings for people throughout their lives. Having these can lead to neighbourhood satisfaction and a sense of community and belonging by advancing social contact (Clayton, 2007; Kearney, 2006). Several studies have found a relationship between the presence of

green areas and place attachment (Arnberger & Eder, 2012; Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999; Fried, 1982). For example, in residential environments, open spaces that host group and personal activities are of supreme value in increasing the level of place attachment. There are good reasons for people to develop a positive bond with such an environment, as natural elements provide opportunities for mental restoration and recreation (Coombes, Jones, & Hillsdon, 2010; Lee & Maheswaran, 2011). Studies have shown that an individual's attachment to a green place increases in proportion to its proximity to home and frequency of use. Research by Sugihara and Evans (2000) in a continuing care retirement community in the US showed how physical features such as nearby, enclosed garden spaces may facilitate social contacts and thus indirectly enhance place attachment.

Living in a neighbourhood that is considered to be aesthetically pleasing, and that offers physical beauty can influence the experience of daily life and wellbeing. In a study of older women living alone, Walker and Hiller (2007) found that beauty within the neighbourhood encouraged people to venture outside, and this could counter isolation. A study by Kearney (2006) revealed that views of nature decreased residents' concerns over neighbourhood density. Fried (1982) used surveys in 42 US municipalities and found that residential satisfaction, which is equivalent to community and residential attachment, was better predicted by physical features rather than the social factors of place attachment. Access to nature was the most important predictor along with other features such as housing, neighbourhood quality, a sense of safety, homeownership and household density. Fried concluded that objective features were important in defining satisfaction, or attachment, with the place of residence. Arnberger and Eder (2012) studied the influence of green space on the community attachment of urban and suburban residents (N = 602) in the Vienna region. They suggested that the perceived supply and quality of green space could foster community attachment and overall, the urban residents showed higher community attachment and appreciated the community green space more compared to suburban area residents. Comstock et al. (2010) looked into the effect of green space close to home on community attachment in Denver, Colorado (N = 410) and found a positive connection. Hur et al. (2010) discovered that the USA employed

remote sensing techniques and satellite imagery, measured the vegetation coverage and building density and found that residents living in an objectively greener context were more satisfied with their neighbourhood and more likely to have greater place attachment. Zhu et al. (2017) looked at the impact of the layout of green space on community attachment in Beijing and found that it had a direct effect, with centralised having a greater effect than dispersed green space, and with greater impact coming with green open space with a more complex shape.

Overall a positive relationship exists between the presence of green space and attachment. Prior studies show that features such as proximity, quality and layout of green space can have a direct effect on people's attachment to place by improving wellbeing satisfaction and by providing social contact and mental restoration.

2.2.4.3.3 Privacy and security

Empirical studies from across the world have revealed that gated communities have a 'universally negative' social effect (Pow, 2015: 465), and it has been noted that they are conceived to enable private living rather than to foster social interaction. As a consequence, such communities have been found to be lacking in place attachment (Liu, He, Wu, & Webster, 2010). The typical architectural mechanism for privacy and security in New Zealand's retirement communities are the fences surrounding the village and the control over entry and exit, the walls are usually low enough to be climbed, and usually, the pedestrian path is open at all time. This style of gatedness represents a more symbolic rather than real barriers to entry and not as fortified as overseas gated communities. This has been observed in New Zealand gated communities and Dixon, Dupuis, and Lysnar (2004) conceptualise it a 'Kiwi Style' of gatedness. This can result in what looks like an isolated and insular residential environment. However, using fences to define the boundary between the street and private outdoor areas can increase the visual connection between people if they are not too tall, although if they are too short, they can reduce the feeling of safety and privacy and inhibit residents from using the garden (Al-Homoud & Tassinary, 2004).
Some studies have shown that there is a relationship between fear of crime and reduced neighbourhood attachment (Thomas, Fuhrer, & Quaiser-Pohl, 2006). The sense of being safe in one's own home is particularly important because the sense of

being unsafe can be a significant source of stress and can function to constrain an individual's daily activities (Foster & Giles-Corti, 2008; Simonelli et al., 2015). However, Comstock et al. (2010) only found a weak relationship between crime and neighbourhood attachment and Woldoff (2002) could not see any connection. A study carried out in Poland indicated that although gating leads to an overall sense of security, it either had no effect or reduced attachment, because of mediating factors such as weaker neighbourhood ties (Wójcik, Bilewicz, & Lewicka, 2010). On the other hand, Harlan et al. (2005) carried out an extensive survey in Phoenix in the USA and found that the best predictors of neighbourhood sentiment, the term used for place attachment, were the perceived control over the area of residence, and other predictors such as the stability of the neighbourhood, the length of residence, the lack of pollution and the presence of amenities. Other studies have also found a consistently positive relationship between a sense of security and place attachment (Brown et al., 2003; Lewicka, 2010).

Hidalgo et al. (2001) recognised safety and comfort as the key predictors for attachment. Kamalipour, Yeganeh, and Alalhesabi (2012) examined predictors of place attachment in a residential complex in Tehran and found safety was a positive predictor of place attachment at the dwelling scale. Bigonnesse (2017) considered safety to be an important psychosocial aspect of ageing in place for older Canadians and found it was influenced by various components such as the environment immediately outside the home at the neighbourhood level. At the individual level, gender was found to be a determining factor, since worry about crime tended to be higher among women and older adults. At both, the level of the environment immediately outside the house and that of the neighbourhood feeling safe was influenced by both the physical and social environments.

2.2.4.3.4 Building typology

Human beings are natural-born information processors and as a consequence, prefer environments that provide an ample amount of information. It seems that dull, repetitive buildings bore people, which has been clinically proven to induce stress (Ricci, 2018). Using a standard unit design for all homes is a method used to fast track both the construction process and bureaucratic approval (Davey et al., 2004) especially in larger

housing projects such as retirement villages, but having the same configuration and lacking individuality in rows of similar houses results in a repetitive built environment. Site-specific design considerations such as solar orientation can have the same outcome. In retirement communities, some covenants in ownership agreements are there to ensure that no changes are made to the exterior appearances of a unit, which restrains the resident's ability to individualise their home. In this regard, it is important to take people's aesthetic inclinations into account before building this type of housing, features such as material, form, and volume could play an important role in making place attachment.

2.2.4.3.5 Planning layout

The size of the residence may be a factor in older adults achieving place attachment. For example, they might perceive larger floor plans negatively since these could mean too much maintenance, which might affect their autonomy (Lawton, 1977; Oswald, Jopp, Rott, & Wahl, 2010). As people age, they are less able to cope with the maintenance required for large houses. A person who has recently lost a partner can find themselves alone in a large house with the difficulty of maintaining the house and living in neighbourhoods which are mostly vacant during the day time due to typical working hours. It can be depressing. Living independently is not the same as living alone, and older adults need to have access to services and company to enjoy a good quality of life.

In New Zealand, it is common to separate living areas and bedrooms. This means that if a resident becomes bedridden, they are removed from daily activities and secluded in a bedroom (Stevens, 2013) unless there is the opportunity to adapt the house plan so they can be part of daily activities.

2.2.4.3.6 Building arrangement: outlook and daylight

A study by Khajehzadeh and Vale (2016) showed that on the average those aged 65+ spend more time at home and indoors than all other age groups, which establishes the importance of design for this age group. An appropriate building footprint can allow for plenty of daylight and natural ventilation, which can affect a person's attachment to place. With age, less light reaches the retina. It is estimated that for the same

amount of available light, a 60-year-old only receives 30–40 per cent as much light in the retina as a 20-year-old, and this could result in more dependency (Figueiro, 2008) which may result in less autonomy and place attachment. Window sizes are not determined by daylighting considerations alone but by factors including construction costs and the need to have some privacy for the interior. Lower windowsills enable people to see outside more easily and feel connected. This can also improve neighbourhood safety by enabling passive surveillance. Good window design could help older people with one of their great fears, that of being "shut-in and left alone" (Lifetime Design Limited, 2012:21).

2.2.6 Measuring place attachment

2.2.6.1 Quantitative measures of place attachment

Despite the increasing importance of place attachment, there is still a great deal of ambiguity as to how to measure it. Most place attachment research has focused on quantitative rather than qualitative measures (Lewicka, 2011). Reviewing studies from environmental psychology, geography, gerontology, tourism and leisure shows most are survey-based and use questionnaires in which people's opinion are measured using Likert scales. For example, two studies by Bonaiuto, Fornara, and Bonnes (2003) and Fornara, Bonaiuto, and Bonnes (2010) used a Neighbourhood Attachment Scale to study resident satisfaction and attachment to the place of residence. Hidalgo and Hernandez (2001) used a 3-point scale to measure social bonding, and again two studies by Lewicka (2005, 2010) used 9- and 12-point Likert scales to assess place attachment. Examples of different methods used to measure place attachment quantitatively are provided in Table 2.5 together with comments on their suitability.

Table 2. 5 Quantitative measures of place attachment

Measurement Techniques	**Suitability**	
Proxy measures		
Length of residency and house ownership and neighbourhood ties (Riger & Lavrakas, 1981; Taylor, Gottfredson, & Brower 1985) or residential status (Hay, 1998)	These approaches do not offer direct insight into place-based attachment or the sources of such attachment but are based on the assumption that positive bonds with places can be used as a substitute measure of attachment (Lewicka 2010).	Only evaluates the sense of place as a whole and do not differentiate between different place characteristics (Lin & Lockwood, 2014a)
Phases		
This method addresses the relationship people have with a place. Respondents are asked to describe their feelings through a set of statements (Shamai, 1991).	There are difficulties regarding differentiating between different forms of attachment, and such scales do not consider the physical dimensions of place. Strength and source of place attachment are unlikely to be established by the commonly used true/false question.	
Uni-dimensional attachment scales		
A scale incorporates statements describing a person's feeling for a place to measure place attachment. Five-point Likert scales are commonly used ranging from "strongly agree" to "strongly disagree".	The scale uncovers the relative strength of emotional and functional attachment but does not consider the physical dimension of place formation. The importance of place characteristics is not considered and therefore, this not well-suited for assessing the source of place meaning and spatial attributes (Lin & Lockwood, 2014a).	Systematically assesses the intensity of the sense of place attachment but does not present the associated source (Lin & Lockwood, 2014a).
Quantitative ranking		
Based on a study by Rokeach (1973) this is a quantitative ranking method for environmental values where participants are asked to rank the importance of each value for the targeted place (Cordell & Stokes, 2000).	The method does not allow for distinguishing between the emotional and functional form of attachment, and the sources of these attachments may be unclear (Gunderson & Watson, 2007).	

2.2.6.2 Qualitative measures of place attachment

Qualitative measures are intended to offer an understanding of the meaning of places for people. The meaning of a place is described as the intermediate link between its physical quality and the strength of an emotional bond with it. In order to understand the attachment to a locality, it is first important to identify its meaning for people (Stedman, 2003a, 2003b). Qualitative measures of place attachment can be categorised into two groups: verbal measures and pictorial measures (Figure 2.4).

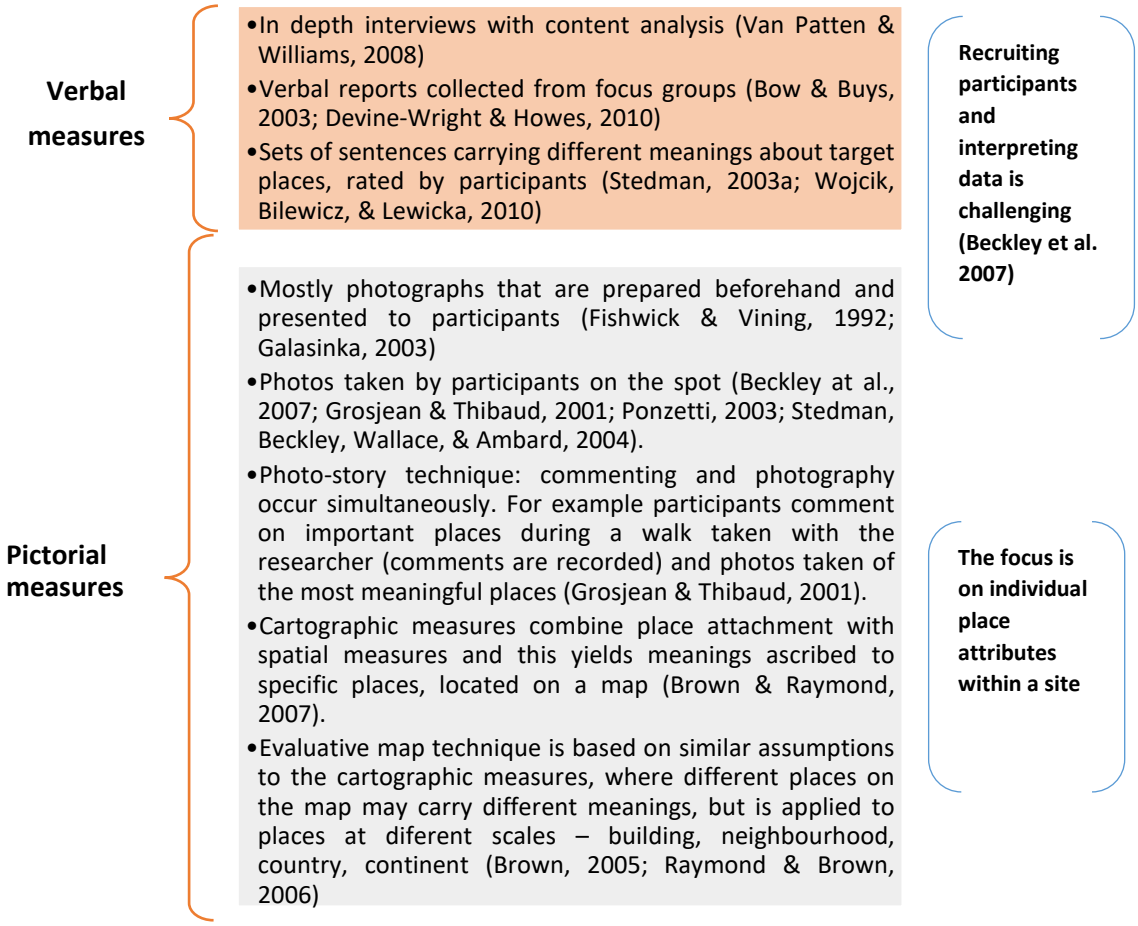


Figure 2. 4 Qualitative measures of place attachment

Often the verbal and pictorial techniques are combined, as when a participant first takes a photograph of a meaningful place and later comments on this during an interview (Ponzetti, 2003; Stedman et al., 2004).

2.2.6.3 Mixed method measures of place attachment

There are also mixed methods used to explore the sense of place and place attachment, but these are rarely combined in one study and there can be gaps in the components that have been assessed (Lin & Lockwood, 2014a). Wynveen, Kyle, and Sutton (2012) used key informant interviews to identify the meanings visitors ascribed to a place followed by a questionnaire that was based on the interview outcomes. A study by Jorgensen, Hitchmough and Dunnett (2007) used a postal survey and a semi-structured interview to uncover residents' conceptions of the aesthetic and safety aspects of their area and its underlying meaning. Lin and Lockwood (2014a) used four methods to assess sense of place in a natural setting: qualitative interviews, a quantitative place attachment survey, mapping and questions related to place atmosphere. Devine-Wright and Howes (2010) used focus group discussions and psychometric measures of place attachment and place identity to capture meanings associated with a place.

Overall looking at different studies it is apparent that sense of place is multi-faceted concept and there is a need for a mixed-method approach to understand and respond to this. As discussed later on in section 3.3, a combination of qualitative and quantitative measures undoubtedly offers an in-depth understanding of people's reactions to meaningful places.

2.3 Summary

This chapter has discussed retirement villages as a housing option for older adults to age in place. The reviewed literature reveals that despite increasing demand for such housing in New Zealand and generally a positive experience of residents (Grant, 2006), many studies have focused entirely on existing houses in order to age in place (Davey et al., 2004; Saville-Smith et al., 2008: Saville-Smith and Fraser, 2014). Additionally, given the deficiencies of appropriate housing and the slow rate of adding new housing in New Zealand the potential of retirement villages to respond to the need of the ageing population has not been sufficiently considered. Also, there is little or no information regarding older people's subjective views about their housing.

The reviewed literature also reveals that despite plethora of research on place attachment, too little attention has been paid to architectural features that could help enhance place attachment especially in retirement villages. Consequently, former are two areas that are important to this research.

2.4 Gap in Knowledge

There are important reasons for carrying out this research into place attachment within retirement villages in New Zealand. Firstly a repeated fact about place attachment is that it is usually associated with the length of stay at a place (Aneshensel et al., 2016; Lewicka, 2011; Smith, 2009). However, in an age of mobility, there is the need to explore how place attachment is rebuilt after moving to a new location (Gustafson, 2014) such as a retirement village. Additionally, despite all the research on place attachment, there is currently a paucity of research that explores the experience of residing within retirement villages in New Zealand and the concurrent influence of architectural features within the home and neighbourhood environment on place attachment and ageing in place. This is in spite of the fact that place and locality become more important as people age (Livingston, Bailey, & Kearns, 2010), and the fact that place attachment becomes more complicated with age. The second reason is the increasing number of retirement villages and the corresponding increase in the number of older adults living in these settings. This raises the issue of whether things can be done to their design to foster place attachment. This will be the focus of this research and how this topic will be addressed is described in Chapter 3.

Chapter 3: Methodology

This chapter describes the theoretical framework, methods and procedures employed in pursuing the aims and objectives of the research. Figure 3.2 shows the conceptual framework of this study. Based on the review of the literature, a set of predictors are examined to determine the extent of each one on people's sense of place attachment. These predictors are tested at two scales: those of the neighbourhood and those of home. In addition, users' preferences are evaluated with the aim of identifying which architectural features could influence and in turn enhance place attachment.

3.1 Aims and objectives

The purpose of this study is to gain an understanding of the influence of the physical features of retirement villages on the enhancement of place attachment and ageing in place for older adults. The research has two main objectives, as outlined below.

Objective 1: The first objective of this study is to investigate the significance of two groups of physical predictors for attachment to place (see Figure 3.1). Based on the literature review (see section 2.2.4.3) and the research question that is driving this research, six predictors were selected to test and measure place attachment. The reasons as to why these physical attributes were selected are mentioned later in section 3.3.2.1. The elements of physical setting that form the predictors for this research are: Building Density (BD) and Community Size (CS), Building Arrangement: outlook and daylight (BA), Green Area (GA), Building Typology (BT), Privacy and Security (PS) and Planning Layout (PL). These are not exhaustive as there are many predictors to place attachment. The mentioned predictors can be grouped into the two scales of the neighbourhood (BD, CS, GA, PS, BT) and home (PL, BA) environment.

The study seeks to investigate the relationship between these predictors and the place attachment.

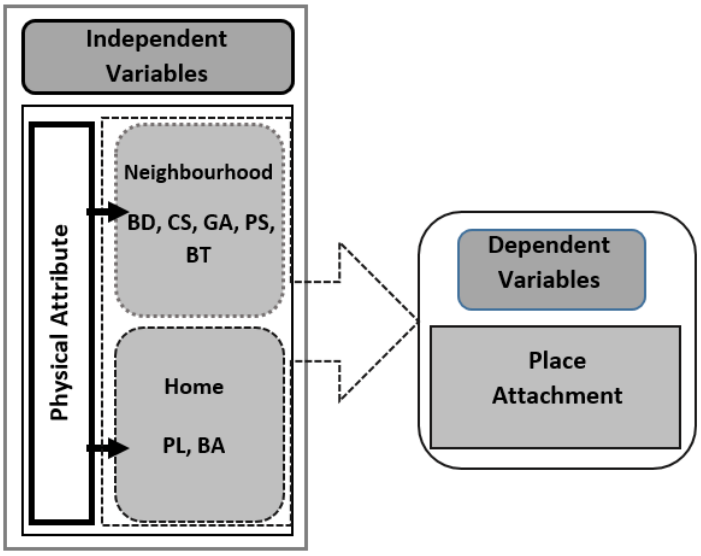


Figure 3. 1 Study predictors (Source: Author's construction)

Objective 2: The second objective of this study is to understand the perspectives of older adults regarding the influence of physical features on the enhancement of place attachment. This study will especially address older adults' perceptions of housing and neighbourhood. The aim is to discover what they would prefer for their later years that would enhance their attachment and address their needs and concerns for successful ageing in that place. These perceptions will be revealed through the photovoice technique. This is a visual methods tool for collecting visual data based on a participant's perspective that was developed by Wang and Burris (1997).

3.2 The Theoretical Framework

This study seeks to find out the perception and preferences of people aged 65+ regarding their attachment to place and the physical features that would enhance their attachment towards their place of residence. Figure 3.2 illustrates the proposed theoretical framework, which in turn indicates the research plan.

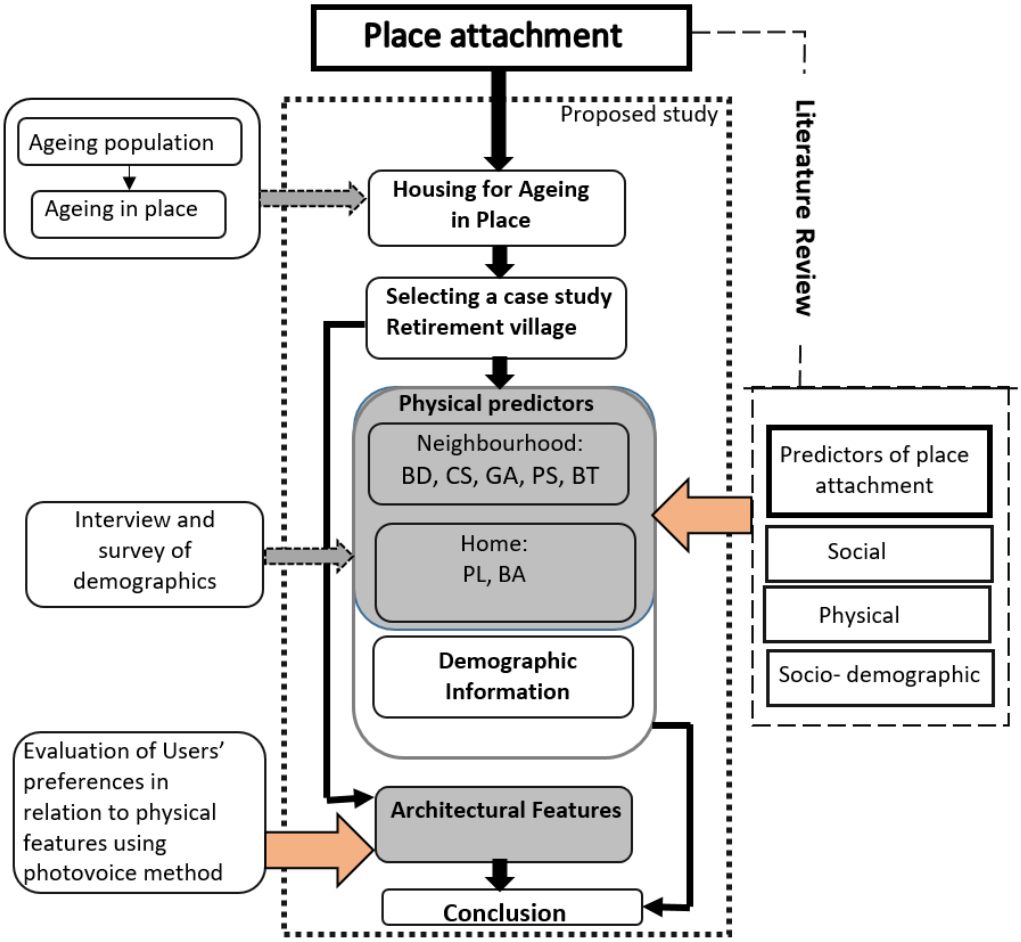


Figure 3. 2 Theoretical framework (Source: Author's construction)

3.3 Justification of chosen methods

3.3.1 Mixed method approach

Since a single research approach is unlikely to capture and present the full range of relevant place meaning, this research project uses a mixed methods research approach, also known as the triangulation method (Neuman, 2011), as its overall research paradigm. A combination of qualitative and quantitative measures undoubtedly offers an in-depth understanding of people's reactions to meaningful places. By combining different but complementary methods, researchers can gain new insights into the dynamic underlying place attachment, taking advantage of the strength of each approach (Creswell & Clark, 2014). The thesis was primarily based on using a semi-structured interview where the strength of place attachment was

recorded based on five points Likert scale, followed by a photovoice session as a tool for collecting visual data through photographs, based on each participant's perspective.

Analysis of the literature indicates that quantitative methods have been used more than qualitative measures to assess place attachment. While quantitative methods are intended to reveal the scope and scale of understanding, qualitative methods are mostly designed to deliver the depth of knowledge (Patton, 2002). Qualitative approaches seek to arrive at an understanding of a particular phenomenon from the perspective of those experiencing it by uncovering an individual's stories, memories and descriptions (Speziale, Streubert, & Carpenter, 2011). The value of a qualitative interview lies in the depth and richness of data collected (Mitchell, Force, Carroll, & McLaughlin, 1993). However, qualitative approaches are not applicable for finding out the relative strength of different forms of place attachment.

On the other hand, quantitative approaches have been criticised for diminishing place significance to a few predefined categories or statements (Patterson & Williams, 2007). Stedman (2003b) states that the literature on place attachment has focused more on quantitative measures and the importance of place than its meaning. Table 3.1 tabulates a summary of the disparity between the two methods. Based on the definitions provided, a mixed methodology would be most suitable for the current study.

Table 3. 1 Qualitative/Quantitative method differences

	Qualitative	*Quantitative*
sampling	Theoretical	Statistical
Purpose	Used to gain an insider's view of behaviour. Seeks in-depth descriptive information, possibly from a small sample, e.g., how people feel and why they feel as they do	Collects data that can be measured. Enables testing of hypothesis from large samples, e.g., measuring the number of people who feel and think and act in a certain way
Format	No pre-determined response categories	Pre-determined response categories, standard measures
Analysis	Draws out patterns from concepts and insights	Tests hypotheses and uses data to support a conclusion
Result	Illustrative explanation and individual responses	Numerical aggregation in summaries; responses are clustered

For this proposed study, Creswell's (2014) Convergent Design Mixed Methods is potentially applicable (Figure 3.3). The proposed research will place equal emphasis on both qualitative and quantitative methods.

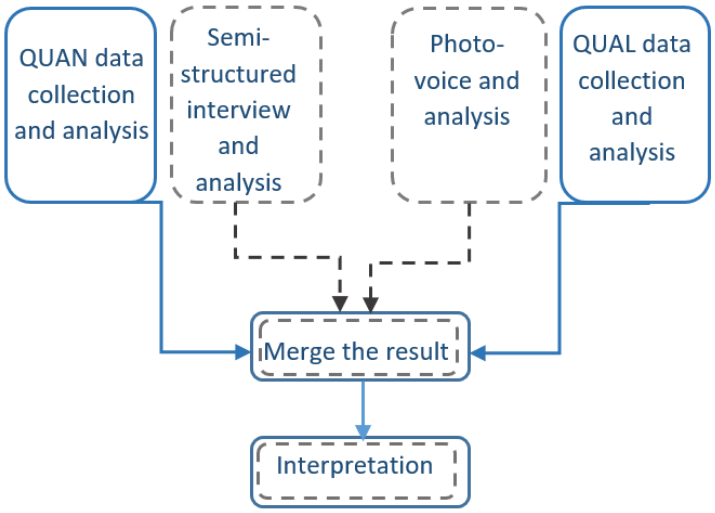


Figure 3. 3 Convergent Design Mixed Method (Source: Author's construction)

3.3.2 The importance of semi-structured interviews

Interviews bring people into the research process, as the informants use their own words or dialect to describe their understanding and experiences. For the purpose of this study, a face-to-face interview was preferred over a focus group. The semi-structured interview technique allowed the researcher to lead the conversation and at the same time enable the interviewees the freedom to raise issues that they considered to be important. Allowing the participant to discuss his or her attachment to certain possessions can openly stimulate self-expression and greater communication between the researcher and the participants (Boschetti, 1995). It will also provide an opportunity for the researcher to collect demographic data and to explain the study to the residents.

For the context of this research, all interviews were scheduled at a time and place most convenient for interviewees. Almost all the interviews with residents took place in the resident's home in the retirement village. Valentine (1997) identifies the benefits associated with interviewing people in their own homes:

> *Talking to people on their territory .i.e. in their home, can facilitate a more relaxed conversation. It also offers the possibility to learn more about the person from seeing them in their own environment. (Valentine, 1997)*

This was particularly relevant to this research because the researcher was talking to the residents about their housing choices and it was beneficial to see residents interacting with their chosen housing environment. This was the case especially with the older residents for whom mobility may have been an issue. It also made it easier for them to show the aspects of retirement village living that they enjoyed and liked the most. The researcher recorded the interviews using a portable tape recorder to document the opinions of the interviewees accurately. Recording the interviews allowed the researcher to concentrate entirely on listening to the interviewee and allowed the conversation to flow naturally. This method also facilitated the accurate use of direct quotes from interviewees in the thesis. It has been argued by Butler (2001) that the use of direct quotes allows the voices of the interviewees to be heard. In addition to attachment questions, there were questionnaires regarding socio-

demographic characteristics: age, gender, marital status, education level, length of residency and living arrangement (Appendix 6). This information was required to enable comparisons and correlation studies of people's attachment behaviour to be made around their background characteristics. Data from the interviews were analysed qualitatively and quantitatively.

Significant thought was given to the language used to communicate with interviewees. For example, the term 'senior-citizens typology of housing' may communicate differently to people. If a further definition is needed, the semi-structured interview will allow the researcher to explain ideas using photographs or read a short verbal description. However, it is especially important in constructing questions for older subjects to keep them simple and use basic English. Table 3.2 demonstrates different approaches researchers have taken to measuring place attachment. Most of these studies utilised questionnaires for measuring place attachment using Likert scales. A different number of items have been applied in each study. Nine items were used in studies by Hidalgo and Hernandez (2001) and Stedman (2006). Examples of each item are shown in the final column of Table 3.2.

While some of the items used to measure place attachment are very specific, others are very general. Therefore, care needs to be taken with the language. For instance, would the respondent give a consistent meaning to the word 'attachment'? Rossiter (2010) advice of the common-sense approach, often ignored by researchers, uses language that is understood and has shared meaning for the part of the population of interest from which the sample will be drawn. There are also some concerns regarding the construct validity of the items, in terms of whether they measure what they are supposed to measure.

Table 3. 2 Different approaches using the Likert scale

Year	Field of study	Author(s)	Approach	Item Example(s)
2017	Housing and Society	Melissa M. Lies, Mihyun Kang & Rachel K. Sample	Open-ended questions were developed based on items used by other studies (Hidalgo & Hernandez, 2001; Kasarda & Janowitz, 1974; Lin & Lockwood, 2014). The residents were asked to respond based on a Likert Scale inclusive of five options (very sad, sad, indifferent, happy and very happy), the interview transcripts were coded using NVIVO software.	"How would you feel about leaving the cohousing community and why?", "How would you feel to have your (individual home/common house/other areas) removed?"
2014	Geography and Environmental Studies	Lin, C., & Lockwood, M.	The interviews were transcribed. Identified themes were then considered in relation to emotional, functional and cognitive forms of place attachment, as well as their underlying sociocultural, biophysical and spatial content.	"What does this place mean to you?", "Would you say that you feel especially attached to this place? If so, why?", "Are there some physical or social characteristics of this place that are particularly important to you? If so, why?"
2012	Urban Forestry & Urban Greening	Arnberger, A., & Eder, R	Community attachment was measured by asking residents to rate seven statements on a five-point Likert-based scale ranging from 1 = strongly agree to 5 = strongly disagree.	"I love living here in this community", "I would find it a great pity if I had to move away", "My community is very special to me", "I would recommend this community to my friends as a living place", "I feel very attached to my community."
2010	Environmental Psychology	Raymond, brown & Weber	Mailed-based surveys across three distinct population measured place identity, nature bonding, place dependence and friend bonding. Study 1: dimensionality of place attachment scale (semi-structured interviews then a survey); study 2: refinement of the place attachment scale (survey); five-point Likert scale ("strongly agree" to "strongly disagree").	"I have a lot of fond memories", "I am very attached to the natural environment', "I get satisfaction out of living in …"
2010	Environmental Psychology	Mishra, Mazumdar & Suar	Place attachment and flood preparedness: place attachment measured economic, genealogical and religion; four points scale ("strongly disagree" to "strongly agree," no neutral point)	"At this place I have friends who can give me financial support", "I feel proud staying at this place", "I cannot feel contented without visiting our …"

2009	Community psychology	Dallago et al.	Asked one single question to measure place attachment (1 = yes, it's really good, 2 = yes, it's good, 3 = it's okay, 4 = it's not very good, and 5 = no, it's not good at all).	"Do you think the area in which you live is a good place to live?"
2007	Geography	Brown & Raymond	There were 15 attachment statements from previous studies; place identity and place dependence were measured using a five-point Likert Scale ("strongly agree to disagree strongly")	"I feel the Otaways are a part of me", "No other place can compare to the Otaways."
2006	Behavioral science/ Geography	Stedman	Residents described residence patterns, and years of property ownership. Nine place attachment items were measured based on a five-point Likert scale ("strongly agree to disagree strongly")	"I feel that I can really be myself there', "I feel happiest when I am there", "For the things I enjoy most, no other place can compare."
2006	Journal of environmental	Jorgensen, B. S., & Stedman, R. C.	The questionnaire included sections comprising questions about environmental quality, environmental values and behaviours. The items were rated on a five-point Likert response scale ranging from "strongly disagree" to "strongly agree".	"My lake property reflects the type of person I am", "I feel relaxed when I'm at my lake property", "I feel happiest when I'm at my lake property", "My lake property is my favorite place to be."
2005	Economic and social geography	Shamai, S., & Ilatov, Z.	Asked one direct question on three spatial ranges: settlement, region and country. The scales ranges from (-5 = "very negative connection/attachment") to (+5 = "very positive connection/attachment") and (0 = "no connection/attachment")	"What is your level of attachment to your settlement/region/country. "
2003	Forest Science	William & Vaske	Items were presented on a five-point scale from 1 = "strongly disagree" to 5 = "strongly agree" with a neutral point of 3.	"I feel […] is a part of me", "This place is very special to me", "No other place can compare to […]", "The natural landscape of the trail is very important to me."
2002	Landscape research/	Kaltenborn & Bjerke	The strength of place attachment was measured on a ten-item scale; the scale reflected identity, involvement, dependence and satisfaction; photographs rated on a seven-point scale ("Do not like at all" to "Like very much").	"This area feels like a part of me", "I identify strongly with this area", "I enjoy living here more than I would in other places in this country."
2001	Environmental Psychology	Hidalgo & Hernandez	Two dimensions (physical and social), three spatial ranges (house, neighborhood, city), nine statements rated from one to four ("nothing" to "a lot"), also included general attachment to the special ranges.	"I would be sorry to move out of my house, without the people I live with", "I would be sorry if the people who I appreciate in the neighborhood move out."

3.3.2.1 Choice of physical attributes

The choice of which physical feature to study is usually selective and generally based on common sense or on categories that are very broad. Predictors can also include all possible physical features within a residential setting. For example, a study in Italy by Fornara et al. (2010) used the Perceived Residential Environment Quality index (PREQ). The former included a number of physical indices such as building density and volume, community size and presence of green areas. This is by far the most extensive project measuring perceived physical features of settings in relation to neighbourhood attachment. For this study, the choice of predictors is mainly based on the architectural qualities within the research site. Some of the features could contribute to place attachment by increasing social interaction, for example, building density and community size. These can also affect openness and the aesthetic quality of the neighbourhood and as a result, overall satisfaction with the place.

To measure place attachment for each physical attribute in this research, different statements were developed. Each statement had to be ranked by participants on a Likert scale. The statements were inspired by similar items that have been previously used by other authors, for example, "I would be unhappy to leave" (Casakin & Reizer, 2017; Hidalgo & Hernandez, 2001; Kamalipour et al., 2012; Lies et al., 2017). This statement "requires the subject to imagine a break or distancing situation which could reveal place attachment" (Hidalgo & Hernandez, 2001); Mesh and Manor (1998) also used "sorry to move out." It is argued that we are often unaware of place attachment, and it only becomes noticeable when we feel a break or distancing (B. B. Brown & Perkins, 1992; Proshansky et al., 1983).

However, no single framework was used to create the statements for this research as they were inspired by different studies. In this study, place attachment was measured by five statements. The first statement asked: "How would this (the predictor) affect your willingness to stay?" (1 = a lot, 3 = neutral, 5 = not at all). The second statement asked: "Do you think you can stay in this neighbourhood for many years to come?" (1 = strongly agree, 3 = neutral, 5 = strongly disagree). The third statement was: "How close do you feel?" (1 = very close, 3 = neutral, 5 = not close at all). The fourth

statement asked: “how willing or unwilling would you be to move?” (1 = very willing, 3 = neutral, 5 = very unwilling) The last question asked: “How satisfied are you?” (1 = very satisfied, 3 = neutral, 5 = not satisfied at all) (Hur et al., 2010). Appendix ten shows the questions used in this study. Each place attachment predictor is addressed and the literature-based rationale are also listed.

Prior to questions regarding the predictors of place attachment, participants were asked to share thoughts about previous homes and transition experiences while moving to the retirement village. They were asked about the reason they moved.

“Can you tell me the main reason you chose this village and why you have decided to move?”

This question allowed the researcher to find out the reasons that were preventing older people from staying in their previous places of residence. The main reasons for their move to their current place of residence also might shed light on what features they deemed important in a retirement village.

3.3.3 Importance of the visual qualitative research methodology

Photo-voice is a new and novel approach to qualitative research derived from traditional ethnography methods used in anthropology and society. Visual methods are used to understand and interpret images (Barbour, 2014). Photo-voice, as a visual methods technique, is a tool with which to collect visual data based on a participant’s perspective. It was developed by Wang and Burris (1997). In this method, strengths and weaknesses within communities are recorded and reflected via photographs taken by the residents of the community. This methodology has been used with older adults in a number of studies (Baker & Wang, 2006; Blair & Minkler, 2009; Lies et al., 2017; Novek et al., 2012). The method has also been used in a study with older people in relation to the built environment. An example of such is the study by Lockett, Willis, and Edwards (2005) where they assessed the barriers to walkability for older adults in Canada, and also the study by Baldwin, Osborne, and Smith (2012) where they aimed to identify affordable, liveable ways to accommodate older people in higher density communities.

The technique can empower research participants (Castleden & Garvin, 2008). It is also useful for exploring person—place relationships because it allows individuals to share perspectives about their surrounding and to record visual life stories through photography (McIntyre, 2003). A literature review conducted by Pain (2012) assessing the use and variety of visual methodologies found that visual methods strengthen the richness of the data and help with the relationship between the researcher and the participants. Data enhancement will also be achieved because it paves the way for further communication, enables the expression of emotions as well as unspoken and under-expressed knowledge, and also encourages reflection.

The difference between interviews using visual data along with text and interviews using words alone lies in the ways people respond to these two forms of symbolic representation. As outlined by Harper (2002), responses have physical basis. The parts of the brain that process visual information are evolutionarily older than the parts of the brain that processes verbal information. Thus, visual images evoke deeper parts of human consciousness than words do. Exchanges based on words alone utilises less of the brain's capacity than exchanges in which the brain is processing images as well as words (Harper, 2002).

For the context of this research, participants were asked to take pictures of architectural design elements they thought was important to them in terms of staying in their home and their community as long as possible. The aspects that enhance place attachment were described as those that: "*Help them feel at home; They would be sad to leave; They would not want to live without, and/or would miss."* The photographs could include the built environment, resident's homes – both interior and exterior – and anything else they considered as a facilitator for them to stay in their home and community for as long as possible and age in place. The participants were asked to send the photos by email or by contacting the principal investigator to collect the images.

The photo-voice technique had three phases:

1) An initial one-to-one meeting to explain the scheme by giving them a task sheet explaining the photo-voice method (Appendix 5), providing the guideline for taking photos, what kind of photos they could take, what the photographs could include and the photo-voice procedure and ethical issues they had to consider. To minimise the researcher's potential influence on their responses, participants were left free to photograph anything that they thought could enhance their feeling of place attachment.

2) Participants were allowed to take as long as they needed within a one-month timeframe to take their photos. However, this timeframe was more than appropriate for most participants since it took them less than two weeks to complete the task.

3) The photo journal (Appendix 9) asked participants to provide information regarding the time the photograph was taken, its location and the message the scene conveyed about place attachment. Where necessary, a brief follow-up interview was conducted when collecting the pictures to elicit more detailed information.

3.4 Data collection

For this study, the researcher submitted an application to the Victoria University of Wellington Human Ethics Committee (HEC) for approval on the protocol for at least two sessions with potential members of retirement villages (see Appendix 1 for approval letter): individual semi-structured interviews and a photo-voice session (and if applicable another interview after the said photo session). Once approval was given, the data collection process kicked off with a letter to the management team of the retirement community (Appendix 2), requesting permission to approach the residents and to organise an information session.

At the information session, older adults who were interested in participating were left with a form to fill providing their contact details for the researcher to arrange an interview time, a poster (Appendix 3) providing them with the researcher's contact details and an information sheet, which further explained details of the sessions in which they could choose to participate. The researcher drafted individual information

sheets (Appendix 4-5) and consent forms (Appendix 7-8) addressing the interview and photo-voice method. The researcher contacted members by calling or emailing them and in some cases were approached by members in the same way.

3.5 Study participants

For this study, the researcher recruited a purposive sampling technique, also called judgment sampling. This is a non-random technique that does not need underlying theories or a set number of participants and in which "the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of their knowledge or experience"(Etikan, Musa, & Alkassim, 2016). In purposive sampling, the sample size is determined by data saturation and not by statistical power analysis (Etikan et al., 2016). This means continuing to sample until no new substantive information is acquired. This is thus a non-probability sampling technique in which samples are selected based on the subjective judgment of the researcher, rather than random selection. For this research, the inclusion criteria were set as below:

> *Participants had to be cognitively intact, mobile, independent, aged 65 years and over, and to live in a home or apartment within the study sites and speak English. Participants with cognitive impairment or severe functional limitations were excluded from this research.*

Recruitment and engagement of older adults in research can have significant barriers related to their deteriorating health, social and cultural barriers, reduced mobility and increased fatigue (Davies et al., 2014). For older adults living in institutions and care centres, there is another layer of complexity as cooperation from the institutions is required (Dibartolo & McCrone, 2003; Mody et al., 2008). Dibartolo and McCrone (2003) suggest that among other common difficulties with the recruitment of older adults is an underestimation of the time needed for attracting participants, slow recruitment rates and an insufficient number of participants. With that observation in mind and due to time limitations, it was decided that a snowball sampling technique would better facilitate access to residents. Snowball sampling is a non-probability sampling technique.

The general objective is to identify members of the rare population. This method increases the credibility of research, as participants are involved in the research process. (Lavrakas, 2008). In this research, the researcher began by identifying someone who would meet the criteria for inclusion in the study and then invited them to recommend others they might know who would also meet the requirements. The researcher then contacted these other potential respondents independently. Among the facilitators for engaging older adults in this study was encouragement by peers, building a good relationship, having flexible sessions, thoughtful choice of location and providing refreshments.

For this study, an application was sent to several local retirement communities, asking them to facilitate access to their residents. With their approval, individual residents were invited to participate through an information session held at the retirement village and organised by the management team. Posters were also provided with the contact details of the researcher if they wished to participate. Prior to the interview sessions, potential participants were informed of the present study with an information sheet explaining the session, the study protocol and data collection procedures that would be offered to them if they chose to participate.

Older adults who showed interest and agreed to participate in the first session for this study were asked to complete a questionnaire concerning their contact information and demographic data. This information would help the researcher account for individual factors in the data analysis. Upon completion of this, the older adults were invited to take part in individual, informal interviews that were audio recorded. The setting and place of the interview can influence the outcome of the data collected (Elwood & Martin, 2000).

> *"Participants who are given a choice about where they will be interviewed may feel more empowered in their interaction with the researcher." (Elwood & Martin, 2000)*

For this study, the interviews were held at a location of the participant's choosing, and all were held in the participant's home. Each interview lasted approximately one hour. At the end of the interview, participants were asked if they would take part in the

second phase of the research, being the photo-voice session. Participants were only included in the second phase if they were already involved in the first phase of the study.

3.6 Study site

The site of interest in this study is located in Wellington, New Zealand. The village offers different types of houses from standalone or semi-detached villas (two or more bedrooms) to medium density serviced apartments (one and two bedrooms), as well as en-suite rooms and studio options. Older adults who buy into the retirement village have an occupation licence which is a contractual right to occupy the particular dwelling for as long as they live, which means they are not entitled to ownership of the dwelling. In the case of a resident's death, the village management takes 20 per cent of the building value and family members take the rest. The site was chosen because it provides care facilities on site, a rest home, the ability to cope with dementia and hospital care which ensures priority access to a continuum of care if residents need a change in the future. Together this would help to facilitate ageing in place.

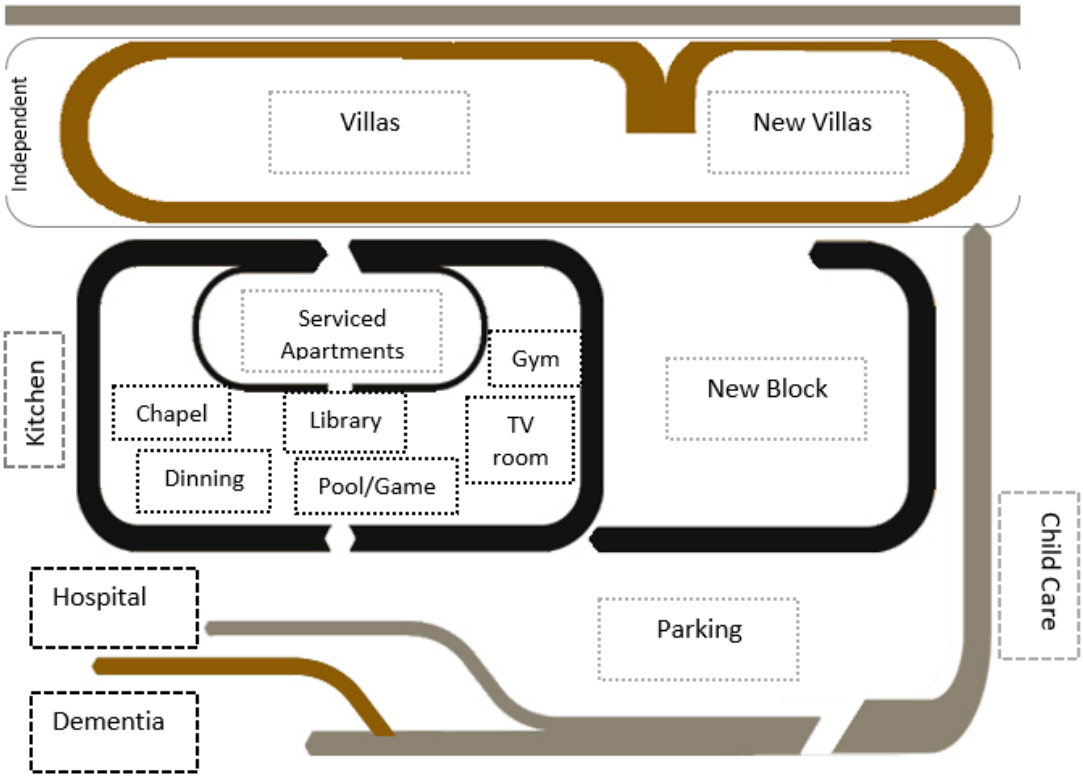


Figure 3. 4 Retirement Community Block Diagram (Source: Author's construction)

The village offers a range of recreational spaces and activities for residents. All the common facilities are located on the ground floor of the apartment buildings. These are centrally located and includes a library, a chapel, TV room, gym, dining area, pool and games room. The apartment blocks are arranged in a U-shape which encloses a landscaped courtyard. The open space is also designed to protect the buildings from fire, prevent too much shading and provide open spaces, privacy and views for all dwellings. The boundaries and threshold of the site are determined by the walls and fences around the properties and the fences surrounding the entire community with their gates at the entry.

Figure 3. 5 Serviced Apartments/Independent Villa Plans (Source: Author's construction)

Among the main architectural characteristics of the independent villas and serviced apartments are their spacious layout with plenty of natural light, generous windows, central heating, good artificial lighting, smoke alarms, a sprinkler system and sturdy grab rails in toilets and bathrooms. Each unit has a semi-open layout with a built-in wardrobe, large cupboards and other storage. There is a good balance between indoor and outdoor spaces. Every apartment has its own balcony or patio, and this is usually separated from the rest of the public spaces by green boundaries. Linking corridors between units have large windows with views, and there are suitable handrails in passages and staircases. The corridors in the main block are wider, leaving room for other features apart from circulation, such as seating spaces, storage and work areas. Every villa is unique in design with easy access to a private garden and an independent garage.

3.7 Data coding and analysis

Audio recordings from the semi-structured interviews were transcribed by the researcher and thematic analyses of respondents' comments received regarding each predictor formed the qualitative part of the semi-structured interview. Thematic analysis is defined by Braun and Clarke (2006) as a process of identifying patterns or themes within qualitative data. Participants were also asked to quantitatively rank their sense of attachment toward each predictor using a five-point Likert scale. Using the computer software SPSS, descriptive statistics were used to analyse the interview outcomes and demographic data. Since this study was based on a small, purposive sample, findings cannot be generalised to all assisted living facilities.

Analyses of text and photographs from the photo-voice technique were conducted in parallel. Figure 3.6 shows the data analysis process and the content analysis of photographs. The intention was to complete the thematic analysis, as the main difference between thematic analysis and content analysis is the opportunity for quantification of data. Because measuring the frequency of different categories and themes is possible in content analysis (Vaismoradi, Turunen, & Bondas, 2013) this would be used for the photo-voice material. The analysis was used to determine the extent to which physical features explain and predicts place attachment and subsequently facilitates ageing in place. Thematic analysis of the photo journals identified themes

related to design features mentioned by participants. “A theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set” (Braun & Clarke, 2006:10). The importance of a theme is not necessarily dependent on quantifiable measures; rather it can capture something important concerning the overall research question. Themes and

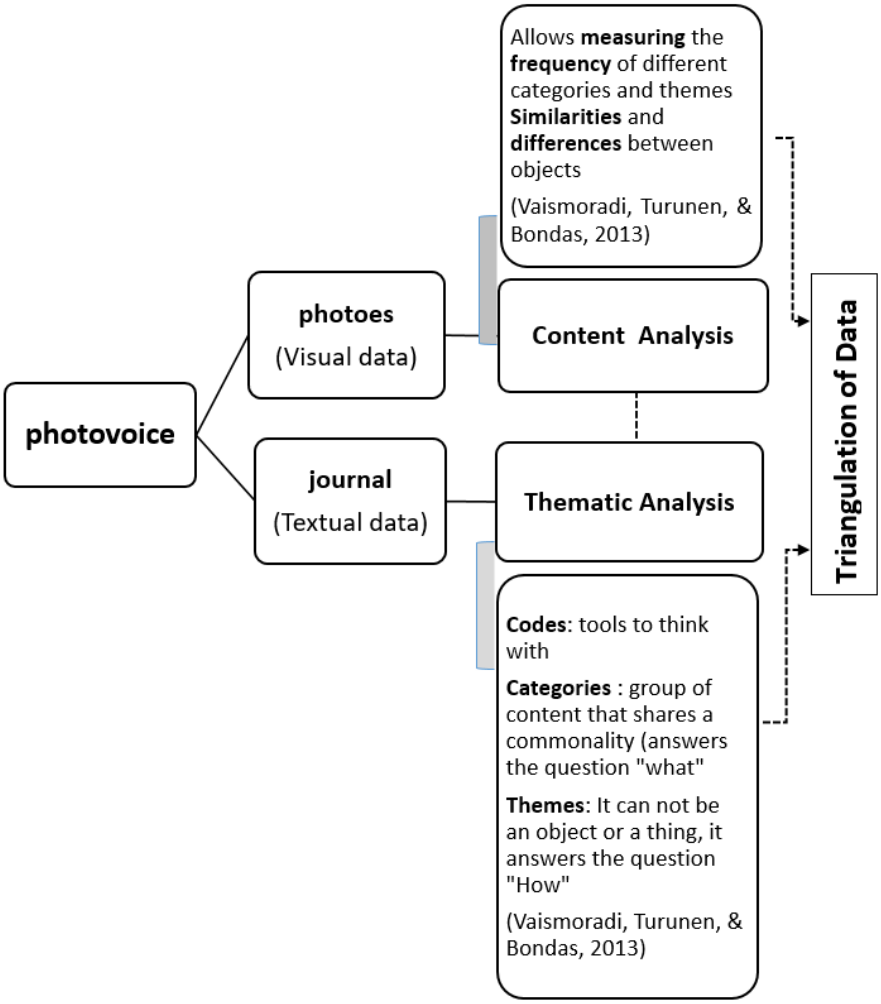


Figure 3. 6 Data Analysis process (Source: Author’s construction)

patterns can be identified in one of the two primary ways in thematic analysis, inductive or theoretical way. This research was concerned with addressing a specific research question and analysed the data with this in mind; therefore, this was a theoretical, deductive or ‘top-down’ thematic analysis (Braun & Clarke, 2006:83). The applied thematic analysis followed the six-phase guide provided by (Braun & Clarke, 2006:87), which involves “ becoming familiar with the data, generating initial codes, search for themes, review themes, define themes; and producing the report.” Data triangulation

of the transcripts and photographs were carried out to reach an overall synthesis. Each picture was analysed in relation to the meaning(s) that the participants attached to it and this allowed the researcher to test the consistency of the findings. Participants' responses were analysed by counting the number of times each design feature was mentioned in the different interviews. Following that, their level of influence on the place attachment of older adults could be ranked based on the frequency of each item discussed. A number of direct quotations from each interviewee has been used through this thesis to help illustrate the differing perspectives and opinions. Figure 3.7 shows the analytical technique used for photovoice results.

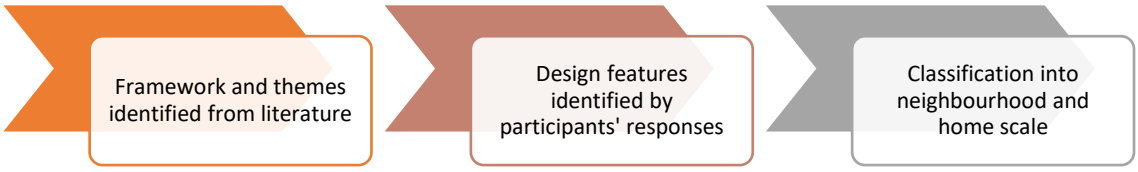


Figure 3. 7 Analysis technique for photovoice results (Source: Author's construction)

3.7.1 Data Triangulation

Data triangulation is a method used in qualitative studies with the purpose of strengthening a study's validity and reliability (Jonsen & Jehn, 2009). The most discussed type of triangulation is Methodological triangulation which refers to the use of multiple methods for examining a social phenomenon (Denzin, 2017). Although triangulation can take place during the research design, for the purpose of this study the focus was on triangulation related to analysis. Data triangulation of the transcripts and photographs were carried out to reach an overall synthesis. Each picture was analysed in relation to the meaning(s) that the participants attached to it and this allowed the researcher to test the consistency of the finding

Chapter 4: Results

The purpose of this chapter is to present the findings regarding the perspectives of older adults on the influence of physical features and significance of some of the predictors on their level of place attachment in retirement communities. The findings are based on semi-structured interviews and photovoice sessions conducted with 22 older adults. The two data collection techniques used in this study, the interview and photovoice, produced individual sets of results that culminated in a final evaluation of the research task. The analysis of photovoice technique identified different themes, and the questions in the semi-structured interview sessions fleshed out the responses from participants, and the key points they have mentioned. The following sections explain in detail the results from the two individual data collection techniques and Section 4.3 concludes this chapter by providing a summary of the findings.

4.1 Semi-structured Interviews

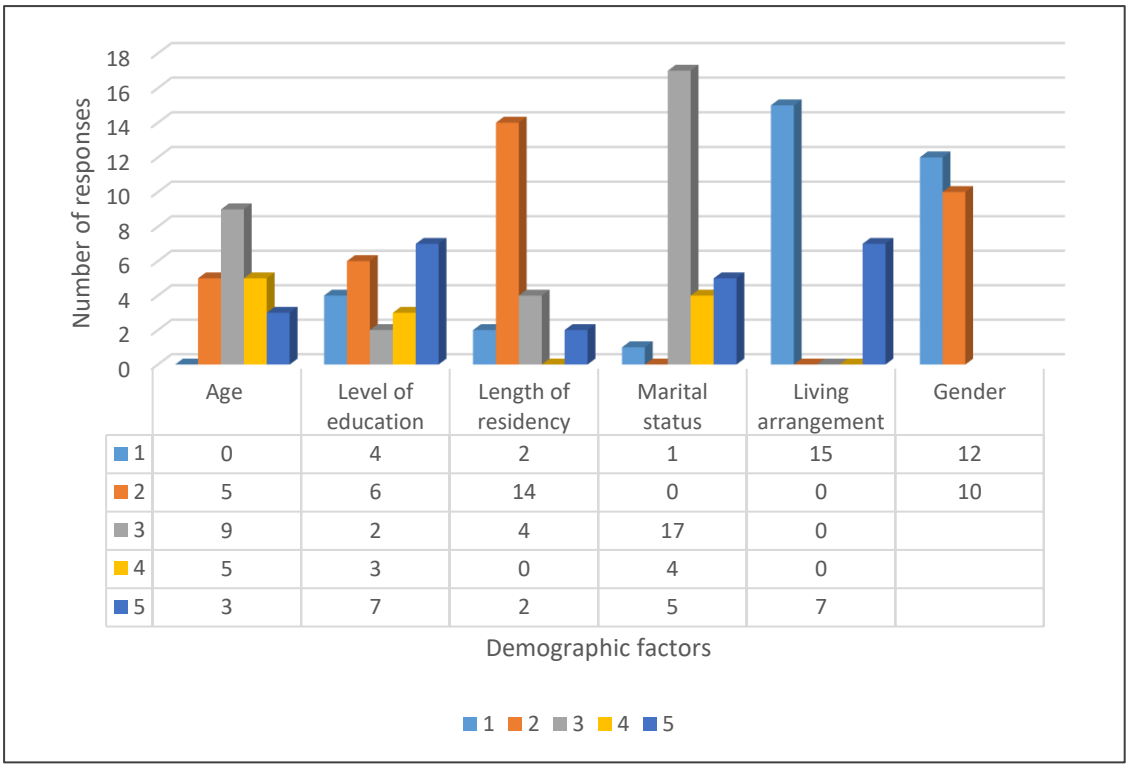
This section presents findings from the one-hour semi-structured interview sessions with each participant. The interviews were designed to generate data, including demographic information that could be analysed using the Statistical Package for Social Science (SPSS) software. Themes were also revealed by a thematic analysis of the transcribed interview. Incomplete responses were removed from the dataset to avoid inconsistency in the primary results. Overall, 24 older adults participated in the study, but two participants did not respond to all questions adequately and did not compleat the second stage of research, the photovoice session. Hence, the study was limited to 22 participants.

For data that have nominal or ordinal scales, the sample size is too small, and when data has outliers that cannot be removed, it is ideal for running a non-parametric test. The type of non-parametric test suggested for a Likert data analysis are the Mann-Whitney U test and Pearson's Chi-square (Allen & Seaman, 2007; Jamieson, 2004). However, due to the small sample size in this study, neither of these tests was deemed to be appropriate since the tests did not produce any statistically significant correlation. Therefore, descriptive statistics, such as histograms, have been used to show the

possible relationship between different predictors and the level of place attachment. Since the data is not statistically significant, it cannot be generalised to all retirement villages, and the data must be interpreted with caution.

4.1.1 Demographic Data

Older adults in this research were all aged 65 and over. Figure 4.1 represents the demographic profile of respondents. On average, just over one-half of respondents were female (54.5%) providing a reasonable gender representation. In 2013 those aged 65+ were 54.1% woman and 45.9 % men (Statics New Zealand, 2015). Almost two-fifths of respondents were between the ages of 76-85 (40.9%). Just under one-third of the respondents had a postgraduate degree (31.8%), and nearly quarter had a high school certificate (27.3%). Out of 22 participants, 14 have resided in the village between 1-3 years (63.6%) and (77.3%) of participants were married or had a domestic partnership.



	Age	Level of education	Length of residency	Marital status	Living arrangement	Gender
1	0	4	2	1	15	12
2	5	6	14	0	0	10
3	9	2	4	17	0	
4	5	3	0	4	0	
5	3	7	2	5	7	

Age *- 1= 65-70, 2= 71-75, 3= 76-80, 4=81-85, 5= 86-over*
Level of education*- 1= no formal qualification, 2= high school certificate, 3= college degree/ technical qualification, 4= Bachelor's degree, 5= postgraduate qualification.*
Length of residency*-1= less than 1 year, 2= 1-3 years, 3=4-7years, 4= 8-11 years, 5= 12-15 years*
Marital status*-1=Single never married, 2=defacto, 3= married or domestic partnership, 4= widowed, 5= divorced or separated.*
Living arrangement*-1= spouse or partner, 2= adult son or daughter, 3= relatives, 4= other, 5=none*
Gender*- 1= female, 2= male*

Figure 4. 1 Demographic profile of respondents

4.1.1 What is preventing older adults "ageing in place"?

The researcher asked residents to elucidate reasons for their move from their previous place of residence and what was preventing them to "age in place" in their original home, as this might shed light to what features are deemed important for these participants in a retirement village.

> *"Can you tell me the main reason you choose this village and why you have decided to move?"*

The decision to move came from a diversity of reasons and often involved trade-offs. The five common causes in order of importance and mentioned most often by participants are presented below. The reasons have been categorised into three

different themes: “age-friendly environment”, “connection to community, friends & family” and “supportive housing & neighbourhood.” The following section highlights some of the transcribed interview excerpts. For clarity of the key points made are in bold italics.

Age-friendly environment

‘Wanting a more functional, accessible and desirable environment’

Interviewees mentioned their mobility issues and problems regarding their previous home and neighbourhood environment, such as lack of provision of a level main entrance, steep slopes and steps to be negotiated, also not having a level entry shower. Mobility is commonly related to an individual’s body function and structure, while the contemporary views recognise the important role of environment in creating disability (Layton, 2012). Older adults have specific needs, and features of the physical environment have particular importance for the life of the elderly, as the influence of environment on behaviour increases, as a result of a decrease of individual’s ability. When one’s competence to cope with the environment declines, the environment, not the individual, becomes the one who controls the activity, and the focus of the activity changes from wishes to abilities (Rubinstein & Parmelee, 1992). At this stage, an individual may choose to change their surroundings rather than wanting to live with those constraints. If the design of an older adult’s home and neighbourhood support their daily activities and needs it would more likely help them keep their independence and autonomy and as a result, enhance their place attachment.

> *“Well, we had a traditional large house that our family were brought up in, and it was a **steep slope.”***(Participant A)
>
> *“My husband had **mobility issues**. We were in a four bedroom 1896 villa with a large garden overlooking the harbour, but there were **steps up to the house,** so we knew we have to move.”* (Participant E)

‘Less/ easier maintenance- A desire for smaller properties’

The two themes were equally important to participants since almost the same number of participants mentioned these themes. Participants remarked that the cost of maintenance and house upkeep was too high and that downsizing was important for them, as a way to reduce the burden of maintenance. They also explained that

downsizing would allow them to have more free time to spend with family and friends. A study by Oswald et al. (2010) also discussed the importance of having a smaller house as a way of reducing maintenance and establish place attachment.

> *"I had my garden which I had to **put effort** in to keep it tidy… Our previous house was not big for us, but it was the **maintenance**… I think we made the right decision, and we should have made it much sooner..."* (Participant C)

> *"….**loads of garden** and we got to a stage that you know we said we could not **keep this house up** and it is a sixty-year-old house and **maintenance** and this sort of thing."* (Participant A)

Connection to community, friends, and family

'A desire to be closer to family and friends and enjoying other's company'

> *"So we started looking at all the retirement villages, we did not look at a lot because we wanted to **stay in Wellington, our children live nearby**…So we decided that this is the location we want to be in and we have got some **friends** who have lived next door..."* (Participant A)

Supportive neighbourhood

'Health issues/ provision of services (Hospital) to assist people to age in place.'

Participants also mentioned having care facilities on site as one of their main reasons for the move. This is in line with previous studies which reported having care facilities and rest homes on site as one of the key reasons for older adults to move to these villages (Bernard, Liddle, Bartlam, Scharf, & Sim, 2012; Crisp et al., 2013; Yavari, 2019). However, some participants were disappointed that there is no guarantee for them to receive health service inside the village since it is based on availability.

> *"… when we knew my husband was going to have an operation, we came past this place, and I knew there is a **hospital facility,** and I saw it as a possibility of rehabilitation care if my husband could not make the steps after his operation…"*(Participant E)

> *"I came with the idea that if one of us get Alzheimer's, there would be Alzheimer's care facility, but there are **no guarantees** for space…"* (Participant B)

'Closer to the retail area and access to public transport'

As the time may come when participants can no longer use their car or chose not to, it was important for them to have shops, services and facilities in close proximity.

> *"We pinpointed this as a convenient place because there is a **good bus service,** and it is not far from the town and a walk to the beach."* (Participant D)

Overall, the literature highlighted the desire for older adults to age in place in their family home (Davey, 2006; Wiles et al., 2012; Yavari, 2019). A study by J. Davey (2006), however, believed that the decision to stay depends on an older adult's ability to renovate, update, and maintain their house. Participants in this study also highlighted the need for an age-friendly environment as their main reason for their move to the retirement village since they were looking for a house that was more accessible and useable in term of their growing mobility issues. They described their homes in the village as being more accessible and easier to maintain compared to their previous houses. Furthermore, participants also mentioned a lack of choice when it comes to housing in the wider community that would answer their needs if they became disabled. Consequently, they chose a retirement village as it met their criteria. Overall, these findings agrees with a previous studies by Davey et al. (2004) and Weeks, Keefe, and Macdonald (2012), as they found that both in New Zealand and on the international scene housing that is designed and targeted for disabled older people is different from that designed for the general population. Therefore, when the standard housing design is not useable for an older adult, it can become a 'push' factor away from home for those experiencing some health and mobility issue.

4.1.2 Effect of physical predictors on place attachment

This section presents the effect of the physical predictors discussed in section 2.2.4 of this research.

Neighbourhood scale

4.1.2.1 Building Density and Community size

Home in the Western culture usually implies a single family house or an apartment building (Lewicka, 2010). However, apartment blocks are a more accepted form of housing in Eastern Europe and in Asian cities like Hong Kong, where multi-family high rise housing is the predominant form of housing (Forrest, La Grange, & Ngai-Ming, 2002). Since this study has been carried out in a retirement village in central Wellington and the type of housing would be classified as low to medium density development, this study needs to distinguish place attachment between single-family houses and apartments.

The objective was to find the relationship between building density, considered both in term of population density and of dwelling density, and the relative intensity of place attachment. According to the findings (Figure 4.2), 19 of the 22 older adults felt attached to lower density family housing compared to medium density apartment buildings. A possible explanation is that New Zealand has one of the lowest population densities, and as a result, New Zealanders prefer detached housing with private backyards. According to the 2013 census, more than 80% of dwellings in New Zealand are detached houses, and three out of four are one storey. This spatial clustering might be the reason that people prefer low-density housing. Other reasons as pointed out by Kasarda & Janowitz (1974) could be that low to medium rise developments and clustering of small numbers of units can facilitate relationship building and contribute to a sense of community and security as people know each other better, supported by design that enables opportunities for interaction.

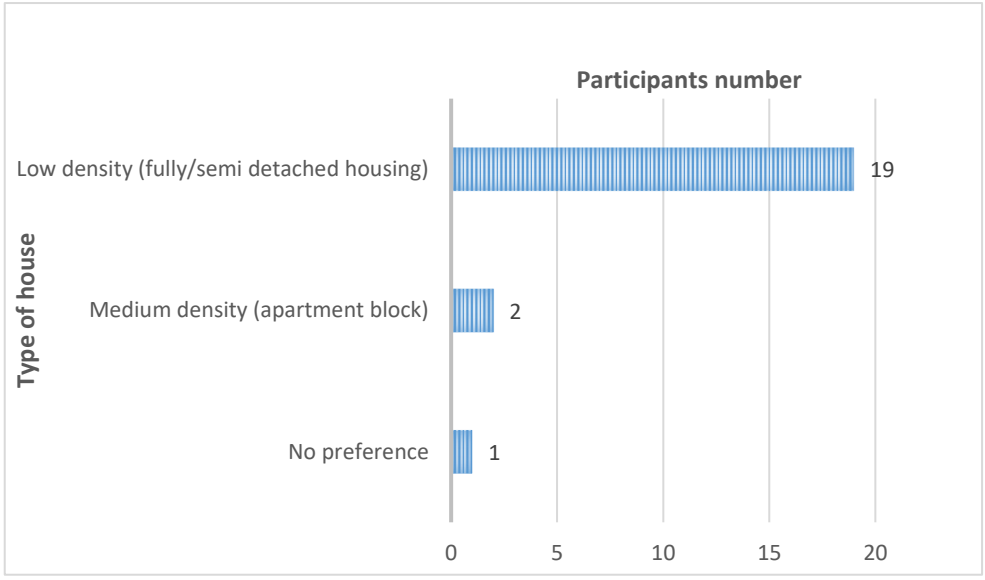


Figure 4. 2 Preferred Type of housing

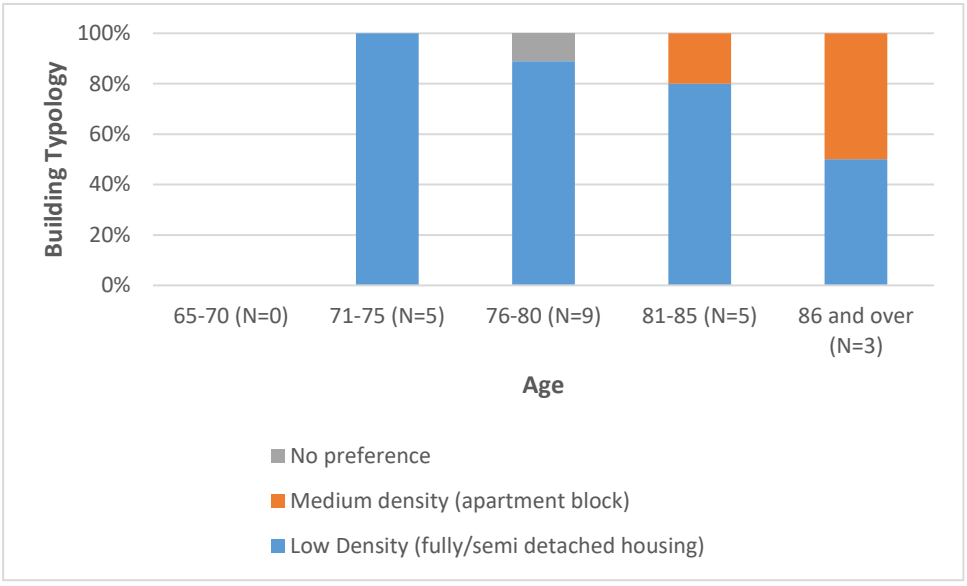


Figure 4. 3 Correlation between age and type of housing

When looking at age and the type of housing older adults might choose (Figure 4.3), it seems the majority of participants who currently live in villas within the retirement village indicated that they might consider moving to an apartment block at a later stage in their life. They stated that their choice to move is age-dependent and related to the change in their circumstances, reduced ability and as a result, increased effect of environment.

*"That is a difficult question **because it depends on your age**… we did not want to go to an **apartment that was a step too far** so we wanted a villa …this one had a back yard and two toilets and three bedrooms, and we could fit our furniture here and it sort of sold itself."* (Participant B)

*"I think the decision is **aged dependent.** We came in at the age where we can accommodate in a villa, but five years down the track, we may not prefer this and might think of considering other options. Because here you have to go out on a rainy day to get to community centre were as over there you are **more accessible to people and activities**, but the other reason is financial reasons because you don't have a capital gain(and you lose the 29 per cent of the original money too) it would be hard to buy a new build apartment because of the financial gap and when you go, there will be a new contract."* (Participant A)

*"We **loved living in the family** home at the **time** when it seemed right, but know we are in a different phase, this seems to be more sensible, and we are still easing our way into it…"*(Participant J)

Also, people who already reside in an apartment block mentioned safety, accessibility and maintenance as their main reasons for moving to an apartment block. They also mentioned their decision to move as being the most sensible at the time considering their circumstances.

*"This is the first time we lived in an apartment, and I think **I prefer apartment now. I would not have said that 20 years ago** because we are old and more **protected** here."* (Participant C)

*"I think when you are younger, it is lovely to have your little property and do what you want to, but when you come to our age, it is quite nice to **be looked after** and not worry about maintenance."* (Participant D)

*"We have been **unwell**; I find our apartment to be **very small**… it is not always your heart, and it is your head that is making **sensible decisions.**"* (Participant H)

***"**I think I am in a **stage were apartment block suits me better** because on a bad weather day I do not have to go out to go to the activities…"* (Participant M)

Contrary to the finding of Kearney (2006) where he found no significant effect between building density and neighbourhood satisfaction, this research found a positive relationship between building density and an individuals' level of place attachment. Considering that all participants came from low-density housing in the form of individual

family houses, they were asked 'How willing or unwilling would you be to move based on your current neighbourhood (low to medium density) compared to your previous home and neighbourhood? *(*1 very willing-3 neutral- 5 very unwilling*)*'. As can be seen from Table 4.1, almost two-thirds of older adults felt positively connected to their house and neighbourhood compared to their previous place of residence and were unwilling to leave. However, six participants, two in villas and four in apartments, indicated that they were neutral about where they lived.

Table 4. 1 Place attachment/building density

	Likert scale	Frequency	Per cent
Valid	1 (very willing)	0	0.0
	2 (fairly willing)	0	0.0
	3 (neutral)	6	25.0
	4 (unwilling)	15	62.5
	5 (Very unwilling)	1	4.2
	Total	22	91.7
Total		22	100.0

4.1.2.1.1 Community size

Overall as illustrated in Figure 4.4, there is a strong relationship between the size of the community and its effect on residents' level of place attachment. The histogram does not show a normal distribution and represents a high standard deviation with extremely high and extremely low values. The result reflected different viewpoints when participants were asked about the size of their communities and how this would affect their willingness to move, as nearly 75% of the participants (N=16) were unwilling to move. This was mentioned even though the community at the time of this study was around 180 people, and it was developing and growing. This implies that increased population density does not necessarily have a strong effect on a participant's sense of attachment to place. Alternatively, it simply indicates that factors other than community size may play a more important role in people's decision to move.

Although social interactions and connections have been established as important for older people, this study found no clear support for this. When older adults were asked about the size of their communities and how close they feel, the result demonstrated two different views (Figure 4.5). Out of 22 participants, 12 felt neutral or not very close to their communities, while 10 felt very close or close.

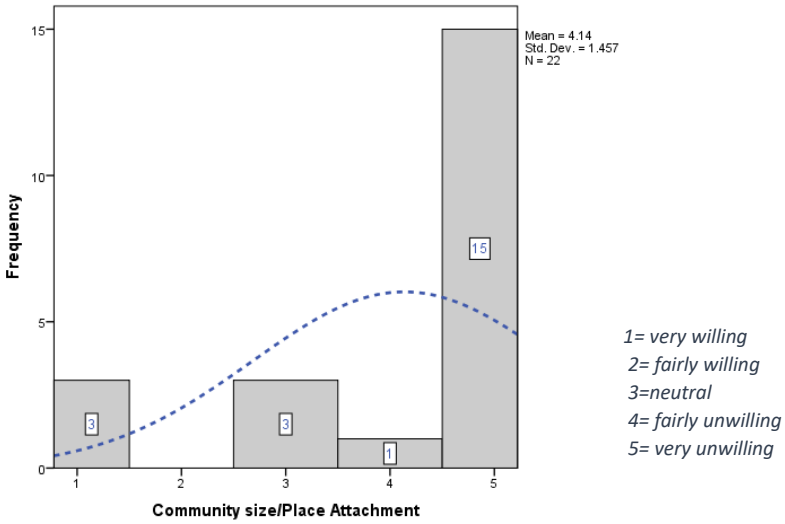


Figure 4. 4 Shows participants feeling and how willing or unwilling they are to leave the community

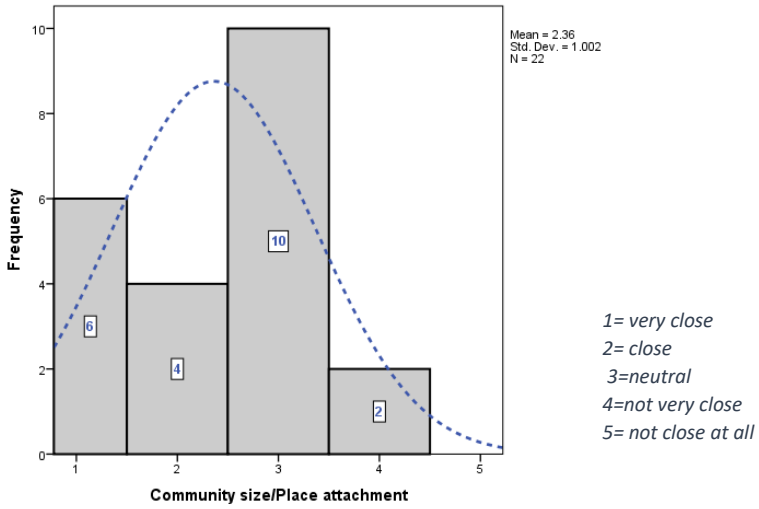


Figure 4. 5 Shows participant feeling regarding how close they feel to their community

For this set of interviewees, place attachment was not necessarily defined by interacting or connecting with the people in their neighbourhoods, even when they know these neighbours. Comments from participants suggested that older adults who are still active

in work are less willing to take part in community activities and less affected by community size.

> *"…this is just the right size" I would say neutral. It is partly because* ***we do not rely on the community for all our social contacts****, we like our neighbours immensely, and we spend time with them…"* (Participant E)
>
> *"…I am not a joiner, and I am not a sort of community person anyway I do not feel obliged to go down there and join book clubs or etc… I may later on, but* ***at the moment, I have plenty to do*** *and plenty of contacts, so* ***I do not feel the reliance on the community here****."* (Participant F)

This could show a departure from established knowledge that older people seek connections within their neighbourhoods. The results tie well with the previous study by Sugihara and Evans (2000), who noted that people usually develop a close, supportive relationship with just a few individuals rather than an entire community. Comments from participants suggest that older adults may choose to associate with others depending on the social level.

> *"…there is* ***two classes of people*** *working class and the others, and I associate with what I call the working class the others I say hello to I might have a conversation with them but that is as far as it goes because their way of life is entirely different to mine there is not much conversation between me and somebody else because* ***I don't have anything in common with them****, the size of community doesn't really matter to me. The next step I go is feet's first out of here."* (Participant F)

Moreover, some of the sources of support and connection lie outside the boundaries of the immediate community. Nevertheless, some older adults felt a close connection to the community. They also mentioned segregation between the people who live in independent villas and those in apartment blocks; this might be due to the layout of buildings as a result of the site topography. The village is built on a sloping site which results in villas being located on top of the slope and apartments and other communal facilities at the other end. Participants also mentioned that they did not want the community to get bigger, but that this would not affect their decision to stay.

> *"****I know more neighbours here*** *than I did living more than 20 years at my last home, I know that I can walk literally across there and knock on x door or go down further and knock... it is the people in the apartment that I do not see very often, and it is a new block coming up, and it would get bigger. I would prefer it*

not to get bigger than it currently is now. When we moved here we did not think of asking what further development would be here, it just did not occur to us, so it would not be the size of the community that would make me move it would be other factors." (Participant H)

4.1.2.2 Green areas

The results presents a wide range of opinions regarding the value of green space on individuals attachment. The histogram (Figure 4.6) shows a high standard deviation, which represents extremely high and extremely low values, thus reflecting the different views of participants on having green space and its potential effect on the level of place attachment. Around 50% of participants felt a strong link between having a private or shared garden and their willingness to stay in the community, while less than 20% did not perceive the green area as an important factor on their level of place attachment. The result suggests that amongst older people at least, a generous outdoor private or shared green space that is adaptable for a range of uses will be an important and appealing feature when they consider relocating to a smaller dwelling: *"I **don't think I would have come here if I didn't have this green space**. I was quite happy where I was you know."*

Interviewees mentioned that although they appreciate the open green space between the U-shaped apartment buildings, they thought it is not often used (see Figure 3.5). The main reasons given for this were its layout and lack of covered space and the fact that residents in the apartments overlook it.

*"We as a **nation are not gregarious**, so we **do not like to be overlooked** that is why the space between the blocks is not used"* (Participant D)

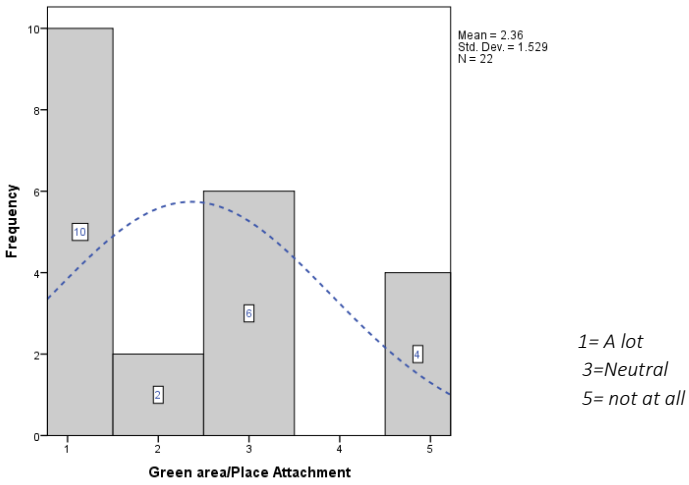


Figure 4. 6 Shows participants' feeling about green space and their willingness to stay

The majority of participants in both types of housing (villas and apartments) preferred shared communal green spaces to private outdoor space. Participants mentioned their concern regarding practical issues like cost and ease of maintenance, which was negatively correlated with having a private garden, *"we like having **gardens that are cared for**, we had a **big garden** ourselves, and we know what **a lot of work** they are."* Nonetheless, gardening is a popular pastime in New Zealand, and some interviewees favoured having private garden space. They seemed to appreciate it simply as an opportunity to personalise the space, and experience and appreciate nature. *"It is quite nice to have your **own space** where you can put your ornaments and plants, the **choice** of flowers you want…"* Participants also mentioned having a garden that faced the sun as important.

4.1.2.3 Privacy and security

The histogram (Figure 4.7) reveals that around 40% of older adults felt neutral about having fences around the community and its effect on their level of place attachment, while 32% felt a strong link between feeling of security and their desire to stay or not to stay in the community as a measure of their place attachment. This is in line with other studies, which they recognised safety as one of the key predictors for attachment (Brown et al., 2003; Lewicka, 2010). In this study, participants described how there was a sense of safety and security living at the village, due to the separate nature of the

community, a high level of trust amongst residents, and additional security features. Previous research has reported that some older adults move to retirement villages for safety and security (Bekhet et al., 2009; Bernard, Bartlam, Sim, & Biggs, 2007), and this was mentioned by a few participants. Although New Zealand is considered as a safe country according to the Global Peace Index (Institute for Economics and Peace, 2017), one interviewee mentioned 'safety' as being an important factor for their move to the retirement village and commented that "*my feeling of being secure here is that I can leave the door open*". Interviewees also pointed out the psychological significance of having fences around the neighbourhood and that they are not necessarily built for security but rather for the sense of being secure and being screened for privacy. They also pointed out that they would prefer soft materials like bushes and trees rather than hard, solid fences.

> *"Imagine if I was here in my own and I would appreciate having the gates shut at night.* ***It is more of a feeling of security****. I have not thought of the fences to be a security thing; it is just defining the piece of land."* (Participant H)

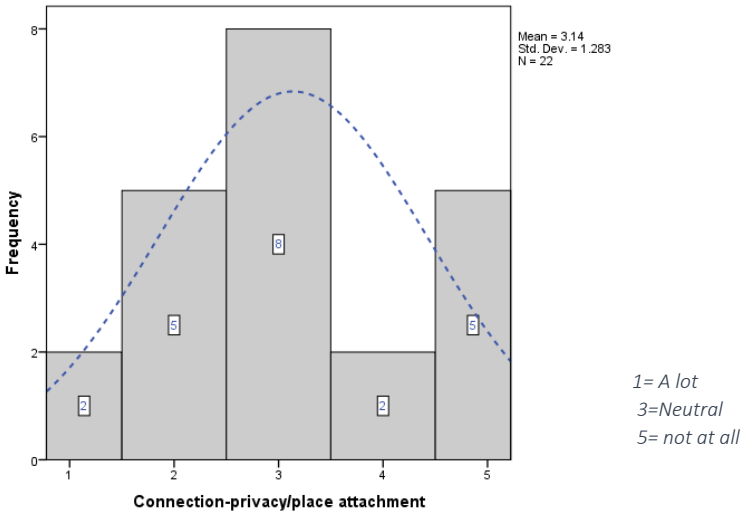


Figure 4. 7 Shows participants' feeling about fences and their willingness to stay

Within this retirement village, the level of security might be conceptualised as the 'Kiwi style' of security that has been observed in New Zealand gated communities (Dixon, Dupuis, & Lysnar, 2004). The village design communicates the private nature of the community while providing few physical barriers to its entry (Dixon et al., 2004). For example, the walls were low enough to be easily climbed, and the gate and the main

pedestrian path were open at all times during the day. Fence heights that are neither too high nor too low can positively enhance attachment since these may provide semi-private threshold spaces that still allow for visual and social connection with neighbours.

There is some disagreement in the literature as to whether gated communities achieve lower crime rates than their surrounding neighbourhoods (Addington & Rennison, 2015; Breetzke & Cohn, 2013; Breetzke, Landman, & Cohn, 2014). The results from this study reveal the majority of residents frequently perceive themselves to be safer, and this is consistent with findings in previous studies by Sakip, Johari, and Salleh (2013) and Wilson-Doenges (2000).

> *"…, it is nice that we are enclosed and they have a security man who comes in the middle of the night,* ***at least it gives one a feeling of safety****."* (Participant L)
>
> *"… although people can climb over it just* ***being there gives me a feeling of security****."* (Participant N)

Furthermore, the literature related to the fear of crime suggests that disempowered demographic groups experience higher levels of fear in relation to their own safety. Women have been reported to experience higher levels of fear in comparison to males (Pain, 2001; Roman & Chalfin, 2008). This may explain the slightly higher desire of female residents in this study for having fences around the community and a gate at the entry and the potential effect of this on their level of place attachment (Figure 4.8).

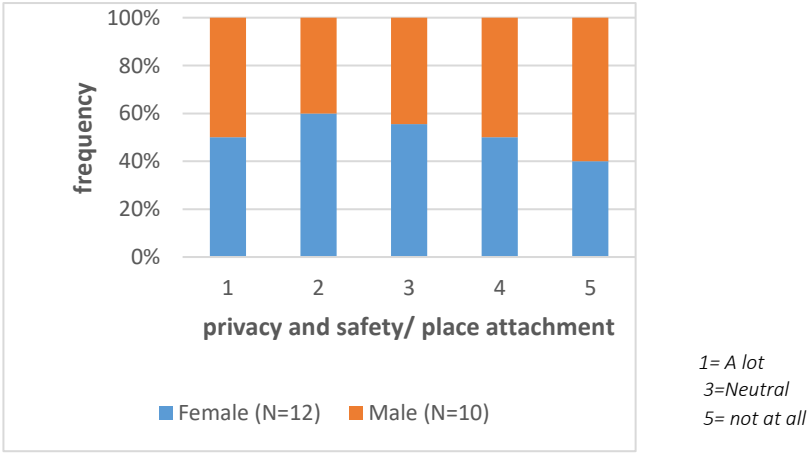


Figure 4. 8 Relation between gender and the effect of security and privacy on older adult's willingness to stay

4.1.2.4 Building Typology

The histogram in Figure 4.9 reveals a high standard deviation, which means having extremely high and extremely low values, reflecting the different views regarding having a different typology of housing and its potential effect on level of place attachment.

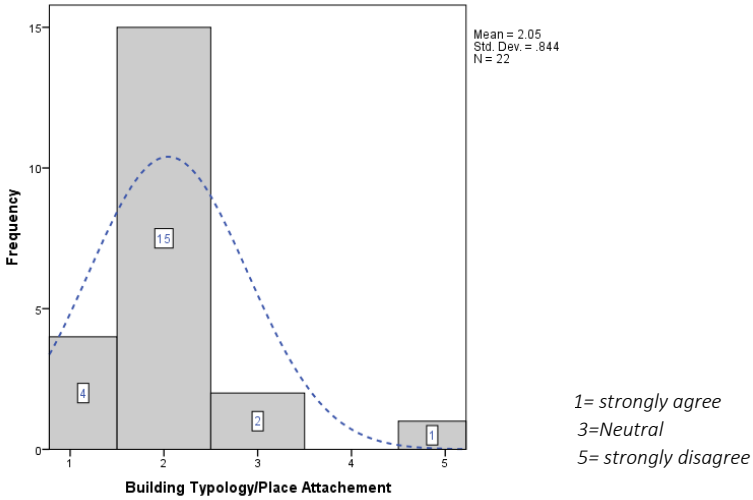


Figure 4. 9 Shows participants' feelings about building typology and their willingness to stay

However, the mean value is 2.05, which means that most participants were generally attached to their place and did not want to leave the retirement community. As pointed out by (Ricci, 2018) dull repetitive building bore people and induce stress, this lack of individuality and using a standard unit design may also result less attachment. Therefore it is important to take people's aesthetic inclination into account for such development. The study site generally has a good diversity of housing both in term of interior and exterior design. Although low-density villas and medium density apartments have similarities in term of material, roof shape, cladding and generally façade design, they are each individually unique in design. However, one participant commented on the newly built apartment as being uninteresting and plain in design.

> *"I think the different **shapes of the villas are good** they are sort of the same but not identical but the **apartment buildings are I think pretty dull**."*
> (Participant H)

Alternatively, what is also clear from participants' comments is that factors other than building typology, such as the functionality of the place may play a more important role in people's decisions to move.

> *"Well, it does not concern me really; everyone is different for me.* ***When you are older, you are not really concerned about the aesthetics of a building*** *as long as it* ***meets your need*** *and it really is quite attractive that they do not exactly look the same. You know they have differences, and they have done a pretty good job there."*(Participant L)

Home Scale

4.1.2.5 Planning Layout

The general internal layout of all villas and apartments is an open or semi-open plan. Participants were asked their opinion about the arrangement of the floor plan and if they were satisfied with this type of layout. Having an interior layout that could respond to diversity of needs older adults may develop over time can increase sense of attachment to place. The result presented on histogram shows a low standard deviation and a normal distribution that is skewed to the left, which generally means that participants were satisfied with the floor plan (Figure 4.10). Participants stated they preferred an open layout compared to a traditional cellular plan, but they only wanted the dining, kitchen and living area to be open. Most participants favoured some sort of privacy, such as having a kitchen island as a visual barrier as their main issues were around a messy workspace and dirty dishes that they wanted to conceal. They felt that an open floor plan would make space feel larger and allow for freedom of movement, especially for people with limited abilities, and at the same time, facilitate communication between people. The issue of circulation was also highlighted by other studies (Baldwin et al., 2012). In this study, participants also mentioned that they would prefer a higher ceiling as another way of increasing the feeling of spaciousness.

> ***"*** *All my life I had a kitchen which was shut off from the dining room so when we had guests which we had quite a lot of I was always in the kitchen, and* ***I was not included in the conversation,*** *but here I can be in the kitchen and still be part of everything. However,* ***I would not like our bedrooms or study rooms,*** *not to have a wall.* (Participant B)

*I **did not like my kitchen to be too open, so having an island** separating the kitchen from the dining room is good. So I have some sort of privacy."* (Participant F)

*"We have **always had doors so you could close the** door on whatever you are doing or on a mess or whatever is on progress. So that for me is quite important, and **I would not like to work in an open plan environment**. I think this is an open plan, but there is a **division between the kitchen and living area** and you do not have to cook in public."* (Participant E)

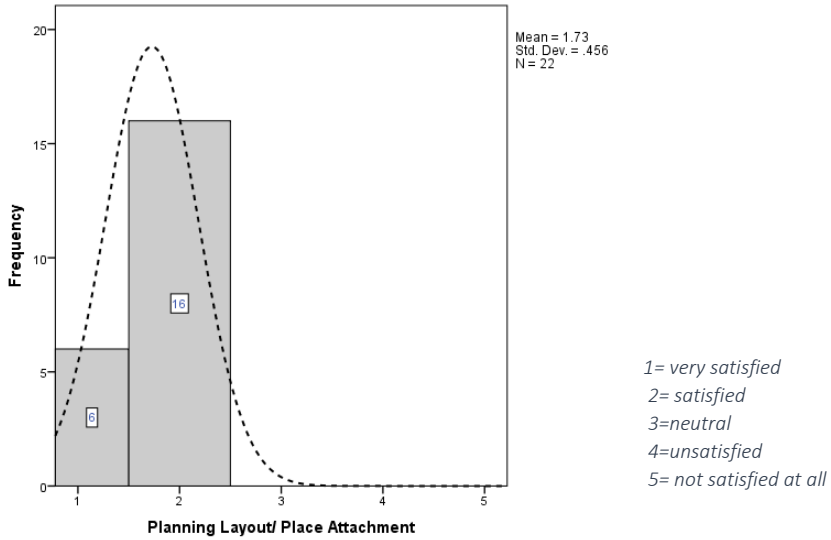


Figure 4. 10 Shows level of satisfaction of older adults regarding their planning layout

Participants mentioned that the minimum dwelling size for a couple should be two double bedrooms plus a study or office space. The reasons put forward for this are that some older couples require separate bedrooms due to preferences or sleep disturbances as they age, such as apnoea or snoring. Consequently, having two bedrooms can accommodate couples who prefer to sleep separately or as space for a guest or temporary carer. This corroborates the finding of Saville-Smith et al. (2009) who asked older New Zealanders what they would want if they had to downsize and found that older adults need at least two bedrooms for them to have family or friends to stay. Participants also discussed how they had made the space adaptable for their purposes, such as using their double garage as a place to sit and observe the street and passers-by, as a workshop space, or by turning their garage into an extra bedroom.

4.1.2.6 Building arrangement: outlook and daylight

Overall, there is a significant relation between building arrangement, its orientation toward the sun, and level of place attachment. The histogram (Figure 4.11) is skewed right, which means that the majority of people believed that their building footprint enhanced their place attachment. More than 80 % of the older adults interviewed were either satisfied or very satisfied with their building arrangement. Place satisfaction has been used to measure place attachment since satisfaction is conceptualized as either an antecedent or outcome of place attachment (Ramkissoon, Smith and Weiler 2013; Zenker and Rutter 2014). Other studies also support the satisfaction-place attachment link. For example, a study by Zenker and Rutter (2014) show that residents' satisfaction with a city is significant predictor of their attachment.

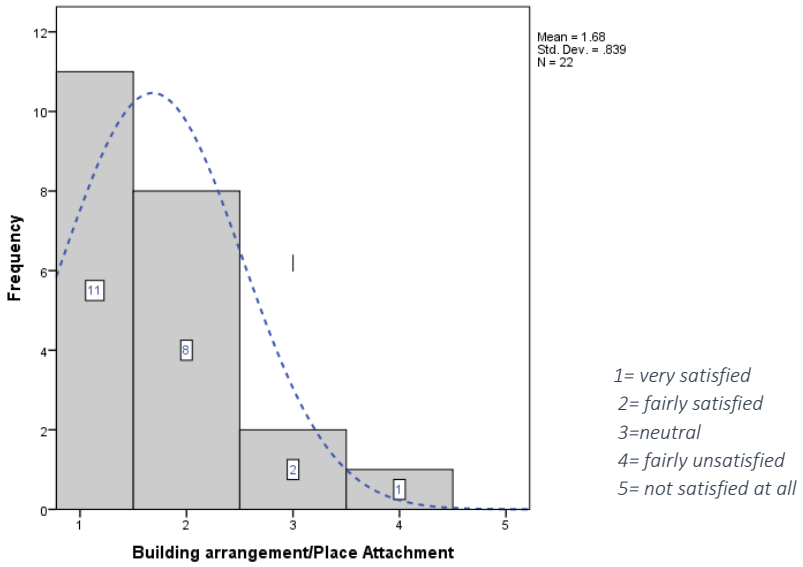


Figure 4. 11 Shows how satisfied participants were with their building arrangement

In the study site, the majority of villas are east-west facing while apartments are north-south-facing. Some participants in villas remarked that although they had sun all day for some spaces, because of the depth of the house, they needed to have the lights on most days.

> *"Although it is **very sunny**, we do find that **we need the light** in here if it is an overcast, dull day. It is because of the **depth of the room**. I would rather have this, than having an apartment facing south where I could get sun for a few hours in the middle of summer…"* (Participant H)

Some people preferred to have north facing apartments, and the others were happy with the south facing one. Participants referred to the sunny days and although they acknowledged the balconies on the north side have rooftop as a shading devise, the balconies are too hot to be used in hot sunny days and that they also need to have their curtains drawn or blinds down to control the sunlight.

> *"I did look at an apartment on the* ***north side*** *… and* ***I have never seen anybody sit on their balcony*** *when it is sunny,* ***it's very hot****, this is what they tell me, and they say they wish they had one on this side, a few people who would like to be on that side and whoever lives on this side think we are on the best side."* (Participant k)

> *"The direction and the amount of light was an important factor, and it will always be for me my* ***living room is toward the sun*** *on the* ***north side****, so* ***I had to put blinds up*** *because the* ***sun was just too much****. I do not use the balcony in the morning, but you can have a beautiful evening meal on it, you know. I prefer the balconies to be on the north instead of the south because I know some people live with that configuration, and they do not get the sun at all."*(Participant T)

Residents on the south side of the apartment blocks mentioned their garden space would not get any sun at all during winter due to the height of the apartment blocks.

> *"This is a bigger question than you realise because on this side of the building (south side) we get* ***no direct sun*** *into the house which I am fine with. However, because of the* ***height of the building*** *in winter my* ***garden gets no sun at all****,* ***it is freezing****, just a wet blank concrete, in summer it is a paradise from sunrise to sunset****. I did not want to have sun direct at my house fading all my books****. I would like the* ***garden to be sunnier,*** *but* ***I do not want it in my house****."*(Participant S)

4.2 Photovoice

Even though different senior communities may have different and unique features, the current study aimed to find the common features that support place attachment in a retirement village. Content analysis of the photos and thematic analysis of the photo journals was conducted, and data triangulation of the transcripts and photographs were carried out to reach an overall synthesis. The importance of each design feature was determined by the number of times it was mentioned by participants. Design features were then categorised into different themes. Emerging themes were then grouped into five dimensions of place attachment established by Raymond et al. (2010) (see section 2.2.2). Table 4.2 shows an example of how the thematic and content analysis has been done. Table 4.3 summarises the findings, and the design features mentioned by participants categorised by five dimensions of place attachment. Each of the dimensions of place attachment is then discussed separately.

Table 4. 2 Example of how the thematic and content analysis has been done

Design feature	Supporting Quotes from the Photo Journals and coding	Themes	Place attachment Dimensions
Balcony  ***Number of times repeated by participants = 8***	*Voice of the participant represented by selected text related to each photo* The balcony offers good **extra space**[1] as well as fresh air. My wife's photo of the balcony shows the **planters**[2] which have been added recently. We can see past Block -- on both sides, and the **view**[3] to the East is particularly good as we can see … from the Eastern end. We welcome the freedom to **dry clothes**[4] in the fresh air.	**3- View of Nature** **2- Interaction with nature**	*Nature Bonding*
		2 & 4- Personalization	*Place Identity*
		4- Autonomy	*Place Dependence*
Open plan layout of living area and Storage space  ***Number of times repeated by participants = 7***	This is a **light and airy space** which allows **easy access to the balcony**[1]. It feels like home and it has accommodated 10-12 people. My wife has **mobility issue** and the open layout of living room and wide corridors **allow easy access**[2]**.** I didn't have to go and get another piece of furniture, **we have managed to fit most our furniture from previous house** [3] The passage to the 2 bedrooms has **good, versatile and accessible storage**[4] down the right hand side and they are a much-needed asset. This is perhaps what you need at this age , not a storage in the basement	**1&2- Barrier-free environment** **4- Age-friendly-design** **3- Space for transition**	*Place Dependence*
		3- Personalisation	*Place Identity*

Table 4. 3 Summary of findings, design features categorised under different themes and place attachment dimensions

Poles	Place attachment dimension	Theme	Design Features	Scale
Personal	**Place dependence** *Evaluation of the function of a space, how physical place meet the need of users (1)*	Barrier-free environment	Open plan layout of living area Wide corridors/passages	H N
		Age-friendly-design	Bathroom Kitchen Wide corridors/passages Large windows Open plan layout of living area	H H N H H
		Space for transition	Village library Village swimming pool Accessible big closet and Storage space Size of the master bedroom.	N N H H
		Autonomy	Balcony/ deck Level entry building Village Swimming poll Bathroom kitchen Accessible big closet and storage space Garden space between blocks	H N N H H H N
		Privacy/security	Main gate	N
	Place Identity *Feelings of control, Meaning, and uniqueness of the place. place defines who they are as an individual(2)*	Personalisation	Balcony/deck Built-in shelves and display area Spare room/study, guest Individual gardens in villas Size of master bedroom. Open plan layout of living area	H H H H H H
Environmental	**Nature bonding** *Connection and association with the natural environment (5)*	View of nature Natural light	Communal lounge and other useful enlargements of the circulation layout Balcony/ deck Large windows	N H H
		Interaction with nature	Balcony/ deck Garden space between blocks Individual villa gardens	H N H
Community	**Friend bonding** *Connection to places reliant on friendship or membership(3)*	Spontaneous / unplanned interaction Social engagement	Communal lounge and useful enlargements of the circulation layout Village library Village swimming pool Garden space between blocks Common house dining room	N N N N H

			kitchen	
	Family bonding *Connection to places reliant on the family connection that may relate to family history and interests, belonging, concerns (4)*	Continuation of family past Family history	On-site visitor parking Spare room/study, guest Built-in shelves and display area	N H H

N=Neighbourhood scale **H**= House scale

(1) Altman & Low, 1992; Anton & Lawrence, 2014, 2016; Boschetti, 1995; Brown & Raymond, 2007; Raymond et al., 2011; Raymond et al., 2010; Canter., 1977
(2) Altman & Low, 1992; Anton & Lawrence, 2014, 2016; Boschetti, 1995; Breakwell, 1993; Brown & Raymond, 2007; Manzo & Devine-Wright, 2014; Raymond et al., 2011; Raymond et al., 2010; Canter., 1977
(3) Altman & Low, 1992; Raymond et al., 2011; Raymond et al., 2010
(4) Altman & Low, 1992; Raymond et al., 2011; Raymond et al., 2010
(5) Altman & Low, 1992; Manzo & Devine-Wright, 2014; Raymond et al., 2011; Raymond et al., 2010

4.2.1 Place dependence

The most associated dimension of place attachment was place dependence both at the neighbourhood and home scale. Different themes emerged from design features referred to by participants, these being a barrier-free environment, age-friendly design, space for transition, autonomy, and privacy/security. Design features related to the themes identified as age-friendly design and autonomy were referred to the most by participants. The theme age-friendly design referred to participants' opinions and perceptions regarding the arrangement of the floor plan, and the design of the bathroom and kitchen at the home scale, and at neighbourhood scale wide corridors and passages. The accessibility given by these design features was important to most participants. Although the majority of participants were unaware of the term *universal design*, they spoke of design features that are associated with universal design principles[4]. Universally designed homes are lifetime homes which enable people to live

[4] The term universal design, lifemark standard, lifespan design mainly refer to concept of "designing for all" (Nussbaumer, 2012). The aim is to achieve a universal dwelling that will satisfy a person's needs throughout their life (Office for senior Citizens, 2013)

safely and independently in their own home for their whole life (Office for senior Citizens, 2013). Design principles include features such as 'safe and easy access into and around the home, an easy use bathroom and kitchen layout' (Office for Senior Citizens, 2013:25). According to Oswald et al. (2007), accessible housing is related to well-being and greater independence in activities of daily life. The building and homes in purposely build retirement communities are generally designed to meet these standards.

Autonomy also emerged as a theme as older adults were searching for independence and personal control. Research shows that older adults' engagement in their daily activities and maintaining autonomy benefits their health (Bronstein et al., 2011; Oswald et al., 2010). At the neighbourhood scale, design features related to autonomy were identified as the garden space between blocks, the level entry of buildings, and swimming pool, and at the home level these were the balcony and deck, having an accessible and well set-up bathroom and kitchen area, and the storage space. Participants mentioned a variety of reasons why they appreciate these features. Design features such as the layout of the kitchen and bathroom areas and the village swimming pool helped older adults achieve an increased feeling of independence. If an environment can be easily adapted and controlled to meet an individual's current and future needs, it can increase the feeling of independence (Danziger & Chaudhury, 2009). Other features such as the balcony and deck provided an approach to outdoor drying solutions for residents in a manner that was both accessible for participants and at the same time did not detract from the aesthetic values of the complex.

Another important theme that emerged within the dimension of place dependence was space for the transition from their previous place of residence to the current retirement community. Design features that helped with the transition were categorized under this theme. A participant mentioned the size of the master bedroom and that they managed to fit most of the furniture from the previous house into it, and that this has assisted them with downsizing and transitioning from a larger house. They also mentioned the larger, accessible closets and storage space that allowed them to store their possessions from a previous home.

4.2.2 Nature bonding

The second most frequently mentioned dimension of place attachment was the connection and association with nature or nature bonding. The most frequently mentioned design features in this category were the balcony and deck, individual and shared garden space, large windows, the communal lounge and other useful enlargements of the circulation layout.

Large windows were much appreciated by almost all participants both in communal spaces such as communal lounge and in an individual's home as these facilitated views of nature and gave natural light. Windows both in homes and communal spaces were as large as possible. All homes had at least one window that extended to the full height of the wall, while the rest started above furniture height, allowing the freedom to move and adjust furniture within the space. Participants also mentioned design features related to interaction with nature. They talked about balconies and decks as being sufficient in size such that they could be used as an outdoor room and extension of the indoor space for entertainment and relaxation. They also provided enough space for them to have planters. Participants in both villas and apartments were generally happy with the shared green spaces in their neighbourhood. One frequently mentioned reason for this was the reduced maintenance. However, some participants, especially those living in villas, preferred to have their own small, manageable separate garden space. Participants mentioned they enjoyed taking care of plants and having the choice of what to plant, and they generally looked on the private garden as a hobby.

Although participants generally appreciated the shared space, the majority of participants thought the space between the apartment blocks was not used much as it did not have shade and was overlooked by people in the apartments.

4.2.3 Friend bonding

The third most referred to dimension of place attachment was friend bonding. Hillcoat-Nallétamby and Ogg (2014) and Wiles et al. (2012) made reference to the social component of the living environment and the desire to shape attachment to people as

an important factor when older adults contemplate a move in later life. However, while the results of this study supports this notion, this is not necessarily the most important factor in older adults feeling of attachment to place. Two different themes emerged under this heading, these being spontaneous/unplanned interaction and social engagement. Design features that were mentioned the most by participants were the village library, the swimming pool, the common house dining room, the garden space between blocks and the open plan kitchens in individual homes.

The village library, swimming pool, and common house dining room provided a convenient place for members to meet one another and engage in conversation. For some people, it was part of their daily routine to have lunch with other members of the community.

4.2.4 Place identity

Under the dimension of place identity, the design features that were discussed most often by participants were those that reflected their ability to personalize their space. When they talked about downsizing and moving from their previous house, one thing they mentioned was their ability to keep their possessions. Participants pointed to having an adequate display area and built-in shelves as valuable features for them to display their family photos. Studies by Sugihara and Evans (2000) and Lewicka (2010) showed that memories or experiences that are linked with certain possession may lead to attachment to those possessions. Individuals may also view these possessions as a form of self-identity or as a reminder of a position or role they had earlier in their life (Shenk, Kuwahara, & Zablotsky, 2004). Participants also appreciated the size of their open plan living space and master bedroom as this gave them the ability to fit in their furniture from their previous house.

Having a spare room as a study or guest room was referred by participants as a place they could personalise and that allowed them to have family and friends stay. Some participants in villas had turned their garage into a third bedroom since they thought it is more useful to have an extra room. Another design feature related to personalisation that was frequently mentioned was the balcony and deck area and individual villa gardens as spaces where residents were allowed to plant flowers and

continue gardening. Some participants transferred plants they had, and others appreciated having freedom of choice over what to grow in their space.

4.2.5 Family bonding

Family bonding refers to a connection to places that may be related to family history, interest, belonging and concern. Two design features were mentioned by participants that could enhance older adult's attachment to place on the basis of continuation of their family's past and their family history. Older adults mentioned having an extra bedroom and on-site visitor parking as features that allowed them to have family and friends stay and this had helped them with the transition since they could keep their connections with people. Another design feature that was associated with family bonding through the continuation of family history was the built-in shelves and display areas.

4.3 Summary of the research findings

To present the summary of the findings for this study in a comprehensive manner, they will be discussed in their order corresponding to that of the previous section, starting with the semi-structured interviews and moving on to the photovoice. The findings revealed that the participants aged 65 + were generally very attached to their home and neighbourhood but that there are differences between them in this regard. The results from this study confirm and validate the definition of ageing in place in the literature review (see section 1.3) where ageing in place has been defined as growing old in a location chosen to enhance the lives and activities of the occupant.

The results from the first phase of this research, the one-hour semi-structure interviews show the significance of two groups of physical predictors for attachment to a place. The elements of a physical setting that formed the predictors for this research were: Building Density and Community Size, Building Arrangement: outlook and daylight, Green Area, Building Typology, Privacy and Security and Planning Layout. Among the architectural design features, planning layout of internal space, building arrangement and orientation on site, green areas and privacy and security have a more significant effect on the sense of attachment to place. However, compared with other predictors, community size

related to building density and building typology, have little relation with place attachment. It is important to note that the predictors studied in this research are not exhaustive as there are many predictors to place attachment.

The second phase of this research was dedicated to the photovoice method, a visual technique and a tool with which to collect visual data based on the participant's perspective. The preferences of participants were identified through their photos and words. The themes and design features that supported place attachment based on the five dimensions of place attachment by Raymond et al. (2010) were more focused on place dependence or the functionality of the place. Other dominant features were related to nature bonding, followed by friend bonding. The least dominant factor was family bonding. By far, the features that were most photographed by participants were those related to the age-friendly design of the home and neighbourhood environment and to autonomy.

Participants gave a high priority to age-friendly design and autonomy and in general, to design features that were related to place dependence or the functionality of the space. This could suggest and reflect an unfulfilled market demand for housing that meets the needs of older individuals in New Zealand. Comparing the result from the first interview question: *Can you tell me the main reason you choose this village and why you have decided to move?* with the photovoice outcomes, indicates that the major push factor away from a previous home and pull factor towards a retirement village for the majority of participants was related to the latter being an age-friendly environment and to the desire for a more functional, accessible, and desirable environment. This is in line with research by Yavari (2019) who found that the issue with contemporary apartments and housing in New Zealand is that they are not designed to account for the future and current needs of older adults. Retirement villages appear to be the only appropriate housing formats in these terms. Similarly, a study by Pereira et al. (2019) found that in urban settings, the design features that were focused on place dependence and nature bonding were also those that were mentioned most frequently by their respondents.

Perhaps themes such as a barrier-free environment could indicate that it is easier to become attached to places that satisfy basic human needs. This could also be due to the effect of age since almost 75% of the participants were aged 76 and over. It seems that

due to decline in an individuals' abilities the influence of environment on behaviour increases, and as Rubinstein and Parmelee (1992) state, the feature of the activity changes from what a person wishes to do to what they can do.

Chapter 5: Conclusion

This chapter discusses the answer to the research question and draws a conclusion based on the mixed methods research approach, which is outlined in chapter 3. Research limitations and opportunities for future research are also discussed.

5.1 A new definition and solution for ageing in place

As the ageing population grows, there has been an increase in the number of people relocating to retirement villages that offer independent living, which is supplemented by support facilities and services. The purpose of this study was to investigate the physical design features of an individual's home and neighbourhood, within the context of a senior retirement village, and how these could assist older adults with place attachment. Concepts related to successful ageing in place, and the benefits that are associated with this, were discussed in section 1.3. There were two important driving forces behind this research, the problem with current housing in New Zealand, and the current ongoing rise in the number of older New Zealanders.

This research highlighted the unsuitability of current housing in New Zealand for ageing in place and looked at retirement villages as an alternative form of housing that could facilitate ageing in place. This research further argued that place and space are important variables for how older adults feel about ageing in a retirement village. Therefore an investigation into physical features effect on the enhancement of place attachment and hence facilitating ageing in place appeared important.

5.2 Answer to the research question

> *What are the design features in planned retirement villages that can enhance the satisfaction of residents, the sense of place they feel and their attachment to it?*

To answer this question, the study was carried out in two phases. Phase one, which deployed a series of semi-structured interview with current residents, was used to measure the participants' level of place attachment relative to physical predictors gleaned from the literature at two scales, home and neighbourhood. In phase two, a photovoice method was used to help understand participants' perceptions of the influence of physical features (identified by participants) on the enhancement of place attachment. Other issues raised were around participants' reasons for choosing a retirement village in the first place and their decision to move.

The research reveals that most of the participants generally had a similar pattern of positive feeling and attachment toward their place of residence and believed that retirement villages could offer older adults a newly developed and optimal alternative for housing as they age. From the results, it would appear that if older adults move to places because they find the space more functional and age-friendly, they are more open to forming an attachment to that place. Results from both phases of research suggest that at home scale features such as the open/semi-open layout of internal space and at neighbourhood scale shared/private green space, were among the features that enhanced the level of place attachment for older adults living in a retirement community.

The outcome of phase one shows that, among the seven predictors that were selected to test and measure place attachment, participants felt more attached to the internal and external layout of buildings and shared or public green spaces. They also referred to design features such as fences and gates around their community as a way to provide security and privacy, especially for females living alone.

Regarding the internal layout of buildings, participants referred to the open or semi-open layout of their plan and have at least two bedrooms as important factors. Participants also referred to the external layout of the building, its orientation toward the sun and the amount of daylight as important factors for their sense of attachment to place. Participant also mentioned their main reasons to move to a retirement village as factors related to "age-friendly environment", "connection to community, friends & family" and "supportive housing & neighbourhood."

What was clear from results from the second phase of this study, and which aligns with other studies (section 2.2.2), was that design features related to place dependence or functionality of space and nature bonding and friend bonding were more prevalent among five dimensions of place attachment. Design features that were mentioned most frequently by participants were related to autonomy and age-friendly design of participant's home and neighbourhoods such as a bathroom, kitchen, wide corridors, open plan layout of living area, accessible big closet and storage space and balcony and deck.

In conclusion, in New Zealand context, accountability of built environments professional who are involved with building a house for the ageing population to design and develop an age-friendly house would help enhance a sense of place attachment and help meet the housing needs of the ageing population. Providing an environment where older adults can develop attachment may aid more successful ageing in place and well-being for older adults.

5.3 Research challenges and limitation

With all research, there are limitations, and these often open up new avenues for future studies. One of the significant challenges in this research was recruiting participants as this became time-consuming. There were also concerns over how to deal with couples as it was important to capture an individual's experiences and perceptions. Couple interviews, in this case, could have led to fragmented and partial data. Interviews may become a situation in which one partner dominates the conversation, and thereby silences the other (Zarhin, 2018). Ultimately, the researcher had to deal with this issue, since the recruitment of a spouse for some couples was important for them to feel comfortable participating. Care has been given to including the views of both partners in the analysis.

In association with the photovoice method, most participants were able to take photos of architectural features they thought facilitated place attachment in their home and neighbourhood. However, there were some recognised challenges in this technique both for participants and the researcher. Although significant though was given to the

language used to communicate with interviewees, and despite having conducted a pilot study there were still problems around interpretation with participants, for example, terms such as typology of housing.

The challenges for the latter included the level of guidance to give to participants. It is important that the researcher does not define or influence the themes that might emerge. In order to do that and to help participants who were confused, a series of open-ended questions were developed to fuel their imagination (Wang & Redwood-Jones, 2001). Photovoice can also produce a significant amount of data, and analysis of this could be complicated. To limit the amount of data, participants were asked to take 16 pictures. The participants were then asked to choose the four to six most important shots and complete a "photo journal." The researcher also indicated that she could fill in the photo journal during a second interview if the participant were unable to do this.

Furthermore, limits concerning a participant's ability to take photos were identified as a lack of confidence in taking picture and concern on what might be regarded as an appropriate photo. Participants were told that only the items in the photo matter and not the quality of the photos. As outlined by Lorenz and Kolb (2009), the strength of visual research method is that participants only need to focus on the content, not the photographic quality. While most participants were confident taking photos and using their cameras, two participants asked if they could be accompanied by someone to take the photographs. This could become time-consuming and costly if such a study were to be carried out with a much larger sample. There were also ethical concerns regarding taking photos of individuals. This was emphasised both on the task sheet and verbally that it was important for participants to obtain verbal consent if someone was in the photo, or ideally to try not to capture people. For photos in this research that have included people, the faces have been blurred in those occurring in any published document, including this thesis.

Although in this research confounding variables were taken into account, such as the demographic information of participants, these were not found to have had a statistically significant effect on the final result due to the small size of the sample in research. Therefore a larger group of participants or additional groups in different

retirement villages could help in making a more robust conclusion of the effect of design features on place attachment.

5.4 Further research

At the empirical level, this research has contributed both qualitatively and quantitatively to the body of knowledge regarding the influence of the physical aspects of people's housing on place attachment, in the context of Wellington. The completion of similar studies could help achieve an overall assessment of the physical environmental features that enhance place attachment in retirement communities in New Zealand. A replica of this study may be conducted in other retirement villages in New Zealand or with another type of elderly housing, such as elderly co-housing to find out if there is a common appreciation of certain architectural features that support place attachment for older adults. Also, as pointed out by Lewicka (2011), we know about who are attached to place and how much they are attached but relatively little about the processes through which people become attached to a place. Therefore a suggested direction for future research is to answer this question:

> *Which architectural form characteristics can help to promote a sense of attachment, and how does this come about?*

Further, retirement villages are often representative of a narrow racial/ ethnic group with relatively high socioeconomic status. Therefore, a cross-cultural study of attachment in different communities and across several socio-demographic and ethnic groups may result in different findings.

Bibliography

Addington, L. A., & Rennison, C. M. (2015). Keeping the barbarians outside the gate? Comparing burglary victimisation in gated and non-gated communities. *Justice Quarterly, 32*(1), 168-192.

Al-Homoud, M., & Tassinary, L. G. (2004). Social interactions at the neighbourhood-level as a function of external space enclosure. *Journal of Architectural and Planning Research*, 10-23.

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. *Quality Progress, 40*(7), 64-65.

Anton, C. E., & Lawrence, C. (2014). Home is where the heart is: The effect of place of residence on place attachment and community participation. *Journal of Environmental Psychology, 40*, 451-461.

Arnberger, A., & Eder, R. (2012). The influence of green space on community attachment of urban and suburban residents. *Urban Forestry & Urban Greening, 11*(1), 41-49.

Baker, T. A., & Wang, C. C. (2006). Photovoice: Use of a participatory action research method to explore the chronic pain experience in older adults. *Qualitative Health Research, 16*(10), 1405-1413.

Baldwin, C., Osborne, C., & Smith, P. (2012). Infill development for older Australians in South East Queensland: An analysis of the preferences of older Australians in an urban environment. *University of the Sunshine Coast: Brisbane, Australia*.

Ball, M. M., Perkins, M. M., Whittington, F. J., Connell, B. R., Hollingsworth, C., King, S. V., ... & Combs, B. L. (2004). Managing decline in assisted living: The key to ageing in place. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *59*(4), S202-S212.

Barbour, R. (2014). *Introducing qualitative research: a student's guide* (2nd ed) London, Sage.

Bäumker, T., Callaghan, L., Darton, R., Holder, J., Netten, A., & Towers, A.-M. (2012). Deciding to move into extra care housing: residents' views. *Ageing & Society, 32*(7), 1215-1245.

Beckley, T. M. (2003). The relative importance of sociocultural and ecological factors in attachment to place. *United States Department of Agriculture Forest Service General Technical Report PNW*, 105-126.

Bekhet, A. K., Zauszniewski, J. A., & Nakhla, W. E. (2009). Reasons for Relocation to Retirement Communities: A Qualitative Study. *Western Journal of Nursing Research, 31*(4), 462-479.

Bernard, H. R. (2017). *Research methods in anthropology: Qualitative and quantitative approaches*. United Kingdom: Rowman & Littlefield.

Bernard, M., Bartlam, B., Sim, J., & Biggs, S. (2007). Housing and care for older people: life in an English purpose-built retirement village. *Ageing & Society, 27*(4), 555-578.

Bernard, M., Liddle, J., Bartlam, B., Scharf, T., & Sim, J. (2012). Then and now: evolving community in the context of a retirement village. *Ageing & Society, 32*(1), 103-129.

Bigonnesse, C. (2017). *The Role of the Socio-Physical Environment on Aging in Place for Older Adults in Cohousing and Naturally Occurring Retirement Communities* (Doctoral dissertation, Arts & Social Sciences: Department of Gerontology).

Blair, T., & Minkler, M. (2009). Participatory action research with older adults: Key principles in practice. *The Gerontologist, 49*(5), 651-662.

Blumenstock, C. (2006). Baby boomers are reinventing long-term care. *NURSING HOMES-WASHINGTON THEN CLEVELAND-, 55*(11), 22.

Boldy, D., Grenade, L., Lewin, G., Karol, E., & Burton, E. (2013). Ageing in place in rural areas of Western Australia: actions, choices and preferences. *Journal of Rural and Community Development, 8*(1), 117-124.

Bonaiuto, M., Aiello, A., Perugini, M., Bonnes, M., & Ercolani, A. P. (1999). Multidimensional perception of residential environment quality and neighbourhood attachment in the urban environment. *Journal of Environmental Psychology, 19*(4), 331-352.

Bonaiuto, M., Fornara, F., & Bonnes, M. (2003). Indexes of perceived residential environment quality and neighbourhood attachment in urban environments: a confirmation study on the city of Rome. *Landscape and Urban Planning, 65*(1-2), 41-52.

Boschetti, M. A. (1995). Attachment to personal possessions: An interpretive study of the older person's experience. *Journal of Interior Design, 21*(1), 1-12.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Breakwell, G. (1993). Social representations and social identity. *Papers on social representations, 2*, 198-217.

Breetzke, G. D., & Cohn, E. G. (2013). Burglary in gated communities: An empirical analysis using routine activities theory. *International Criminal Justice Review, 23*(1), 56-74.

Breetzke, G. D., Landman, K., & Cohn, E. G. (2014). Is it safer behind the gates? Crime and gated communities in South Africa. *Journal of Housing and the Built Environment, 29*(1), 123-139.

Brehm, J. M., Eisenhauer, B. W., & Krannich, R. S. (2006). Community attachments as predictors of local environmental concern: The case for multiple dimensions of attachment. *American Behavioural Scientist, 50*(2), 142-165.

Brick, Y. (2011). Ageing in place in Israel. *Global Ageing*, 7(2), 5-16.

Bronstein, L., Gellis, Z. D., & Kenaley, B. L. (2011). A neighbourhood naturally occurring retirement community: Views from providers and residents. *Journal of Applied Gerontology, 30*(1), 104-112.

Brown, B., Perkins, D. D., & Brown, G. (2003). Place attachment in a revitalising neighbourhood: Individual and block levels of analysis. *Journal of Environmental Psychology, 23*(3), 259-271.

Brown, B. B., & Perkins, D. D. (1992). Disruptions in Place Attachment. In I. Altman & S. M. Low (Eds.), *Place Attachment* (pp. 279-304). Boston, MA: Springer US.

Brown, G., & Raymond, C. (2007). The relationship between place attachment and landscape values: Toward mapping place attachment. *Applied Geography, 27*(2), 89-111.

Buckland, S. (2009). Not the retiring sort: The New Zealand boomer dreams study 2009. *Executive MBA programme report, Massey University, Auckland, NZ*.

Buffel, T., De Donder, L., Phillipson, C., De Witte, N., Dury, S., & Verté, D. (2014). Place attachment among older adults living in four communities in Flanders, Belgium. *Housing Studies, 29*(6), 800-822.

Buffel, T., Verté, D., De Donder, L., De Witte, N., Dury, S., Vanwing, T., & Bolsenbroek, A. (2012). Theorising the relationship between older people and their immediate social living environment. *International Journal of Lifelong Education, 31*(1), 13-32.

Burley, D. (2007). Are the social and physical really so different?: Elements in the development of an attachment to place. In *Paper presented at the Annual Meeting of the American Sociological Association*.

Burns, V. F., Lavoie, J.-P., & Rose, D. (2012). Revisiting the role of neighbourhood change in social exclusion and inclusion of older people. *Journal of Aging Research, 2012*.

Butler, R. (2001). From where I write: the place of positionality in qualitative writing. *Qualitative Methodologies for Geographers*, 264-276.

Canter, D. V. (1974). *Psychology for architects*. London: Applied Science.

Casakin, H., & Reizer, A. (2017). Place attachment, residential satisfaction, and life satisfaction: Traditional and renewed kibbutz. *Journal of Human Behavior in the Social Environment, 27*(7), 639-655.

Castleden, H., & Garvin, T. (2008). Modifying Photovoice for community-based participatory Indigenous research. *Social Science & Medicine, 66*(6), 1393-1405.

Chapin, R., & Dobbs-Kepper, D. (2001). Ageing in Place in Assisted LivingPhilosophy Versus Policy. *The Gerontologist, 41*(1), 43-50.

Clayton, S. (2007). Domesticated nature: Motivations for gardening and perceptions of environmental impact. *Journal of Environmental Psychology, 27*(3), 215-224.

Comstock, N., Dickinson, L. M., Marshall, J. A., Soobader, M.-J., Turbin, M. S., Buchenau, M., & Litt, J. S. (2010). Neighbourhood attachment and its correlates: Exploring neighbourhood conditions, collective efficacy, and gardening. *Journal of Environmental Psychology, 30*(4), 435-442.

Coombes, E., Jones, A. P., & Hillsdon, M. (2010). The relationship of physical activity and overweight to objectively measured green space accessibility and use. *Social Science & Medicine, 70*(6), 816-822.

Costa-Font, J., Elvira, D., & Mascarilla-Miró, O. (2009). Ageing in place'? Exploring elderly people's housing preferences in Spain. *Urban Studies, 46*(2), 295-316.

Cresswell, T. (2014). *Place: an introduction*: John Wiley & Sons.

Creswell, J. W., & Clark, V. L. P. (2014). *Designing and conducting mixed methods research*: Thousand Oaks: Sage Publications.

Crisp, D. A., Windsor, T. D., Butterworth, P., & Anstey, K. J. (2013). What are older adults seeking? Factors encouraging or discouraging retirement village living. *Australasian Journal on Ageing, 32*(3), 163-170.

Curryer, C. (2016, November). Ageing-in-place and the risks associated with housing in later life. In *Refereed Proceedings of TASA 2016 Conference* (p. 39).

Dalziel, L. (2001). *The New Zealand positive ageing strategy: Towards a society for all ages*: Ministry of Social Policy.

Danziger, S., & Chaudhury, H. (2009). Older adults' use of adaptable design features in housing units: An exploratory study. *Journal of Housing for the Elderly, 23*(3), 134-148.

Davey, J. (2006). " Ageing in place": the views of older homeowners On maintenance, renovation and adaptation. *Social Policy Journal of New Zealand, 27*, 128.

Davey, J. A., de Joux, V., Nana, G., & Arcus, M. (2004). *Accommodation options for older people in Aotearoa/New Zealand*. Christchurch: Centre for Housing Research.

Davies, K., Kingston, A., Robinson, L., Hughes, J., Hunt, J. M., Barker, S. A., . . . Kirkwood, T. B. (2014). Improving retention of very old participants in longitudinal research: experiences from the Newcastle 85+ study. *PLoS One, 9*(10), e108370.

Denzin, N. K. (2017). *The research act: A theoretical introduction to sociological methods*: Routledge.

Devine-Wright, P., & Howes, Y. (2010). Disruption to place attachment and the protection of restorative environments: A wind energy case study. *Journal of Environmental Psychology, 30*(3), 271-280.

Dibartolo, M., & McCrone, S. (2003). Recruitment of rural community-dwelling older adults: barriers, challenges, and strategies. *Aging & Mental Health, 7*(2), 75-82.

Dixon, J., Dupuis, A., & Lysnar, P. (2004). Gated communities: Urban innovation or fortification. *Planning Quarterly, 152*, 9-12.

Do, E., & Nations, S. (2002). World population ageing: 1950-2050. In: UN.

Droogleever Fortuijn, J. (2010). The challenges of ageing: towards an inclusive perspective.

Droseltis, O., & Vignoles, V. L. (2010). Towards an integrative model of place identification: Dimensionality and predictors of intrapersonal-level place preferences. *Journal of Environmental Psychology, 30*(1), 23-34.

Durrett, C. 2009. *A senior cohousing handbook: A community approach to independent living*, 2nd ed., British Columbia, Canada: New Society Publishers.

Elwood, S. A., & Martin, D. G. (2000). "Placing" interviews: location and scales of power in qualitative research. *The professional geographer, 52*(4), 649-657.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4.

Falk, H., Wijk, H., Persson, L. O., & Falk, K. (2013). A sense of home in residential care. *Scandinavian Journal of Caring Sciences, 27*(4), 999-1009.

Figueiro, M. G. (2008). A proposed 24 h lighting scheme for older adults. *Lighting Research & Technology*, *40*(2), 153-160.

Fornara, F., Bonaiuto, M., & Bonnes, M. (2010). Cross-validation of abbreviated perceived residential environment quality (PREQ) and neighbourhood attachment (NA) indicators. *Environment and behaviour, 42*(2), 171-196.

Forrest, R., La Grange, A., & Ngai-Ming, Y. (2002). Neighbourhood in a high rise, high-density city: some observations on contemporary Hong Kong. *The Sociological Review, 50*(2), 215-240.

Fried, M. (1982). Residential attachment: Sources of residential and community satisfaction. *Journal of Social Issues, 38*(3), 107-119.

Fried, M. (2000). Continuities and discontinuities of place. *Journal of Environmental Psychology, 20*(3), 193-205.

Gifford, R. (2007a). The consequences of living in high-rise buildings. *Architectural science review, 50*(1), 2-17.

Gifford, R. (2007). *Environmental psychology: Principles and practice* (p. 372). Colville, WA: Optimal books.

Gilleard, C and Higgs, P. 2005. *Contexts of ageing: Class, cohort and community*, Cambridge: Polity Press.

Gillis, A. (1977). High-Rise Housing and Psychological Strain. *Journal of Health and Social Behaviour, 18*(4), 418-431. Retrieved 2 May 2019, from http://www.jstor.org/stable/2955349

Giuliani, M. V. (2003). *Theory of attachment and place attachment*. In M. Bonnes, T. Lee & 233 M. Bonaiuto (Eds.), *Psychological theories for environmental issues* (pp137-170). Burlington, UK: Ashgate Publishing Company.

Graham, V., & Tuffin, K. (2004). Retirement villages: Companionship, privacy and security. *Australasian Journal on Ageing, 23*(4), 184-188.

Grant, B. C. 2006. Retirement villages: an alternative form of housing on an ageing landscape. Social Policy Journal of New Zealand, 27, March, 100–13.

Greenbrook, S. R. (2005). *The changing role of retirement villages in New Zealand's ageing society* (Doctoral dissertation, University of Auckland)

Greenfield, E. A. (2012). Using ecological frameworks to advance a field of research, practice, and policy on ageing-in-place initiatives. *The Gerontologist, 52*(1), 1-12.

Grimmer, K., Kay, D., Foot, J., & Pastakia, K. (2015). Consumer views about ageing-in-place. *Clinical interventions in ageing, 10*, 1803.

Gustafson, P. *(*2006*).* Place attachment and mobility*. In* N. McIntyre*,* D. Williams *and* K. McHugh *eds, Multiple dwelling and tourism. Negotiating place, home and identity (*Pp. *17–31*). Wallingford: CABI.

Guzman, J. M., Pawliczko, A., Beales, S., Till, C., & Voelcker, I. (2012). Ageing in the twenty-first century: A celebration and a challenge. New York, NY: United Nations Population Fund.

Haarhoff, E., Beattie, L., Dixon, J., Dupuis, A., Lysnar, P., & Murphy, L. (2012). *Future intensive: Insights for Auckland's housing*. Auckland: Transforming Cities/The University of Auckland. Retrieved October 30, 2018, from

http://media.auckland.ac.nz/nicai/about/our-faculty/schools-programmes-and-centres/transforming-cities/future-intensive-report.pdf

Hagestad, G. O., & Uhlenberg, P. (2005). The social separation of old and young: A root of ageism. *Journal of Social Issues, 61*(2), 343-360.

Harlan, S., Larsen, L., Hackett, E., Wolf, S., Bolin, B., Hope, D., . . . Rex, T. (2005). Neighbourhood attachment in urban environments. In *Paper presented at the Annual Sociological Association*, Philadelphia.

Harper, D. (2002). Talking about pictures: A case for photo elicitation. *Visual studies, 17*(1), 13-26.

Hashem, H., Abbas, Y. S., Akbar, H. A., & Nazgol, B. (2013). Comparison the concepts of sense of place and attachment to place in Architectural Studies. *Malaysia Journal of Society and Space, 9*(1), 107-117.

Hayward, C. R. (2012). *A home away from home? The transitions of older people within two New Zealand retirement villages*, Sociology, The University of Canterbury.

He, W., Goodkind, D., & Kowal, P. R. (2016). *An ageing world: 2015*: United States Census Bureau Washington, DC.

Hidalgo, M. C., & Hernandez, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology, 21*(3), 273-281.

Hillcoat-Nallétamby, S., & Ogg, J. (2014). Moving beyond 'ageing in place': older people's dislikes about their home and neighbourhood environments as a motive for wishing to move. *Ageing & Society, 34*(10), 1771-1796.

Howden-Chapman, P., Crane, J., Matheson, A., Viggers, H., Cunningham, M., Blakely, T., . . . Saville-Smith, K. (2005). Retrofitting houses with insulation to reduce health inequalities: aims and methods of a clustered, randomised community-based trial. *Social Science & Medicine, 61*(12), 2600-2610.

Howe, A. L., Jones, A. E., & Tilse, C. (2013). What is in a name? Similarities and differences in international terms and meanings for older peoples' housing with services. *Ageing & Society, 33*(4), 547-578.

Hur, M., Nasar, J. L., & Chun, B. (2010). Neighbourhood satisfaction, physical and perceived naturalness and openness. *Journal of Environmental Psychology, 30*(1), 52-59.

Institute for Economics and Peace (2017). Global Peace Index, 2017. Retrieved 1 May 2019, from https://reliefweb.int/report/world/global-peace-index-2017

Jackson, J. (2016) *How Our Retirement Village Sector Stacks Up ...* (n.d.). Retrieved 2 February 2019 from https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11572124

James, B. and Saville-Smith, K. (2011). *Retirement Villages Act 2003 Monitoring Project Residents' Perspectives*. Prepared for the Retirement Commissioner. New Zealand: Public Policy & Research Ltd and Centre for Research Evaluation Social Assessment (CRESA)

Jamieson, S. (2004). Likert scales: how to (ab) use them. *Medical education, 38*(12), 1217-1218.

JLL Research and Consulting (2017), New Zealand Retirement Village Database (November 2016). Retrieved 20 August 2018 from http://www.jll.nz/new-zealand/en-gb/Research/jll-nz-retirement-village-whitepaper-2017.pdf

Jonsen, K., & Jehn, K. A. (2009). Using triangulation to validate themes in qualitative studies. *Qualitative Research in Organizations and Management: An International Journal, 4*(2), 123-150.

Jorgensen, A., Hitchmough, J., & Dunnett, N. (2007). Woodland as a setting for housing-appreciation and fear and the contribution to residential satisfaction and place identity in Warrington New Town, UK. *Landscape and Urban Planning, 79*(3-4), 273-287.

Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology, 21*(3), 233-248.

Kamalipour, H., Yeganeh, A. J., & Alalhesabi, M. (2012). Predictors of place attachment in urban residential environments: A residential complex case study. *Procedia-Social and Behavioral Sciences, 35*, 459-467.

Kaplan, S. (1984). Affect and cognition in the context of home: The quest for intangibles. *Population and Environment, 7*(2), 126-133.

Kasarda, J. D., & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review*, 328-339.

Kearney, A. R. (2006). Residential development patterns and neighbourhood satisfaction: Impacts of density and nearby nature. *Environment and Behaviour, 38*(1), 112-139.

Khajehzadeh, I., & Vale, B. (2017). How house size impacts type, combination and size of rooms: a floor plan study of New Zealand houses. *Architectural Engineering and Design Management, 13*(4), 291-307.

Kim, K.-i., Gollamudi, S. S., & Steinhubl, S. (2017). Digital technology to enable ageing in place. *Experimental Gerontology, 88*, 25-31.

Kleit, R. G., & Manzo, L. C. (2006). To move or not to move: Relationships to place and relocation choices in HOPE VI. *Housing Policy Debate, 17*(2), 271-308.

Koopman-Boyden, P. (2011). Older New Zealanders. In *Te Ara Encyclopedia of New Zealand* (pp. 1-5). Retrieved 2 June 2019 from http://www.teara.govt.nz/en/older-people

Krannich, R. S., & Greider, T. (1984). Personal well-being in rapid growth and stable communities: Multiple indicators and contrasting results. *Rural Sociology, 49*(4), 541.

Lavrakas, P. J. (Ed.). (2008). *Encyclopedia of survey research methods* (Vol. 2). Thousand Oaks, CA: SAGE.

Lawton, M. P. (1977). An ecological theory of ageing applied to elderly housing. *Journal of Architectural Education, 31*(1), 8-10.

Lawton, M. P., & Nahemow, L. (1973). Ecology and the ageing process. In Eisdorfer, C. & Lawton, M. P., The psychology of adult development and ageing (pp. 619–674). Washington, DC: American Psychological Association.

Layton, N. (2012). Barriers and facilitators to community mobility for assistive technology users. *Rehabilitation research and practice, 2012*, p.19

Lee, A. C., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health, 33*(2), 212-222.

Lewicka, M. (2005). Ways to make people active: The role of place attachment, cultural capital, and neighbourhood ties. *Journal of Environmental Psychology, 25*(4), 381-395.

Lewicka, M. (2010). What makes neighborhood different from home and city? Effects of place scale on place attachment. *Journal of Environmental Psychology, 30*(1), 35-51.

Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology, 31*(3), 207-230.

Lifetime Design Limited. (2012). *Lifemark Design Standards Handbook*. Auckland, New Zealand: Lifetime Design Limited.

Lies, M. M., Kang, M., & Sample, R. K. (2017). Place attachment and design features in a rural senior cohousing community. *Housing and Society, 44*(1-2), 41-63.

Lin, C.-C., & Lockwood, M. (2014a). Assessing sense of place in natural settings: a mixed-method approach. *Journal of Environmental Planning and Management, 57*(10), 1441-1464.

Lin, C.-C., & Lockwood, M. (2014b). Forms and sources of place attachment: Evidence from two protected areas. *Geoforum, 53*, 74-81.

Liu, Y., He, S., Wu, F., & Webster, C. (2010). Urban villages under China's rapid urbanization: Unregulated assets and transitional neighbourhoods. *Habitat International, 34*(2), 135-144.

Livingston, M., Bailey, N., & Kearns, A. (2010). Neighbourhood attachment in deprived areas: Evidence from the north of England. *Journal of Housing and the Built Environment, 25*(4), 409-427.

Lockett, D., Willis, A., & Edwards, N. (2005). Through seniors' eyes: an exploratory qualitative study to identify environmental barriers to and facilitators of walking. *CJNR (Canadian Journal of Nursing Research), 37*(3), 48-65.

Lorenz, L. S., & Kolb, B. (2009). Involving the public through participatory visual research methods. *Health Expectations, 12*(3), 262-274.

Low, S. M., & Altman, I. (1992). Place attachment. In *Place attachment* (pp. 1-12). Boston, Ma: Springer.

Lynch, K. (1960). *The image of the city* (Vol. 11): MIT Press.

Manzo, L. C. (2005). For better or worse: Exploring multiple dimensions of place meaning. *Journal of Environmental Psychology, 25*(1), 67-86.

Manzo, L. C., & Devine-Wright, P. (2013). Place Attachment and Phenomenology: The Synergistic Dynamism of Place. In *Place Attachment* (pp. 25-36): Routledge.

Marans, R. W., Hunt, M. E., & Vakalo, K. L. (1984). Retirement communities. In *Elderly people and the environment* (pp. 57-93). London: Springer.

Marsden, J. P. (1999). Older persons' and family members' perceptions of homeyness in assisted living. *Environment and Behaviour, 31*(1), 84-106.

Mazumdar, S., & Mazumdar, S. (2004). Religion and place attachment: A study of sacred places. *Journal of Environmental Psychology, 24*(3), 385-397.

McIntyre, A. (2003). Through the eyes of women: photovoice and participatory research as tools for reimagining place. *Gender, Place and Culture: A Journal of Feminist Geography, 10*(1), 47-66.

McKnight, M. L., Sanders, S. R., Gibbs, B. G., & Brown, R. B. (2017). Communities of place? New evidence for the role of distance and population size in community attachment. *Rural Sociology, 82*(2), 291-317.

Mesch, G. S., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment and Behaviour, 30*(4), 504-519.

Milligan, C. (2012). *There's no place like home: Place and care in an ageing society*: Ashgate Publishing, Ltd.

Mitchell, M., Force, J., Carroll, M., & McLaughlin, W. (1993). Forest places of the heart: incorporating special spaces into public management. *Journal of Forestry, 91*(4), 32-37.

Mody, L., Miller, D. K., McGloin, J. M., Freeman, M., Marcantonio, E. R., Magaziner, J., & Studenski, S. (2008). Recruitment and Retention of Older Adults in Aging Research. *Journal of the American Geriatrics Society, 56*(12), 2340-2348.

Moore, R. L., & Graefe, A. R. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences, 16*(1), 17-31.

Neuman, W. Lawrence. (2011). *Social Research Methods: Qualitative and Quantitative Approaches / W. Lawrence Neuman* (7th ed.). Boston: Allyn & Bacon.

Normie, L. (2011). Technology for ageing in place. *IFA (International Federation on Ageing) Global ageing, 7*(2), 45-53.

Nostrand, R. L., & Estaville, L. E. (2001). *Homelands: a geography of culture and place across America*: JHU Press.

Novek, S., Morris-Oswald, T., & Menec, V. (2012). Using photovoice with older adults: some methodological strengths and issues. *Ageing & Society, 32*(3), 451-470.

Nussbaumer, L. L. (2012). *Inclusive design: A universal need*: Fairchild.

Office for Senior Citizens. (2013). *Older New Zealanders: Healthy, Independent, Connected and Respected.* Wellington, NZ: Crown.

O'Hehir, J. (2014). Age-friendly cities and communities: A literature review. *Adelaide: University of South Australia*.

Oswald, F., Jopp, D., Rott, C., & Wahl, H.-W. (2010). Is ageing in place a resource for or risk to life satisfaction? *The Gerontologist, 51*(2), 238-250.

Oswald, F., Wahl, H.-W., Schilling, O., Nygren, C., Fänge, A., Sixsmith, A., . . . Iwarsson, S. (2007). Relationships between housing and healthy ageing in very old age. *The Gerontologist, 47*(1), 96-107.

Pain, H. (2012). A literature review to evaluate the choice and use of visual methods. *International Journal of Qualitative Methods, 11*(4), 303-319.

Pain, R. (2001). Gender, race, age and fear in the city. *Urban Studies, 38*(5-6), 899-913.

Parker, C., Barnes, S., McKee, K., Morgan, K., Torrington, J., & Tregenza, P. (2004). Quality of life and building design in residential and nursing homes for older people. *Ageing & Society, 24*(6), 941-962.

Patterson, M. E., & Williams, D. R. (2005). Maintaining research traditions on place: Diversity of thought and scientific progress. *Journal of Environmental Psychology, 25*(4), 361-380.

Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work, 1*(3), 261-283.

Peace, S., Holland, C., & Kellaher, L. (2011). 'Option recognition in later life: variations in ageing in place. *Ageing & Society, 31*(5), 734-757.

Pereira, G. F., Lies, M., & Kang, M. (2019). A case study of place attachment in rural and urban senior cohousing communities. *Housing and Society*, 1-20.

Phillips, J., Walford, N., & Hockey, A. (2012). How do unfamiliar environments convey meaning to older people? Urban dimensions of placelessness and attachment. *International Journal of Ageing and Later Life, 6*(2), 73-102.

Pow, C. P. (2015). Urban dystopia and epistemologies of hope. *Progress in Human Geography*, *39*(4), 464-485.

Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology, 23*(3), 273-287.

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialisation of the self. *Journal of Environmental Psychology, 3*(1), 57-83.

Ramkissoon, H., Mavondo, F., & Uysal, M. (2018). Social involvement and park citizenship as moderators for quality-of-life in a national park. *Journal of Sustainable Tourism, 26*(3), 341-361.

Ramkissoon, H., & Mavondo, F. T. (2015). The satisfaction–place attachment relationship: Potential mediators and moderators. *Journal of Business Research*, *68*(12), 2593-2602.

Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Testing the dimensionality of place attachment and its relationships with place satisfaction and pro-environmental behaviours: A structural equation modelling approach. *Tourism Management, 36*, 552-566.

Raymond, C. M., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology, 30*(4), 422-434.

Relph, E. (1976). *Place and Placelessness*. London: Pion.

Senior Resource for Aging in Place. (2005). *Ageing in place*. Retrieved 15 January 2019, from http://www.seniorresource.com/ageinpl.htm

Ricci, N. (2018). The Psychological Impact of Architectural Design. CMC Senior Theses. 1767. Retrived 4 May 2019, from https://scholarship.claremont.edu/cmc_theses/1767

Richards, J. C., & Schmidt, R. W. (2013). *Longman dictionary of language teaching and applied linguistics*: Routledge.

Roman, C. G., & Chalfin, A. (2008). Fear of walking outdoors: a multilevel ecologic analysis of crime and disorder. *American Journal of Preventive Medicine, 34*(4), 306-312.

Rossiter, J. R. (2010). *Measurement for the social sciences: The C-OAR-SE method and why it must replace psychometrics*. New York, NY: Springer Science & Business Media.

Rowles, G. D. (1990). Place attachment among small-town elderly. *Journal of Rural Community Psychology*, 11, 103-120.

Rubinstein, R. I., & Parmelee, P. A. (1992). Attachment to place and the representation of the life course by the elderly. In *Place attachment* (pp. 139-163). Boston, MA: Springer.

Sakip, S. R. M., Johari, N., & Salleh, M. N. M. (2013). Perception of safety in gated and non-gated neighbourhoods. *Procedia-Social and Behavioral Sciences, 85*, 383-391.

Saville-Smith, K., & James, B. (2010). The determinants of tenure and location choices of 20-40-year-old households in the Auckland region. *Prepared by Beacon Pathway Ltd. for the Centre for Housing Research, Aotearoa New Zealand*.

Saville-Smith, K., James, B., & Fraser, R. (2008). Older people's house performance and their repair and maintenance practices: Analysis from a 2008 National Survey of Older People and existing datasets. *Ageing in Place: Empowering Older People to Repair & Maintain Safe & Comfortable Houses in Their Communities*.

Saville-Smith, K., James, B., Warren, J., & Coleman, A. (2009). Older people's housing futures in 2050: Three scenarios for an ageing society. *Wellington: Centre for Housing Research Aotearoa New Zealand*.

Scannell, L., & Gifford, R. (2010). Defining place attachment: A tripartite organizing framework. *Journal of Environmental Psychology, 30*(1), 1-10.

Scannell, L., & Gifford, R. (2017). Place attachment enhances psychological need satisfaction. *Environment and Behaviour, 49*(4), 359-389.

Scharlach, A. E., & Lehning, A. J. (2013). Ageing-friendly communities and social inclusion in the United States of America. *Ageing & Society, 33*(1), 110-136.

Schroeder, H. W. (1991). Preference and meaning of arboretum landscapes: Combining quantitative and qualitative data. *Journal of Environmental Psychology, 11*(3), 231-248.

Seamon, D. (2013). Place attachment and phenomenology. *Place attachment: Advances in theory, methods and applications*, 12-22.

Shamai, S. (1991). Sense of place: An empirical measurement. *Geoforum, 22*(3), 347-358.

Shamsuddin, S., & Ujang, N. (2008). Making places: The role of attachment in creating the sense of place for traditional streets in Malaysia. *Habitat International, 32*(3), 399-409.

Shenk, D., Kuwahara, K., & Zablotsky, D. (2004). Older women's attachments to their home and possessions. *Journal of Aging Studies, 18*(2), 157-169.

Shumaker, S., & Taylor, R. (1983). Toward a Clarification of People-Place Relationships: A Model of Attachment to Place in NR Feimer and ES Geller (Eds). *Environmental Psychology*: *Directions and Perspectives*. In: New York: Praeger.

Smith, J. S., & Cartlidge, M. R. (2011). Place attachment among retirees in Greensburg, Kansas. *Geographical Review, 101*(4), 536-555.

Speziale, H. S., Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative*: Lippincott Williams & Wilkins.

Statistics New Zealand. (2013a). How will New Zealand's ageing population affect the property market? Retrieved 28 May 2019, from http://archive.stats.govt.nz/browse_for_stats/population/estimates_and_projections/ageing-population-property-market.aspx

Statistics New Zealand. (2015a). 2013 Census Quick stats about people aged 65 and over, Retrieved 28 May 2019, from Statistics New Zealand, from http://archive.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-65-plus.aspx

Stedman, R. C. (2002). Toward a social psychology of place: Predicting behaviour from place-based cognitions, attitude, and identity. *Environment and Behaviour, 34*(5), 561-581.

Stedman, R. C. (2003a). Is it really just a social construction?: The contribution of the physical environment to sense of place. *Society &Natural Resources, 16*(8), 671-685.

Stedman, R. C. (2003b). Sense of place and forest science: Toward a program of quantitative research. *Forest Science, 49*(6), 822-829.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*(3), 309-317.

Stevens, C. E. (2013). The Home as an Incubator for Dignity in Old Age: An Architectural Exploration for Dignified Ageing.

Sugihara, S., & Evans, G. W. (2000). Place attachment and social support at continuing care retirement communities. *Environment and Behaviour, 32*(3), 400-409.

Tanner, B., Tilse, C., & De Jonge, D. (2008). Restoring and sustaining home: The impact of home modifications on the meaning of home for older people. *Journal of Housing for the Elderly, 22*(3), 195-215.

Thornton, R. (2000). Housing in retirement-Expectations of retirement village living. *Australasian Journal on Ageing 19(1), 12-12.*

Tuan, Y.-F. (1977). *Space and place: The perspective of experience*. Minneapolis, MN: University of Minnesota Press.

Tuan, Y.-F. (1990). *Topophilia: A study of environmental perceptions, attitudes, and values* (2nd ed.). New York: Columbia University Press.

United Nations, D. o. E., & Social Affairs, P. D. (2015). World Population Ageing 2015 (ST/ESA/SER. A/390). In: United Nations, New York, NY.

Uzzell, D., Pol, E., & Badenas, D. (2002). Place identification, social cohesion, and environmental sustainability. *Environment and Behaviour, 34*(1), 26-53.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences, 15*(3), 398-405.

Valentine, G. (1997). Tell me about…: Using interviews as a research methodology. *Methods in human geography: A guide for students doing a research project*, 2, 110-127.

Vasara, P. (2015). Not ageing in place: Negotiating meanings of residency in age-related housing. *Journal of Aging Studies, 35*, 55-64.

Vaske, J. J., & Kobrin, K. C. (2001). Place attachment and environmentally responsible behaviour. *The Journal of Environmental Education, 32*(4), 16-21.

Walker, R. B., & Hiller, J. E. (2007). Places and health: A qualitative study to explore how older women living alone perceive the social and physical dimensions of their neighbourhoods. *Social Science & Medicine, 65*(6), 1154-1165.

Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behaviour, 24*(3), 369-387.

Wang, C. C., & Redwood-Jones, Y. A. (2001). Photovoice ethics: Perspectives from Flint photovoice. *Health Education & Behaviour, 28*(5), 560-572.

Weeks, L. E., Keefe, J., & Macdonald, D. J. (2012). Factors predicting relocation among older adults. *Journal of Housing for the Elderly, 26*(4), 355-371.

Wiles, J., Wild, K., Kepa, M., & Peteru, C. (2011). *Resilient ageing in place: project recommendations & report*: Faculty of Medical and Health Sciences, University of Auckland.

Wiles, J. L., Allen, R. E., Palmer, A. J., Hayman, K. J., Keeling, S., & Kerse, N. (2009). Older people and their social spaces: A study of well-being and attachment to place in Aotearoa New Zealand. *Social Science & Medicine, 68*(4), 664-671.

Wiles, J. L., Leibing, A., Guberman, N., Reeve, J., & Allen, R. E. (2012). The meaning of "ageing in place" to older people. *The Gerontologist, 52*(3), 357-366.

Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. *Leisure Sciences, 14*(1), 29-46.

Williams, D. R., & Vaske, J. J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science, 49*(6), 830-840.

Wilson-Doenges, G. (2000). An exploration of sense of community and fear of crime in gated communities. *Environment and Behaviour, 32*(5), 597-611.

Wirth, L. (1938). Urbanism as a Way of Life. *American Journal of Sociology, 44*(1), 1-24.

Wohlwill, J. F. (1970). The emerging discipline of environmental psychology. *American Psychologist, 25*(4), 303-312

Wójcik, A., Bilewicz, M., & Lewicka, M. (2010). Living on the ashes: Collective representations of Polish–Jewish history among people living in the former Warsaw Ghetto area. *Cities, 27*(4), 195-203.

Woldoff, R. A. (2002). The effects of local stressors on neighbourhood attachment. *Social Forces, 81*(1), 87-116.

Wynveen, C. J., Kyle, G. T., & Sutton, S. G. (2012). Natural area visitors' place meaning and place attachment ascribed to a marine setting. *Journal of Environmental Psychology, 32*(4), 287-296.

Yavari, F. (2019). House Conversions and Sharing for an Ageing Population in New Zealand.

Zarhin, D. (2018). Conducting joint interviews with couples: Ethical and methodological challenges. *Qualitative health research, 28*(5), 844-854.

Zavotka, S. L., & Teaford, M. H. (1997). The design of shared social spaces in assisted living residences for older adults. *Journal of Interior Design, 23*(2), 2-16.

Zenker, S., & Rütter, N. (2014). Is satisfaction the key? The role of citizen satisfaction, place attachment and place brand attitude on positive citizenship behaviour. *Cities*, *38*, 11-17.

Zhu, Y., Ding, J., Zhu, Q., Cheng, Y., Ma, Q., & Ji, X. (2017). The impact of green open space on community attachment—A case study of three communities in Beijing. *Sustainability, 9*(4), 560.

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

Phone 0-4-463 6028
Email judith.loveridge@vuw.ac.nz

MEMORANDUM

TO	Masoumeh Shiran
FROM	Dr Judith Loveridge, Convenor, Human Ethics Committee
DATE	5 November 2018
PAGES	1
SUBJECT	**Ethics Approval** **Number:** 0000026819 **Title:** The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities

Thank you for your application for ethical approval, which has now been considered by the Human Ethics Committee.

Your application has been approved from the above date and this approval is valid for three years. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Kind regards

Judith Loveridge

Convenor, Victoria University of Wellington Human Ethics Committee

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Dear Mr.

The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.

My name is Masoumeh Shiran. I am a student at Victoria University of Wellington and am conducting research toward a Master of Architecture degree. The research aims to understand how residents of retirement villages come to feel attached to their place of residence. I am writing this letter to ask your permission to approach the residents of your retirement village, inviting them to participate in interviews with me.

The interviews will take about an hour for each resident taking part and would be arranged for a time convenient to them. I would prefer to audio-tape the interviews but this would only be done with the participant's consent. The participant can stop the interview at any time and they would have the right to decline to answer any question. The information I collect will be stored in a secure place and will be destroyed two years after completion of the project. All information will be treated in a confidential manner, and participants' names will not be used.

At the completion of the study, a copy of the summary of the findings will be made available to your organisation should you wish. Thank you very much for your time and assistance. If you have any queries or wish to know more, please contact me or my supervisor as below. I would be grateful if you could indicate whether you will allow me to approach your residents before (Date). This will enable me time to organise the interviews in a timely manner.

Masoumeh Shiran / Architecture Student Faculty of Architecture and Design Victoria University of Wellington 139 Vivian Street, Te Aro, Wellington 6011 shiranmaso@myvuw.ac.nz 021 02759474	**Supervisor: Dr Morten Gjerde** **Head of School** of Architecture E-mail: morten.gjerde@vuw.ac.nz Tel. 04 4636233 Room 3.36, 139 Vivian Street

Sincerely Yours
Masoumeh Shiran

Appendix 3 Poster

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Dear resident

My name is Masoumeh Shiran and I am a Master's student in the School of Architecture at Victoria University of Wellington. I am currently investigating which building design attributes can help people to feel a sense of attachment to their homes?

> ***"Place attachment is defined as a "bond" or "link" or having developed an emotional tie to a person, place, or thing that influence personal identity by providing comfort, familiarity and security to the individual"***
>
> ***(Hidalgo &Hernandez, 2001)***

I will be conducting interviews with residents of retirement villages in Wellington in order to gain residents' perspectives. If you would like to share your opinions on this topic I would love to hear from you. You can contact me by phone (02102759474), email (shiranmaso@myvuw.ac.nz/ Masoumeh.shiran@VUW.ac.nz).

Yours sincerely
Masoumeh Shiran

This research has been approved by the Victoria University of Wellington Human Ethics Committee application no: 0000026819
My supervisor is Dr Morten Gjerde. Please feel free to contact me (02102759474) or my supervisor (morten.gjerde@vuw.ac.nz) with any questions about the research.

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

You are invited to take part in research I am conducting toward a Master of Architecture qualification. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to participate, thank you for considering this request.

Who am I?

My name is Masoumeh Shiran and I am a student in the School of Architecture at Victoria University of Wellington. This research is part of the work I have planned for the thesis I will write.

What is the aim of the project?

This project aims to understand how residents of retirement villages come to feel attached to their place of residence. This research has been approved by the Victoria University of Wellington Human Ethics Committee, with the application reference number 0000026819.

How can you help?

You are invited to be interviewed in order to find out how you come to feel attached to your place of residence and which building design characteristics can help to promote a sense of attachment for older adults.

> ***"Place attachment is defined as a "bond" or "link" or having developed an emotional tie to a person, place, or thing that influence personal identity by providing comfort, familiarity and security to the individual" (Hidalgo &Hernandez, 2001)***

If you agree to take part I will interview you at a place convenient to you. I will ask you questions about your experience of living in the retirement village. The interview will take up to an hour to complete and I would like to audio record it with your permission. This will enable me to write it up later. You can choose to not answer any question or to stop the interview at any time, without giving a reason. You can withdraw from the study by contacting me at any time before the date of interview. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

This research is confidential*. This means that I will be aware of your identity but that the research data will be combined and your identity will not be revealed in any reports, presentations, or public documentation.

Only my supervisor will read the notes or transcript of the interview. The interview transcripts, summaries and any recordings will be kept securely and destroyed 2 years after completion of the project.

What will the project produce?

The information from my research will be used in my masters *and* academic publications and conferences.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question
- ask for the recorder to be turned off at any time during the interview
- withdraw from the study before/after the date of interview
- ask any questions about the study at any time
- be able to read any reports of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact:

Masoumeh Shiran / Architecture Student Faculty of Architecture and Design Victoria University of Wellington 139 Vivian Street, Te Aro, Wellington 6011 shiranmaso@myvuw.ac.nz 021 02759474	**Supervisor: Dr Morten Gjerde** **Head of School** of Architecture E-mail: morten.gjerde@vuw.ac.nz Tel. 04 4636233 Room 3.36, 139 Vivian Street

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convenor: Dr Judith Loveridge. Email hec@vuw.ac.nz or telephone +64-4-463 6028.

* Confidentiality will be preserved except where you disclose something that causes me to be concerned about a risk of harm to yourself and/or others.

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

You are invited to take part in the second part of this research, which will collect data through the **"Photovoice"** method. Please read this information before deciding whether or not to take part. If you choose to participate, thank you. If you choose not to participate, thank you for considering this request.

What is the aim of the project?

This project aims to understand how residents of retirement villages come to feel attached to their place of residence. This research has been approved by the Victoria University of Wellington Human Ethics Committee, with the application reference number 0000026819.

How can you help?

You are invited to take part in the second phase of research which is described as follows:

> ***"Photovoice" is a tool to collect visual data (photographs) based on the participants' perspectives. It helps the researcher to understand what is important to the participants of the study.***

The photovoice has two parts. The "photo" part consists of each participant taking 16 photographs of their living environment, their own homes (interior and exterior) and anything else they consider important to connect them to their home and community. The "voice" part consists of a debriefing session with the principal investigator where each participant selects the 4 to 6 most important photographs and fills in a journal sheet and takes part in an interview session *(necessary only if the information regarding the photos which is provided on the journal sheet is not clear)* (Further Information is provided on Photovoice sheet).You can withdraw from the study by contacting me at any time. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

This research is confidential. This means that I will be aware of your identity but that the research data will be combined and your identity will not be revealed in any reports, presentations, or public documentation. Photos will not be included in research without permission, and if you cannot avoid showing people's faces, they will be blurred to keep confidentiality.

Appendix 5 Information sheet (Photo-voice)

What will the project produce?

The information you provide will help to understand the role of architectural design in enhancing place attachment for older adults in retirement communities. The findings from this research will be published in a Master's thesis and other academic publications.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question or participate in photovoice
- withdraw from the study at any time
- ask any questions about the study at any time
- be able to read any reports of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact:

Masoumeh Shiran / Architecture Student Faculty of Architecture and Design Victoria University of Wellington 139 Vivian Street, Te Aro, Wellington 6011 shiranmaso@myvuw.ac.nz 021 02759474	**Supervisor: Dr Morten Gjerde** **Head of School** of Architecture E-mail: morten.gjerde@vuw.ac.nz Tel. 04 4636233 Room 3.36, 139 Vivian Street

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research, you may contact the Victoria University HEC Convenor: Dr. Judith Loveridge. Email hec@vuw.ac.nz or telephone +64-4-463 6028.

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

**** The demographic and contact information collected in this form will be used to select and contact study participants. Providing this information is voluntary.*

First Name: _____

Last Name: _____

Age: _____

Gender: Male Female

Education

What is the highest degree or level of school you have completed?

- ☐ No formal Qualification
- ☐ High school certificate
- ☐ College degree/technical qualification
- ☐ Bachelor's degree
- ☐ Postgraduate qualification

Marital Status

What is your marital status?

- ☐ Single, never married
- ☐ Defacto
- ☐ Married or domestic partnership
- ☐ Widowed
- ☐ Divorced or separated

Length of Residency

How many years have you resided in your current home?
_____ Years

Living Arrangement

Who else lives in your household?

- ☐ Spouse or partner
- ☐ Adult son or daughter
- ☐ Relatives
- ☐ Other
- ☐ None

Address: _____

_____

_____

Phone: _____

Email: _____

Study Site: _____

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

This consent form will be held for two years.

Researcher: Masoumeh Shiran, School of Architecture, Victoria University of Wellington.

- I have read the Information Sheet, and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in an audio-recorded interview.

I understand that:

- I may withdraw from this study at any point before/after the interview date, and any information that I have provided will be returned to me or destroyed.
- The identifiable information I have provided will be destroyed 2 years after completion of this project.
- Any information I provide will be kept confidential to the researcher and the supervisor.
- I understand that the results will be used for a Master's thesis, academic publications and presented to conferences.
- My name will not be used in reports, nor will any information that would identify me.
- I would like to receive a copy of the final report and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

This consent form will be held for two years.

Researcher: Masoumeh Shiran, School of Architecture, Victoria University of Wellington.

- I have read the Information Sheet, and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in the Photovoice data collection method.

I understand that:

- I may withdraw from this study at any point, and any information that I have provided will be returned to me or destroyed.
- The information I have provided will be destroyed two years after the completion of this project.
- Any information I provide will be kept confidential to the researcher and the supervisor.
- I understand that the results will be used for a Master's thesis, academic publications and presented to conferences.
- I understand that the photos I have taken will not be inlcuded in any publication without my permission, obtained separately.
- My name will not be used in reports, nor will any information that would identify me.
- I would like to receive a copy of the final report and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Study Title: ***The Role of Architectural Design in Enhancing Place Attachment for Older Adults in Retirement Communities.***

Photo Journal

Participant Information: _____

Research Site: _____

Notes: _____

_____

Photo -1

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

_____

Photo -2

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

_____

Photo -3

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

_____

Photo -4

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

_____

Photo -5

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

_____

Photo -6

Date photograph taken: _____

☐ Morning ☐ Afternoon ☐ Evening

Location/Setting of photograph: _____

Message/Storey conveyed: _____

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Predictors		Questions	Supporting Literature	Argument
Neighbourhood Scale	**Building Density**	**Do you prefer living in a low density (fully/semi-detached housing) or medium density apartment blocks? How willing or unwilling would you be to move based on your current neighbourhood (low to medium density) compared to your previous home and neighbourhood?** ***On scale 1-5 (1 very willing-3 neutral- 5 very unwilling)***	Gillis,1977; Lewicka,2010; Gifford,2007	*A study by Lewicka (2010) found that the single-family dwellings scored the highest both in terms of attachment and neighbourhood relations* *Gillis, 1977 found that attachment to different sized buildings was moderated by gender: males felt more attached to apartments whereas woman preferred lower floors*
	Community Size	**What is your opinion regarding the size of the community you are living in? How close do you feel?** ***On scale 1-5 (1 very close-3 neutral- 5 not close at all)*** **and if you could move how willing or unwilling would you be to move?** ***On scale 1-5 (1 very willing-3 neutral- 5 very unwilling)***	Buttell, Martinson, & Wilkening, 1979;lewicka,2005, Wilson and Baldassare., 1996 Wasserman,1982 Wirth, L, 1938 Buttel, F, 1979	*There is a linear negative relationship between the size of the community and the level of place attachment.*
	Green Areas	**What are your views on having a private/shared enclosed garden for individual homes? how would this affect your willingness to stay** ***On scale 1-5 (1 A lot-3 Neutral- 5 Not at all)***	Sugihara and Evans, 2000; Ryan, R., 2006; Kuo, F, and W. Sullivan. 1998; Westphal, L.M. 2003; Morgan, P. 2009; Bonaiuto et al.,1999	*An individual's attachment to a green place increases in proportion to its proximity to one's home and frequency of use.* *Greener neighbourhoods, especially those with common green areas, encourage social bonding between neighbours and improve the social setting.*
	Privacy and Security	**Do you think there is a need to provide fences around the community and properties and provide control over entry to ensure privacy and security? If not, explain How do you think this would affect your willingness to stay?** ***On scale 1-5 (1 A lot-3 neutral- 5 Not at all)***	Brown et al., 2003, 2004; Thomas et al., 2006; Lewicka,2010; Zaborska & Lewicka, 2007; Lu, T., Zhang, F., & Wu, F. (2018); Pow, 2015: 465; Liu et al. 2012	*Several authors found that there is a relationship between fear of crime and less community attachment; however, an unclear relationship between gating and place attachment was also found.* *Gated communities have been recognised as having "universally negative" social effects where they were produced to be a living space rather than a social space, and thus lack attachment.* *The architectural mechanism which attempts to ensure privacy and security typical of New Zeeland's retirement communities' are fences surrounding the community, fences around the property, control over entry and exit. This results in a very isolated and insular residential typology*
	Building Typology	**You live in an area with mono/ different-typology of the housing. When you think about your everyday life, is living in that neighbourhood different from other neighbourhoods, you know? Do you think you can stay in this neighbourhood for many years to come?** ***On scale 1-5 (1 strongly agree -3 neutral- 5 strongly disagree)*** **If yes, why? If not, why?**	Ricci, N. (2018); Bell. (2011)	*Hence humans are natural born information processors; we prefer environments that provide us with an ample amount of information to process. Therefore it is believed that Dull, repetitive buildings bore us which has been clinically proven to induce stress*

Home Scale	**Planning Layout**	**Tell us about your current plan; is it an open or cellular plan *(traditional layout/arrangement)*? How satisfied are you living in this sort of layout? *On scale 1-5 (1 very satisfied -3 neutral- 5 not satisfied at all)***	Stevens, E, 2013	*The separation of living areas and bedrooms, which is typical of New Zealand's housing means that if a resident becomes bedridden, they are removed from daily activities, secluded in a bedroom. Since the likelihood of becoming bedridden increases with age, so it is important that these occupants maintain communication.*
	Building Arrangement: Outlook & Daylight	**Considering your current home, the building orientation (direction and amount of daylight. How satisfied are you? *On scale 1-5 (1 very satisfied -3 neutral- 5 not satisfied at all)***	Mariana G. Figueiro	*An appropriate building footprint can allow a building to maximise the use of daylight and natural ventilation, which affects a person's attachment to place. As we grow older less light reaches the retina; it is estimated that for the same amount of available light, a 60 years old only receives 30-40 per cent as much light at the retina as 20 years old. This results in more dependency, but Window sizes are not determined by daylighting considerations alone but by factors including construction costs, and designers' awareness of technical issues, architects unwillingness to undertake daylighting factor calculation and in order to meet the planning requirement. Lower window sills enable people to see outside and feel connected. Also, it improves neighbourhood safety by enabling passive surveillance. Good window design will help elderlies with one of their great fears "shut-in and left alone".*