



SCHOOL OF GOVERNMENT
Te Kura Kāwanatanga

Understanding, explaining and self-evaluating digital inclusion
and exclusion among senior citizens

Miriam Lips, Elizabeth Eppel, Barbara Craig and Shelley
Struthers

Victoria University of Wellington
January 2020

Table of Contents

Acknowledgements.....	1
Introduction	3
Background: literature review.....	3
Research objectives and questions.....	12
Research Design	12
Research Findings	14
Focus group participants.....	14
Thematic analysis of focus group responses	18
1. What makes seniors start using the internet?.....	18
First experiences of the digital world	18
Seeing and seizing opportunities to use the internet	19
Motivations to use the internet.....	20
Volunteer work supports internet use	23
Choosing not to use the internet for some things.....	23
Low and narrow users	24
2. Why do some seniors not use the internet at all?	25
Choosing not to is not the same as can't.....	27
Proxy use.....	27
3. What is the internet used for?.....	28
Communication.....	28
General knowledge and entertainment	28
Pursuing interests and hobbies	29
Business uses	29
Online banking.....	30
Government services.....	31
Health related services	31
Online shopping.....	31
Playing games.....	31
Memory aide	32
It's just part of everyday life/A tool to make life easier	32
Fear of missing out.....	33
4. What affects internet use?	34

Trust.....	34
Confidence affects internet use.....	35
Skills affects internet use	35
Frequency of use.....	36
Knowledge and confidence barriers.....	37
Caution.....	37
Bad experiences with devices or internet use can affect use	38
Cost of using	38
Social connection	39
Deterrent effect of frequently changing technologies and obsolescence of hardware and software	39
Coping with their changing world?	40
Coping with disabilities, mobility and sensory challenges of aging.....	41
Coping with cognitive deterioration and memory loss	42
5. Where and how do seniors learn to use the internet?.....	44
Where do they go to learn?	44
Grandchildren as helpers, teachers	45
Does type of help matter?	46
What works	46
What doesn't.....	49
Paying for help versus sources of help in the community	50
Missing out.....	51
Digital Senior Archetypes.....	53
Frances.....	53
Jill.....	53
John	53
Rawiri.....	54
Li Jing	54
Li Quiang	54
Tueila	54
Lila	55
Joy	55
Sue.....	55
Fay	55

Jack	56
Jenna.....	56
George	56
Mari	56
Discussion	58
Getting help.....	58
Trusted information for senior users	59
Cost.....	59
Continuing digital gap.....	59
Classification of digital inclusion types and what is needed to support them	61
Competent, skilled and self-actualising users	61
Competent, bounded using.....	61
Limited competence and cautious, non-confident use.....	62
Fearful non-use.....	62
Deliberate/wilful non-use	63
Financially driven non-use	63
Competence driven non-use.....	64
References	65
Appendix 1: Information for participants.....	67
<i>Understanding, explaining and evaluating digital inclusion among senior citizens</i>	67
<i>Understanding, explaining and evaluating digital inclusion among senior citizens</i>	68
Appendix 2: Focus group protocol.....	70
Appendix 3: Participant Survey	74

Acknowledgements

This research was conducted in partnership with the Digital Inclusion Alliance Aotearoa and with the assistance of funding provided by Internet NZ.

The Victoria University researchers would like to thank all the research participants who so generously shared their experiences with them. They are also particularly grateful for the logistical support for the interview arrangements provided by the Digital Inclusion Alliance Aotearoa which made the whole research project more easily achieved.

Introduction

It is widely accepted that people over 65 (called seniors throughout this research report) belong to one of the most digitally excluded groups in our society (see for example, Department of Internal Affairs (DIA), 2019; 2018). Accessing and effectively using digital technologies, such as Smart Phones and the internet, to achieve outcomes of increased societal participation, is referred to in this research as being digitally included. Access alone is not enough to be digitally included: Hannon and Bradwell (2007) warn us that access to technology doesn't mean that people make productive or beneficial use of it.

However, it is not well understood which seniors are digitally included and which are not and what digital exclusion or inclusion look likes in New Zealand. People have assumptions, but empirical evidence is lacking. This research aims to cater for this need by exploring why seniors in New Zealand are using, or not using, digital technologies to participate in society, and what the barriers to the use of digital technologies are for older people. Furthermore, the research findings and intended to be used as a basis for developing a self-evaluation approach to digital inclusion.

We begin this research report with an examination of existing knowledge on seniors in relationship to digital inclusion and exclusion in the literature. We then present the research design for this study, followed by the research findings and recommendations. Finally, we propose a typology of seniors' digital inclusion and what the various types might need in terms of support to help them become more digitally included. This typology could be used as the basis for creating a self-evaluation approach of digital inclusion among seniors.

Background: literature review

In 2017, Internet NZ, using data compiled from internet service providers, reported that 79% of New Zealand households have an internet connection. The 2013 Census had earlier identified that a disproportionate number of seniors lived in households without Internet access. Indicators in the Census also suggested that seniors qualifying for a Community Services Card (i.e. with a household income below levels specified by the Ministry of Social Development) were even more likely to be digitally disadvantaged. More than half of all households with seniors who qualified for a Community Services Card (54%) did not have access to the Internet, compared with 28% of all households. Consistently, Grimes and White (2019) from their analysis of existing large population datasets confirm Pasifika, Māori, those living in larger country towns, and older members of society as comparatively less likely to have internet access.

From a survey of New Zealanders' internet use carried out between September and December 2017, the Internet in New Zealand project reported that the percentage of non-users of the internet in the 65-74 age group was 10 percent compared with 3% in all age groups less than 65 years of age. In the 75-84 age group, non-use increases to 25 percent and for those over 85 years of age the rate was 50 percent. According to the survey authors, when these older survey respondents were asked about why they were non-users, the predominant answers for over 50 percent of the responses were that the internet was not viewed as being useful or they were confused by technology (Diaz Andrade et

al. 2018). The main barriers to internet use in New Zealand have been reported as cost, physical access, motivation, skills, capacity, trust and safety (Elliott, 2018).

The 2020 Trust surveyed nearly 3000 participants in the Stepping Up digital skills training programme and slightly over 500 (17% of these respondents) were over 65 years of age. For all of these people it was the first digital skills training they had participated in. A large proportion had only primary level education (37.3%); most were retired (88%); 9.96% were in part time employment; 2.3% fulltime employment and 6.3% did volunteer work. They used a range of devices. 87 percent had the internet at home and 34% connected via high speed fibre connection. As a result of the course more than 50% agreed that they felt more confident to use technology and the internet, and had acquired new skills and a better understanding of computers and the internet (2020 Trust, 2017)

The level of seniors' use in New Zealand is not unique and we see similar patterns reflected in the international scholarship on digital inclusion of seniors. In this section, we review this international literature as part of the sensitising background to our research.

Seniors and the Internet vis a vis other age groups

In 2016 in the USA, 82% of the young old (aged 65-69) were internet users, 75% of the 70-74-year-olds, 60% for 75-79-year olds, and 44% for the oldest old (age 80+) (Hunsaker & Hargittai, 2018:3941). Generational effects were also noted by Hargittai and Dobransky (2017), where the oldest seniors (80-97) were the least likely to be online (Hargittai & Dobransky, 2017). While 70% of 65-79 year old had a high speed connection at home compared to 73% in younger adults, this number fell to 47% in the older group who were also less likely to access the Web via a cell phone and rated their own internet skills lower on a set of six internet related terms (internet browser cookie, spyware and malware, operating system, refresh or reload, widget and JPEG file). The authors attributed this finding to these older adults having completed their working careers before the internet's mass diffusion (Hargittai & Dobransky, 2017; Hunsaker & Hargittai, 2018). Computer use prior to retirement has also been noted as a significant predictor of internet access in old age (Friemel, 2016; Hunsaker & Hargittai, 2018).

Davidson (2018) in a UK-based study found that 80% of people age 65-74 and 44% of those aged 75+ have used the internet recently. 36% (4.2 million) people age 65 and over are offline, lapsed or never users. 56% of people age 75+ have not used the internet recently.

Davidson (2018) concluded that there is a decreasing likelihood of using the internet as age increases. People at older ages (75+) are nearly five times more likely not to be using the internet than those aged 65-74. Davison also noted several other factors affecting the likelihood of internet use:

- People with the lowest monthly incomes (bottom 20%) were over 2.5 times less likely to be using the internet than those in the top 20% of the income bracket.
- Older people living on their own are more than two times less likely to be using the internet than households of two or more people.
- Those with mobility problems are 1.44 times less likely to be using the internet than those without problems.

- People without memory problems are nearly twice more likely to be using the internet than individuals with memory problems.

Differences in internet use

Although seniors have been shown to be less likely to use the internet, there is considerable variety of use among seniors and some are more likely to be digitally excluded than others (Van Deursen & Helsper, 2015; Hargittai & Dobransky, 2017). While important differences among senior non-users can be linked to gender, age, education, household composition and attitude towards the internet, significant differences among senior users were found to be based on life stage, social environment and psychological characteristics (Van Deursen & Helsper, 2015).

Gender and internet use

Whether gender is a significant factor in internet use is not clear-cut. Chu (2010) reported a significantly higher rate of self-confidence related to being an internet user for men than for women, while comfort with communication via the internet was the same (Hunsaker & Hargittai, 2018: 3942-3943). Van Deursen and Helsper (2015:184) found that female senior non-users were more likely to have an internet connection at home without making use of it, suggesting that among older adults, internet use is a male-dominated activity.

Education, income and internet use

A higher level of education is consistently linked with being a higher internet user. Older adults with a college degree are far more likely to go online (92%) than those with some college experience, but no degree (76%) and those with at most a high-school education (49%) (Hunsaker & Hargittai, 2018: 3942). A similar pattern was found by Borg and Smith (2018) in Australia.

The same findings hold for correlations between income and being online. Almost all older adults with high and middle incomes are internet users (94% and 90%, respectively); percentages drop dramatically to 67% and 46% for older adults with lower middle and lower incomes (Hunsaker & Hargittai, 2018: 3942). Similar correlations were found through telephone surveys of senior internet users by Hargittai and Dobransky, 2017.

Disability and Internet use

Reduced functional status or disability may impede getting online. Cognitive impairments are especially relevant for internet use among older adults. Activities that are increasingly becoming popular to do online, such as bill paying, making reservations, shopping, and communicating with family and friends, may become cumbersome to impossible with cognitive decline (Hunsaker & Hargittai, 2018:3943).

Digital inclusion outcomes for seniors

Research has shown that the Internet can help address issues for seniors of social participation, connectedness, and well-being by providing:1)communication opportunities with a variety of social ties (strong, weak, new, latent, etc.) regardless of geographic location, which can minimize mobility limitations and alleviate social isolation and loneliness, and 2) Information and services (e.g., health-related information, online shopping, banking, entertainment ,etc.) that can facilitate activities of daily living, social participation, and active ageing. Barbosa Neves and colleagues (2018) found that within the older age group, frequent Internet users had higher levels of social capital than other

users and non-users. That is it appears that the Internet can to help maintain, accrue, and even mobilize social capital. On the other hand, it also seems to reinforce social inequality and accumulated advantage (known as the Matthew Effect) (Barbosa Neves, Fonseca, Amaro, & Pasqualotti, 2018).

Internet use relates to better self-reported health and a lessened risk of developing a functional impairment (D'Orsi et al., 2014; Yu et al., 2016a; Hunsaker & Hargittai, 2018: 3945). Also associations have been found between internet use and greater social support, decreased loneliness, better life satisfaction, better psychological well-being and better overall mental health (Heo et al., 2015; Lam & Lam, 2009; Seifert et al., 2017; Hunsaker & Hargittai, 2018: 3945). Older adults who use online social network sites reported higher perceived support from friends and greater social connectedness (Yu et al., 2016b; Hunsaker & Hargittai, 2018: 3945).

In line with these findings, Hannon and Bradwell (2007: 21-22) report the following important triggers for getting online among their participants:

- Pursuing career interests in retirement;
- Researching family history using genealogy sites;
- Staying in touch with a geographically dispersed family;
- Accessing information about health;
- Shopping and price comparison websites.

Attitudes to the internet

Schreurs, Quan-Haase and Martin (2017) found that seniors sometimes felt excluded from the progress of technology and showed embarrassment about their limited knowledge. Despite this they were keen to learn and often excited by the prospect of gaining digital competencies. They were often curious about the devices and what they might be able to do with them.

Ball et al. (2017: 6) point out that attitudes toward, experiences with, and uses of the internet may differ for older adults from diverse socio-economic backgrounds and racial groups. However, in general they observe that seniors still tend to favour communicating face-to-face with their social ties more than via other channels, such as the internet. Compared to younger people, seniors are less likely to consider the use of digital technologies as acceptable during face-to-face social situations (Ball et al. (2017). They found that many of the participants have feelings of frustration, disrespect, and isolation as a result of the use of digital technologies in their presence across a variety of social settings and situations (Ibid). They described how many participants tried to control the use of digital technologies in their homes by setting rules to limit or outright ban the use of digital technologies in their homes when family comes to visit (Ball et al. 2017: 11).

Perceived usefulness and user acceptance of the internet

Macedo (2017) applied a technology user acceptance model to seniors in Portugal. She found that facilitating predictors of use were the perceived usefulness of the internet to daily life, the ease of use and the amount of effort required to use, differences were made by the pleasure received from use and the social reinforcement they received from friends and family.

The young-old have a higher prevalence of social media use than the oldest-old (e.g. 47% for ages 65-69 vs 17% for ages 80 and above (Hunsaker & Hargittai, 2018: 3944). The oldest-old are especially motivated to use the internet more for social connectivity than information seeking (Sims et al., 2016; Hunsaker & Hargittai, 2018: 3944).

Encouragement to use the internet comes particularly from children, grandchildren and friends (Friemel, 2016; Schreurs et al., 2017). There is reliance on peers and family members to teach older people, guide them through difficulties or to troubleshoot technological problems (Hannon & Bradwell, 2007: 14). Siblings and life partners are less likely to be frequent users and also more likely to be less encouraging (Friemel, 2016).

Internet skills and confidence of seniors

Hunsaker and Hargittai (2018: 3937) found that while the majority of older adults feel technology makes a positive impact on society, almost three-quarters of older adults lack confidence in their ability to use devices to complete online tasks.

Hannon and Bradwell (2007: 15) observe that older people are on the verge of using technology in exciting ways, but the evidence suggests that they often lack the know-how and confidence to make the leap. The younger seniors are more likely to have better internet skills and do more things online than more mature older adults (Hargittai et al., 2018; Hargittai & Dobransky, 2017; Hunsaker & Hargittai, 2018).

Among seniors, better internet skills, including general and social media skills, were associated with higher levels of education and higher income (Hargittai et al., 2018; Hargittai & Dobransky, 2017; Hunsaker & Hargittai, 2018; Davidson, 2018). Hargittai et al. (2018) noted considerable variation of internet skills by age among older adults. Hunsaker and Hargittai (2018) found that seniors' internet skills significantly improved as a result of training. Differences in internet skills were also attributed to prior employment (Hargittai et al., 2018; Davidson, 2018).

Van Deursen and van Dijk (2015) demonstrate a relationship between attitudes to the internet, medium internet skills, medium content skills and receiving benefits from internet use. Hargittai and Dobransky (2017) tried to isolate which variables in their survey population were most associated with lower skills and concluded that once education, age and income were controlled for then it was through online experiences and autonomy of use that older adults become more skilled and get more benefits from their online use.

Older people are less likely to feel confident in knowing how to manage access to their personal data online (Davidson, 2018: 21): less than half (47%) of people aged 75+ feel very or confident, compared to 85 per cent of those aged 16-24. People aged 75+ are also less likely to be aware of the ways online companies collect information about what they do online (e.g. 'cookies', registering with a website, social media accounts).

'Narrow' internet use

Davidson (2018) found that older people are not only less likely than younger people to go online, but those who use the internet are more likely to be 'narrower' users, carrying out fewer activities. 'Narrow' internet users are defined as those only carrying out up to four out of 15 types of online activities. The most popular online activities among people aged 65+ are emails and finding

information about goods and services. However, only around a quarter (27%) of this age group use social networking, compared to nearly all (96%) internet users age 16-24. Research on social networking use has found that this is often due to a perceived lack of purpose for engagement, problems with user interfaces, preconceptions about social networking sites, and concerns about privacy.

Narrow users place a relatively higher emphasis on communication and information-finding and less on transactions such as internet banking. This is confirmed by research that points out that older adults engage in only a small range of online activities, often aimed at communicating with family (Van Deursen & Helsper, 2015). Other research too shows that seniors in the older age group (over 69) rarely made online purchases, but did search the Internet for information about goods and services (Damant et al. 2017).

Privacy and security

Several authors found negative effects of the use of digital technologies on sense of privacy and personal security. Some authors further exposed fears about becoming victims of abuse and crime when using digital technologies, and subsequent negative effects on personal sense of security (Damant et al., 2017).

Non-use

Hannon & Bradwell (2007: 6) noted digital inequalities among people with the following variables: gender, age, race, educational background, geography and disability.

Berry (2011: 12) developed a system map for digital exclusion among older people. Variables include age, income, geography, education level, household type, employment status and type, psychological factors, computer skills, the local technological infrastructure and the cost of equipment and subscriptions. Berry (2011: 9) found that reasons for a lack of internet access include: material factors: cost of equipment (18%), cost of access (15%), physical disability (2%); non-material factors: don't need internet (39%), lack of skills (21%), don't want internet (20%), and 4% privacy/security concerns (4%). A research outcome from 2007 shows that older people who were more innovative, less risk averse and less prone to nostalgia were more active internet users (Berry, 2011).

The main reason for not using the internet in Friemel's (2016) study among older adults was that use is too complicated, followed by high effort to learn, safety concerns and concerns of technical problems. Also, other reasons are that another person provides information and sends e-mails (proxy users), costs are too high, lack of support, limited eyesight and hearing, obscene content, memory problems, low credibility of content, no time, and dexterity (Friemel, 2016).

Other research found the following reasons for internet non-use amongst seniors: lack of Internet attitude ('want-nots', negative attitudes about the internet or Internet anxiety), feeling too old, a lack of internet experience or internet skills, insufficient time and high connection costs (Van Deursen & Helsper 2015:174). Interestingly, of all older adults who do not use the internet, 43% indicated having internet access at home (Van Deursen & Helsper 2015:178). Only 13% of the non-users indicated intentions to use the internet in the future. Among all non-users, the ones aged over 75 were even less likely to consider future internet use compared to older adults aged between 65

and 70, feeling themselves too old. Older adults living with others were more likely to consider using the internet in the future (Van Deursen & Helsper 2015:179).

Several authors point out that, when asked, most older people who are not online say this is because they don't need it or are not interested. For example, Helsper and Reisdorf (2013) found that older adults were more likely to cite lack of interest in internet use, rather than cost or access as reasons for internet non-adoption. However, a lack of awareness about what the internet has to offer may also explain the lack of interest among seniors (Hunsaker & Hargittai, 2018). On the other hand, some people make a well-informed choice that it's not something they need.

Davidson (2018, p.20) reports the following reasons for older people (age 65+) in the UK to not have internet access at home: don't need internet (not useful, not interesting, etc.): 64%; lack of skills: 20%; have access to the internet elsewhere: 12%; other reason: 10%; equipment costs too high: 8%; access costs too high (telephone, broadband subscription): 8%; privacy or security concerns: 7%; and physical or sensorial disability: 2%. Qualitative research undertaken by Davidson (2018, p.20) for AgeUK echoed most of these reasons, with some interesting additions:

- Lack of skills, knowledge, and experience with the internet;
- Lack of belief in/understanding of the value of being online;
- Not for them at their life stage
- Outside their comfort zone;
- The internet is 'unsafe'
- Perception of high cost of equipment and internet connection
- Worry about loss of face-to-face interactions, or talking on the phone, or need/motivation to get out of the house;
- Use by proxy through family

Other authors too report Internet non-use among seniors as a result of proxy internet use via others: or non-users asking others to use the internet for them (Dolnicar et al., 2018; Selwyn et al., 2016; Hunsaker & Hargittai, 2018). Van Deursen and Helsper (2015) found that, of all older adult non-users, 39% indicated having asked someone else to do something online for them.

Differences among seniors

Researchers in various contexts have described a spectrum of internet use and access and many attempts have been made to classify online activities, as well as to classify internet users (see Blank and Groselj, 2014). Research by Demos (Hannon & Bradwell, 2007) advanced a typology of older people according to their psychological approach toward using the internet. They identified four distinct types of older person:

1. the *non-line outsider*, who is not generally averse to using the internet, but is hampered by fear and uncertainty. Rather than talking about this older individual as 'excluded' (with the underlying assumption that the exclusion will be permanent) it is simpler to speak of them as not online – or 'non-line'. Often they openly wanted to get connected but were hampered by fear and uncertainty. They may also be affected by structural barriers such as lack of appropriate technology or financial resources. This user is more likely to be from the generation of 75+ (Today's old).

2. the *tech sceptic*: from the 'Tomorrow's Old' generation (55-65), this non-user is critical of technology and the Internet in particular. They resent messages from advertising, family or peers

that suggest that they should be digitally engaged, and they personally fail to see the relevance of the internet for their own lives. For this non-user it has become difficult to alter their position after several negative experiences. The 'tech sceptic' is often dependent on others for carrying out basic tasks on the internet;

3. the *cautious toedipper*: this older user has tentatively embraced the Internet for basic tasks but is wary of trying new websites, software, or hardware. They are likely to rely on 'trusted brands' which have an online presence. However, they described how only a small amount of encouragement or support enabled them to try new things online; and

4. the *digital trail-blazer*: adventurous about trying out new websites and ready to enter into online social networking, this user is at the forefront of their generation when it comes to new digital practices. There were examples of older digital trail-blazers across both the younger and older groups, although in the 75+ age bracket the pioneering spirit was more in evidence. They have become evangelical in their enthusiasm for the internet.

Hannon and Bradwell (2007) found that the over 75s were more likely to be non-line outsiders, while 55-65s were more likely to be tech sceptics. However, the maintenance of human contact was imperative for all participants. Non-users tended to be more vocal about this idea (Hannon & Bradwell, 2007: 19).

In their survey of 490 Australians broadly reflective of the population's gender, location, education and income, Borg and Smith (2018) classified their respondents by their dominant internet use pattern into *non-users*, *sporadic users*, *social media and entertainment users* (predominantly use the internet for communicating with friends/family in addition to entertainment-related behaviours), *instrumental users* (searching for information and accessing services) and *advanced users*. Their respondents over 65 years of age were proportionally more highly represented towards the non-user end of this spectrum (respectively: 70.6%; 42.4%; 27.2% 13.8% and 5.7%) compared with much higher weighting to the advanced user end in younger age group.

Getting help and learning

Hannon and Bradwell (2007) found in their research that most participants had at least one trusted 'digital mentor'. Most commonly, it was a member of their family whom they could call on when frustrated.

They also found that IT courses offering intensive bursts of tuition do not always meet older people's specific needs, which may be long term and less structured. Their research suggests that older people would prefer to learn from someone they know who has the patience to repeat instructions (Hannon & Bradwell, 2007: 30).

According to Hannon and Bradwell (2007: 13) class-based learning was not always appreciated as it both fails to give the tailored support and risks making underconfident users feel 'slow'. One-to-one training and continuous tuition were key. Unless support is tailored to meet their needs, many older users will struggle to keep their IT skills up to date with rapid developments in technology (Hannon & Bradwell, 2007: 14).

Some authors comment that digital inclusion providers need to find ways to engage older people through activities that interest them. Training needs to be personalised and flexible and delivered at the older person's pace with ongoing support.

Davidson (2018, p.23-24) provides the following advice on engaging older people in digital learning:

- Make the content relevant to the learners, showing the value of going online. Focus on the activities of interest that can be done online, as well as important and necessary things like accessing services, rather than just 'going online' or 'using the internet'.
- Help learners build self-efficacy – show them that they CAN 'do it'.
- Make the learning flexible and at the pace of the learners. One-on-one support at the older learner's pace and aligned to her or his interests is more likely to sustain her or his engagement. For some older people, learning may take longer given changes in thinking skills as we age.
- Group sessions might be best if all of the learners are older people, who may feel less embarrassed about their own skill and knowledge levels if they are with others 'in the same boat'.
- Avoid the use of jargon, and explain terms that are necessary – don't assume prior knowledge.
- Ensure ongoing training and support are available to help people continue to use their skills and know who they can contact if problems arise.
- Physical accessibility and transport are very important factors. Many older people prefer to attend training near home or somewhere easily accessible or familiar, and not after dark or in bad weather conditions.
- Some studies and evaluations have suggested that intergenerational teaching works, but this needs to be handled with care. Some research has found that young family members get impatient with older people's slower learning speed and need for information to be repeated (sometimes many times), and they tend to use jargon and assume prior knowledge. Intergenerational teaching programmes can avoid these problems by ensuring that the younger participants understand older learners' needs as part of preparation for the programme.
- Because of the potential for cybercrime, it is imperative that training programmes teach people how to use internet safely, protect themselves from scams and fraud, protect their privacy, etc.

Research objectives and questions

It is not well understood how and why different groups of people choose to use or not use digital technologies such as the internet and smart phones to allow them to participate in the world. Accessing and effectively using digital technologies, such as Smart Phones and the internet, to achieve outcomes of increased societal participation, is referred to in this research as being digitally included. We also understand digital inclusion as a dynamic concept where the shift from digital exclusion to digital inclusion is not necessarily permanent or definite. Moreover, the achievement of digital inclusion outcomes is contextual. As such, we want to know how, and under what conditions, people begin to use digital technologies to achieve outcomes of increased societal participation. And when people choose not to use these technologies, why they don't.

Our research objective is to develop an evaluation approach to digital inclusion among seniors (people aged 65+ years). In order to do so, we wanted to understand and explain why seniors are using, or not using, digital technologies to participate in society, and what the barriers to the effective use of digital technologies are for older people. Our research led to a number of archetypes of Internet users and non-users. Together, these archetypes formed a categorization of Internet users and non-users that individuals can apply to evaluate themselves on a continuum from digital inclusion to digital exclusion.

Research Design

The purpose of this research was to understand why seniors are using, or not using, digital technologies to participate in society, and what the barriers to the effective use of digital technologies are for older people.

A qualitative, inductive and interpretative research methodology was used for data collection. The research was conducted in the Wellington and Wairarapa regions. The reason for this selection were pragmatic in terms of cost and travel for the researchers and also because the Wairarapa has the highest percentage of households with seniors in New Zealand as well as a number of current digital inclusion interventions.

Fifteen focus groups were organised, each with 6 to 10 participants. In addition, 9 interviews were held with seniors who lived alone and were home bound. In total, 158 seniors participated in the research.

Focus groups were organised via intermediary organisations representing or working with seniors such as retirement village residents, churches, Marae, community service providers, the RSA, U3A, a library Digital Seniors and Senior Net. These organisations were asked to disseminate a leaflet with a call for recruitment for the research amongst seniors in their networks. While we encouraged these intermediary organisations to aim for representation of both non-users and users, in the end we needed to accept the best range we could get from those who volunteered to assemble focus groups of 6-10 seniors for the research. Efforts were also made to ensure that the focus groups broadly reflected the overall population composition and, in particular, people with lower incomes and education levels. The nine homebound individuals were recruited with the assistance of a regional library. The member of the team who facilitated these arrangements has recorded the process through which suitable organisations were identified and approached. Finding a contact person for each of these organisations was a matter of persistence and some help from personal networks.

Inevitably so organisations we would liked to have involved either did not respond or in some cases did not follow through after our initial contact.

In each focus group, some self-selection bias appeared to happen in that seniors with an interest in digital technologies tended to come forward more readily to talk about their use of digital technologies and participate in the focus groups, compared to those who are not interested in using digital technologies. In addition, participants from low socio-economic backgrounds and those from Māori descent were underrepresented in the general focus groups. To remedy this, direct approaches were made to seniors connected to Marae and iwi-based groups.

Each focus group lasted approximately 60-90 minutes. Before the start of each focus group participants had the research aims explained to them and were able to ask questions. Participants were then asked to agree in writing to participate and to fill out a short survey questionnaire to collect some background information. The nine individual interviewees were also asked to fill out the short survey questionnaire before the start of their interview. Each research participant received a \$50,- food voucher as an acknowledgement of their contribution to the research. The information provided to participants, the focus group protocol and the participant survey form are included in Appendices 1, 2 and 3. The data about the participants reported later in this report are drawn from the participant survey form. The research was granted approval by Victoria University Human Ethics Committee.

The data were thematically coded with the assistance of NVivo software. Later the thematic data was used to construct a number of archetypes of users we saw in the data. In a final stage of meta-analysis, the archetypes were clustered and described as seven broad types of users or non-users and for each we propose the assistance each of these types identified themselves as needing to use the internet.

The research design aimed to build a rich description of the digital experiences of seniors. It was not intended to provide representative data but rather to illuminate the complexity of the personal decision making and contexts that lead seniors to effective internet use and assist in the building of a methodology for measuring and monitoring digital inclusion in communities that are known to be digitally disadvantaged.

Research Findings

Not all of the 158 people interviewed, either in focus groups or individually, fully completed the short survey form we used to gather some basic demographic and use data (see Appendix 3 for a sample form). As a result, the numbers accounted for in the following graphs are slightly less than the total number interviewed but were deemed sufficient to be representative of the total. The constructivist nature of the research was intended to provide in-depth data about why and how people do what they do in the internet. There was no expectation in the research design for the participants to be a representative sample although the researchers did try as far as possible, within the limitations of participant self-selection, to obtain a participant population reflective of the general population. This information is provided here to give a brief snapshot of the research participants.

The proportion of female participants (71%) exceeded what could be expected in the population (54%) (see fig 1), but ethnicity was roughly in proportion with the general population (see fig 3). We had a fair age distribution of those over 65 with a mode in the 75-79 age bracket. The participant numbers were more highly weighted towards the 75-89 group at the expense of the 65-75 group than we would find in the general population. The education level of participants is higher than the general population in the age range: 42% with a tertiary level qualification compared with 14.6% with a qualification of Level 7 or above in the general population. Smart phones, tablets and desk computers or laptops were the most common devices used and many, as we will see in the data to follow, used all these many times a day, while others had access to them and didn't use them and some had neither access nor use.

Of the 146 people who gave us data on their living arrangements, 57 or 39% live alone while 77 or 52% live with a partner, other family members or another person. 12 reported they lived in a retirement village (see Figure 6). Most of the participants (130 or 86%) reported that they live in a home which has the internet connected which suggests that our participants do not well represent the lower end of the range identified in the 2013 Census (see Figure 7).

Focus group participants

Figure 1: Gender

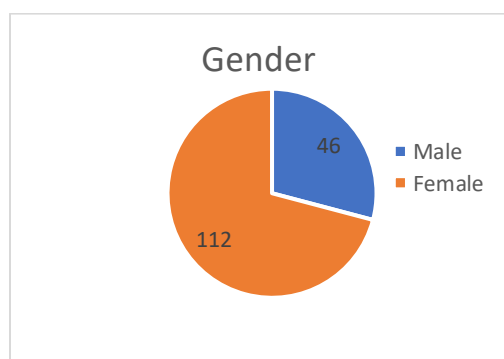


Figure 2: Age

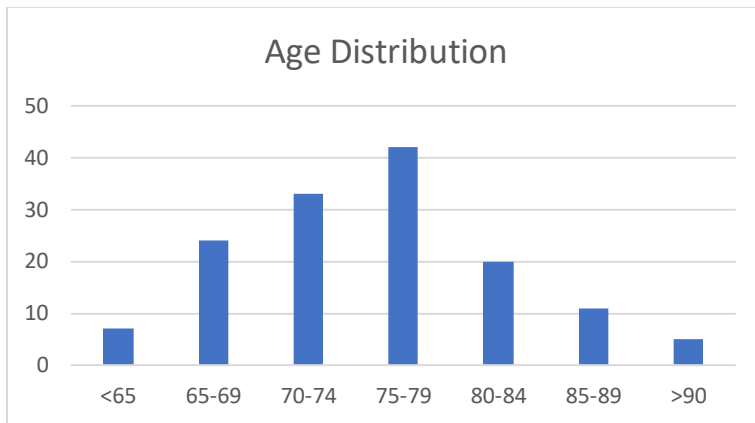


Figure 3: Ethnicity

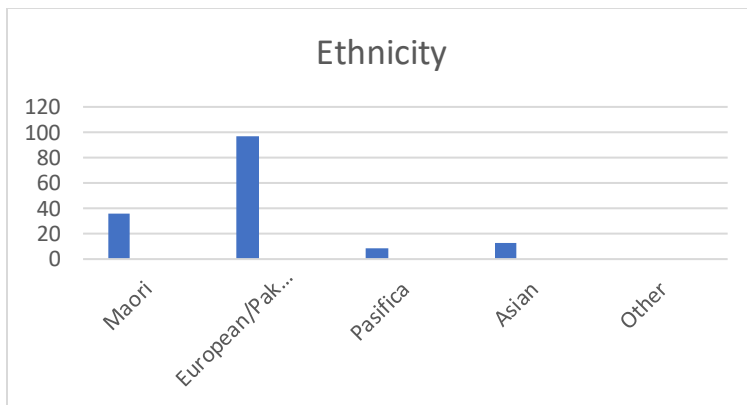


Figure 4: Education

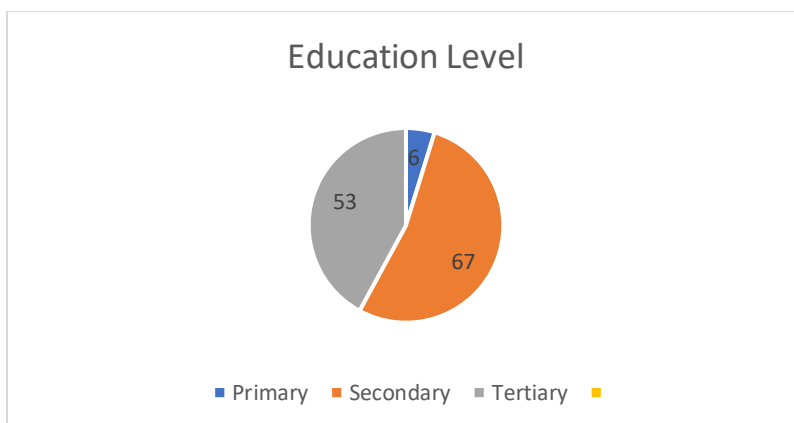


Figure 5: Devices used

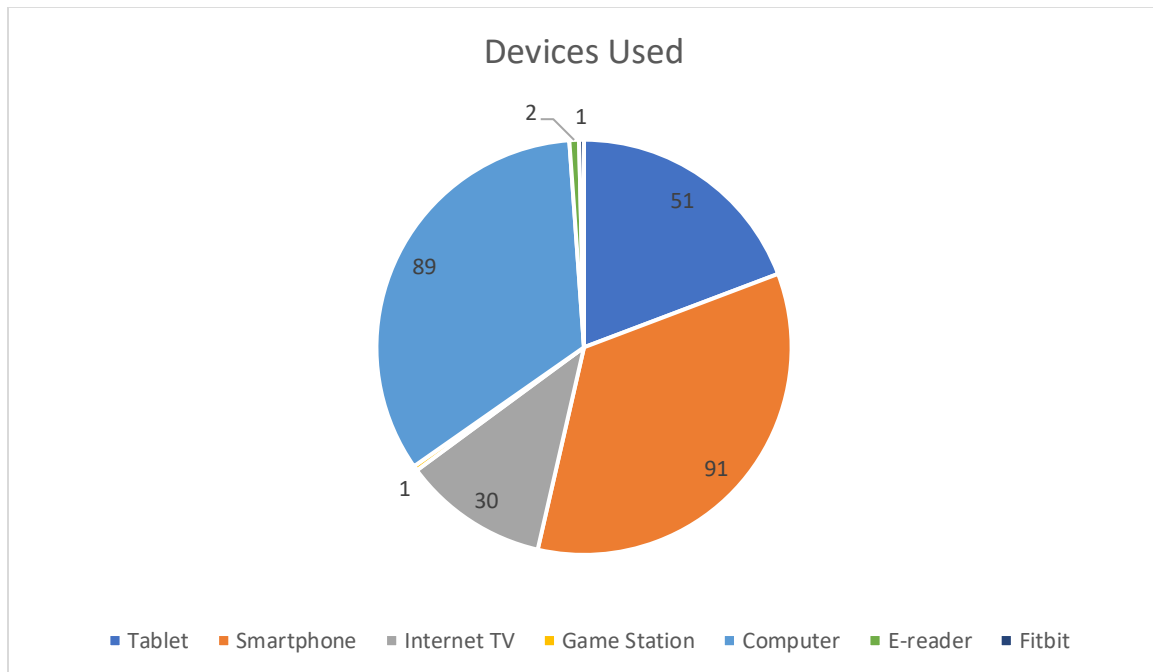


Figure 6: Living arrangements

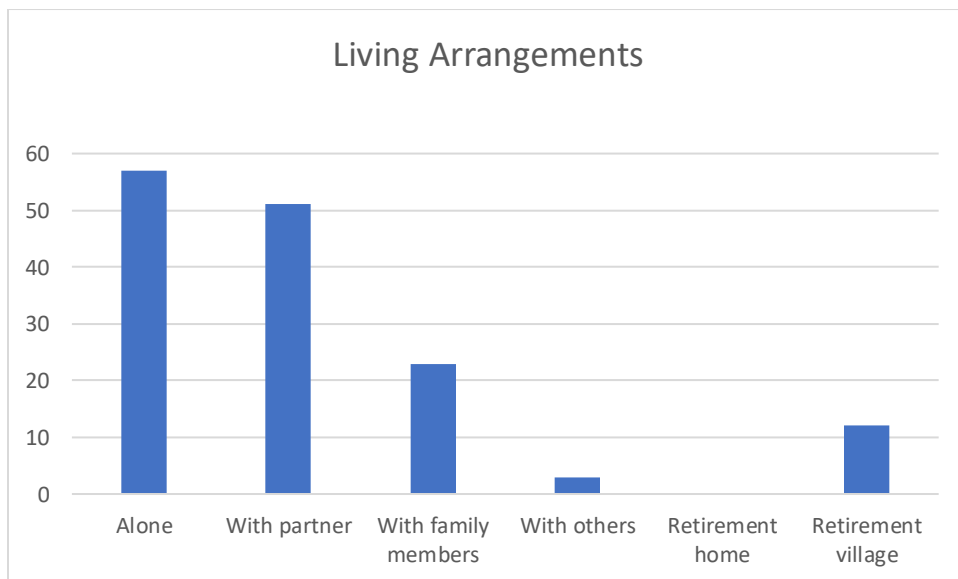
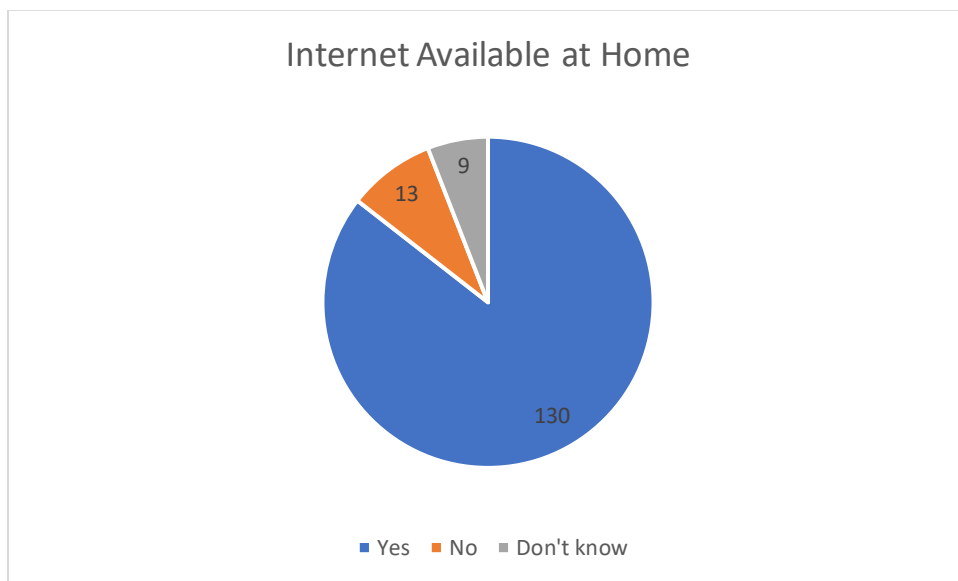


Figure 7: Availability of internet at home



Thematic analysis of focus group responses

In this section the responses given by focus group participants are clustered against a series of thematic questions related to the overall research question: Why, and when, are seniors effectively using, or not using, digital technologies to participate in society, what do they use or not use and what are the encouragers of and barriers to that effective use. Section one explores how seniors came to be using the Internet and digital devices and the extent of their use. Section 2 follows with analysis regarding those who do not use the Internet. Section three examines a range of diverse internet uses and contexts for use among the seniors interviewed, while section 4 highlights factors that affect seniors use and section 5 canvasses the things we were told about how seniors learn about the internet and how to use it and what works well or less well for them. These five sections are followed by a series of archetypical portraits we synthesised from the range of people we encountered in our data.

Quotes are annotated by reference to the interview they are taken from. In general, we have not tried to identify the age, gender or ethnicity of a respondent. The exception is instances where an entire focus group belonged to a particular ethnic group, as was the case for a group of Māori, Chinese or Pasifika participants, this might be noted.

1. What makes seniors start using the internet?

First experiences of the digital world

Younger seniors often had an opportunity to experience the internet and get some training and use experience during their working lives.

It was email for me too, when I was working.... The internet arrived, and I was given an email address. One of the first things I did was write to my brother in England and he wrote straight back. [FG3]

Because of this work experience, they had often already integrated internet use into their non-work life before retirement.

I sort of grew up with internet working, and I've stuck with it ever since. It's just evolved and now I'm using it just to keep myself up to date. [FG10]

At work for 30 years I had computers and did everything that a business wanted to do with a computer, and I've continued that in retirement. [FG6]

To work you had to keep up with the technology – especially emails. You started working through emails and being connected, and then at home with the children with homework, and changing scenes with the kid's development. Survival; keeping up with the play, otherwise you get left behind. [FG 5, Pasifika]

Most of the people who identified themselves as high users of the internet: those using multiple devices and many times a day to do a range of activities and tasks, had begun this way.

At the other end of the use spectrum, some seniors seem to have missed finding out about or using the internet through their education, work experiences, or home circumstances.

Even when it first came on, I was busy travelling New Zealand ... and I know a lot of oldies did use it then, but I never had time; I was too busy working, because I used to look after farms, train cattle – this sort of thing. By the time night-time came, I was too tired. Yeah, so it wasn't a big thing in my life, because I think I'm that old now that it's never been a big thing in my life, even when it first came in. [Homebound]

As a result of their lack of experience some have remained quite fearful of the internet and using online devices.

I'm totally not going to use anything of those things. ... I don't like to use the technology nowadays. I only got the home line; that's it. We've got the computer in the house – my daughters – and cell phone they gave me. I said, no – I'm alright. I want to face to face the people to talk to; that's the way it is [FG 5, Pasifica]

Never. Don't like it. It actually scares me. Yeah, it really scares me. I think perhaps I'm probably more worried about other people getting into your privacy. [FG7]

Lack of skills or self-confidence to use the internet themselves had led some seniors to rely on other internet users to do things for them where the internet might be a necessary or an easy choice. We labelled these people 'proxy-users'. We noted in the stories we were told that for a number of such proxy users the strategy of relying on others had the risk that the person relied upon might not always be there.

My husband died, so that was the end of computers and things like that. [FG 5, Pasifica]

Those over 85 were less likely to have used the internet in a workplace or received training there to do so and so many of this age group remained less aware of the capabilities of the internet and what is available.

Yeah, I don't use a tablet, because I haven't got one, but we have a mobile phone (shows older non-smart type). It fits nicely in the pocket and everything else - that seems to do what we want to do (text and phone). We're not really interested in all this nonsense of going on and playing games and all that. [FG1]

Sometimes the facilitators needed to explain about the internet and the different types of technology and devices to help the participants answer a question about their use. For example, what is a smart phone?

Is a smartphone a brand or – because I have a Samsung phone, but I don't think it is a smartphone. I have no idea what that is. [FG 5]

The same sort of conversation was around what is an internet TV or a Smart TV when others referred to one.

Seeing and seizing opportunities to use the internet

Becoming a user of the internet often occurred when an opportunity arose for doing something valued that could not be so easily done otherwise. We were told many stories of an App or use

which triggered this kind of response. This could be travel by the senior or their family and wanting to stay in touch, or a convenience service such as online banking or shopping.

With my phone I am staggered at how useful some of the Apps are, that my daughter when I got it insisted on putting on it. Like the Metlink App. I can see whether there is a bus that has been cancelled or whether it is on time. So, some of them are a godsend. [FG3]

I have a phone and an iPad my husband bought me. I wouldn't have bought either of them myself. ... I use it if I am stuck in Wellington and can't find what I'm looking for – very useful. I have the iPad for emails, Skype my daughter now and then. I use it for appointment reminders. I use Google for dictionary and for weather, Stuff, banking, bookings, Trade Me. I do volunteer work, so the newsletters for that are useful. TV On Demand, Libby – the library service, Stuff, and baby pictures. [FG4]

These opportunities are not always welcomed or acted on. It was not uncommon for older people to have been given devices by family members only to have the older person reject the device and what it offered and stay with what they had always done and felt comfortable with.

I have a son who bought me a Smartphone because he wanted me to do WhatsApp. But I said I didn't want him to know where I am all the time and I don't want to know where he is all the time either. ...I actually got my SIM card put back into my old brick and my Smartphone is sitting in my cupboard. [FG3]

Many others have had a gift device turn into a valued addition to their lives.

I never wanted [a smartphone], because I was happy with the little one. How I got this - I cleaned my daughter's house and she paid me [with a smartphone], and I really didn't appreciate it – not that much, until I started getting photographs. So, yay – I say, okay. Then, I do Gmail on this, and the other thing that I like is internet banking. I've learned to do those things. [FG 5, Pasifica]

I'm quite happy and look forward to more and more information that's coming out – more technology that's coming out. I never thought I'd be a technophile, but I've become one – I just love it. [FG 9]

Motivations to use the internet

Other than being given a device, there are various motivators for people to acquire a modern device and start using the internet. Children and grandchildren were often cited as the motivator.

Trying to keep up with the moko. That where they post all their stuff now and keep you up to date. Although some of it you can do without. [FG11, Maori]

Until one of your kids come around and say, 'oh Mum we have to go on the internet'. That's probably why I signed up months ago. [FG 5, Pasifica]

I got the internet put on because of my daughter when she was at college. She wanted it. She said if you want to get anywhere in the world you have to use technology. [FG14, Maori]

She has a daughter in China and she loves to chat with her. Otherwise she doesn't know how to use the internet. [FG14, Chinese]

Just Facebook for my everyday catch up with my kids and grandkids. I don't get involved in their chats because it's their thing. [FG13]

Moving around, travel and wanting to stay in contact with family and friends is another motivator.

My family got me started. I was away from my family for a couple of years and when I was travelling backwards and forwards it was a way of keeping in touch. If anything happened along the way I could contact someone. I am still really learning how to use it. If anything goes wrong, the phone is to blame not me! It's also a way of using my Visa card. If I want to catch a bus and travel up the line, I can do it on the phone. I get voting papers sometimes from our trust that way. [FG14]

Very easy and convenient to use the internet. She feels because she has immigrated to NZ and her English is not good, she felt isolated from family and friends and others. So, I had to search for information to get to know things I needed if I wanted to stay in NZ. [FG14, Chinese]

Another motivator is supporting an interest, a hobby or an activity.

There's so much that people aren't aware that they can do. The book review – if you're interested in books, Mr Google is a great guy to have on your side. And Wikipedia! [FG6]

Yes, I do use for resource purposes, for my church and also to look at words – the meaning of it. Education – and cooking. I enjoy looking for recipe, mainly chutney, cakes- anything that I wish on the day that I don't want to go out – I don't want to do anything except cooking – filling my tins for my grandchildren. [FG 5, Pasifica]

Mainly for my entertainment, but it comes handy, you know; if you want to know something. I learn a lot from the internet. My kids were surprised; 'oh, Mum how did you do that?' I said, 'have you heard of YouTube? I Google it and then I YouTube it – and I fix it myself. [FG 5, Pasifica,]

How to prune my roses. Went on Google then looked at gardens and pruning. I got a video of how to do it. I did it on my computer with Wifi at home. [FG16, Māori]

Communication with friends and family overseas was a strong drawcard.

I then went on to email and have much more interaction with children and grandchildren overseas [FG3]

I like Skype and Messenger because it is face-to-face and it free. [FG15, Māori]

Also, when someone has been relying on someone else using the internet for them and they die or move away, this can create a motivation to use it. This motivation is particularly strong for those who live alone or are homebound.

Well, I never touched it while he was alive. My daughter came over from Australia and sort of sorted everything out, and they gradually introduced me to it, I suppose

about two or three months after he died, and I just gradually sort of got taught here and there, and picked it up. I'm not very proficient at it, I must admit, but it gets what I want. I talk to my daughter in Australia every day on Skype, and I can contact some other people that are sort of in the same – what do you call it? They're actually friends. [Homebound]

When living alone the internet provides a way of being connected and less alone. This can also apply where some sort of disability that limits mobility is involved.

I'm happy with the internet thing. ... Well, my life was slowly going to what I am today, and sitting at home doing nothing – it soon gets boring without the internet, unless you've got someone to talk to or something to do, eh? It helps a lot, especially when you're home by yourself. [FG9]

Sometimes time and money-saving convenience was enough to stimulate use. When seniors see how other users are doing things and they decide that will be good for them too.

I can see a lot of value in being able to do transactions and banking and that sort of thing on the phone or on your laptop, because as you get older the ability to get out sometimes and catch buses if you can't drive, and that sort of thing, it becomes harder and harder as you get older, and less able. [FG8]

Seeking information; like bus timetables; internet banking. I got tired of wasting money and time travelling all over the place to do things. When you press a few buttons on your connected device – there it all is, laid out in front of you. [FG14]

I use it for the Inland Revenue – for tax – GST. I've got my house which I've been signed up to now and I'm finding that very useful and helpful. I don't do a lot of online shopping, but I have bought a few things online. I mostly rely on my husband to do the banking, but our banking is done online, but I don't do it, and I'm aware that it's one of the things that I really haven't learned how to do, so I do need to do that. Other than that, I'm using it more and more, and becoming more confident I suppose. [FG7]

Yes, Maps is great, ... I find if I'm on the bus and I have to find a shop in Petone, I sit there on the bus and I say, where's that shop? Then it tells me where to get off. Then there is a walking grid. I hardly ever try to work it out myself. I just put it on the phone and it tells me how long to get there. That works worldwide. [FG4]

There are also knowledge, skill, trust, confidence and physical barriers to be overcome. For example, knowing about the internet and its capability and what to trust or not trust.

I've done the census online. Apart from that, I do no online shopping, no Trade Me – not those things at all. I don't even do online banking. I've been shown how to do it. I've found it more complex than writing a cheque, and also, I don't trust so much, and I don't trust myself. Over the last few years I've noticed myself making stupid little mistakes – a wrong number here – a wrong gate here. I thought, well if I do that on the computer, I'm getting myself in a pickle that I won't know how to get out of. So, I keep on with the old way that I've always handled things. [FG7]

As an elderly person, there's a lot of things I am not as savvy as those children born into a culture of technology. ... Most of us don't use the internet, because we don't know how to use it. Most of us have the internet, but we don't know we have it [FG 5, Pasifica]

Volunteer work supports internet use

For a number of people, their volunteering experience brought them into contact with internet use and kept them up to date with modern applications and risks.

My friend Isabel here is helping the three of us work at the CAB, and we've got a whole new system, and it's taking us a wee while to get used to it, because it's totally different from the previous one, which I've been working on for 15 or so years. [FG 8]

Choosing not to use the internet for some things

There is a large amount of personal preference about the amount of time spent on the internet and the circumstances which affect what people do or don't do online. Sometimes the choices are purely related to time-use preferences.

I resent the time. I am by nature an active person. I said I read books, but rather than watching TV, a lot of the nights I go to bed, and that's my reading time. I do resent the time, even when I was having lessons with the computer, sitting there. I was thinking, I'd much rather be doing something. ... Like, looking through recipes and finding new meals to cook, because I love cooking. I like to visit my grandchildren. I like to help my elderly neighbours ... so yeah, my time is important to me, and I look at people sitting hours on a computer and think, I couldn't do it. I resent that time, yeah. [FG8]

I do have help. I do have people I can call on, but you made – you said something before that resonated with me; you said, I resent the time. I am by nature an active person. I said I read books, but rather than watching TV, a lot of the nights I go to bed, and that's my reading time. I do resent the time, even when I was having lessons with the computer, sitting there. I was thinking, I'd much rather be doing something (else). [FG6]

For others selective use was motivated by perceptions about the security or otherwise of particular Apps and the availability of alternatives.

I don't use Facebook, but I do use Whats App for communicating with family because it is encrypted end to end. But you do have to log out of Facebook since they took it over. I read the terms and conditions and in there was the condition that Facebook can access your messages, so you have to explicitly disallow that. I did that straight away and I have to hope the information isn't available to anyone else, the it is encrypted, and it is just the family members who can see it. I do like Whats App. Our family are spread overseas and if you send a message they do get back to you. [FG3]

I use it or not use it. With the phone I choose not to use it. I just don't want to carry it around 24x7 and have my life defined by the phone. Happily, I have the intelligence to make those informed choices. [FG13]

In particular we found that the traditional copper wire home phone is strongly supported by many seniors for its familiarity and keeping in touch with older peers.

... I still won't get rid of the landline. [FG3]

I love my landline for having a chat with somebody. I don't use the computer much, but for instance as a gardener, if I want to look up a plant or something like that. Emails I just deal with them when they are there, but I am not in email contact with many people. Skype I like using for seeing family. Facebook for the wider family. I don't put anything on but I like seeing the wider family, cousins and so on. I really don't sit in front of the computer for very long. [FG13]

Lack of regular use can be an impediment because devices are not charged and ready when an opportunity to use arises, and sometimes people find that they have forgotten how to use or the device needs updating.

I use the computer most days. I have an iPad, but I don't always have that charged up, so I'm more likely to not use the iPad - and go ahead with the laptop. I find that I get impatient because I want things done instantly, and often it's quicker for me to go to the phone book and find a number than wait for the computer to turn on, wait for it to fire up and then try find the number I want, when I can go to a phone book and get it straight away. ... The other thing I have trouble with is the fact that quite often I've been using something constantly and I might not use it for a week or so – come back, and it's all been changed by the updating of the computer system. I find that really confusing, and I think I can't be bothered with it, and I walk away. [FG8]

And if family live nearby then the communications Apps have less appeal because social contact needs are met in other ways.

I don't need it for my family; they all live round about. We speak on the phone or meet up once a month together for a meal. [FG7]

Low and narrow users

Many seniors are quite limited in what they attempt to do. For example, just email or just one communications App like We Chat or Whats App to stay in touch with family and one device on which they do this. Among this group are some content with the one or two functions they have mastered and they are unambitious about going further.

I use the computer, but I don't go onto anything else on it, except maybe some mail – see who's written to me. That's all. [FG7]

I use my laptop about checking my email about every three days, and use it mainly for email to the family. [FG7]

I wouldn't do much in the way of business anyway on the computer or anywhere. I don't sort of participate in very much that requires my input. I wouldn't put banking on the internet, even if I used it. [FG6]

I think there would be a limit to what I would – I wouldn't want to have all those Apps, and having to reply to them and that. I've just found out that that's what keypad means; you push keypad on your phone to get to where you're dialling. ... The rest of the other times, I'm looking all over the place with it. ... That's where I'm at, anyway. [FG11]

We also detected some who 'get it' and have become curious and open to learning more. Their narrow use is just the starting point for possibilities they see ahead for new devices and apps because of the learning occurring from what they see others doing.

I should learn more, but I just don't want to learn a lot. With the internet I'm just quite happy with what I do, but I definitely will endeavour to learn more about a new phone, and take photos perhaps. [FG8]

I use quite randomly, I suppose. I've got a cell phone, which I actually bought because I thought you ought to know how to use one, because people would often say, oh just answer that for me, or just hold that. I'd say, what do I do with this thing? So, I thought, if I get one then I'll know how to use it. I'm still at the moment. ...I deliberately don't have any part of Facebook or any social media, because I don't want to, but I do use email a lot, and obviously use the phone more and more. Very seldom now give people the landline number; I give them my cell phone number. So, that's gradually taking over. [FG4]

2. Why do some seniors not use the internet at all?

Seniors who do not use the internet are under-represented in our data. This occurred despite the research team making efforts to recruit non-users and we sense some self-selection at play among participants. It was common for the non-users we did manage to recruit to tell us they had nothing to tell us although they were always reassured to the contrary that understanding their non-use and the reasons for it was just as important.

I haven't got a computer. I don't do any of those things. I'm an absolute fraud. I told [the FG organiser] I don't think I should be here. [FG6]

I don't have a phone or any internet device. Since my [mobile phone] network provider closed down their old 2G service I have needed to buy a new phone and I have looked but there is so much on offer and such a price range, I am just confused. So, I haven't bought anything to replace my old phone. [FG13]

Further, many of the non-users actually lived in homes with the internet connected¹ and used by others in the household.

¹ 130 of the 158 participants reported that there was Internet connection in their home.

A common feature among people not going online was failure to recognise a use that would make a significant improvement to their lives.

There's nothing that's ever popped up that I thought, oh god if I knew this. ... There's nothing. Nothing I do or don't do would make a difference. I read magazines, I watch television – I do various things, but there's nothing I can't do, because I don't know anything about computers. So, quite honestly; I'm horribly content as I am. [FG9]

I don't do anything. I play the piano, but you're not interested in that. I've never used the internet. I have got an answerphone; that's my one bit of modernity. [FG6]

Some cannot afford a device or haven't got around to getting one although they could see advantages.

I haven't got a Smartphone, but one day I hope I will. My daughter and her [husband] ... I just watch them and see what they do with it, and it's amazing. I just think, well that's what I want, but I have to get one first, and then I would have to learn to use it. [FG9]

Just occasionally I think – I could get an Uber. And I can't. I guess I am spoilt by having family nearby. I don't want to spend all my time on it but I do wish I had that ability to use some convenience services. [FG13]

Some have quite capable devices such as iPad or smartphone but these devices are very much under-used.

I have a little computer thing I use - a tablet. I try to avoid it if I can. I just get silly messages through from friends. I use it to look up any information I want. Mainly for films or theatres. Or anything else like that. Destinations. If I really want anything intricate done, I get my daughter to do it because if I do it I am bound to do it incorrectly. [FG13]

I have had smartphone since last November and I actually only use it for texting. I have got on to the maps. I don't use it for email. [FG13]

The never-used-the-internet group were found in all senior ages but more often among the older seniors who did not experience it during their working lives. And we encountered some in that age group who through the were too old to learn and should not have to.

I'm one of the old-school; I've never used anything. I never have. I never wanted to ... I'm just not into this sort of thing; never used it – not interested in it. [FG9]

As far as I'm concerned, the same with the wife. I think we're a bit too old to be fiddling around with all this high technology. ... I find that very confusing. ... We've gone through all our learning over the years, and the head doesn't want to be learning all new matters again, because we don't need it. I feel that technology in a sense has moved a bit too fast for older people to absorb it and all that sort of thing. It's ... not serving the older people for their needs. They've forgotten about the old people, in other words. If they take the landline off us, a lot of old people are going to be very lonely. [FG1]

Getting started and getting the right help at the right pace was often found hard and some have developed a fear that they seem unable to overcome.

I'd like to; it's just getting me started. I'm terrified. I'm hard of hearing as well; I took a computer course with Lisa, and she'd show you what to do and she'd go away to someone else, and I'd wait for her to come around again to ask her the same question ... I couldn't compute. [FG 11]

I'm frightened I'll break it, and I can't fix it. [FG 1]

Most of it I think with me is probably motivation. ... The other thing, I see the computer sitting there and it's like, come and try me. What do I do? Look at it and walk away; I'm not going near you – you scare me. [FG7]

Choosing not to is not the same as can't

Some have used the internet in the past and in their retirement see less need for internet devices. It was common for these people to talk about device use as time wasting and to express a choice to spend their time on doing other things they like to do.

I don't like to waste a lot of time on computers; that's why I choose not to, but I know how to use computers. I used to work, and learned all of the things, and I did journalism, so I knew research and stuff like that, but I thought, no – I've got other things more important to do now. I do artwork, and so I'm happy with less time using on computers. [FG 5, Pasifica]

Some can name things they would like to do but don't know how and seem to be stalled in terms of getting effective help.

I had one of those old flip lid type phones and my son took it off me and bought me a Samsung smartphone. I said to him 'I can never use that!' In the end he just showed me how to do a phone call and answer it. He tried to teach me how to do the banking – hopeless! There were quite a few things he tried to teach me but it didn't sink in! I don't even know how to Google and find the bus timetable or maps. [FG15, Māori]

While others don't know what they don't know.

I am concerned for all of these people like them out there because they don't know what they don't know. When I put my mum on the internet, she is going to have a big sign on the wall – don't give out your password to anybody; Do not give out your bank account; don't give anybody access to your device etc Hang up. [FG16, Māori]

Proxy use

Using someone else such as a trusted family member to make use of the internet and do things requiring the internet for them was relatively common among the non-user and non-confident, low-skill participants. This sort of arrangement was made more possible by the large number of participants that lived with someone else in a home that was connected to the internet (see Figures 6 and 7 above). For instance, one homebound participant made use of her son upstairs and his laptop when she wanted to do anything online. She called him on her cell phone, and he came down

to her room with his laptop. Mostly it was to Google something she had been reading about. Another homebound person would get her daughter to make bookings for her.

I just rely on (my husband). He's an accountant ... I use the Telephone ... and face-to-face. [FG1]

Daughter or a son or grandchild - they do anything for me. [FG11]

For small things, like I still haven't learned how to properly upload my photos onto my phone, and I just say to my grandson – a cup of coffee and you can just do this for me. [FG6]

My daughter does it all for me. So, I don't have to learn how to bank, but I can look up my bank account. [FG9]

If I didn't have instant help just down the road from me then I would have to. put my library books down and do something. Now I just play the old lady act and sit back and let them do it all. Why shouldn't I use my family. I don't want all that distraction and stress. I lived with stress for a long time and I don't need it. [FG13]

3. What is the internet used for?

Seniors use the internet for a similar range of diverse reasons and purposes as the rest of the population. Communication with friends and family, pursuing hobby interests, doing business transactions, seeking information about news and current events, for general knowledge and for entertainment were all mentioned frequently. There is also as much variation about what the valued uses are and we have illustrated some of these.

Communication

Email and apps such as Skype, Facetime, Messenger and Whats App are favourites for online communication with family and friends.

I think Whats App is just wonderful. I can talk to a good friend in England for a long time and it only comes out of my data. So that's wonderful. [FG3]

For communicating in the various activities I'm involved in, it's essential. I have that book group; we communicate around each other. ... When we're reading a novel as a book group – people will look up different things and bring that to the discussion which is always very useful. [FG6]

Keeping up with your children, and technology like Facebook and YouTube. Of course, everywhere – even at work, at home; it's everywhere, digital. [FG 5, Pasifica]

Sharing some photos with my cousins. I did it on my phone, but I have three devices. I also have a tablet and a computer. [FG16, Māori]

General knowledge and entertainment

Acquiring knowledge or seeking entertainment is also common.

I have a tablet; I'm on it all day. I love my games. I love Google. I Google quite a lot looking for answers. [FG8]

I use my phone and a laptop. I mostly use it to play games like poker. Messages and emails as well. [FG15, Māori]

I have just learned how to get on the Spotify and what Spotify is. It's marvellous. And Netflix. [FG15, Māori]

Pursuing interests and hobbies

I looked at my sponsored project— I don't do it every day — I donate through my bank \$10 every month, to a school in Kenya, which is run by a lady here in Paraparaumu. So, if she doesn't know you, you'd never get this message. It's very interesting, because she's telling you how well it's going on, this school in Kenya, and what they're doing for the children. So, if I didn't have a computer, I would never have got involved with it in the first place. ... I think that's absolutely wonderful. I'd never have known about it otherwise. [FG7]

Genealogy has been a hobby of mine for 20 years, and I've written two books, but I've been terribly reliant on the computer for all of that. [FG6]

I'm very happy with what I do. I go on YouTube for music and things like that, and love it. It's great for my singing group. [FG8]

I used it at home there a lot — I was growing dahlias back there when I was in that gardening phase. I used to get onto the internet, onto Google — mainly to check on Dahlias — plants — vege plants — what to do. Do you know, for carrots; when you put them in the ground, put a bit of salt along them. I just read that they are a seaside plant; the carrot. [Homebound]

Business uses

The internet-connected devices are a means of choice for getting many domestic or business tasks done and is also key to the organisation of many community activities such as clubs and voluntary groups.

I do like the fact that you can do group email because I am on a local community committee. [FG3]

I found as a building owner that it was absolutely essential to have internet, because if you're dealing with modern companies, that's the only way that they communicate. ...Straight away everybody wants to send you an email, but they don't want to do it any other way; all the communications seem to be by emails. I almost wonder how you can avoid not being computer savvy. [FG 4]

My car — that was to re-register it. At the moment, I've been going through with a friend who's renewing her British passport, and we researched all the forms that we needed, and printed them off. She's sent it off and she's been successful. I've got a British passport, and I'm going to have to go through the process myself. You've got to do it online now. There's no High Commission in New Zealand that will do your passports. Also, we're planning a holiday maybe next year or the year after, and we're doing a lot of research into travel. [FG7]

I'm the treasurer of U3A, and when I first became treasurer about three years ago, I'd say 75 per cent of our subs were paid by cheque. Now, it's more like 40 per cent. There's a lot more people paying online, and we encourage them to do that. So, that's a good thing. [FG7]

It's very good when she is doing shopping and she doesn't know the English name for what she wants, she can just Google the Chinese and show the person/assistant a photo or word on her smartphone. [FG14, Chinese]

Online shopping? Oh, definitely. It's only Marks and Spencer in the UK. Firms that I do know – that I've dealt with in the past. [FG7]

Online banking

Online banking gets a mixed report from seniors. Some love it for the ease and time efficiency.

Once I got a modem, I whipped into internet banking, and all the other things, and I haven't stopped. [FG10]

I do all my internet banking. I can't remember the last time I wrote a cheque out – personal or work-related – for years and years. [FG7]

Yes. internet banking is something that I focus on quite frequently, paying accounts, or transferring funds; that sort of thing. A good way and quick way to do it – quick way to check it, and it doesn't cost you so much, because if you forget to make a big payment, you get laid with fiendish expenses by that. [FG 1]

I've used internet banking now for more than 20 years probably, and never had any problems, so perhaps I've been quite cautious and have my anti-virus and everything's up to date, and I make sure that it hasn't been compromised. [FG10]

... I'm not good with a smartphone; I can't see it quickly enough, unless I had a big pad – that might be the answer. I've given one of my sons access to my bank account so that he can pay online, because I was a bit hesitant about using internet banking. ... I'm terrified of putting in a wrong number, and have my money disappear. That's one of my fears about internet banking. I know people say it's quick and easy, but it's not fool-proof. [FG2]

Others say they would never consider online banking.

Banking. I'm terrified of doing that ... of my money going missing, or I might forget the number. [FG11]

I don't do banking online. I'm too scared to do anything like that, because I'll touch the wrong thing, or do the wrong thing. I'm not sure about there'll be enough security and all the rest of it, so I don't do any business like that online at all. [FG8]

And all are concerned about the security of online banking. Even among the users of it, online banking is approached cautiously:

While I do my online banking, I have a two-step security with the bank, and that I find is pretty good. [FG10]

I've been using internet banking for years, and I've never had any problems. I have a security thing that when I log in, and they ring my phone, and I answer it. [FG1]

Government services

Governments services were not as widely known of used as communications or banking. Only a couple of people mentioned having signed up to myMSD or ManageMyHealth:

Well, for business I do whatever I can; banking and any Government department that I have dealings with, and anything else really that I can possibly dial up, I do. It's always worked really for me. ... Not all of the Government websites are all that good to start off with, but they're a lot better, aren't they? Transport one's are particularly good, I find for re-registering the car, and that sort of thing. [FG6]

I came across Real Me when I had to do the foreign stuff. You had to use it for ESTA (online visa for the United States) and you couldn't get past it. [FG13]

Health related services

Users valued the internet for access to health information and a number were strong advocates for and users of Manage My Health:

... I was wanting; the latest thinking, and what they were doing with diabetics. I got a really good article on that ... took me 45 minutes to read it was so long ... but I got what I wanted out of it, so that was pretty good. [FG1]

When she wanted a flu shot she looked up where she could get that. She had to translate from English into Chinese. ... When she needs to make an appointment with the doctor, it's really hard for her but she can use Google translate and talk to the doctors. [FG14, Chinese]

I'm really pleased to hear people talk about Manage My Health, because I'm a real fan of Manage My Health. For those of you who don't know about it; you can visit your GP today, and my GP – within 24 hours, the notes of that visit will be on the computer in front of you – exactly what she said, and what she recommended or whatever. [FG7]

Online shopping

For people who are less mobile, online shopping has helped them to stay more independent.

Now you can get your groceries and do it; iShop - and get all your groceries and have them delivered, which will be really good as you get older. [FG1]

I also do shopping- mainly things like biscuits for the cat, and various things. Oh, books; I also am very keen purchaser – Book Depository books. [FG 10]

Playing games

Only a small number of seniors mentioned that they played games and none of our interviewees reported that they used dedicated game devices.

I played a game called Luminosity, which is a constant thing that I'm addicted to. [FG9]

I play online Poker, which is always distressing. I play for play money. Like (another participant), I also play a bit of Solitaire. [FG6]

Memory aide

Some seniors mentioned that their devices can be a great aide to a failing memory as well as failing physical abilities such as sight and hearing.

I now find myself putting my notes on my phone – little things that I see that I want to buy, or I go to the supermarket and I take a photograph of it, go get some oil for the car – that's what I want, and I'm finding the more I use it, the better I like it. [FG4]

It's just part of everyday life/A tool to make life easier

Several people gave strong endorsements for the internet and digital devices generally being a way to do what they had to do more easily and for enhancing the things they liked to do.

It saves money, because I was always told what isn't written down doesn't exist, so what you're establishing by using email or any of those things, with genuine companies, is you've got a trail – a traceable trail of information, and so if it comes to a dispute, you can usually resolve it because you've got all the information. If it operates through phone calls and letters and whatever – they always disappear. [FG4]

Now I really appreciate this [internet device], because I get the photographs from the grandchildren, from the baby and six months, and I thought, wow. You can see them grow. And we take photos in church, and you know? Good memories, and then I can send it somewhere. I'm still learning. [FG 5, Pasifica]

I love my games. I play 500 and word games, and I go on the internet for knitting patterns and recipes. My daughter's gluten-free, and my son is a vegan, so when I know they're coming – I get all prepared and I find that lovely. So many good things there. I do use (my tablet) a lot. [FG8]

I have a smartphone, tablet, desktop computer; I access them all day, every day. I love the internet. I love my technology. The only thing I do not do on it is internet banking. That's the only thing; my husband does that. I order groceries online through it. I do surveys online through it. I contact my children and grandchildren through Facebook – just do all of those that are available. [FG9]

For a goodly number of seniors the internet had become an essential part of their everyday life and was integrated into many things they did.

I use the internet every day, mainly I do all my personal online banking, and I'm also Treasurer of a group and I do their accounts online. [FG7]

I'd be lost without it really. There are so many things you can do – your daily – especially if you belong to an organisation, and get involved in it, you need a computer to do a lot of these things. [FG10]

I'm on every day: on the iPad three or four times a day, and on the computer probably about once a day. I usually start the morning by looking up things like Stuff and the weather and all those things, and then later in the day quite likely I'll do some research. [FG7]

I'm on every day. Most of my family are abroad in Sweden and the UK. I speak to them nearly every day. I like to know what they're up to. [FG7]

The translator for the Chinese participants summed up that group's responses about how important they thought the internet was to them:

Their answer is that it doesn't matter the cost because it is like an essential service that you have to have. If you are better off then you can buy better devices, and if you are not then you settle for something cheaper, but you have to have it. 2G, 3G, 4G but not 5G it is all OK. [FG14, Chinese]

Fear of missing out

People who don't use the internet are worried that they are missing out on access to some services and some advantages.

I think there's a whole group of things that are becoming harder to do if you don't have a computer, or access to it. Even appointments with IRD, banks – all those sorts of things, which is why I think it is quite important to find out how to use, and use them if you can. [FG4]

My point is that if you don't become relatively au fait with the technologies, you can quickly become - alienated is the wrong word, but out of touch with everything that's going on. [FG2]

Although, as illustrated earlier, we found it relatively common for some non-users to rely on others to use the internet for them so that they don't miss out.

If I want to order my groceries, I can't do it – well, I can – my daughter could do it for me online – New World, because they deliver them and I can pay by cheque, but that won't be for much longer. They'll stop that, and then [my daughter] will have to do it online for me. ...At the moment I ring them up and give them a telephone order and they deliver. [Homebound]

However the non-users in particular are also likely to sense a lot of marketing hype about being online and question the real value to them in what the internet offers.

What worries me more is all the other things that you don't actually need, but you get sold into say you do need to do this. Who needs to be on some of these things? The perception is there that you're missing out if you're not partaking; in a lot of cases that's just advertising, because they want to sell their product, but you don't need it at all. [FG4]

4.What affects internet use?

Our participants indicated that a number of factors affected their internet use. We identify these here.

Trust

We asked most of our focus groups the direct question ‘do they trust the internet?’. From others we inferred their answer to this question from the examples they gave us that affirmed or shook their trust in using the internet.

Our seniors’ answers were a conditional ‘sometimes’ or ‘it depends’. It depends on where you go, what you do, your service provider, your own firewall and security software and a large application of common sense.

I’m very wary of things; I won’t go on Facebook. I don’t go on any of the social media sites. I’ve avoided them entirely. I’m just cautious. [FG 6]

I am only doing the internet for games. I don’t do internet banking because I don’t trust it. I know all these people who have been scammed. I don’t remember back to before the internet I am still basically in that era because I am not very good at it [FG15, Māori]

I’m not really concerned about security, especially with reputable sites like Trade Me. I think it’s highly unlikely you’ll be scammed.... So, I think a lot of it’s common sense, too – what site you want to go to. [FG7]

There are trusted news sites in New Zealand and overseas, for example, NZStuff and the Guardian. Commercial sites for purchasing goods and services are chosen selectively on a known or assumed reputation – such as Amazon or Marks and Spencers in the UK, and location, for example has a New Zealand physical address.

I use my own knowledge to analyse which ones to trust, and what is true and what is not. [FG14, Chinese]

Spam is common and does concern senior users and shake their confidence but for the most part they have decided to apply the same sort of common sense that they apply in the non-digital world: ‘if it sounds too good to be true then it probably isn’t true’. Only a couple of people admitted to having been the victim of a scam and as a result had changed their behaviour. Seniors would like to know that there is an authoritative site where they could confirm a Spam. Some have used Google or Netsafe to do this.

There was a social aspect of having trust or not that was informed by each participant’s social network and what they trusted. Some people checked out any suspicions with a trusted family coach or friend. Volunteering roles such as volunteering at a Citizens’ Advice Bureau also provided access to a wider crowd wisdom about potential and actual scams doing the rounds and helped people to avoid them and be less deterred by them. Where there were no such supports, then users did have their trust and confidence shaken and tended to restrict what they did as a consequence.

Spam and online scams have a corrosive effect on trust even when they are recognised for what they are and dealt with effectively.

I spoke to Netsafe, and the first time it happened, and they said, all you can do is delete – don't open – don't do anything – just delete. I said, that's what I've been doing ever since. I don't know how many I've deleted. You can delete it all you like, but it's still there – you can still read it, and it is still scary when they say they've got all your details and they do this and that. How do you know they haven't, except if everything sort of stays the same and everything is still there? Trust is getting eroded on that, so I'm cutting back on what I used to do. [FG7]

One person went so far as to suggest that seniors should be warned off using the internet because they are by experience and upbringing too trusting. On the whole, when this view was shared with other groups, this did not seem to be a view that others supported. The dominant view was one of suspicion and testing but this might be that the people in our focus groups were at the more hardy, experienced and seasoned end of the spectrum of seniors when it comes to the internet. However, we also noted that the non-users we interviewed sometimes cited their lack of trust and knowing what they could trust as their reason for non-use which creates a segue to our next theme, confidence.

Confidence affects internet use

Confidence in one's own skills and ability to learn and apply common sense played a big role in whether people used the internet or not and the extent to which they used it.

Well, I mean, I know about computers and all this other stuff, but I don't actually ever get around to learn to use them. When I put my computer on and I try to get into a certain thing, messages come up on the screen, or not the screen I'm expecting comes up and I just throw up my hands in horror and switch it off. ... It's put me off all together. [FG6]

I stopped for a while after all those Bitcoin ads on my emails. [FG9]

This was especially the case for those coming to internet use for the first time as seniors.

A lot of the people that come to see us [at SeniorNet], it's really a confidence thing; all they want is someone to hold their hand while they push a button. [FG 10]

I think it's confidence in myself. ...Yet, I know I've got the skills to do it; it's just getting myself motivated to get enough courage to sit down and do it. [FG7]

Probably I'm scared stiff, also. [FG4]

Skills affects internet use

The everyday, many-times-a-day users of the internet rarely mentioned skill as an issue for them. Many of these people have been using the internet for more than 30 years and have an unconscious competence that allows them to use and if they don't know, find out. Many mentioned they'd go to Google or a knowledgeable friend or family member if they didn't know how to do something.

I don't pretend to have any real understanding of IT but I have on occasions found that just Googling my problem gets me an answer. [FG3]

Others who were more limited in their use often cited skills and know-how as their reason for not doing something in the first place or stopping using it.

I would struggle. For instance; I would struggle to install a new printer without help. [Homebound]

I have a computer sitting at home, but they belong to the grandchildren. I use a cell phone – but only the basics – calling and texting. [FG15, Māori]

Probably if I understood more, as far as the phone goes – probably if I understood more about the Apps that are on it, and how to use them, and how to use them to my benefit, that's about it, but I'm not going to lose any sleep over not using them. But if I did sort of know how to use it [Homebound]

Whether or not the internet device was turned on, charged and ready to use has an effect on use. Often the device was an addition that was not fully integrated into how things could be done and therefore the effort of using it for small tasks was too much.

I have an iPad, but I don't always have that charged up, so I'm more likely to go ahead with the laptop than the iPad. I find that I get impatient because I want things done instantly, and often it's quicker for me to go to the phone book and find a number than wait for the computer to turn on, wait for it to fire up and then try find the number I want, when I can go to a phone book and get it straight away. [FG 8]

Confidence to use seems to grow with use.

I've just gone onto online banking. I'm very pleased I have a granddaughter-in-law next door who is really keen to sort of help me. So, that's really good, because I do get into a lot of trouble, and because – I'm like you – I'm scared of pushing the wrong button, but I do use it quite a lot. When we went overseas last time, I put my booking and everything – my ticket – onto the phone, and everything was just there; I didn't have to keep hold of papers and find the papers – lose the papers, and everything else. So, I do; I'm finding I'm doing more and more with it. [FG 8]

Frequency of use

Many also thought it was a case of use it or lose it – that skills once acquired needed practice if the new-found competence was to be retained.

I have in the past, many years ago, taken a couple of computer courses, but unless you are using it, you lose it all. [FG4]

There's another barrier to us even getting involved; the password system. You have to not write anything down – it has to be something that you can remember easily but nobody else can, and you have to be able to change it every fortnight, and it has to be at least so many letters long, and you have remembered it. That's a big problem. When you're getting older, it's hard to remember all those. [FG8]

Non-users recognised that they had skill gaps and were not against learning. They sensed there were things they would like to be able to do, particularly with the communication apps but found it difficult to make a start, particularly when older and one's peers were not online.

My friends don't communicate through the computer. I'm 91 now, so you know, they're not on (the internet) – I can't communicate with my friends that way. That's life, isn't it, sort of, but at the same time, I know I've got to have one (a digital device), because it's getting more like that all the time. You can feel totally isolated. [FG1]

Knowledge and confidence barriers

People might own a smartphone but often it was not used to its capability either because of knowledge or confidence gaps or a combination of these leading to a rationale for not using.

I think it's confidence in myself. ... I know I've got the skills to do it; it's just getting myself motivated to get enough courage to sit down and do it. [FG7]

I've got a mobile – a smartphone, and I haven't chosen to be with the internet. I know how to use a computer, although I don't use one now. I can get the internet on my phone, but I don't. [FG 5]

I do love Trade Me. As far as [protecting my money] goes, the only thing I do is I get – the seller and I email each other – I send money straight to their bank account. So, I don't go through anything else. It's just from my bank to their bank, and I've got control that way. The only time I don't have the control is I make damned sure I try and get the guff back from them. I've been caught a couple of times then, but then that's just problems you have. [FG7]

Well, because I really don't understand it – I know how to use my phone to ring somebody. I know how to check the weather, but that's about it. Oh, Google Maps; I know how to use that, but apart from that anything else to do with the phone, I don't really know. It's never bothered me before - not knowing [FG14]

I don't know what to do. Every time I use the internet on my computer I end up making some mistake, and if my son's at work, which he is most the time, I have to wait for him to come home. [FG7]

Oh my god, I had a lot of viruses. I didn't even understand what a virus was like that. Or Cookies and I didn't understand what an App was. [FG15, Māori]

Caution

The exercise of caution and the application of means of self-protection were mentioned quite often.

I think these things don't necessarily apply to old people; they apply to everybody. In some ways, we may be better off, because we're naturally cautious, whereas young people are on these, and millions of things – millions of platforms, and whatever – are a bit gung-ho about the whole thing. [FG4]

As far as banking goes, I'm very wary of scams. So, for example; I do donate to quite a few charities from time to time – they call me up and say, will you make a

donation over the telephone? I say 'absolutely no' – I'm not giving you my credit card details. I'm sort of surprised that they still do that sort of thing. [FG10]

I'm very wary of things; I won't go on Facebook. I don't go on any of the social media sites. I've avoided them entirely. I'm just cautious. [FG6]

Bad experiences with devices or internet use can affect use

We were told how previous bad experiences had led to more caution and also areas of selective non-use.

Curiosity gets a lot of people. When you see advertisements that you could win this or win that. When I first I first started to learn and I didn't know anything about computers, I go a bit curious about them. But scams, I am particular about who I accept. That was taught to me by my daughter. "Mum, if you don't know the person don't accept." [FG15, Māori]

I don't bank on the internet because after I got my computer, and went to the Senior Net, not very long after, I was still getting used to it, I got scammed. Fortunately, because I don't do online banking, I didn't lose anything monetary-wise, but they shut the whole computer down, and I had to pay \$60 or \$70 to get it back up and running. [FG8]

The trouble is I've been scammed that many times now, I'm starting to wonder whether I'll just close the internet and be done with it. It is scary when they make their way in and threaten what they're going to do, and there's no-one that can stop them. I spoke to Netsafe, and the first time it happened, and they said, all you can do is delete – don't open – don't do anything – just delete. I said, that's what I've been doing ever since. I don't know how many I've deleted, but you can delete it all you like, but it's still there – you can still read it, and it is still scary when they say they've got all your details and they do this and that. How do you know they haven't, except if everything sort of stays the same and everything is still there? [My] trust is getting eroded on that, so I'm cutting back on what I used to do [FG7]

Cost of using

The cost of the internet was mentioned as a barrier to use, especially for those living alone and on the lowest incomes. One person shared the internet account with his neighbour in the retirement village as a way of meeting the cost:

I can't afford it. I am on an invalids benefit and I struggle with that [FG16, Māori]

Just a grace and favour; he does that for me, and I do stuff for him. I keep him supplied with venison. [Homebound]

Others had stopped using because of reduced income. For example, when the death of a spouse resulted in reduced income then the internet was one of the fixed discretionary costs that people said they forewent.

(After my husband died) I have to look after my money, and look after myself. So, some things (Wifi and the computer) had to go ... but I can go to the library and access the computer there. Yeah, I have to think about those things, so I thought,

do I really need it? I'm not working – there's library books with cooking, and stuff like that. [FG 5, Pasifica]

Cost containment also meant that data might not always be available to the user.

I don't use data and I don't have any money on my phone. I just buy the \$20 and when it runs out, I top up [FG4]

Relatively few recognised and took advantage of the compensatory savings of using the internet such as by combining internet and phone.

One thing I have learnt to do on my iPad is use it as phone. I have a friend in Hamilton and I video call her and so the call isn't cost me because its coming out of my Wifi data at home. [FG15, Maori]

I haven't bought a paper map since I got my cell phone with navigation on it. [FG 4]

It saves money, because I was always told what isn't written down doesn't exist, so what you're establishing by using email or any of those things, with genuine companies, is you've got a trail – a traceable trail of information, and so if it comes to a dispute, you can usually resolve it because you've got all the information. If it operates through phone calls and letters and whatever – they always disappear. [FG4]

Social connection

Some just prefer their social contact to be face-to-face, or over the phone and would take some convincing to change.

I trot along to the bank face to face. I get to know the tellers and just chat while they are waiting for their computers to do things. I just need that interaction with people. That is how I am. [FG13]

Deterrent effect of frequently changing technologies and obsolescence of hardware and software

When responsible for your own hardware, software and internet service arrangements, the constant evolution of this space and rapid obsolescence is both off-putting and costly. This situation which applies to everyone to some extent is made worse by limited income and not being in the workforce where one is more likely to see examples of newer technologies, get support to use them and be better placed to differentiate between what might be essential or an improvement or simply nice to have. There is also no free access to the sort of training on new systems that is likely to take place in work places.

But I get very frustrated with my computer the way things keep changing. There are certain things I use and want, and they keep changing. [FG3]

I do have a laptop that belonged to my husband. I don't use it. One of our sons comes up and updates it occasionally and then it never gets used. If I need information, I ask one of my sons to get it for me. [FG6]

The most irritating thing is needing to update your equipment so frequently. My computer is only 10 years old but apparently its nearly 'stone age'! [FG3]

If the settings change, you don't know how – you don't know why. This is what I find very annoying ... you don't know why it has, or what – how to deal with it, so it puts you off. (It ends that I) Close it down and go away – go for a walk. I don't let it get to me. I'd much rather walk or read a book than fight with the computer. [FG7]

Technology is moving so quick that by the time you have learned to use that phone, a new one has come out, and it needs upgrading. It comes to the point where that is very off-putting to us older folk - 'That's old – you need to throw it away and get a new one'. [FG15, Māori]

Technology is changing all the time. It's advancing and becoming more complex, and my big bugbear is smartphones. My smartphone now is far too smart for me. It infuriates me that I knew how to use the old phone, but now there are different buttons you have to press, different menus, and all these sorts of things, so it's not that you're not technologically savvy, it's that you continually have to be updating yourself with all these new advances that come onboard. [FG10]

Coping with their changing world?

Seniors have a vantage point from which they have experienced a world full of social and technological changes that were not around in their youth. They are aware that their world continues to evolve and take on new technologies and practices and many found the pace of this change daunting. Some are pleased by and even enthralled by the changes they see and want to stay up to date. These people are ready adopters of new devices and new applications and often marvel about how much better it is than what went before. They might acknowledge a downside but on balance they would rather live with it than go without it.

I think it's tremendous. There's wonderful utilities out there; and along with the wonderful benefits, there are perils. But it's also extraordinarily exciting, and I wouldn't be without it. [FG7]

Although these seniors were happy to have the benefits of these changes they were also put off by the rapid obsolescence of their hardware and software and wondered why a 'perfectly good' ten-year-old computer is no longer good enough or a favoured operating system like Windows XP is no longer supported. Many mentioned the cost of the upgrades as problematic when their income is fixed and also often additional training and support is needed to be able to continue to use effectively after updating.

The range of hardware devices that have become obsolete since I stated to use the internet. I have a new computer – only about a year old. But that brings new software. I now seem to have to use three programs to get what I used to get very easily in one. I sometimes have to use a technician to sort it all out. [FG3]

Others were somewhat put out by technology changes and they tended to rail against both the applications and the users of them. Their examples included, mobile phones replacing land lines in homes; people on public transport and during social occasions being immersed in their phones; or

services that once involved talking to a helpful person face to face or over the phone, now being dealt with by an online service and even a bot. These disruptive changes people mentioned often made them doubt the value of the new over the old ways.

Ambivalence about the merits of using the internet led some seniors to say that they could 'take it or take leave it' and therefore they did not fully integrate it into their lifestyle. These seniors were quite selective about their internet use. They used a smaller number of applications to suit their interests and convenience and, although they might do this most days, they also like to limit their time on the internet to allow time for face to face interactions and other interests like reading, gardening, walking, playing an instrument or playing sport.

Sometimes when I get a group of young people together and they are all on their phones, I just get so annoyed because I feel they are losing conversation and contact. [FG 13]

I use my laptop about checking my email about every three days, and use it mainly for email to the family. The last one was sent to a cousin and I've got family overseas, and that's about the extent of my use. [FG7]

I went to Seniornet in town. I tried twice but I was a dropout. Its just as if my brain is not wired that way. When I want to look something up – movies or places – it's wonderful. But I don't want to be doing it all the time. As the young seem to be doing all the time. I want to talk or read or move. [FG13]

Coping with disabilities, mobility and sensory challenges of aging

Seniors found some internet apps particularly useful for helping them cope with disabilities, ageing and everyday life challenges of mobility and sensory loss.

My coordination is so bad, and my eyesight is pretty bad; that's all part of the condition I've got, and without my computer, it will be absolute ... and that's why I rely on it so much. I don't go out much. [FG9]

I found the iPad easier. It's partly size and less fiddly. [FG15, Māori]

[I use] a PC. When I started losing my sight, I taught myself to touch-type, and that's been an amazingly good skill to have.... I never taught myself Braille, so I thought, no – this is sufficient. I still use my PC for emails. The Foundation for the Blind has given me enormous support, like a monitor ... to sort of see one end of the screen to the other, and I'm very reliant on ZoomText, which magnifies the text, because that's my problem; I can't read normal size text. Sometimes it speaks to me, but sometimes it seems to be silent. [FG2]

I found that on my phone I've got a thing called a magnifier ... I found that if I go out to a restaurant for dinner and I can't read the damned menu even if I hold it out here, I've got a thing on my phone that will show me what I can eat. I didn't know I had that. [FG6]

My youngest son; he says, Mum – come and have a look at this. It was in the middle of the night. I wasn't well. He said, let's look up on the internet and see what's wrong with you. So, he did, and then he said, look – there's games on here ... After

that, I just absolutely adored them, and when my husband bought me a Smartphone for Christmas one year, I thought, oh my god – I’m never, ever going to work this thing. Then I thought, hang on – it’s like a little tiny computer. I just took off ... I fell in love with it, and the internet is part of our life. ... Because I have Parkinson’s I lose a lot of memory of what he’s told me. So, sometimes it has to be written down; ... For me, being isolated, it’s just a lifeline to the outside world. [FG9]

Coping with cognitive deterioration and memory loss

Cognitive deterioration was mentioned in two contexts. The first was frequent references to memory failing with age and the assistance that could be provided by digital Apps. However, failing memory does make picking up new internet skills take longer and need more patience and perseverance.

I was thinking also around the cognitive impairment coming with Alzheimer’s or other forms of Dementia, there are actually programs being written, or apps being created, that are designed to give people exercises which slow the rate of deterioration down, and that if people knew about those and maybe even invested in their creation. [FG10]

There are some areas that are really important for older people that are in technology using computer-based technology in terms of peoples’ personal security, and also occupational things for people with dementia that are not being explored, that should be explored. I’ve been looking at the Alzheimer’s in the UK, and they have put out a little booklet; five things you can do on a computer – a small personal computer for someone with dementia – as simple as making your own jigsaw puzzles out of a photograph of the family, so that person can put the faces together in a photograph, or making jigsaws of things that they like. [FG6]

Seniors were open to the adaptiveness of digital devices making use possible for them.

I’m not good with a Smartphone; I can’t see it quickly enough, unless I had a big pad – that might be the answer. I’ve given one of my sons access to my bank account so that he can pay online, because I was a bit hesitant about using internet banking (because I couldn’t see). I’m terrified of putting in a wrong number, and have my money disappear. That’s one of my fears about internet banking. I know people say it’s quick and easy, but it’s not fool-proof. [FG2]

Where sensory difficulties are at the extreme end then there is additional support to be accessed through organisations like the Foundation for the Blind.

Well, the Foundation of the Blind, they give a help type program – send it – it’s on a CD, and that’s wonderful for censuses and voting. You get it an audio version of it. Really helpful. [FG2]

Some seniors had solved access problems for themselves and were also very willing to share what they had learned with others.

If you’re going to be wanting to do something in particular, the first thing you need to do is find out what’s the best piece of equipment that you’re going to use. I can visualise that if you people are like me, your eye-sight’s buggered, to some extent

anyway, and to try to do banking on one of those – on a thing like that ... either it's been dimmed away, and you don't quite remember how to put it back up, or it's too small, or your fingers have got some arthritic bits to them, because usually everybody of our age has, and you can't do that thing quickly and easily without frustration on a small device. So, you go and find out, is it the important thing you want to do, or do you need a small laptop, or something of that nature for yourself, for whatever it is for? [FG11]

Even when people were open to a digital solution to a disability issue, getting there was not straight forward. For instance, although living in a shared retirement village where there were community facilities, there was no community computer that could be used to set up a Kindle to assist reading.

I would like to have Kindle, because my eyesight is not good, and I can't read normal print. I go for big print, but I did check, and I was told I had to have a computer before I could come into Kindle. So, I regret that. [FG6]

My partner who died recently – before he died, he became increasingly unable to see, and increasingly not very adept with his fingers. It was not easy to find a way – because he loved using his computer, and he loved being in touch with the family and stuff – it was quite difficult to find a way to make it possible for him to use his iPad and all that sort of thing, and learn quickly how to do it, so that gap there – and that would be an issue I think for a lot of people in this village. I'm thinking when I get old and I can't see so well, how will I be ready for that, and what's available for me? How do I find that out? It wasn't that easy. [FG6]

Health information was one area where people wanted more information but often didn't get enough time to ask their health professional what they wanted to know and for these people trusted internet information was a valued addition to their self-management and well being.

When I go to the doctor, and the doctor prescribe me pills, and I always ask, is there a side effect? He said, only a little bit. I say, what do you mean, only a little bit – even a little bit is not good. Anyway, he said, but the medicine I give you will help you. Alright. So, I go to the chemist, get it and I go straight home, look in the internet, and tell me what the ingredients – and then I know what I need to know about it.... It's taking control. [FG5]

If I was having any drugs – I'd look them up. I'd see what they could damage in my internal organs ... I'd certainly be checking on the drugs I'm taking – how long I can take them - what they're made of – what they could damage in your body; those sorts of things, because sometimes they really don't do you that much good. They're alright short-term, but never long-term. [Homebound]

Those working with seniors to increase their internet skills noted that there are limitations arising when they encounter deteriorating cognitive functions among seniors.

One of the problems we are striking here (at SeniorNet) more and more is people being landed on us that are on the verge of dementia and we have to learn how to handle those people, and they have to learn how to handle us. That, to me, is one of the big barriers with older people; learning more about how to handle them. We have had experts in talking to our tutors about this. [FG10]

For is 65+ group, they should have someone who is patient enough to work with this whanau and take them through step by step. A small class or even one on one. And if I was in that class I'd have only the person with the stone talks so that everyone gets a turn. and everyone has to listen. [FG15, Māori]

5. Where and how do seniors learn to use the internet?

As mentioned earlier, many competent everyday users of the internet first encountered it through their paid or volunteer work. The advantage of this is that such use was usually accompanied by training. Although the applications used might have been bounded, task specific and technical in nature there was also regular use of email and general confidence gained in using devices like computers, understanding the vocabulary of digital technologies and the internet (operating systems, files types, browser, refresh and the like) and more general principles on which they operate.

I suppose with work, and then my kids with the phone; I remember having the first ordinary one that you just call on, and then the technology kept development, and trying to keep up. [FG 5, Pasifica]

Others are determined not to be left out and are helped by family

I was in denial you see, about it. It's 15 years since I was working when I used one, but it was different in those days for work, but I just made – when my son bought me this phone, I just made myself think, well you've got to use it properly, and that's what I'm trying to do. [FG8]

Where do they go to learn?

Those who didn't get their introduction the internet and digital devices though work found community-based programmes in schools, libraries and provided by organisations like Senior Net.

Well, when I retired I thought I had to learn technology, so I joined up with Senior Net, and I learned all about the internet and other subjects, and I ended up teaching at the library for about three or four years; people – seniors that just knew nothing about the internet, and I showed them how to do email, and they were quite pleased, and that's all they wanted to learn. Just repetition, they were able to pick it up. [FG10]

I think I just had a rush of blood to the head one day and decided that perhaps I needed to purchase a computer. I think I joined Senior Net and was having lessons before I even bought one, and that was about 15-20 years ago, I suppose. I think I probably thought, well if I do this, I might be able to do that, in time. [FG10]

One problem encountered with such community-based training is lack of any formal ongoing government financial support. That is, they most often need to survive on donations, charitable grants and user pays.

Government is working hard on trying to increase digital inclusion, but if they want to use us, they need to also assist us to do that, and that means including finance. [FG10]

Informal peer support is also a common strategy used by seniors.

This outfit I've found is absolutely brilliant at imparting knowledge for all sorts of little things like that. It's great to come along and have a go, and be surrounded by people who aren't going to point the bone at you and say, well look – you've made a terrible mistake. You can only learn by trying. [FG10]

The places people can go to learn need to be easily accessible by public transport and there is strong support among seniors for this to be located in local public libraries as a well-known and centrally located piece of public infrastructure in most communities.

I want to learn how to do the other computer ..., but have you got other places I can go to, to learn how to do it. Not too far away, because I haven't got a car – I get a bus everywhere. [FG9]

The idea of going to the library appeals to me, though to learn, because you have to do it to learn. I realise that; you've got to sit there and work it out. You know? Yes, it's necessary. You have to be able to. [FG1]

And for some it might need to be also with some one-on-one home help.

I wouldn't mind, but it would have to be in-home, because I can't travel anywhere. I can't drive, and it would have to be somebody come into my home to teach me, or help me. [FG9]

While I have a computer in one room of the house, the television now is in the other room, and so how do I link them up? Someone said, 'well go on Wifi and I say what's that? – I mean, it's all too much. I need someone to come into the house and sit down with me. Take 20 minutes or half an hour and show me this is what you do – dah de dah. then I'd probably be much more comfortable. [FG2]

If they really sat with me and - I mean, once I've got it, I've got it. If I write things down, I find it's good, and little diagrams. [Homebound]

Grandchildren as helpers, teachers

Another common source of help is children and particularly grandchildren who provided both strong motivation, encouragement and also help to use. Grandchildren it seems often have the needed patience, time and the knowledge level to pitch their help at the right level and pace for seniors.

I've just gone onto online banking, which I'm very pleased I have a granddaughter-in-law next door who is really keen to sort of help me. So, that's really good, because I do get into a lot of trouble ... I'm scared of pushing the wrong button, but I do use it quite a lot. [FG8]

So, straight away I ring my grandchild who was 10 at the time. He said, Nana I come to your house tonight. ... Oh man, so my poor grandson used to come home after school and that's where I learned this technology; my grandson who is now 12. [FG 5]

I just do what I can on there [my smartphone] and if I don't know how to do anything I just ask my grandchildren. [FG15, Māori]

Even now I struggle. I go to my grandchildren when something happens to my phone, and I don't know what to do. I don't have the savvy to understand, so I always tend to lean on my grandchildren and children. So, they teach me. [FG 5, Pasifica]

Does type of help matter?

The form of the help, the timeliness, the pacing, and the customisation of what is offered compared to what the user needs now, were all mentioned as important. The more tech savvy were able to find out what they wanted to know from the internet itself or others in their networks.

It's surprising the amount of stuff you can drag off Google. So, I go Google first, and then other family members, and then the sort of third degree, I guess out, is other folk in the community who can obviously solve that problem. [FG2]

I think if we, as an age group, had somewhere or a forum where we could learn to use these devices in a safe environment [FG4]

Standard courses, particularly those aimed at the younger working-age population were often poorly paced for seniors who would like more time for repetition and practice until they are confident. And many mentioned that well-intentioned 'helpers' doing things for them by taking over their devices was not appreciated or helpful.

They are too fast, or they take the thing off you. [FG7]

It never interested me either until my family moved over to Australia. It was a way of keeping in touch with my grandkids. ... They wanted it and they taught me. They show me how to do things and even if I make mistakes, they show me how to go back on it. [FG15, Māori]

What we need is someone to come in perhaps, but keep the group small, because I went to one in Lower Hutt when I first got mine, and it was great while I was there on a one-to-one, but when I got home again, it just disappeared. I made such a mess of things. It was so funny. I laughed for days over that, because I couldn't remember a thing. ... Need practice, and a little bit at a time, probably. [FG1]

What works

For those who learnt about the internet and digital devices later in life, regular tutoring and repetition seem to be a common feature of their learning. They either went to a class or support group that was well paced for them or they set up their own private support system using people with like needs and interests they met along the way, family members, friends and neighbours.

My son's an IT whizz, so if I get a bit stuck he helps. [FG4]

I've got three grandsons – 21, 19, 17. Once a month I cook for them, and have them come to my place for tea. Then, we go on the internet. They tell me more what I don't know, but then I forget. It's a repetition for me every month, to have my grandchildren - not only that - for them to teach me; I want to know them more. [FG 5]

I think free Wifi would get everybody to learn. [FG 5, Pasifica]

Something that's easy and step by step instruction about how to do it. Its user friendly, especially for senior citizens who cannot pick technology up quite as quickly as the younger ones can. [FG15, Māori]

Having the right person to show me – to teach me – to get through (online banking) [FG 11].

As a widow, you wait, and when somebody comes, you attack; come and do this for me. "Come and show me how to do this". [FG2]

(My grandson) wanted to Facetime me yesterday and I said to him, no my Facetime's coming up saying Facetime's not available. He texted back and he said, 'well can you tell me what it's saying?... If you tell me what it's saying, I'm quite good at doing iPads, and I'll try and help you with it'. He does; he has helped me. Like I said, the other day he wanted to send me emojis. I don't know how to do emojis, and we're on Facetime. He said, well just press – I said, how do I get into them from Facetime, because Facetime you're talking to them. He said, you just press the home button and that puts pause up, and then you go to this and this and you go into Messenger. I said, well where's the emojis? He said, that little face down the bottom there – press that up, and up comes these emojis. So, he's putting emojis in like playing a game with me. He puts the ones he picks out, and then I've got to go through the emojis and pick them out and put them back to him. So, we exchange emojis. Well, I learned now how to send emojis, didn't I – and out of Facetime into the other bit. [FG1]

Many years ago; work paid for me to go to a course which was actually an evening course at college, which was computers for beginners, or some such thing, and it was absolutely brilliant, because the main thing it did was it taught you not to be frightened of what you were doing. When you first go, you think, oh I can't push that button – something will blow up or something will happen. Now, if I don't know what I'm doing; try that button – or try that button. Yeah, that's the way I learn; by trial and error, I suppose. [FG4]

I honestly think what needs to be done is training the old people. I think they need to go at least once or twice a week to a place where – because I can understand their point of view – my husband will be 70 in August, and only lately I've been teaching him, because if I'm not at home with my phone, he can't talk to his brother in Auckland on video. So, I said, well here's my old phone to you now, my Sweetheart, and I will show you how to answer the phone if your brother video calls you. So, he's learning at that, because I think he heard me argue with the kids – oh, he just can't be bothered. Lately, if I'm out and about, and then I look on my phone – it is my brother-in-law; your husband is not answering the phone. I got home; teach him – teach him. So, now he's completely happy sitting – doesn't need me around anymore because he can now do things, but it's because I've got the patience to teach him, so he won't bother me. They do need to go and learn. [FG5, Pasifica]

Peers in the seniors' community are a good source of support and learning for each other. We witnessed many exchanges during the focus groups where peer help was offers among participants

in response to a problem one said they had encountered. We also witnessed a few peer support follow-up sessions being set up for after the focus group.

P1: You are the best protection. P2: Yeah, you just delete. P1: If something comes through you don't recognise – delete. I would delete 90 per cent of what comes into mine. P2: Actually, I'm getting close to that now, too. P1: It's the old story; if it's too good to be true – it ain't true. [FG 6]

Well, you know how to solve that; you just go to unsubscribe. If you don't want any more emails from House of Travel, you just unsubscribe it. [FG2]

Another comment I'll make for those that don't like the ads; if you click on the ad and say, I don't want anymore of these, you've given them your email address for starters, and they've sold it to somebody else. So, don't decline anymore ads by them; they're trying to close places like Adaware because the minute you respond, your email address has gone to that person you're responding to and there's a thriving business selling email addresses to spammers. [FG6]

Hacking, I think is one of the biggest problems you can run into; people taking over your computer and sticking things in – monitoring apps and all the stuff in the background. You need to know whether that's happened or not. There are a lot of things you can do to find out, to see what the transaction rate is going on when you're not using it. So, if it's quite high, you think, well who the hell's using it – I'm not, but something's going on. So, I think there are things like that, that are not kind of commonly known to people. [FG4]

Seniornet is an example of this where formal programmes are based on needs. In the process of attending these formal programmes more informal networks were also enabled to continue the learning support.

I joined Probus, and a small group of us got together and we started an iPad group, so we could teach each other, because we all found that going to an organised group in the city was too advanced for us. We needed to be able to sit around, ask each other questions, learn from each other. We've now moved from that iPad group within that Probus to a technology for seniors' group, and that's been wonderful. [FG4]

I'd like to see more courses for the elderly to be taught all this and people with patience to do the teaching because they are not going to catch on in 10 minutes. [FG15, Māori]

I think there is a point that it's all very well having somebody on-call that can sort out an individual problem, but I was one of the group that originally set up Senior Net in Kapiti, and even though I've had no contact with it for many years, I still believe that it is a very valuable program for introducing computers to older people. It's a very basic introduction, and it's done in an atmosphere of conviviality and a great deal of talking and drinking of tea, but it nevertheless is pitched at that particular age-group. If somebody is used to a computer then Senior Net can be highly frustrating, but for a general introduction, for somebody who has no real

experience with them, and has a computer, or has access to one, or is likely to, I thoroughly recommend Senior Net. [FG6]

What doesn't

The language of devices and the internet which tends to co-opt everyday words and give them a new specialized meaning created a further alienating hurdle which compounded fear of learning to use the internet and technology for some people.

I have a daughter over here and a grandson over here, and the granddaughter-in-law, but the thing that's been an issue; they do it too quickly. [FG8]

I'm scared of it. I mean, the reality is that I know how to access the television – 1, 2, 3 – free to air television, and I pay for Sky, and I can use Sky, but somebody says, 'oh why don't you stream?' Well I thought that a stream something that runs through the ground– yes that language thing again! [FG2]

They are very patient but it is us (seniors) that are not patient. We get a bit hoha because the reaction from our kids is that it is all so easy [FG15, Maori]

It took my husband a very long time and a lot of fast talking to get me to agree to the internet, because as far as I was concerned, the internet was the devil on sticks. Anyone could get in and do things. ... I do Manage My Health. I do through Work and Income – I work through them. FG7]

That's really the big thing with seniors coming; they just don't know what's there that they can use. And it's very hard for us to tell them what they don't know, because we don't know what they do know. [FG10]

Courses without time to practice and master a use often result in the course content being forgotten quite quickly

I have in the past, many years ago, taken a couple of computer courses, but unless you are using it, you lose it all. [FG4]

Finding courses and help pitched at the right level and pace was difficult for many.

I went to the wananga ... over in Lower Hutt. X and I both went there to learn how to use the computer. They said it was fast learning. It was hard – (the right stuff) - but you had to grasp everything fast and it was long – one night a week for 32 weeks I think. And I still didn't remember them (it needed practice) I should have been using it every day for those 32 weeks. [FG15, Māori]

I also went on some other courses – one for Excel and one for Access. You got a beautiful certificate at the end, and it cost a fortune, and I learned virtually nothing, because it was a large class of people who tended to be younger and knew what they were doing. They whizz through it, and I don't know what I'm doing. I gave up, but I still got the nice certificate at the end, but didn't (learn much).[FG4]

Well I went to Senior Net ... when you do, you find that your ability is above what was being taught. [FG2]

For some, the challenge of needing to think and act digitally was very foreign and sometimes a challenge too far to just come to terms with a new vocabulary.

People who can't turn the device on, and when they have turned it on, don't understand the relationship between A, B and C – the progression – the logical development of the processes, so that to do this you'll get that, but if you don't do it, you won't get it, and who get emotionally disturbed when they find they can't grasp the point. [FG10]

Paying for help versus sources of help in the community

Seniors who can afford it have found that the 'hire a geek' types of services that have arisen in the cities were usually quite helpful for getting any problems sorted out. However, these same people also recognised that this sort of help is not an option for those on limited incomes and those who live outside of urban centres.

I regularly call them in. It costs me money but I don't care [because of help/ peace of mind I get]. Yes, they are expensive. There are several of those firms around and they are all expensive. It would be very useful if there was some sort of central organisation you could do to. There is a great deal I can do myself by just sitting down and nutting it out but every now and again you can't find the answer and need some extra help [FG3]

They were also wary of informal help available in their community mainly for security reasons.

I have on my computer a thing called TeamViewer, because I'm asked occasionally by people in the (retirement) village, can you sort out my computer? I'll go along and see what the problem is, and sometimes it's not switched on. It can be simple things like that, but I say, if you put TeamViewer on your computer – and I've got it on mine – you can ring me and tell me you've got a problem – you can give me access and I can be sitting in my pyjamas at home and I can access your computer and fix it. They are wary about TeamViewer – they're wary about giving somebody that's not a grandchild access to their computer. [FG6]

Family members often provide enough support for seniors to get started so they can learn for themselves and gain confidence.

When the big computer came out, before the tablets and all that, my daughter taught me how to switch it on first and then she left me for about a week. She just got me used to logging on and logging off and playing a game. The we moved on from there, once I was confident with that bit. [FG15, Māori]

Yeah, converting our – we haven't got a Smart TV, but you can get around that, which with the aid of my daughter – I have managed to do. Yeah, so it's utilising other people that are floating around, who you know have got reasonable expertise, and whom you trust. [FG2]

More support services were needed, as was support for ongoing learning as confidence grows.

You know how if you go into Noel Leeming and buy a new Smart TV., they have people who come in and set it up for you. There needs to be something like that. [FG16, Maori]

It's sort of that instant. Going to a class and being taught all this sort of stuff; it doesn't sometimes get exactly what you want, but when I come to a problem, I want somebody right here behind me saying, right now you do this, this and this – right then, to fix it. [FG8]

I've got a daughter in Wellington, a granddaughter in Auckland and another daughter in Palmerston, and they have in the past tried to help out with technology, but then you're on your own and then something goes wrong and you think, who do you ring? [FG8]

In each focus group we discussed with the participants what assistance they needed now to get the most out of their digital devices and to do more that they would like to do with digital devices and the internet. Naturally, what people identified they needed depended on their current use and doing a one to one on the thing they wanted to learn to do.

Do you think it would be possible to have help going to the home and helping with set up? [FG16, Māori]

We can't have an individual tutor for every person, but some place where you can relatively inexpensively access support. [FG2]

Many also saw a need for more publicly funded support for seniors to learn, particularly making use of existing infrastructure such as public libraries which in some regions such as Masterton, are already well involved with programmes such as Stepping Up.

She suggests that government should provide support and help. The level needs to be a bit higher than just the basics of using the internet. If you had a place or source that they could go to the told them about the services available that would be much easier and of a lot of benefit for the seniors. [FG14, Chinese (translated)]

This group that was set up, in practice, was not well-supported. But for those of us who joined, we thought it was just wonderful. We've learned so much at a slow level, once a month, at somebody's home, and it just keeps you up to date, and we always had a proper lesson. Probably that could be something that maybe the Government could look at sponsoring and funding more, for people of our age. [FG4]

Missing out

Seniors that have embraced the internet and digital services to some extent fear that their non-user peers are missing out. Our Pasifika participants were particularly worried about this for people close to them and did their best to help connect them but didn't always know how best to do this.

I am sure a lot of Pasifika people were missed out of the data for the census because they weren't digital – even I who use a computer got quite lost in it. [FG 5, Pasifika]

We couldn't do it (the Census) via computer so we got left out. [FG16, Māori]

My poor relations who don't – even struggle with going to a money machine – there's a big gap developing those who are going to lose out because of the digital [FG 5, Pasifika]

[My husband was] missing out on everything. I would be giggling; oh, this is your granddaughter sending me a video of her dancing. What do I always say? Oh, well okay I'll make you her friend. Then, all of a sudden, now he's quite happy [because he has learned how to do a video call on the mobile phone]. [FG 5, Pasifica]

I'd like to see help for people to use YouTube. Just the other week I was trying to undo this nut that was right at the back of a spare tyre. It had some sort of catch on it that I didn't know how to take off and I said, Hang on, and I went on YouTube and you told it the exact make and it showed you what was holding the tyre. Very informative! [FG15, Māori]

A third group were not happy about all this change and tended to respond by shutting it out and pretending it was not happening or claiming a privilege that they are too old to be forced to change and too old to learn new technologies and ways of doing things. The latter tended to be the older seniors.

They keep changing it; that's the problem - updating, they call it. 'We're going to update your computer tonight'. Don't do that, because everybody is confused again, and I have to learn all over again. I don't want to learn it. I'm not interested in it. I don't want to learn. [FG1]

I find it quite a relief not to have to deal with the volume of information overload that happens on the internet. ... you go on You Tube, they always have things down the side and you find yourself going 'that looks interesting' and next thing you have been sitting there for hours and you are left wondering where that two hours went. [FG13]

I think we're a bit too old to be fiddling around with all this high technology. We want something that works for us. We weren't born into this sort of technology [FG1]

Effect of internet pricing and products on seniors' decision?

There was a great deal of misinformation, mistrust and poor understanding about what is offered is offered by ISPs, how they price their services and help their customers. Seniors feel that services and devices are not designed with them in mind as a user group.

It's frustrating when it gets slow service, or keeps cutting off. You think of the money you pay them, and they don't [perform] - I don't think the service is worth the money I'm giving them. [FG 5]

There was also frustration expressed about getting good information to inform choosing the right sort of devices and service plans to match needs and seniors would like to be taken more seriously as an internet services consumer group.

Digital Senior Archetypes

In this section we have reformed the somewhat fractal view of seniors internet use seen through the themes to another level by building fifteen composite archetypes assembled from the nearly 160 individuals we interviewed. The archetypes we have chosen to build represent the range and variation we saw in our data. Each archetype is made up of several people and none depicts any single individual we interviewed and of course all names are fictitious.

Frances

It is Frances' deliberate choice to be a non-user of the internet. She is well educated and typical of professional women of her generation Frances followed an academic pathway through schooling and complains that she never learned to type. Later in adult professional life, she never had the experience of using a computer when she was in the workforce because she always had someone else to do her typing for her. She blames her current non-use of digital devices on this background and on the fact that she has an accommodating husband who is willing to do things online for her. There is a computer and Wifi in her home, but she does not use it and neither does she own a mobile smartphone. She is a non-user by choice because she prefers to do other things with her time. She is happy with the way things are because she can always get her husband to do for her anything that needs to be done online such as booking theatre tickets, finding and accessing services for travel (and he likes doing it). The only thing that would make her think again about her current choice to be a non-user would be if her husband were not around and it has crossed her mind that she should think about that possibility.

Jill

Jill has been using the internet from its beginning. She relies on it for helping with all the things she does every day and couldn't imagine living without it. This might typically begin with reading the online newspapers and other new sources in the morning, to regular activities like paying bills online and making arrangements for travel she is planning to do such as booking tickets and accommodation, finding out about local transport options for places she is intending to visit and downloading maps, routes and timetables. Her phone is with her always and is her first choice of device except when she needs to write something longer. She always takes her phone and her tablet when she travels. She loves the communication apps on her devices such as Whats App which she uses to stay in regular contact with family and she uses Skype to see the grandchildren more regularly than would otherwise be possible and also Facetime for people she wants to talk to overseas. She also emails and uses social media such as Facebook but mainly as a lurker so that she can keep up with family activities. She belongs to a special interest group on Facebook and uses that group to keep up to date on one of her interest areas which is helping people with apps that can provide mental exercises that help against the onset of memory loss.

John

John used computers when he was in the workforce. Initially these were not internet connected devices but towards the end of his employment he used email, word processing programs, spreadsheets and data bases. He views computers as tools to do things and he uses the internet every day and many times a day: to find information, access services such as internet banking and doing tax online, emailing friends and family. John does not use any social media and apart from

email does not use the video conferencing or other internet Apps for communication. He is a confident user of his devices which include a tablet and digital phone as well as his home computer. He has subscriptions to the Guardian which he reads every day on his tablet, although he buys a physical copy of the local daily paper. His device of choice depends on what he wants to do. The tablet is convenient for looking things up quickly, while because the phone is a bit small for his eyes and arthritic fingers, he only does transactions such as banking on his computer at home. While he appreciates the convenience of online banking and other services like booking tickets, he does worry about the security of online financial transactions and whether it is going to prove robust enough.

Rawiri

Rawiri uses his smartphone with a data package as a support for his everyday activities be they banking, news, entertainment, or communications. He thinks it saving him money and time because he no longer has to spend money on transport to pay bills. He also has a laptop he uses at home to catch up on missed TV programmes.

Li Jing

Li Jing is a newcomer to New Zealand. She has only a small English vocabulary and cannot converse in English. Google translate is one of her favourites, and relied upon, Apps for coping with everyday life. She has a smartphone and a computer at home. She finds the services she is looking for by searching online and using Google translate. When she goes shopping she often uses her phone and Google translate to find a picture to show a shopkeeper what she is looking for. She stays in touch with family and friends still in China using Wei Chat. She does not do online banking or shopping because she has family who will do that for her. She says she just could not cope without the internet and her online devices and even when money is short, her internet would be one of the essential services she would strive to retain. It is on the same level as having electricity and water she says: 'just essential'.

Li Quiang

Li Quiang's first language is Chinese and he has only limited English. He has used computers since before the coming of the internet and so feels very comfortable with using his phone, tablet and computer to assist him with his everyday life. He does banking transactions via the internet, makes purchases, follows news from China and is completely comfortable that he can use his devices to assist him to do anything he wants or needs to do in his new country. He is another who says he could not live without his internet and devices.

Tueila

Tueila is Samoan although she has spent much of her adult life living, working and raising her family in New Zealand. She first started to use a computer to do emails and internet searches when she was working. She now has a computer at home and a smartphone which she uses daily. Her children were her main motivation to have the internet at home. She uses her computer to search for information and as a tool for writing and sending out emails in support of her voluntary community work. She likes to research traditional Samoan medicines. The cost of having the internet is a concern for her and she says that she certainly could not afford it if she lived alone. Also, her Samoan culture makes her value and try to keep up face to face communications, although she realises this is not always possible. She likes that the internet can help her reach people more easily and also, she would like the

ways the internet is used to be culture preserving and enhancing rather than diminishing. An example of this is the Samoan bible being online as well as many examples of traditional Samoan arts and crafts. She uses Facebook and other Apps to stay in touch with what is happening in Samoa.

Lila

Lila is a Cook Islander. She came to New Zealand to be with family later in her life and wants to see her Pacifica culture and values preserved. She has grandchildren all born in New Zealand who are helping her to use the internet. She looks up recipes and cooks for them and in return they show her how to do things she wants to do on her smartphone and computer. She is not yet an extensive or fully competent user of a lot of applications but with the help of her grandchildren she is learning.

Joy

Joy does not have any internet connected devices and does not have the internet in her home where she lives alone. She plays the piano, does handcrafts, reads books and stays in touch with family and friends using her landline telephone and regular visits from family members. She has never used the internet and her 'one bit of modernity' is her answerphone. She finds that her need for business services such as banking are very limited and for the regular payments she needs to make she has set up a system of automatic payments. Things like tax or the census she relies on there being a paper version which she prefers. She would be interested in having an e-reader so that she could get easier access to more books and reading which she thinks might be easier with magnification for her failing eyesight, but she doesn't want to have a computer and there isn't one available publicly in the retirement village where she lives alone. Several her fellow village residents who are more internet and computer savvy would be willing to help her set up her Kindle if there were a computer available.

Sue

Sue has come to rely heavily on her smartphone for almost everything and is aware of how devastated she would be if she lost it. She does her banking, keeps up with family and friends using Whats App. She relies on her phone to manage her diary and appointment reminders, to find the time of her next bus or the movie she wants to see. She has a computer and the internet at home and values email for helping her with the communication challenges associated with her voluntary role in a community organisation. She relies on her 'techie' daughter to keep her up to date on new Apps that might be useful and sort out any issues she encounters with her devices. Her trust in the internet is not complete and she is wary when doing financial transactions and other business online and does these with caution, won over by the sheer convenience of online services. Her phone and Whats App have also allowed her to regularly, conveniently and cheaply stay in touch with a number of old friends who are spread all around the globe. "its just amazing and wonderful and I am thankful to have it".

Fay

Fay lives in a house with her adult son, although they each have their own self-contained part of the house and he is away a lot overseas. She uses a computer and the internet at home but not as an everyday or confident user. She has not used any government services like doing a tax return, renewing a passport or registering a car although she did do the 2018 Census online with the assistance of her son. She doesn't do internet banking. But she does have a charity that she contributes to and follows online. She met a local lady face-to-face some years ago who runs a

charity to support a school in Kenya and she likes hearing about what the project and her donations are achieving: “I’ve been giving that \$10 a month for seven years. Every so often, she tells you on the computer that there’s a story on there for you”. She is reluctant to go beyond the few things she does frequently and is easily put off when something she doesn’t expect pops up on her screen. When this happens she usually shuts down and waits until her son is available to help her sort out what the problem is. Fay worries that more and more people she would like to stay in touch with no longer have a traditional landline telephone and she doesn’t know how to use the communication apps on her computer as an alternative. [e.g. see FG7]

Jack

Jack is mobility impaired and needs a motorised wheelchair to get around. He does not have his own car and is limited in how much he can go out to get to services. For Jack, his internet connected devices make his life easier. He uses computer, tablet and smartphone every day and many times a day for a multitude of purposes. While the cost is a considerable drain on his limited resources, he views the internet as essential for living. He accesses many online services from government and other organisations. For example, he does his weekly grocery shopping online and has it delivered; does his banking online and sources entertainment such as movies and games via the internet. His internet connections also keep him connected to friends and family and allows him to actively pursue his hobbies. He is alert to the risks and scams associated with being online and therefore exercises caution, but his internet and devices are an essential part of how he can live a full, relatively independent and socially connected life.

Jenna

Jenna has hearing and sight difficulties and her internet connected devices are part of the assistance she needs to hear conversations and see. She has had help from the Royal NZ Foundation for the Blind to choose the devices she has so that they have large easy to use buttons and the Apps she needs are loaded. Her devices are a constant companion and allow her to lead a relatively connected life in which she can be in touch with family and friends, take part in community events and receive accessible news.

George

George’s only internet connected device is his smartphone. He relies on it to do a wide range of things. These could range from sourcing information on spare parts for something he is restoring, finding instructions for how something is assembled, finding his way to an unfamiliar venue or keeping track of his financial affairs through internet banking. He sometimes casts a YouTube segment on how to do something onto his TV. He also uses his phone as a source of news and entertainment and to keep up with the activities of his nieces and nephews by lurking on Facebook.

Mari

Mari has been given a smartphone by her family who thought she needed it and thought it would help them stay in touch. However, she had not learned to do very much with it and finds it not very easy to use compared with her old phone. She can text and answer an incoming call but that is all. Family have been her only teachers on how to use her phone and she seems uninterested about whether there might be some sources of more help for her use available in the community. She

doesn't know what other apps are on the phone nor how to use them and because she prefers face to face communication doesn't seem to wonder about them or miss them.

Discussion

Through the themes set out in the previous section and the archetypical portraits, it can be seen that the seniors in our research are as diverse in their internet and digital services use as any other age group even though they are more weighted towards the low and non-use end of the spectrum.

In their use, seniors generally err to the side of caution and self-protection and seem to apply the risk aversion common sense rules they have learned in the non-digital world to their online use.

The most experienced everyday users of the internet and digital devices engage in a wide range of activities that contribute to the quality of their lives and their social and economic inclusion. They are assisted with everyday tasks like catching a bus, finding out how to prune their roses or talking with friends and family. Low and medium users frequently revealed they were open to doing more. They need and would welcome a range of examples of what others do to help them chart their own next learning steps and information about where they can learn to do these things.

Seniors with disabilities or mobility and sensory impairments (age-related or not) find digital apps a great assistance to offsetting and overcoming the problems arising from them.

Proxy use is very common among seniors who are non-users or low users. This appears to open the individual to both the advantages of use and additional security risks. Service providers could help the senior to minimise the risks while helping the individual to get the benefits by building formal acceptance protocols for proxy use into their business processes. Government agencies such as Ministry for Seniors and Netsafe should also formulate advice to seniors and service providers that acknowledges the common practice wisdom of proxy use and helps to minimise risks to all parties.

Getting help

Seniors need more help of various sorts and easily accessible guidance on where to find it.

Public libraries were often identified as an existing location and capability that could be enhanced to provide more technical support to struggling and new users or simply people wanting to go a next step for them. The availability of tech help as well as Internet skills development help through libraries was seen as a desirable thing that could build on existing infrastructure and location.

Existing help organisations, for example Senior Net, could be supported to do more in their mission to help seniors make the most of the internet and their devices. However other senior-attracting organisations (e.g. PROBUS, Retirement Villages, Marae) either in partnership with specialist providers such as Senior Net or alone could be encouraged to support seniors' internet skill development and digital literacy. In short, more could be done to offer support to help get beneficial outcomes from digital inclusion by offering more encouragement and help in places senior live and congregate instead of them having to be proactive seekers of help.

Government agencies with seniors as a significant client group, for example Ministry for Social Development and the Office for Seniors, Housing, and ACC could use their interactions at key points to help non-users get started and limited users get more benefits from their use. This could be done for example by having a clinic or tutorial session which could demonstrate useful apps like MyMSD and Manage My Health and show people how to access and use them to their personal benefit.

There is a willingness among senior users, especially the more proficient and experienced ones to share their experiences and knowledge with others informally. This willingness could be leveraged in a more systematic way to exemplify user patterns that non-, low- and medium-users could learn from, and be motivated to emulate

Diagnostic tools such as a modified version of the UK Essential Digital Skills Framework could be used as a tool for individuals to examine their own capabilities and needs for further digital literacy and skills development and also by course and training providers to better customise courses to needs.

Seniors often didn't know when to go for help or authoritative information. Organisations providing this kind of help need to be encouraged and supported to become better known e.g. few had heard of Net Safe.

Trusted information for senior users

Seniors are in the main cautious and looking for advice that will keep them safe. Much could be done to point seniors to where they will find up to date information they can trust. This could include better promotion of existing trusted sites such as Netsafe – few of our participants indicated that they knew about this organisation and what it does. Organisations such as Seniornet could be tasked with curating information to support seniors use and vehicles such as the Office for Seniors newsletter and local libraries could be vehicles for dissemination.

Cost

Cost of using the internet is a barrier for some seniors particularly those on low incomes and living alone. We noted a number of cases where people told us that the death of their spouse meant that their income became sufficiently reduced so that they needed to cut their internet access. Others on low incomes managed some limited internet access through prepay fixed cost arrangements using their phone and when their data cap was reached for the month, they went without.

The cost of purchasing up to date devices is significant. People found deciding what would be the best adequate value-for-money was difficult and getting advice uncontaminated by marketing hype was hard. Particularly people would like to know which devices are adequate for doing what and which can be adapted or come with more accessible keys and other assistive tools for poor eyesight and hearing.

People also mentioned the fast obsolescence of their devices and software as an additional cost that makes keeping up to date difficult and sometimes unaffordable.

Internet service providers (ISPs) were not viewed as making it easy for seniors. The way ISPs package and price their offerings is not very transparent or easily compared and is often packaged in ways that appear aimed at other age demographic groups (not seniors).

Continuing digital gap

People over 85 are a special case in that they probably left the workforce and lived most of their life pre the digital era. Yet, some people in this age group have embraced the digital age and come to love it and find it a great use to them and their quality of life. These people resent any assumption that their age should be a factor limiting how others think about what they can or cannot do.

However, we also know that this age group is distinguished by a much larger proportion of non-users many of whom our research suggests are not very interested in learning and are happy to ignore the affordances of the digital world or have others do things for them. We have already mentioned the issues that a growing number of proxy users might have for security, privacy and other regulatory practices. It is common to hear that decision makers and policy makers in government and elsewhere in the community believe that the special case we see in the 'over 80' group will simply diminish and disappear over time as those now in work and the younger senior group who used the internet in their earlier lives, move into the older senior group. We see two issues that suggest that this is unlikely to be so.

The first of these is exposure to new applications and technologies is more difficult and costly for individual seniors because they must take the initiative themselves and pay for it whereas often this exposure and training happens at an employer's cost while working. We saw that voluntary work might be a good substitute for the employer in this regard.

The second issue is cost of keeping technology hardware and software equipment up to date and the motivation to do so. Fixed incomes and the costs of living alone contribute to the former. The motivation issue is the difference between still functional and usable, if not the latest, and a source of security risk because the software is no longer up-to-date or a limiter on what can be done because the device operating system of hardware cannot support the latest and most useful apps. While seniors need to weigh the costs and trade-offs involved, more information and support to help them with these decisions is needed.

Senior are diverse in their use and needs

We began this section by remarking that the seniors we interviewed were extremely diverse in their digital device and internet use – a pattern not unique to New Zealand as our literature review shows. The more people use their devices to do everyday things to help them, the more confident and skilled they become and the greater the benefits they appear to get for their quality of life. Thus, there is a potential for inequalities already existing in the population to be amplified by some being more digitally included than others. If we want to limit the inequalities arising from digital exclusion, or limited internet and digital applications use, then additional support is needed.

In the next section, we have used our data to identify seven user types among seniors and what our research suggests each of those types need to get more benefits to their wellbeing from greater digital inclusion.

Classification of digital inclusion types and what is needed to support them

The people we interviewed and the archetypes we developed could be classified against seven digital inclusion types which are described below. Each group has different needs and types of support needed to help them benefit from digital tools and the internet. The seven types can be used as a self-evaluation instrument for individuals to explore where they sit in terms of being digitally included or excluded

Competent, skilled and self-actualising users

Jill, John, Jack and **Li Quiang** are examples of this digital inclusion type. These people have internet Wifi and multiple devices available for their use in their homes and make use of a smartphone which is with them always. They have sufficient digital literacy and skills to be able to do anything they want to do and access the internet many times a day for news and current affairs, staying in touch with family and friends, for doing business transactions like banking, paying bills or making purchases, finding and using government services such as tax, registering a vehicle, finding other information, assisting them with getting around through online maps and timetables, and in pursuing their entertainment and hobbies. When they decide they want to do something new online, they use internet search engines, their family, friends and other networks to find out how best to do it. They are neither daunted by the internet nor particularly fearful of it. They prefer to see it as the need for common sense and at times, as is typical of their offline world, caution should be applied. It was very common to hear these people say that they could not imagine life without their phone and other devices.

Support this group needs:

For this group there are three main areas where support and assistance is needed.

The cost of the internet is seen by some as a potential barrier especially for those living alone.

Keeping their software and hardware up-to-date is difficult. They need help on how to find an appropriate balance on a fixed and lower income between the marketing hype for the latest thing and desirable or needed upgrades for security and efficiency purposes

Trusted site for security alerts.

Competent, bounded using

This group of people have home internet and usually more than one up-to-date internet devices such as smartphones, tablets and usually a home computer or laptop. They have embraced one or more aspects of the internet-enabled offerings such as information searching, communications through email and social Apps like Skype and Whats App for staying in touch with family and friends but are selective in what they use and choose to do. **Jenna, George, Rawiri, Li Jing, Tueila** and **Sue** are examples of this group of users. They are not digital by default, and often rely on family members to introduce them to new uses and show them how they work but once introduced are enthusiastic adopters.

Support this group needs:

Encouragement

Introduction to other apps that would make their lives easier e.g. online banking; e-government services

Authoritative sources of how-to help, for example, community-based user support groups in public spaces such as libraries to share issues and useful Apps perhaps run by a 'Community Technician'

Case studies of users of this type and things they do to keep themselves safe and get the best out of their internet use

Authoritative source of alerts re scams etc

Limited competence and cautious, non-confident use

Fay, Mari, Lila and Li Jing are examples of this group of users. They are commonly only confident using one device which they use that for a very limited set of functions they have learned how to use. They are not confident in their use and fear going beyond what they know. If anything unexpected occurs during their use they are easily deterred, and they are likely to give up. They often rely on someone close to them to support their use. This might be a member of family or trusted friend or neighbour. They have often tried some of the courses that offer support to use but have not found these are at the right level for them because they don't get enough time to practice and become confident in an application and maximise what they can do with that application.

Support this group needs:

An easily accessible help desk like at local libraries or similar

Encouragement

Digital literacy training with on going online help and/or printed instructional materials to refer to at home

Gradual introduction to other apps that would make their lives easier e.g. online banking; e-government services

Case studies of people like them and how they expanded their uses safely

Authoritative sources of how-to help, for example, community-based user support groups in public spaces such as libraries to share issues and useful Apps perhaps run by a 'Community Technician'

Authoritative source of alerts re scams etc

Fearful non-use

Joy is an example of a fearful non-user. She is worried about internet security, risks to her identity privacy and worried about her own lack of skill to use the internet. There are uses that such fearful non-users often identify they would be tempted by, such as the e-reader for the book lover but the size of challenges always seem to win in their self-justification for not using. They often cite their preference for using their time to do other things and not wanting to waste time learning to do what they see as having marginal benefits for them and their life style

Support this group needs:

Examples of what might be possible

Examples of case studies of what others like them did to overcome their fear

An easily accessible help desk like at local libraries or similar

Local community technician – trusted person who can support through group sessions or one-on-one in the home

Carefully graded training with some one-on-one time to answer questions and encourage

Deliberate/wilful non-use

Frances is an example of someone who deliberately chooses not to use the internet. This choice is not driven by cost, education level or lack of what it might take to learn. It's more a deliberate choice to go without because of a preference for prioritising time and effort on doing other things. They also see little advantage to be gained and often have arranged their own work-around-it strategy. Many in fact live in a home where there is internet and someone close to them is willing to do things for them on request such as purchase theatre or travel bookings or look something up. Because of their proxy use through others they get some of the convenience, entertainment and social advantages of being connected although they are totally reliant on their complicit help remaining available.

Support this group needs:

Examples of case studies of risks associated with this strategy should their current back-up of relying on someone else fail

Appeals to independence gained through internet use

An easily accessible help desk like at local libraries or similar

Tailored training as required

Financially driven non-use

Older people living alone find the cost of the internet at home something unaffordable. If they have a mobile phone it is unlikely to be a smartphone and they don't have other modern devices. Cost is a factor in internet devices being unavailable. They don't know if there are affordable options for them or how they would access them. They also don't know where they could get help.

Support this group needs:

Free home internet connections for all social housing

Subsidised home internet for others on low incomes

Grants or subsidies to purchase devices

Examples of case studies of low-cost use that has financial benefits e.g. internet for communications in lieu of landline

An easily accessible and free help desk like at local libraries or similar

Subsidised training as required

Competence driven non-use

This group's non-use lies in the feeling that they have that they don't understand the internet and know enough to use digital devices. They are open to learning but just don't know where to start. What sort of device do they need; where do they get help; how do they keep themselves safe and stop bad things happening to them; can they afford it?

Support this group needs:

Support groups in local libraries or community centres to connect non-users to others new to the digital world

Carefully stepped and graded training including some one-on-one training

Advice regarding home internet services

Advice regarding purchase of suitable easy to use devices

Examples of case studies of similar people beginning to use the internet and how this has benefitted their quality of life

An easily accessible help desk and technician at local libraries or similar

References

- 2020 Trust. (2018). *Stepping Up digital skills training: Seniors*. Wellington: 2020 Trust.
- Berry, R. (2011) Older people and the internet. Towards a 'system map' of digital exclusion, June 2011, ILC-UK, www.ilcuk.org.uk
- Borg, K., & Smith, L. (2018). Digital inclusion and online behaviour: five typologies of Australian internet users. *Behaviour & Information Technology*, 37(4), 367-380. doi:10.1080/0144929X.2018.143659
- Damant, J., Knapp, M., Freddolino, P., & Lombard, D. (2017) 'effects of digital engagement on the quality of life of older people', in: *Health and Social Care in the Community*, Vol. 25(6), 1679-1703
- Davidson, S. (2018). *Digital Inclusion Evidence Review 2018*, November 2018, Age UK.
- Department of Internal Affairs (DIA). (2019). *The Digital Inclusion Blueprint, Te Mahere mō te Whakaurunga Matihiko*. Wellington Department of Internal Affairs. <https://www.digital.govt.nz/digital-government/digital-transformation/digital-inclusion/digital-inclusion-blueprint/>.
- Diaz Andrade, A., Hedges, M. R., Karimikia, H., & Techatassanasoontorn, A. (2018). *World Internet Project: The Internet in New Zealand 2017*. Auckland NZ: New Zealand Work Research Institute, AUT.
- Elliott, M. (2018). *Out of the Maze: Building digitally inclusive communities*. Wellington: The Workshop. <https://static1.squarespace.com/static/5bd0d99e16b6404fe9018538/t/5bdf7f9b575d1f0d19337766/1541373904877/OutOfTheMaze.pdf>
- Friemel, T. N. (2016). The digital divide has grown old: Determinants of a digital divide among seniors'. *New Media & Society*, 18(2), 313-331. doi:10.1177/1461444814538648
- Grimes, A., & White, D. (2019). I. Wellington: Motu Economic and Public Policy Research Trust. Working Paper 19-17. October 2019.
- Hannon, C. & Bradwell, P. (2007). *I'm 64: Ageing, the internet and digital inclusion*, Demos, http://www.demos.co.uk/files/File/Web_I_m_64.pdf
- Hargittai, E., & Dobransky, K. (2017). Old dogs, new clicks: Digital inequality in skills and users among older adults. *Canadian Journal of Communications*, 42, 195-212. doi:10.22230/cjc.2017v42n2a3176
- Hunsaker, A., & Hargittai, E. (2018). A review of Internet use among older adults. *New Media & Society*, 20(10), 3937-3954. doi:10.1177/1461444818787348
- Macedo, I. M. (2017). Predicting the acceptance and use of information and communication technology by older adults: An empirical examination of the revised UTAUT2. *Computers in Human Behavior*, 75, 935-948. doi:10.1016/j.chb.2017.06.013
- Neves, B. B., Fonseca, J. R. S., Amaro, F., & Pasqualotti, A. (2018). Social capital and Internet use in an age comparative perspective with a focus on later life. *Plos One*. Retrieved from <https://doi.org/10.1371/journal.pone.0192119>

- Schreurs, K., Quan-Haase, A., & Martin, K. (2017). Problematizing the digital literacy paradox in the context of older adults' ICT use: Aging, media, discourse, and self-determination. *Canadian Journal of Communications*, 42(2), 359-377. doi:10.22230/cjc2017v42n2a3130
- Vassli, L. T., & Farshchian, B. A. (2018). Acceptance of health-related ICT among elderly people Living in the community: A systematic review of qualitative evidence. *International Journal of Human-Computer Interaction*, 34(2), 99-116. doi:10.1080/10447318.2017.1328024
- van Deursen, A. J. A. M., & Helsper, E. J. (2015). A nuanced understanding of Internet use and non-use among the elderly. *European Journal of Communication*, 30(2), 171–187. doi:10.1177/0267323115578059
- van Deursen, A. J. A. M., & Van Dijk, J. A. G. M. (2015). Toward a multifaceted model of internet access for understanding digital divides: An empirical investigation. *The information society*, 31(5), 379-391. doi:<https://doi.org/10.1080/01972243.2015.1069770>

Appendix 1: Information for participants



Understanding, explaining and evaluating digital inclusion among senior citizens

CONSENT TO PARTICIPATE IN FOCUS GROUP

This consent form will be held for two years

Researchers: *Professor Miriam Lips, Dr Allan Sylvester, Dr Elizabeth Eppel, Professor Anne Goulding, 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 understand that:

- I am agreeing to keep the information shared during the focus group confidential. I am aware that after the focus group, I must not communicate to anyone, including family members and close friends, any details about the focus group.
- I can withdraw from the focus group while it is in progress however it will not be possible to withdraw the information I have provided up to that point as it will be part of a discussion with other participants.
- Any information I provide will be kept confidential to the researchers.
- My name will not be used in reports, nor will any information that would identify me.
- I understand that the results will be used for research papers, working papers, academic publications and conference presentations.
- I would like to receive a summary of the focus group and have added my contact details below. Yes ☐ No ☐

Signature of participant: _____

Date: _____

Name of participant: _____
Contact details: _____



Understanding, explaining and evaluating digital inclusion among senior citizens

INFORMATION SHEET FOR FOCUS GROUP PARTICIPANTS

You are invited to take part in this research. 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.

What is the aim of the research?

Being digitally included or using digital technologies increases people's participation in society. However, it is not well understood how people who are digitally excluded (i.e. not using digital technologies) begin to use digital technologies to achieve increased societal participation. This research aims to understand and explain the meaning and implications of digital inclusion among a group of people that are typically more digitally excluded than other groups in society: senior citizens.

How can you help?

If you agree to take part, you will be part of a focus group. We will ask you, and other participants, questions about why you use and don't use digital technologies and how these digital technologies could be used effectively to achieve increased participation outcomes.

The focus group will take 50- 60 minutes. We will audio record the focus group with your permission and write it up later.

The information shared during the focus group is confidential. That means after the focus group, you may not communicate to anyone, including family members and close friends, any details about the focus group.

You can withdraw from the focus group at any time before the focus group begins. You can also withdraw while the focus group is in progress. However, it will not be possible to withdraw the information you have provided up to that point as it will be part of a discussion with other participants.

What will happen to the information you give?

This research is confidential. This means that the researchers named below will be aware of your identity but the research data will be combined and pseudonyms will be used. Your identity will not be revealed in any reports, presentations, or public documentation.

What will the project produce?

The information generated through the focus groups will be used in developing working papers, academic articles reporting on the research and academic conference papers. There is also the potential for this research to be published in academic or professional journals, and disseminated at academic or professional conferences.

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

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

- choose not to answer any question;
- withdraw from the focus group while it is taking place. However, it will not be possible to withdraw the information you have provided up to that point;
- ask any questions about the study at any time;
- read over and comment on a written summary of the focus group upon request;
- be able to read any reports of this research by contacting 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 me or any of the other researchers:

Professor Miriam Lips
Chair in Digital Government
School of Government
Victoria Business School, Orauariki
Room 806, Rutherford House
Victoria University of Wellington
Phone: (64) 4 463 7411
miriam.lips@vuw.ac.nz

Human Ethics Committee information

This research has been approved by the Victoria University of Wellington Human Ethics Committee: application reference number 0000027319.

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.

Appendix 2: Focus group protocol

1) Group formation

The interview group will be put together through an agent acting on our behalf (see separate protocol for this part of the process)

2) Researchers

Each interview will be conducted by at least two members of the research team.

3) Participant briefing and consent

There is an information sheet for each participant (which might have been made available during recruitment) and a consent form for each participant to sign.

On the day of the interview, the participants invited by the intermediary will be assembled in the place where the interview is to take place (Our Requirement is semi-private and free from extraneous noise that would make hearing people when they are talking, and recording, difficult).

Some refreshments will be provided for the participants at the time they assemble (paid for by Research funds but organised by the agent).

One of the researchers conducting the Focus group will brief the participants orally about the research. Try to use the simplest language you can to convey the purpose of the research and how it will be conducted.

The briefing should cover the following points:

- What we want to know = when and why they use the internet and other technologies and devices (smartphone, iPad, laptop, PC) or why not.
- Why we are doing the research = to help understand why and how seniors start using the internet.
- The interview proper will take about an hour.
- We will ask questions; we will give everyone a chance to talk, but prefer only one person at a time.
- We want to record the interview but we will destroy the recording when we have finished our research.
- Also we will not use anyone's name or say anything in our research that will identify an individual.
- Ask if there are any questions the participants want to ask before the interview begins.
- Explain that we are asking their agreement to participate. They can ask to leave the interview at any time if they are not happy to continue, and that we are asking for them to sign the paper to say they have agreed to participate.
- Collect up the consents

4) The interview

Begin the interview by giving the participants a short demographic questionnaire; First name only; age (in 5 year bands); gender; number of years using the internet (and devices such as smartphone, iPad, laptop, PC) (guestimate OK); location; education level; ethnicity (Maori, NZ European/Pakeha, Pasifica, Asian or other).

Interviewer Questions to explore with the group:

Non-user/ ex-user questions

Have you ever used the internet with any device? Smartphone, iPad, laptop, PC

Probes: why not;

If you have used the internet with a device in the past but have stopped using it, when did you use it? what what did you use it for? and what led to you stopping?

If you don't use the internet or any devices at the moment, what might lead to you being interested in doing so in the near future? Why? For what purpose?

What would make it possible for you to do that?

Is there anything you know about using the internet that would make your day to day life easier or more convenient?

Probe about access to services such as MSD, bank, paying bolls online, IRD, getting a passport or renewing a passport, renewing car registration; and means of communication with family and friends.

Do you have any issues with your knowledge about how to use the internet or a technical device? Do these limit you from doing some of the things you'd like to be able to do?

Do you feel confident that you have the skills needed to use the internet or a technical device? Do you know where you could go or what you could do to acquire these skills?

Do you have a device like a smart phone, iPad, laptop, PC or a smart TV.

What do you use it for? Why? why not?

Have you ever had a device? And why did you stop using it?

If you don't have a device, do you have access to one ? e.g. via family for instance) or a public kiosk (e.g. public terminal in a library or retirement village).

Ex-user/ User questions:

When did you first use the internet or a digital device? Why did you decide to start using the internet?

What first prompted you to use the internet? Where/ why? To do what?

What now leads you to use the internet or a digital device? Why?

Where do you now use the internet [Prompts: at home, at friends or relative's houses, at the marae, at the library; at seniors group?]

In the past week, what activities did you use the internet for?

[Probes: doing a business transaction (e.g. banking or buying something online or paying a bill);

leisure/play; running a business or voluntary organisation;

organising an event or activity; learning something new, informal learning, creating something;

communicating with friends, communicating with family, communication with others; anything else?]

Are there any other activities you would want to use the internet for?

Prompt: In the past week who have you interacted with online and why?

Prompt: some examples - by email; txting on your smart phone; social media such as Facebook Whatsapp; sharing photos

Sophistication of use:

Do you have more than one digital identity i.e. user name? or email? How do you decide which to use and when?

About how long each day do you spend on the internet? What limits how long you spend?

What activities do you value most being able to do online?

Do you sometimes need help to do what you want to do? Where do you get that help?

Do you need help in using the internet or any technical device?

Where/ who do you go to for help?

Have you ever felt worried about something that has happened to you online? What did you do about it

Have you ever stopped using the internet (or technical device)? Why?

Have you started using the internet (or technical device) again? Why?

Do you want to use the internet/devices for other purposes than you use it now? Why?

Do you think you can use the internet/devices better than you do now? Why? And How?

Ending the interview

In general this formal part of the interview with questions and group responses should not go beyond 1 hour.

Bring the interview to a close by asking if there is anything else they would have liked to tell us but haven't had a chance to or any question they wish we had asked?

Appendix 3: Participant Survey

Demographic questionnaire (Please tick boxes that apply)

Age (circle): < 65 65-69 70-74 75-79 80-84 85-90 >90

Gender:

female

☐

male

☐

Are you:

Maori

☐

European/Pakeha

☐

Pasifica

☐

Asian

☐

Other

☐

Highest Education Primary

Secondary

Tertiary

Level:

☐☐☐

Do you live:

Alone

With partner

With family
members

With others

In a shared
retirement home

☐☐☐☐☐

Is the internet available at your home?

Yes




☐



No

☐

Don't know

☐

I use this device (tick or circle all the ones that apply)	How often do you get to use this device (You can tick any box that applies) <div style="text-align: center; margin-top: 20px;"> <input checked="" type="checkbox"/> </div>						Availability of device (even if you don't use it) (tick all boxes that apply) <div style="text-align: center; margin-top: 20px;"> <input checked="" type="checkbox"/> </div>		
	Never	Rarely	Only with help	Once a week	Once a day	Many times every day	In my home	Friend of family home	Elsewhere e.g. shared device in library or other public space
Tablet (e.g.iPad) 									
Mobile smart phone 									
Internet TV 									

<p>Game station</p> 									
<p>Computer or Laptop</p> 									
<p>E-reader/Other?</p>									