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## **Chapter 9**

### **Community connections and independence in later life**

Charles Musselwhite

#### **Introduction**

Traditionally transport for older people has been considered an abstract concept that has not fully taken into account the social context. Clearly, issues of ageing, mobility and transport and the relationships between these are important. Yet the traditional decontextualised approach to transport policy and practice has had less than ideal consequences for society in general, and older people in particular. As a result, the system has been dominated by private motor vehicles at the expense of the environment and personal health and safety, creating a society dependent on oil, a society with severed residential areas with associated eradication of local services, shops and provision and an unhealthy acceptance of injury, illness and death. Ignoring the social element of transport has reduced the concept of travel and transport to a mere mechanism of getting to a destination as quickly and efficiently as possible for the majority, at the exclusion of localness and the positive utility of the journey itself.

The growing disciplines of traffic and transport psychology, the mobilities movement in sociology, and the cultural spaces and mobility movement in human geography emphasise the importance of placing people at the centre of investigating and understanding transport and mobility. Such disciplines stress the importance of examining how individuals shape and are shaped by transport, and how they embody and experience transport in relation to culture. There is a growing acknowledgement of such approaches in policy and practice, along with a change in focus from delivering efficient, speedy and safe mobility to one about facilitating movement of differing speeds, encompassing motivations and balancing needs of movement with those impacted upon by this movement. This change has been brought about in some respects by changes in cultural and political philosophy and ideology. State focus is on encouraging individuals to change their own behaviour, as well as a focus on behavioural change and nudging (see Avineri and Goodwin, 2010, for a review), rather than enforcing or regulating change.

Hence, a shift towards understanding that the social elements intertwined with transport use is vital for a true realisation of transport studies. As Haglund and Aberg (2000) state, “traffic and transport should be viewed as a social situation where drivers interact and influence each other” (p. XX). O’Connell (2002) notes that transport studies “must not be based on an erroneous model of humans as abstract rational actors, isolated from their social context and operating on purely ‘objective’ criteria” (p. 201). Thus this chapter introduces ecological framework models coupled with critical gerontological theory to explain older people’s mobility and uses the model to explain how to improve mobility for older people for those who have given-up driving.

### **Models to explain links between social environments and transport and mobility**

Ecological models are increasingly being used to explain the interactional relationship between the social and physical context and an individual’s behaviour. Examples of ecological models used in terms of ageing and the transport and mobility context include Webber et al.’s (2010) conical model of mobility and Bronfenbrenner’s Ecological Systems model (Bronfenbrenner, 1979, 1989, 2005) which have been applied to transport (Musselwhite et al., 2014; Musselwhite, 2016; Ormerod et al., 2016). Webber’s model is based on different layers of environment from home to the world, and view mobility through five determinants (cognitive, psychosocial, physical, environmental and financial), with gender, culture and biography (personal life history) viewed as cross-cutting influences Webber et al. (2010) view mobility as the ability to move oneself (e.g., by walking, by using assistive devices, or by using transportation) within community environments from home, to neighbourhood, and regions beyond. Each of the five determinants interact and vary from day to day within individuals and between individuals.

Originally, Bronfenbrenner’s model was applied to child development, explicitly addressing children’s play and the wider environment (Holt et al., 2008) and work-life balance in families (Kulik and Rayyan, 2006). It has more recently been used in environmental gerontology to address rural ageing (Keating and Phillips, 2008) and risk taking and transport (Musselwhite et al., 2014) as well as older people’s mobility (Musselwhite, 2016; Ormerod et al., 2016). Bronfenbrenner’s ecological model (see figure 1) proposes five layers: the microsystem, the mesosystem, the exosystem, the macrosystem and the chronosystem that circle concentrically around the individual. The *microsystem* is the layer closest to the

individual, consisting of an environment with which the individual immediately interacts, for example the social environment of immediate family and peers and physical and natural environments including house, buildings, roads and greenery in the immediate neighbourhood. It includes both the actual objective elements found in the environment but also, crucially, the subjective experience of interacting with these elements, for example elements that make the house a home (Keating and Phillips, 2008, Lawton, 1999; Peace et al, 2006). The *mesosystem* layer provides the connection between the different structures of the microsystem, for example how the social and built environment interact and interlink (e.g., Berk, 2000). The *exosystem* layer encompasses the wider social system within which the individual does not function directly but impacts through the mesosystem and microsystem. This level includes people's connections to significant others including wider networks of family members, friends and neighbours who can be a source of social capital that helps people interact with and navigate their surroundings (Keating and Phillips, 2008; Peace et al, 2006). This also includes elements such as the policy environment and laws, programs and regulations (Lawton, 1999). The outer-most layer, the *macrosystem*, comprises of societal elements such as culture, values, customs, and laws (Berk, 2000). In addition to these four layers, a *chronosystem* adds a dimension of time, for example, the physiological changes that occur with ageing.

To this perspective can be added a layer of critical thinking which emphasises the importance of the model being bi-dimensional, meaning the individual is not simply a victim of the environment but one who acts on the world. The resulting critical ecological model has been linked previously with critical gerontology in examining rural behaviour for older people (Keating and Phillips, 2008) and transport and mobility of older people (Ormerod et al., 2016). The critical approach to gerontology stems from concerns with inequalities in power within society which marginalise older people (Phillipson and Walker, 1986). More recently this concern has been applied to a spatial approach and environment context, examining the relationship between the imposed accepted wisdoms of disengagement with the environment in later life and the agency, adaptation and reconstructive abilities of older people to shape their environment (Phillipson et al., 2000; Peace et al., 2006). As noted in Ormerod et al. (2016), spaces, places and the links between them can exclude older people through the over-reliance on, for example, private mobility, the preserve of the young and fit, at the expense of public, community or even active forms of mobility (Keating and Phillips, 2008). At the same time, a critical ecological perspective notes that there is a multitude of experiences of ageing

which differ in different contexts and different places and space (Ormerod et al., 2016) and that any findings must do justice to this diversity.

### **The ‘hypermobile world’**

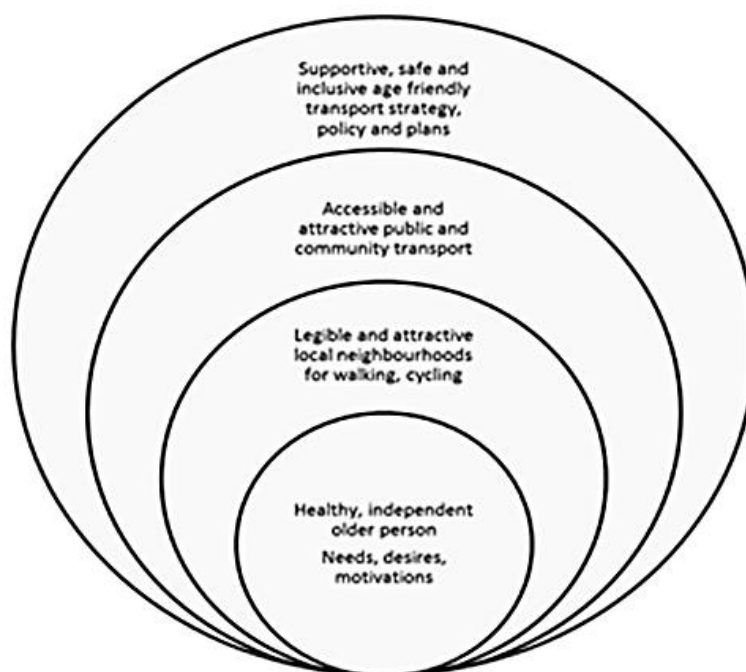
Transport is more important to older people than ever before. In most wealthy and many low and middle income countries, high levels of mobility are traversed in order to stay connected to communities, friends and family and to access shops and services. The car has been central to this hyper-connectivity, affording more choice over the location of work and home.

Society has become so organised around the car, that those without a vehicle can become socially excluded. Such institutional car-ism occurs without acknowledging the wider negative consequences of priority planning around the car, including excluding non-car users, pollution, severance of communities and accidents and associated casualties.

Not surprisingly in many western cultures the growth of car use has been across the life-course and there has been a huge increase in the number of older drivers on the road. At the same time walking, cycling and non-urban bus use has been in decline across all ages. This has significant consequences for older people when they have to give-up driving and use other modes of transport, which they may not have used for many years. The decline in use of such services, especially bus services, means they may be infrequent in nature and hence difficult to use.

Being mobile in later life is linked to quality of life (Schlag et al., 1996). Giving-up driving, in particular, is linked to a decrease in wellbeing and an increase in mental and physical health problems. This is due both to a reduction in ability to get out and about but also related to psychological issues associated with freedom, status, norms and independence (Edwards et al., 2009; Fonda et al., 2001; Ling and Mannion, 1995; Marottoli et al., 2000; Marottoli et al., 1997; Mezuk and Rebok, 2008; Musselwhite and Haddad, 2010; Musselwhite and Shergold, 2013; Peel et al., 2002; Ragland et al., 2005; Windsor et al., 2007; Ziegler and Schwannen, 2011). Older men find it more difficult to give-up driving and are more likely to have to be told to give-up driving (Musselwhite and Shergold, 2013). This appears to be due to two reasons: 1 males have a greater more emotional bond with their vehicles than females, it is often linked more closely to self-identity and self-image, relating to sense of purpose, youthfulness and pride (Musselwhite and Shergold, 2013), and 2. females spend more time planning to give-up driving than men, including time getting used to other forms of transport (Musselwhite and Shergold, 2013).

It is vital to create a transport system for older people, so they do not have to suffer health and wellbeing issues when they give-up driving. Musselwhite (2016) proposed an age friendly transport system built around Bronfenbrenner's ecological model of human behaviour, starting with the person at the centre and working out to laws, policy and plans at the outside, with neighbourhood and public and community transport provision in between (Figure 1). The main points of this model are elaborated on below in relation to psychology.



Insert figure 1 here

Figure 1. Domains of an age friendly transport system (after Musselwhite, 2016).

### **Point 1. Transport system that is planned around the needs, desires and motivations of older people's mobility**

Musselwhite and Haddad (2010) propose a model of needs and motivations for travel in later life around three main levels of need (figure 2). The levels are hierarchical based on how aware participants are of the need. Musselwhite and Haddad (2010) used re-convened focus groups and interviews with the same older participants to develop this model, The needs

mentioned first, at the base of the table, are the practical or utilitarian needs, the need to get from A to B as quickly, reliably, safely and cheaply as possible. The next level is the psychosocial needs, related to how travel fulfils a need for independence, control and the need to be seen as normal in society and how this relates to roles, identity, self-esteem and impression management. The top level of need, articulated much later on by participants in the research, was the need to travel for its own sake, to get out and about, to people watch, to see nature, to test their own ability. This top level was termed aesthetic needs. Travel or mobility in later life is important at all three levels, yet they have differing ways of being presented socially. It is very common for older people, practitioners and policy makers to talk about the need for travel at the utilitarian level and less common for them to discuss the social or affective needs. Even less common is the discussion of travel for its own sake or for 'luxury' or 'discretionary' purposes; the aesthetic needs. Hence, transport provision in later life is usually centred on practical or utilitarian support while forgetting other important levels of need. So older people with mobility difficulties who may have given up driving can actually get their utilitarian needs satisfied somewhat (though this can still be difficult) by, say, community transport, but their social, affective and aesthetic needs are not met. In our hypermobile world, driving a car readily fulfils all three level of needs.

Psychosocial needs for driving have been highlighted in previous research. Mollenkopf et al. (2011) identified seven needs that older participants stated were important for them and had remained important for ten years. These were out of-home mobility as a basic emotional experience; physical movement as a basic human need; mobility as movement and participation in the natural environment; mobility as a social need; mobility as an expression of personal autonomy and freedom; mobility as a source of stimulation and diversion; and finally the ability to move about as a reflective expression of the person's remaining life force. This psychosocial element is especially absent if driving is stopped. As Musselwhite and Haddad (2010) and Zeigler and Schwannen (2012) note those who stopped driving felt a particular loss of independence, especially in very car dependent areas and for those who had been frequent drivers throughout life (Adler and Rottunda, 2006; Davey, 2007; Siren and Hakamies-Blomqvist, 2009).

Parkhurst et al. (2014) found that older people's mobility may involve other forms than simply physical or literal and proposed a model that involves virtual, potential and imaginary mobility as well (see figure 3). Virtual mobility refers to the use of computing and information technology to satisfy mobility needs, for example keeping in touch with family

and friends via telephone or Skype, ordering and having shopping delivered on-line and the advent of telehealth. Potential mobility, first coined by David Metz (2000), is the perceived ability to be able to go anywhere, when and how often an individual wants (Metz, 2000). Musselwhite and Haddad (2010) note how the car fulfils the potential for travel perfectly, highlighting examples of older people unwilling to give up the car even when they barely use it, just in case they may need it for various trips. Shergold et al. (2012) term this potential as motility and include the perceived ability to use different modes, for example knowing and understanding the norms of a bus adds to the ability to use it, not just having a bus service outside. Imaginary mobility encompasses two strands: first how literal travel is replaced by construction of travel and mobility in the mind, communicated through story-telling or art, maybe based on previous experiences. Second, imaginary mobility might refer simply to observing movement from a still place, such as looking out of the window (see also Musselwhite, 2014) or watching television.



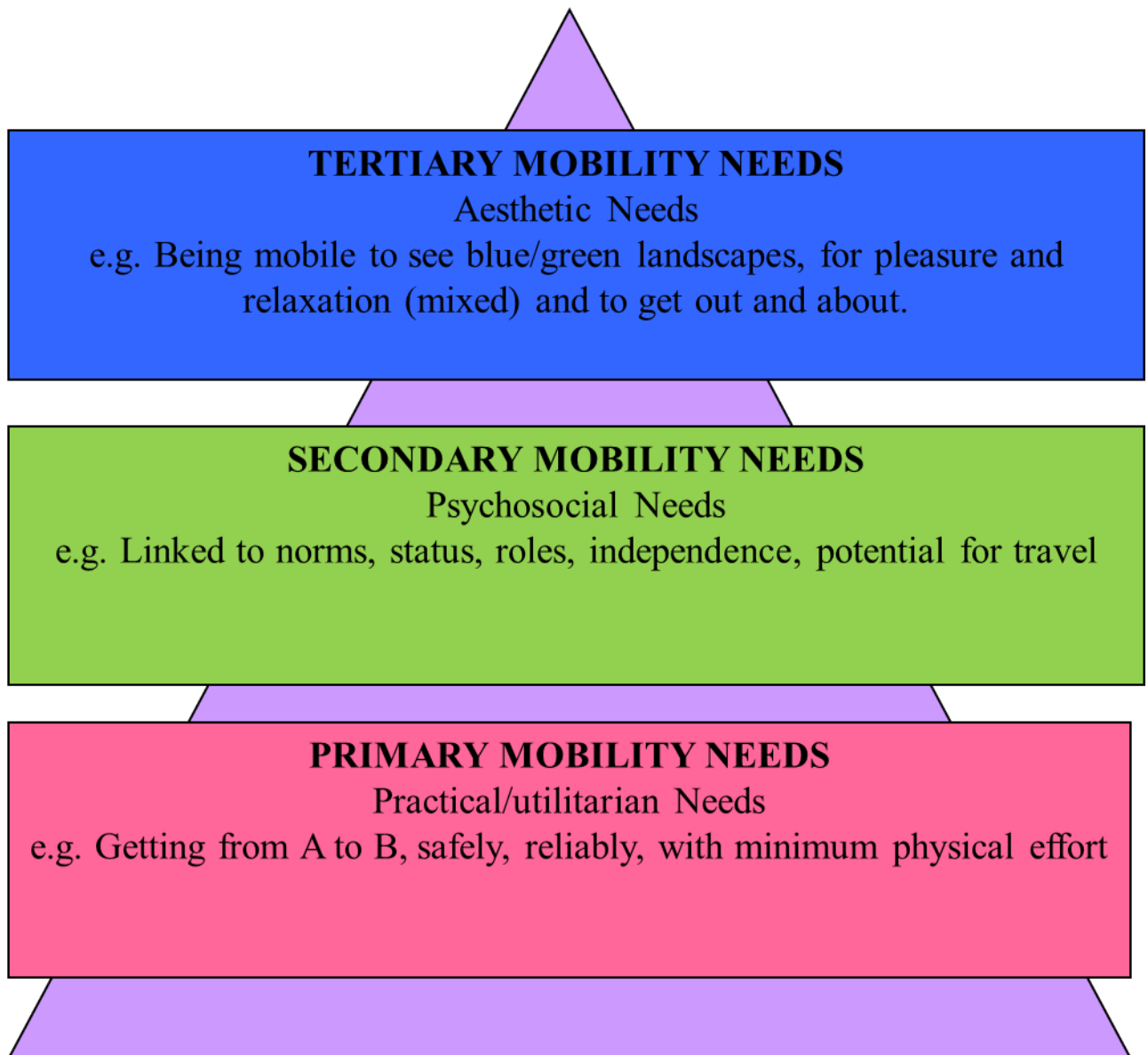


Figure 2: Hierarchy of travel needs in later life (after Musselwhite and Haddad, 2010)

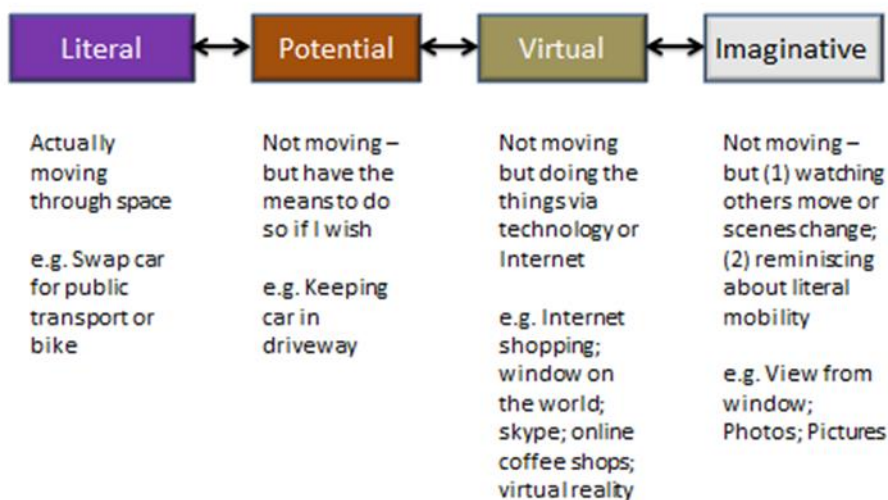


Figure 3: A continuum of modes for connectivity (after Parkhurst et al., 2014)

Type of mobility	Ziegler and Schwanen, (2011) Dimension	Musselwhite and Haddad (2010)	Parkhurst et al (2014)
Physical movement	Mobility practices	Practical and utilitarian needs	Literal mobility
The need to connect to the outside world	Mobility of the self	Psychosocial and affective needs	Potential mobility
Attitudes towards mobility practices	Attitudes towards mobility practices	Psychosocial and affective needs	All levels of mobility
Memory and imagination that recollect or construct events	Imaginary mobility	Aesthetic needs	Imaginative mobility
Using electronic communication, such as the Internet, to substitute for mobility	Electronic mobility	All levels of need	Virtual mobility

Table 1: Types of mobility in later life comparing three typologies (from Ziegler and Schwanen, 2011, Musselwhite and Haddad, 2010 and Parkhurst et al., 2014)

Ziegler and Schwanen (2011) provide a similar taxonomy in their study of older people in County Durham. They proposed imaginary and electronic mobility as being important in later life which equate similarly to the virtual and imaginative mobility proposed by Parkhurst et al. (2014). Mobility practices equate with literal mobility showing the importance of literal and temporal practices to maintain daily life. Mobility of the self is the need, motivation or disposition to connect with the world and is similar to potential for travel, but is linked more towards a will to remain connected socially than to a specific form of transport. Table 1 maps Ziegler and Schwanen's (2011) elements of mobility with Musselwhite and Haddad's (2010) and Parkhurst et al (2014) dimensions. Mobility practices are clearly related to practical and utilitarian needs in Musselwhite and Haddad's (2010) model and in turn this equates with literal mobility in Parkhurst et al (2014) model. The need to connect to the outside world maps well with Parkhurst et al's (2014) potential for mobility and is part of Musselwhite and Haddad's (2010) psychosocial needs. Attitudes towards mobility practices relate to Musselwhite and Haddad's (2010) psychosocial needs but is not clearly related to any one individual level of Parkhurst et al (2014) model. Here there is the idea that attitudes underpin all four levels of Parkhurst et al (2014) model. Mollenkopf et al (2011) and Siren et al (2015) both place special emphasis on the affective and attitudinal nature of mobility, suggesting this level underpins all other levels of mobility and as such are not necessarily separate as noted by Ziegler and Schwanen (2011) and Musselwhite and Haddad (2010). The memory and imagination element of mobility clearly maps to aesthetic needs in Musselwhite and Haddad (2010) and imaginative mobility in Parkhurst et al (2014) model. Finally the substitution of mobility using electronic means, such as the internet and other forms of technology reducing the need to be literally mobile maps well to virtual mobility as noted by Parkhurst et al (2014). Musselwhite (2018b) has placed virtual mobility among all the categories in Musselwhite and Haddad (2010) model rather than it being something separate. For example, virtual mobility can replace literal mobility to the shops with e-shopping and home deliveries, it can help psychosocial needs through social media and it can meet aesthetic needs through webcams and virtual reality (see Musselwhite, 2018 for more discussion).

## **Point 2. That there are legible and attractive local neighbourhoods for walking (and cycling) in later life**

Physical activity is important for health and wellbeing in later life. One of the most important ways to encourage staying active in later life is to build it into everyday life. Walking and cycling ('active travel') as part of daily routines can promote moderate physical activity,

improving overall health and wellbeing (WHO, 1999; Saelens et al., 2003). Yet walking and cycling across the life-course is in decline in most wealthy countries and indeed many low-to-middle income countries. As well as motor vehicles being more accessible and automobile friendly policies and practices promoted, there are many microsystem and mesosystem barriers to walking and cycling, especially in terms of infrastructure. Matching the infrastructure to the needs of older people is often viewed from the perspective of person-activity-environment fit (Lawton & Nahemow, 1973). The changing physiology of the older person means affordances of infrastructure have to change to enable older people to get out and about. Developing such infrastructure is based on policies, practice and cultural norms and expectations and the exosystem has to be understood when making changes that might encourage older people to walk and cycle more.

### ***Physical barriers to walking and cycling***

Different interactions between physical environmental factors are described well in Alfonzo's Hierarchy of Walking Needs (2005). Alfonzo (2005) describes four levels of need: a) accessibility (e.g., direct access to local shops and services); b) safety from crime (e.g., surveillance, hidden spaces); c) comfort (e.g., smooth pedestrian surfaces, segregation of walking from traffic, amount of benches); and d) pleasurability (e.g., vegetation, beauty, historic elements). The most important needs have to be satisfied before higher needs are important, so accessibility must be satisfied before safety from crime, comfort and pleasurability. Each of these can be examined in relation to research on barriers to older people's walking.

A high prevalence and diversity of shops, both grocery and non-grocery are important determinants as to whether older people walk or not (Cerin et al., 2013). Having services, especially hospital and doctor surgeries, within walking distance from home has been linked to walking among older people (Strath et al., 2012). Recreational accessibility has also been linked to greater walking among older people, including access to places of religious activity (Cerin et al., 2013), parks and open spaces (Hanibuchi, et al., 2011). A good measure of accessibility is walkability. Walkability is a composite environmental measure combining measures such as residential density, land use mix, and street connectivity, often derived from GIS (Frank et al., 2010). Residential density is the number of people living in a given area. Land use mix is the amount of different types of building in an area, for example, residential, commercial, services, offices and industry. Street connectivity is how well the street is

connected to allow direct walking to occur. There is much research that shows high walkability scores, that is areas with high residential density, high land use mix and high levels of connectivity, correlate with high levels of older adults walking (e.g. Nathan, Wood, & Giles-Corti, 2014; Van Holle et al., 2014).

Crime and more importantly fear of crime reduces walking and associated physical and social activity. Fear of crime is prompted by a number of neighbourhood disorders in the areas including litter, dog mess and graffiti (Burholt et al., 2016). The lack of defensible space (the ability for people to be key agents in their own security of their neighbourhood; Newman, 1972), with low levels of visibility from neighbouring windows and too many spaces to hide can also heighten fear of crime and reduce walking in a neighbourhood (see Cozens et al., 2004). In addition, a Dutch study found fewer older people walking on streets that have “blind walls” with no windows, doors or openings Borst et al. (2009).

Poorly maintained pavements that become uneven hamper walking (Newton and Ormerod, 2008). Poor weather can also be detrimental to walking for older people. Poor surfaces, caused by fallen leaves, rain, ice or snow, for example, especially if not cleared, are particularly hazardous (Wennberg, 2009). There must be good provision of seating and public conveniences (Musselwhite, 2014). Perceiving benches would be present in the public realm is correlated with higher walking, especially among the older participants aged over 75 (Barnett et al., 2016; Cerin et al., 2014) and a lack of benches is a significant barrier to walking (Stahl et al., 2008). Poor crossing facilities are also a crucial factor reducing older people’s ability to get out and about, resulting in people making large detours to avoid dangerous crossing of roads or being deterred from using the area altogether (Lord et al., 2010; Zijlstra et al., 2007). Not having long enough time to complete a crossing is a major issue for older people. In many countries formalised crossing facilities are timed to allow people to cross the road at around 1.22 metres/second before turning the priority back to motor traffic. Musselwhite (2015), using three case study areas in the United Kingdom, found 88% of people aged over 65 did not walk at this speed. This increased to 94% of older females over the age of 65. Previous research has found similar results, suggesting older people’s average speeds are between 0.7 and 0.9 metres per second (e.g., Asher et al., 2012, Newton and Ormerod, 2008). Poor lighting not only increases safety fears among older people but also reduces ability to see where people are walking and is a significant barrier to walking among older people who can have increased difficulties with luminance (Shumway-Cook et al., 2003). High levels of noise from passing traffic or other pedestrians can also be a

barrier (Balfour and Kaplan, 2002; Burholt et al. 2016). Poor air quality and pollution is also a barrier for older people getting out and about. Smog for example is an issue in many developing countries but general air quality can be poor in cities across the world (Deguen et al., 2010). Finally, natural climate can be a barrier. Very high or very cold temperatures and extreme weather including ice or snow, especially if not cleared from pavements or sidewalks, are barriers for older people walking (Burholt et al., 2016; Williams et al., 2012).

There is less research about the relationship between a lack of pleasurable elements of the environment and a lack of walking among older people. There is much written about the preference of older people for spaces with vegetation and parks (Sugiyama & Ward Thompson, 2008) and neighbourhoods with well-maintained gardens and homes, free from litter and graffiti (Burholt et al., 2016).

Research on shared space, where traditional markers demarcating barriers between vehicles and pedestrians are not present, for example a street having no or a reduced kerb, has suggested that older people tend to stay within the location that used to be the old pavement and do not use the carriageway to walk in when shared space is found (Hammond and Musselwhite, 2013; Melia and Moody, 2013; Musselwhite, 2015). People who do use the carriageway to walk in shared space areas are largely young and almost exclusively male (Kaparias et al., 2010; Moody, 2011), suggesting the benefits of shared space may be more apparent to certain groups of pedestrian (Melia and Moody, 2013). On the whole, older people do not have additional issues using shared space than any other age group did (Hammond & Musselwhite, 2013). But, spaces that are too open and wide can also be viewed negatively, even if they are totally pedestrianised leading to difficulty in finding orientation for those with cognitive impairments or visual difficulties or by creating a lack of space for refuge or sitting (Atkin, 2012).

There is much less written about cycling in later life than there is to do with walking. Barriers to cycling inhabit three main areas: personal, environmental and psychological. In terms of personal barriers, older people often feel they do not possess enough strength or fitness to cycle. This can be compounded by poor infrastructure, for example Jones et al. (2016) suggest that streets that make cyclists dismount and re-mount are especially difficult for older people who may perceive they have lost strength and fitness. Poor environments for cycling, similar to poorly designed or maintained pavements for pedestrians, can also be a barrier. Issues of sharing space with vehicles and with other cyclists and with walkers can also be a

barrier, as can ambiguity of space (Jones et al., 2016). Psychological barriers, including perceived norms, impact on propensity to cycle in later life.

### ***Psychological barriers to walking and cycling: norms and culture***

With a few exceptions, for example the Netherlands, it has become culturally unusual to walk and cycle in many western countries, especially everyday or utilitarian walking and cycling. Walking and cycling is often seen as a leisure pursuit, to do in terms of a discretionary activity (Musselwhite, 2017). Fewer journeys are made on foot or by bicycle to the shops, to access services, to visit post offices, hospitals, doctors and similar. People are more likely to walk or cycle if they believe other people like themselves do that activity. In many countries, the stereotype of an older person is not one who does much cycling. In terms of walking, recreational walking is viewed as highly desirable and likely among older people, but walking for a purpose, to go shopping, to go to the doctors, etc., is viewed as unusual among that age group. Having a dog that needs walking is highly correlated with walking for older people, giving people a sense of legitimacy to walk to the park (Musselwhite, 2017). Older people are more likely to walk if they get social support from friends or family (Booth et al., 1997; Booth et al., 2000; Giles-Corti and Donovan, 2002). The difference in cultures and cycling rates among older people are also based on cultural norms; how normal is it to see older people on bicycles, for example differs between Denmark, where it is normal and expected, and the UK, where it is an exception (Pucher & Beuler, 2008, 2012).

Design of public spaces can exclude groups of people. Older people can feel particularly unable to use public space that lack benches and public conveniences. They also do not always wish to share space that loud and noisy or inhabited by lots of people, especially younger people who they may feel threatened by. Sometimes, this exclusion occurs simply as the designer has not thought about older people's needs and issues. In such cases there is a need to involve older people in the design of the public realm. On other occasions, the exclusion is deliberate; increasing privatisation of space can design elements of the public realm to create more commercial interactions and commercial interests of the landowner and tenants are placed above those of the individual. An acute example is found in many Western cities or towns where deliberate lack of places to sit or lack of public conveniences in the public realm force people into cafes or coffee shops, forcing people into commercial transactions just in order to sit down or use the toilet. Ageist stereotypes may also work to keep older people out of certain public realm spaces that the landowner wants to keep looking

young, vibrant and fresh. Across many western and developing cities, redevelopment and redesign of city centres, for example, are often geared around economic growth with the stereotypical view of a vibrant young wealthy workforce. Hence, homes and commercial space are at best developed for a mythical average person, a hypermobile worker with no dependents and at worst developed for the younger affluent worker, excluding the older person from living in that space.

***Towards convivial spaces for walking and cycling in later life***

Building on work by Alves et al. (2008), Sugiyama and Ward-Thompson (2007, 2008), and Musselwhite (2014, 2016, 2018a), and adopting the principles of good design, it is possible to design streets around recognised objectives of urban design as set out by Centre for Architecture and the Built Environment (CABE, 2011) (see table 2). Space needs to be safe and accessible, so people feel safe to use it while interacting with other people and with vehicles; legible, so people feel that they can legitimately use them. They should be distinctive and aesthetically pleasing, so that there is some desire to want to use them.

<p><b>(1) Safe and accessible space</b> – feel you are safe there</p> <p>Sharing space – feel you have room to move, space to dwell for safe interactions with other users</p>	<p><b>Ease of movement</b></p>	<p>Movement should be enhanced for all users, along with permission to stop and dwell through benches and places to lean and creating focal points to commune at including fountains, works of art, sculptures, memorials or trees, gardens and other greenery.</p>
<p><b>(2) Legible place.</b> Psychological attachment and legitimacy - feel you should be there</p>	<p><b>Legibility</b></p>	<p>Area should be designed in a way that is easy to understand and interpret, not just with signage but with other visual and tactile cues as well to help determine legitimacy in activity and determine use.</p>
	<p><b>Adaptability</b></p>	<p>The place should be built to adapt to changes in the needs of users, policy and legislation over time.</p>
	<p><b>Diversity and choice</b></p>	<p>Allowing area to be used by a large variety of individuals and uses, with minimum exclusion.</p>
<p><b>(3) Distinctive and aesthetically pleasing</b> – somewhere you want to go and spend time – feel you want to be there</p>	<p><b>Character</b></p>	<p>Streets should have character and reflect local identity, history and culture. Utilising local art and architecture can help enhance distinct and unique character and identity.</p>
	<p><b>Continuity and enclosure</b></p>	<p>Where public and private spaces are easily distinguished</p>
	<p><b>Quality public realm</b></p>	<p>Good quality materials easily maintained and replaced.</p>

Table 2: Designing streets for older people based on CABE (2011) principles (Musselwhite, 2014, 2016, 2018a).



**Point 3. That there is accessible and attractive public and community transport to connect neighbourhoods and communities.**

Public buses play an important part in connectivity for older people, especially those who have given up driving. Bus use is especially high among older people where there is concessionary or free fares, as in the United Kingdom. Not only does the bus keep people connected, bus use is also correlated with health and wellbeing, being a protective factor in obesity for older people (Webb et al., 2011). A report from Greener Journeys (2014) suggested that every £1 spent on subsidising travel for older people, returned about £2.87 to the economy in terms of increased access to shops, services, activities and enabling support for others.

***Barriers to using the bus***

There are still many barriers to using a bus, even if it is free, that prevent or make it difficult for older people to use it. Gilhooly et al. (2002) found the highest barrier to public transport use amongst older people was personal security in the evening and at night (79.8% of over 70s agreed), followed by transport running late and having to wait (see Table 3). A report using accompanied journeys in London highlighted similar problems for older people including crowds at the bus stop or on the bus, prams taking up the seats or area at the front of the bus, steps up to the bus being too high (or driver stopping too far from the kerb) and fear of falling over when the bus moves off (TfL, 2009). Broome et al. (2010) in an Australian study found that for older people, driver friendliness, ease of entry/exit and information usability were prioritised barriers and facilitators for older people. Age UK London (2011) quantified this by surveying bus driving behaviour in 550 journeys in inner London and 541 journeys in outer London. In 42% of cases, passengers were not given enough time to sit down before the bus was driven away from the stop. In 25% of the cases the bus did not pull up tight to the kerb at the bus stop.

Problems	% aged over 70 agreeing
Personal security on the bus in evening and night	79.8
Public transport running late	68.3
Having to wait	68.0
Carrying heavy loads	66.3
Potential cancellations	66.0
Other passengers behaviour	63.5
Lack of cleanliness	53.8
Being out in bad weather	53.8
Having to change transport	53.3
Can't travel where I want to	50
Can't travel when I want to	48.1

Table 3: Ten most frequent barriers for respondents aged over 70 years, with the proportion of that age-group who reported each as a ‘problem’ (after Gilhooly et al., 2002)

### ***Public transport norms***

One of the major barriers associated with using public transport, such as buses, is the anxiety over the norms of use. It may be, for example, that the user hasn't used a bus in years. Formal information provision on buses has improved immensely over the past few years, more information than ever before is presented on timetables including real-time and en-route bus stop information. However, older people are anxious about the norms, for example the normal departure time (is it sooner than is advertised), what times of day are less busy, is there seat availability, are buses accessible, how much can be carried? (

One element that stands out frequently is staff attitudes, for example the bus driver can make or break an older person's journey. A sympathetic driver attuned to older people's needs, who waits for the passenger to sit down before driving off is invaluable. So too is a “cheery” driver who passes the time of day with the older person. Many bus companies have begun to train bus drivers to be sympathetic to the needs of older people in this respect. Older people also want a driver to be friendly, knowledgeable and helpful, to provide information if needed and to be chatty; older people liked to get to know drivers they saw regularly. It is similar on trains where station and train staff attitude is crucial to successful journeys and the support needs to include practical help with luggage, direction and train times but also extend to staff having a positive attitude to performing such duties.

### ***Improving bus services***

Broome et al. (2013) researched how to improve services and overcome barriers for older people using buses in Queensland, Australia, using Brisbane as a control. Seven priorities were implemented which resulted in increased satisfaction and maintained use among older people:

1. Accessibility, for example low floor buses to make boarding and alighting easier;
2. Age friendly training for bus drivers (see also Broome 2010).
3. Frequent buses and a call for evening and weekend services, in particular;
4. Bus stops close to homes and destinations. Broome et al (2013) suggest a system should aim to stop within 200m of residences and destinations. Bus stops need to be of good quality too; they should provide shelter and aid boarding and alighting;
5. Accessible pedestrian infrastructure is important, footpaths and pedestrian crossing are part of the journey too;
6. Providing training and information for older people about how to use buses. To help older people use public transport and get used to the norms, travel training or buddying are sometimes provided. Reflective group work would be beneficial where older people discuss giving up driving perhaps alongside others who have recently given up driving. The group could provide both emotional and practical support. Practical support could include the ability to share lifts in taxis and travel together on buses and to get together for discretionary travel for days out as a group (Musselwhite, 2010). Membership could be continuous rather than a programme or cycle of support as is found in an Australian support group (see Liddle et al., 2008, 2006, 2004). Travel buddying could accompany such a group where people new to a mode of transport are accompanied by an expert user. This can be popular for some and again can help overcome the anxiety of travelling alone and gain valuable understanding of the social norms.
7. Bus systems need to provide access to destinations of interest to older people themselves and Broome et al. (2013) propose that older people should be more involved in design of routes.

### ***Community transport***

As an alternative to conventional public bus services, there can be provision of specialist transport services, often operating door to door for people who cannot access public or private transport, known as specialist transport service or community transport or transit. Such services often run on demand and not usually to a scheduled timetable and are usually run by a third sector or charitable organisation. Such services can provide a lifeline for older people who would otherwise not be able to get out and about. They keep older people connected to services, shops, groups and clubs and offer an opportunity to socialise with other passengers (ECT (Ealing Community Transport), 2016). There are direct improvements on people's health through affording greater access to GP and hospital services and reduces missed appointments, improved diagnosis and therefore lower healthcare costs (ECT, 2016) It can also mean people are discharged earlier as they have access between hospital appointments and home (ECT Charity, 2016). Importantly, drivers can act as informal carers and can help identify early warning signs of illness or of loneliness and isolation, as well as offering social support to the passengers (ECT Charity, 2016).

There are some barriers to community transport use (Musselwhite, 2018c.) Services are very dependent on third sector and charity provision and as such provision can be somewhat fragmented across the country. Often the service can be based around a few key individuals, or in some cases a sole individual, running the service, often on very little money or in some cases as volunteers, and if they leave or the funding stops, the service may cease. The service is often provided around the demands of a number of passengers and as such cannot compete with the on-demand system of a private car or taxi. Since money is often an issue, the type of transport can often be old and of poor quality. People who may well benefit from such a service can sometimes feel the service is not for people like them; there is sometimes the perception that it is for people with disabilities, rather than for everyone with accessibility issues. Frequently, there is a lack of information and as a result much misunderstanding of the service (Parkhurst et al., 2014; Ward et al., 2013). Journeys typically are based around providing transport to shops, services and doctors and hospitals, but there needs to be more "discretionary" journeys provided to places of leisure and fun (Musselwhite, 2017).

**Point 4. That there are safe, supportive and inclusive age friendly transport strategy, policy and plans**

Transport policy across many countries is driven by economic interests. As a result, they often centre on commuting and travel for work, which results in transport policy centred on inter- and intra-urban, 9-5 mobility. Older people are less likely to fit this pattern of work and hence can be negatively impacted by such policy. Policy very rarely includes details on individual differences, such as age. Despite this there is much research to say that mobility and transport use can change and alter dramatically at key transition points (Avineri and Goodwin, 2010), including those more likely to be faced in later life, such as retirement from full time employment and the onset of acute or chronic conditions. To make transport policy more relevant to older people, it needs to include a life-course perspective.

Transport policy has a chance to help make mobility easier for older people. In the UK, concessionary or free bus travel does this. Integrated transport policy has been another attempt to improve door to door accessibility using public transport, reducing issues of interchange, bringing together distance, timetables, ticketing, information and service design between modes (see table 4).

Type of integration	Description	Example
<b>Locational Integration:</b>	Being able to easily change between transport modes (using Interchanges) - this is about services connecting in space	Over the last 20 years, the railways have developed 'Parkway' stations e.g. Luton Parkway, Bristol Parkway, Southampton Airport Parkway, East Midlands Parkway. A number of these also double as bus/coach/air and rail interchanges as well.
<b>Timetabling Integration</b>	Services at an interchange connect in time.	In San Francisco's Bay Area, the BART Metro links into local bus services at suburban interchange stations. Buses are scheduled to depart 5 minutes after the BART train arrives. However, a key aspect here is that both BART and the buses are state-owned and timetable integration is a result of a policy decision.
<b>Ticketing Integration</b>	Not needing to purchase a new ticket for each leg of a journey	Integrated ticketing already occurs in some large cities e.g. London Oyster Card, Plus Bus.
<b>Information Integration</b>	Not needing to enquire at different places for each stage of a trip - or that different independent sources are easily connected	Main line rail stations are beginning to provide poster displays of bus services from the station, the location of bus stops and a street map of the area within about a 5 minute walk. Real-time transport information is starting to be provided.
<b>Service Design Integration</b>	That the legal, administrative and governance structures permit/encouraging integration	This can easily happen when responsibility and planning for transport is devolved to local areas for e.g. Transport for London.

Table 4: Integrated transport and examples (after Potter, 2010).

This four point plan can aid older people's mobility beyond the car. It shows clearly different barriers and enablers to mobility for older people focussing between macro and microscopic layers and showing different actors and agents roles in making this happen. At the individual level, there is a need to address needs and motivations for mobility, examining the importance of practical and also the affective elements of mobility. As people age, they spend more time in their local neighbourhood and hence this can be a major barrier or enabler to being able to leave home. Almost all journeys begin and end in the neighbourhood and without a vehicle, so it is vital to get this right. Movement to further away places connecting the immediate neighbourhood to other communities needs to be age friendly. Supporting public and community transport must provide this role beyond the car. The neo-liberal approach of leaving transport provision to the market can lead to fragmented services, where provision is placed mainly around the need to work and to grow the economy. Hence there is a dominance of provision for private mobility, especially for cars and goods, leaving those on the margins of the mainstream, for example older people, at risk of exclusion and isolation. Therefore, all these levels need top-down support from policy to help integrate the different actors and agents involved from the different transport providers and smooth over any social exclusion occurring for older people as a result of disjointed transport provision.

## **Conclusion**

Traditionally, research has focussed on practical barriers to mobility in later life. This centres on the environment-competence mismatch, where improvements in the infrastructure environment will reduce deficit and improve mobility for older people. Many of the barriers to mobility in older age are psychological in nature. Mobility is related more than simply to practical issues and outcomes and involves an affective, emotive and psychosocial component. Mobility helps foster a sense of independence and normality involving a form of impression management and is related to self-identity and self-esteem. Since mobility sits within wider social contexts, social norms play an important role in defining accessibility to transport in later life. It has become so normal to use the car in many Western cultures, that using other modes of transport are seen as unusual. Having to give-up driving means older people have to engage with these alternative forms of transport, marking them as different or unusual; a barrier to integrating such practices into daily routines. It is sadly more unusual to be seen to walk or cycle than ever before in many western countries and even more so if you

are an older person. The norms of using a bus are often not known amongst a cohort who have spent most of their adult life driving, meaning using buses for the first time can be challenging. Planning for mobility for older people post-driving needs to take into account these psychological issues. To fully embrace transport in its social context, a change of research question and focus is required. It also requires a change in attitude from policy makers and practitioners to embrace such change. It may require practitioners and politicians to be more involved in the research process and to actively engage in the research findings in order to generate recommendations that will have an impact. In order to understand transport from the human perspective and answer the transport issues of the day, there is a need a more human-centred approach to transport studies.

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