

Improving the Inclusivity of Older Adults
on Social Networking Sites:
Recommendations for Design and Practice

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Declarations

Candidate's Declaration

I, Chris Norval, hereby declare that I am the author of this thesis; that I have consulted all references cited; that I have done all the work recorded by this thesis; and that it has not been previously accepted for a degree.

Supervisor's Declaration

I, John Arnott, hereby declare that I am the supervisor of the candidate, and that the conditions of the relevant Ordinance and Regulations have been fulfilled.

Associated Publications

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Chris Norval. 2012. Understanding the incentives of older adults' participation on social networking sites. *SIGACCESS Access. Comput.* 102 (January 2012), 25-29. DOI=10.1145/2140446.2140452

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Abstract

This thesis explores and presents a number of ways in which social networking sites (SNSs) can be made more inclusive toward older adults. These suggestions are derived from discussions with older adults, and are evaluated by Internet users over 60.

The steps taken in this research can be broken down into different stages. The first stage involves conducting focus groups with older adults, encouraging discussions about both positive and negative aspects of SNSs. From the transcripts of these focus groups, the next stage involves using a method based on thematic analysis to analyse and categorise findings, which recommendations for inclusive SNSs are then derived from. The next stage sees these recommendations evaluated with older adults in two ways: for participant agreement and for impact, conducting a comparative analysis on two user interface versions of a prototype SNS. The final part of the thesis takes each of the verified recommendations and investigates how mainstream SNSs do and do not conform, suggesting design components which adhere to the findings that could be used effectively for the creation of a new SNS.

There are three main contributions from the research outlined in this thesis. Firstly, the user centred recommendations are the first set of evaluated recommendations for how SNSs could be made more inclusive for older adults. Secondly, the research outlines a mixed-methods approach to creating a similar set of recommendations for other groups of people or other complex technologies. Such a framework can be applied to systems, where, for example, opinions can act as a barrier to adoption. Thirdly, the research suggests ways

in which the recommendations could be implemented on a new or existing system. Context can be gathered from quotes included alongside each recommendation, potential changes to mainstream SNSs are suggested to provide examples of how the recommendations could be utilised, and mainstream SNSs are additionally investigated to suggest fundamental design choices that could be made when creating a new SNS.

This thesis presents the user centred recommendations, demonstrates that they have the potential to improve SNSs, demonstrates that they are supported by participants and outlines methods for how they can be utilised effectively, improving the inclusivity of SNSs for a wider range of people.

Introduction

1.1 Overview

Social networking sites (SNSs) are outlined by boyd [sic] and Ellison as services that allow people to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system [boyd and Ellison, 2007]. Such sites are often used as a method of maintaining one's offline social network and for online communication.

SNSs, such as Facebook, Twitter and Google+, have become widely used in recent years. 'Hashtags' and Facebook URLs have become a common sight on TV programmes, shop windows, magazines, websites and many other outlets. Currently, Facebook has 1.23 billion¹ monthly active users, approximately 17% of the global population. It has been reported that approximately 64% and 72% of online adults in the UK and US respectively use SNSs [Ofcom, 2013, Brenner and Smith, 2013].

While these sites are increasingly being used for the dissemination of information, younger adults are considerably more likely than older adults to be using this kind of technology. Ofcom found that 92% of online 16-24 year old respondents have set up an SNS profile, compared with 25% of online respondents over 65 [Ofcom, 2013]. While the

¹<https://newsroom.fb.com/Key-Facts> - As of 2nd Nov, 2013

Age	2007	2009	2010	2011	2012
16-24	54%	77%	86%	90%	92%
25-34	27%	65%	70%	81%	84%
35-44	12%	40%	58%	58%	67%
45-54	7%	30%	32%	48%	47%
55-64	8%	11%	27%	24%	35%
65+	3%	7%	11%	19%	25%
Total	22%	44%	54%	59%	64%

Table 1.1: Age differences in SNS profile creation between 2007 and 2012 in the UK. Data from the Ofcom Adults' Media and Attitudes Report 2013 [Ofcom, 2013].

number of online adults with an SNS profile is increasing, the percentage of users decreases with age, as shown in Table 1.1. Similarly, Pew Research Center's report observes that 89% of the respondents aged 18-29 use SNSs, compared with 43% of over 65s [Brenner and Smith, 2013]. These demographics suggest a digital divide between older and younger adults in regard to SNSs. Although great benefits exist with this technology, the number of older adults who make use of it remains low compared to other age groups [Connolly and Meiselwitz, 2011].

There are a variety of reasons why older adults may choose not to use a SNS. This thesis investigates measures aimed at increasing the inclusivity of SNSs by creating user-centred recommendations for the developers, designers and stakeholders of new and existing SNSs alike. These recommendations attempt to mitigate or avoid common barriers that can prevent older adults from choosing to use such sites.

The recommendations are derived from focus groups with older adults, and two key papers from the literature. A subsequent evaluation then leads to the acceptance or rejection of each recommendation based on participant agreement. An exploratory case study is also conducted in order to investigate whether or not these recommendations can be used to improve SNSs. To conclude the thesis, the recommendations are then used to qualitatively evaluate three mainstream SNSs to identify both positive and negative aspects, suggesting design principles to consider and to avoid for developers and designers of such sites.

1.2 Motivation

Researchers from different sub-fields have investigated reasons and implications for the rise in popularity of SNSs. Several associations have been suggested with SNS usage and sociological factors [Błachnio et al., 2013, Wilson et al., 2012]. Such research has suggested that intensity of Facebook usage is positively associated with life satisfaction and social trust [Valenzuela et al., 2009], and the use of some Facebook components are associated with increased social capital [Burke et al., 2010, Ellison et al., 2007, Valenzuela et al., 2009, Yoder and Stutzman, 2011] and reduced loneliness [Burke et al., 2010].

Additionally, researchers have suggested that SNSs can be a beneficial online platform for older adults as a communication platform with family members [Bloch and Bruce, 2011, Brandtzæg et al., 2010, Cornejo et al., 2010, 2013, Erickson, 2011, Gibson et al., 2010, Goswami et al., 2010, Maier et al., 2011, Righi et al., 2012, Sundar et al., 2011, Tsai et al., 2011b]. Using social media, where, for example, children or grandchildren live outside the country, or within the country but beyond a reasonable distance of travel, is suggested to help older adults who may feel disassociated with their family members [Cornejo et al., 2010, 2013, Righi et al., 2012].

Increasingly, families are connecting on SNSs. Nearly half (46.6%) of Facebook users aged 50 have specified a child (or has been specified as a parent) on the site [Burke et al., 2013]. A report from Pew Internet found that approximately two thirds of American parents of teenagers use a SNS and 80% have ‘friended’ their child [Lenhart et al., 2011, Madden et al., 2012].

Despite family contact being a key motivator for many older adults online, a lack of interest and perceived purpose have been suggested as reasons for the low uptake. Other issues include privacy concerns, negative preconceptions, the behaviour of other users and a lack of suitability [Bennett, 2011, Leist, 2013, Nef et al., 2013]. Many of these issues, however, are not inherent to SNSs. By considering the needs and opinions of older adults, it may be possible to develop an acceptable and useful platform for online social

communication within this cohort.

It has been suggested that many younger adults continue to use such sites, in order to enjoy social inclusion, despite sharing similar concerns to that of the older population [Hoofnagle et al., 2010]. While many of the concerns may not be unique to older adults, developing for ‘extra ordinary’ users creates a more inclusive environment for a wider range of people [Pullin and Newell, 2007], and addressing the barriers of the cohort least likely to use SNSs may help improve the service for people of all ages.

From a research and pragmatic perspective, there is a need for an evaluated, user-centered set of recommendations for developers and designers to use when they wish to make SNSs more inclusive for the older generations. Such a set of recommendations would attempt to avoid issues not traditionally covered by guidelines for older adults, such as the Web Accessibility Initiative (WAI) guidelines² for developing for older users. While such existing guidelines often focus on technical requirements, e.g. “Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality”, these often do not cover many of the behavioural concerns one may have with the site, such as privacy, control over data and protection from other users. While such recommendations may not be machine testable, they are worthy of consideration. Researchers have attempted to raise issues, and subsequently potential solutions relating to building SNSs for older adults, however, none have been validated or evaluated with participants on such a system.

In addition to this need, conducting comparative studies on SNS interfaces is often complex due to practical and ethical difficulties. Non-users can be used to counter practice bias, however, this results in participants who have no contacts or content on such a site. This missing foundation can complicate tasks which require an existing presence, such as interacting with contacts or content. Ethical questions also arise from requiring participants to sign up for such a service during a study. Additionally, non users are valuable participants for investigating how new users may approach adopting such a system. While existing

²<http://www.w3.org/WAI/older-users/>

mainstream sites can be useful as a control, comparing prototypes to fully functional systems may raise questions over scientific rigour. There is a need for an exploration of this issue. Outlining the positive and negative aspects of different methods of conducting such a study may lead to the suggestion of a solution. This in turn allows for the replication of such a study, future iterations following similar methods, and a framework for conducting comparative evaluations on complex, social systems.

While unevaluated requirements and guidelines exist in the literature for improving SNSs for older adults, another missing element is how one might make use of these. An example of how these requirements could be evaluated or applied is necessary for informing designers of such sites to benefit from such suggestions. Conducting such an evaluation on several mainstream SNSs, for example, may identify core design principles for new social networking sites during the early stages of planning and development.

There are several reasons why one might choose not to use a SNS. One such reason could be a lack of interest in using such a technology. This could stem from other reasons, such as a lack of confidence or misconceptions based on negative media coverage of mainstream SNSs. These points can be addressed by considering the needs of older adults when creating a SNS. Additionally, such sites can potentially be used to counteract loneliness, which in turn may provide people with a reason to use them now or at some point in the future. The motivation behind the work reported here is to identify and propose solutions for many of the barriers older adults face in order to make SNSs more inclusive. By designing SNSs to avoid such issues, older adults should be able to adopt such sites more easily if and when they feel the need.

These recommendations aim to support older adults who would potentially be interested in using a SNS, but currently don't for a number of reasons. It is ultimately a decision for each individual whether or not they wish to use a SNS. However, this research aims to propose validated and evaluated measures to create the best possible online environments for those who choose to make use of them now and in the future.

1.3 Research Question

The main research question of this thesis is as follows:

How can a collection of user-centered recommendations be derived, validated and evaluated to improve SNSs for older adults with regards to task completion rates, user preference and perceived usability?

Two sub-questions are additionally identified:

1. *What would such recommendations contain?*
2. *How could such recommendations be used by developers, designers and stakeholders in order to evaluate and subsequently improve both new and existing SNSs?*

1.4 Thesis Structure

After specifying the context and aims of this thesis, **Chapter 2** outlines the current literature in the area. The literature is broken down into three topics. Firstly, a brief description of older adults and technology is discussed in respect to ageing. Secondly, an outline of recent research into SNSs and relevant findings are presented. Thirdly, the review of the literature expands into an in depth exploration of existing research relating to older adults and SNSs.

Chapter 3 continues by outlining the first studies in this research. Two focus groups were held with adults over 60 to explore positive and negative experiences relating to their experiences with SNSs. This chapter discusses the findings of the focus groups and the opinions that the participants had.

Chapter 4 outlines the method of deriving the recommendations from the transcripts using a method inspired by thematic analysis. A map of key themes from the transcripts is presented. These are then converted to recommendations designed to suggest measures to

avoid barriers identified from the themes. These initial recommendations are presented and justified individually, showing the logic in their derivation.

Chapter 5 continues by outlining a comparative evaluation of two interface versions of a prototype in order to investigate the impact that the recommendations can have. One interface is a likeness to a popular SNS, Facebook, and the second interface is how that SNS might operate if the recommendations were applied. Additionally, a questionnaire is created to measure participant agreement with each recommendation. **Chapter 6** presents and discusses the results of this study. The recommendations accepted from the study are then presented as a final, evaluated set, taking into consideration the agreement that participants had with each recommendation.

Chapter 7 investigates three mainstream SNSs, Facebook, Twitter and Google+, in regard to the recommendations. Each site is evaluated in respect to each recommendation, outlining whether and to what extent the site adheres to the suggestion, and how improvements could be identified by using the recommendations.

Chapter 8 concludes the thesis by reflecting on the findings and implications of the studies. Directions for future research are also outlined and discussed.

Chapter 2

Background

This chapter explores the related literature in the field. Several areas are discussed. Important factors regarding older adults are outlined, a brief summary of ongoing research into social networking sites (SNSs) is presented and reasons for the success of this technology in mainstream adoption are explored, before the literature focusing on older adults and SNSs will be outlined in more depth.

2.1 Older Adults and Technology

There is no definitive age range for ‘older adult’. The World Health Organization (WHO), for example, acknowledges that “Most developed world countries have accepted the chronological age of 65 years as a definition of ‘elderly’ or older person”, however, then goes on to argue that this does not adapt well to all countries ¹. Much of the literature use different definitions and age ranges, complicating this further. The age of 50 is often used in HCI research due to clinical evidence of age related declines [Hanson, 2009]. Lindley et al. [2008] suggests that one method of approaching a definition of ‘old age’ is based on social understandings, such as going through life transitions that one may experience towards the later years in life. Despite this, much of the literature focuses on people of a certain age. Thus, within this literature review, the age of 50 is chosen as a cut-off point for

¹www.who.int/healthinfo/survey/ageingdefnolder/

research that focuses on older adults. Additional research will be discussed which focuses on younger participants, but for a more general or contextual purpose.

While the average life expectancy of an adult in the United Kingdom is approximately 78.1 for males and 82.1 years for females [Office for National Statistics, 2011], many people can expect to live beyond this age. The later years of an individual's life may span a number of decades. Hanson [2009] notes that people who are 50 would likely deny a similarity to people who are 80, and that "it is important for research on the Web use of 'older adults' to carefully define the age of research participants and it is critical that literature reviews of 'older adults' take into account the full continuum of experience and abilities of older users".

In the review by Hanson, four age related changes are outlined as relevant to technology usage: Cognitive, perceptual, motor and dynamic diversity.

Cognitive

The Cattell-Horn-Carroll (CHC) theory is a combination of models, widely agreed upon as the current understanding of the structure of human intelligence [McGrew, 2009]. This theory includes such components of cognition as fluid intelligence, the ability to solve mental problems, e.g. inductive and deductive reasoning, and crystallised intelligence, acquired knowledge such as languages and general information. Cognitive abilities are widely understood to either maintain or decline in old age depending on the specific ability, with fluid intelligence being subject to such a decline [Craik and Bialystok, 2006]. This is likely to impact the adoption of new technologies since this requires new learning, of which, fluid intelligence is an important cognitive component [Czaja and Lee, 2007].

Perceptual

Hanson [2009] outlines perceptual difficulties as issues relating to vision or hearing, with reduced acuity, color perception, and contrast discrimination listed as factors which accompany normal ageing. Further work has shown that both government sites and the

top UK sites demonstrate generally low conformance with web accessibility indicators [Hanson and Richards, 2013], which were created to improve access to technology for a wide range of disabled users. Such indicators include the Web Accessibility Initiative (WAI) guidelines².

WAI have additionally investigated guidelines for older users³. A strong overlap was identified between older users and users with disabilities in terms of accessibility needs. Additional guidelines for ageing have been proposed [Kurniawan and Zaphiris, 2005]. For a more in-depth review of the literature on older adults and accessibility issues, consult Arch [2008].

Motor

Hanson [2009] outlines that “older users may have difficulty using a mouse and keyboard due to illness or injuries that limit dexterity”. Larger targets are provided as an example of how systems can be designed to be more accessible for those with issues with dexterity. Issues such as arthritis or Parkinson’s Disease can also lead to motor impairments. Parkinson’s disease can cause hand tremors, rigidity, slowness of movement and impaired balance and coordination⁴. Arch [2008] argues that both arthritis and Parkinson’s Disease are likely to cause difficulties with computer use.

Dynamic Diversity

Since age related declines can occur in multiple areas, users with multiple disabilities, such as having both impaired vision and hand tremors, can face greater trouble using computers than the effect of the individual impairments [Gregor and Newell, 2001, Hanson, 2009]. This potential combination of disabilities highlights the difficulty of designing for such a diverse group of users.

²<http://www.w3.org/WAI/guid-tech.html>

³<http://www.w3.org/WAI/older-users/>

⁴http://www.ninds.nih.gov/disorders/parkinsons_disease/parkinsons_disease.htm

2.1.1 Designing for Older Adults

As highlighted, abilities can often change as an individual reaches later stages in life. This can include cognitive, perceptual or motor changes, or a combination of major or minor disabilities. This can often vary widely between individuals, and as people grow older, this variability increases [Gregor and Newell, 2001]. The diversity of older adults requires consideration when conducting HCI research [Dickinson et al., 2007]. In addition to the changes related to ageing mentioned above, the difficulties an older adult may face regarding computer use can include using the mouse, vision and conceptual barriers [Dickinson et al., 2011], however, Lindley et al. [2008] warns of the dangers of making assumptions about older adults. This diversity indicates one of the main difficulties that can arise in designing for this age group. Pullin and Newell [2007] argues that developing for ‘older users’ does not provide a particularly good design brief due to their wide reaching physical, sensory and cognitive characteristics, and that developing for ‘extra-ordinary users’ can lead to better systems for everyone. By evaluating and iterating systems with these extreme users, a designer has the opportunity to create a product for a wider audience and to bypass some of the issues associated with the diversity of this age category.

Including users in the design process is widely recognised as good practice. Newell et al. [2011] suggests that designers should develop an empathy with their user groups, rather than relying on standards and guidelines. Including users in the design process can lead to more usable, satisfying designs [Abrams et al., 2004] and are more likely to encourage effective and ongoing use by older adults [Wagner et al., 2010].

2.2 Social Networking Sites

In order to gain a better understanding as to why older adults don’t use SNSs, it is worth investigating why those that do use such sites choose to do so. Much of the research in this section does not specifically focus on older adults, rather, the majority of the literature regarding SNS use in general focuses on well educated younger adults. While this bias

does exist, it does provide interesting findings which can be used to understand how SNSs are used by younger adults.

The range of research being carried out involving SNSs is vast and spans multiple fields. While much of this research is outside the scope of this thesis, a brief understanding about what research is taking place regarding this technology is useful. Most, but not all, of the literature focuses on Facebook due to the popularity and widespread nature of the site.

2.2.1 Definition

Social Networking Sites, Social Network Sites, Online Social Networks and Social Media are some of the names attributed to a platform for building and maintaining a collection of social relations online [boyd and Ellison, 2007], for example, Facebook⁵, Twitter⁶ and Google+⁷. boyd and Ellison describe a social network site as “*web based services that allow individuals to:*

1. *construct a public or semi-public profile within a bounded system,*
2. *articulate a list of other users with whom they share a connection,*
3. *view and traverse their list of connections and those made by others within the system.*

The nature and nomenclature of these connections may vary from site to site.”

While discussions have taken place regarding the naming convention [boyd and Ellison, 2007, Beer, 2008], ‘Social Networking Sites’ (or ‘SNSs’), is commonly used [Thelwall, 2009] and is chosen for use throughout this thesis. boyd and Ellison argue that using “networking” (instead of “network”) emphasises relationship initiation, often between strangers, and that this is not the primary practice of many of them. Some SNSs, like

⁵<https://www.facebook.com/>

⁶<https://twitter.com/>

⁷<https://plus.google.com/>

Twitter, however, are commonly used to communicate with strangers, at times to the great benefit of the initiator [Nichols and Kang, 2012] or the receiver [Starbird and Palen, 2010].

2.2.2 Mainstream SNSs

This subsection will briefly outline a small number of the most popular mainstream SNSs in order to provide context for the literature review. These four sites were included due to appearing in the top 10 Alexa web rankings (Global)⁸ as of October, 2013. While Google+ is not individually included in the Alexa web rankings due to being a subdomain of Google.com, the SNS is reported to have over 500 million users, 235 million active users, as of December 2012⁹.

Facebook

Facebook is currently the most popular SNS with 1.23 billion¹⁰ users and listed second on the Alexa web rankings. It allows people to connect via becoming ‘friends’ on the site, and users also have the opportunity to form groups, host content and use small applications [Joinson, 2008]. Extensive amounts of research have been conducted regarding Facebook, some of which will be outlined in this review.

LinkedIn

LinkedIn¹¹ is a SNS which “allows users to create profiles based on their professional affiliation and connect to professional contacts within and outside their professional networks” [Papacharissi, 2009]. It is largely used by professionals for building ‘connections’ of people in a similar line of work.

⁸<http://www.alexa.com/topsites>

⁹<http://googleblog.blogspot.co.uk/2012/12/google-communities-and-photos.html>

¹⁰<https://newsroom.fb.com/Key-Facts> - As of 2nd Nov, 2013

¹¹<http://www.linkedin.com/>

Twitter

Twitter¹² is a microblogging service allowing users to send short (up to 140 characters) messages, or ‘tweets’ [Huberman et al., 2008, Kwak et al., 2010]. Users can ‘follow’ other users and collate a list of tweets, as well as sending direct messages using an ‘at’ symbol (@) followed by the other user’s name. Additionally, an identifier, known as a hashtag, can be used by including a hash symbol (#) followed by the identifier. Hashtags are a way for Twitter users to create and follow a thread of discussion [Kwak et al., 2010]. Twitter is one of the most popular SNSs, and yet, despite its somewhat simplistic functionality, it has seen large amounts of publicity and users [Huberman et al., 2008, Java et al., 2007, Kwak et al., 2010]. Twitter is also extensively used as a method of disseminating information during events [Lee and Sumiya, 2010]. The site has over 230 million monthly active users and approximately 500 million tweets are created daily [Costolo, 2013]. This places Twitter as a very important resource for quick, although not always reliable, news information online, which can increasingly be accessed by a person’s mobile phone when computer access is not possible.

Google+

Google+ (Google plus) is a SNS, not unlike Facebook, where users can build up connections and share news and wall posts. Google+ mainly differs from Facebook with its ‘circles’ concept, an ability to categorise connections for better control over whom the user shares content with [Curran et al., 2012, Kairam et al., 2012, Magno et al., 2012, Ovadia, 2011]. It is similar to Twitter in that it needs only unidirectional consent to connect [Curran et al., 2012]. Due to Google+ being newer and having a smaller user base, research on this SNS is considerably smaller than that of Facebook.

¹²<https://twitter.com>

2.2.3 Reasons for Use

Research into motivations for younger adults to use SNSs is fairly extensive [Błachnio et al., 2013, Wilson et al., 2012]. boyd [2007] found that teenagers joined a SNS because friends were using the site. Connecting with friends, rather than making new acquaintances, appears to be a key motivator for younger adults. boyd [2007], Brandtzæg and Heim [2009], Ellison et al. [2006, 2007, 2011], Joinson [2008], Lampe et al. [2008], Livingstone [2008] found that maintaining connections to former high school classmates was a strong motivation for using Facebook, and also suggested that student participants used Facebook primarily to maintain existing offline relationships rather than initiating new friendships. The findings of Brandtzæg and Heim [2009] somewhat contradict this, reporting ‘New Relations’ as the largest motivations for using SNSs. Research also suggests that boredom [boyd, 2007, Brandtzæg and Heim, 2009, Hew, 2011, Lampe et al., 2008] and self-presentation [boyd, 2007, Hart et al., 2008, Hew, 2011, Livingstone, 2008, Seidman, 2013] are also motivators for people to visit and use SNSs. The SNSs that a person adopts also have associations with race and ethnicity [Hargittai, 2007].

Other uses for SNSs are plentiful. Network analysis is increasingly being used to understand how networks develop. Twitter, in particular, has been investigated as a method of information dissemination during natural disasters, such as earthquakes [Earle et al., 2012, Li and Rao, 2010, Sakaki et al., 2010], hurricanes [Hughes and Palen, 2009, Shklovski et al., 2010], floods [Palen et al., 2010, Starbird and Palen, 2010, Vieweg et al., 2010] and fires [Starbird and Palen, 2010, Vieweg et al., 2010]. Additional analysis has been used to investigate ‘Tweets’ during political uprising [Starbird and Palen, 2012], terrorist attacks [Oh et al., 2011] and unusual geo-social events [Lee and Sumiya, 2010]. Using SNSs as an information source also emerges in past research regarding motivations for use [Brandtzæg and Heim, 2009, Hew, 2011, Joinson, 2008].

It is clear from the literature that there are a wide range of reasons why people use SNSs and a broad set of implications for this. SNSs can provide access to highly relevant information quickly and can allow younger adults to maintain connections to friends

throughout school and through transitions such as moving away and going to college. This area of research allows a contextual understanding about why social networking sites have gained in popularity, particularly during teenage years and younger adulthood.

2.2.4 Sociological Implications of Social Networking Site Usage

Previous research has investigated the sociological implications of using SNSs [Błachnio et al., 2013, Wilson et al., 2012]. Much of this research focuses on younger adults, particularly investigating Facebook as the SNS due to its popularity. At times, a degree of complexity surrounds the findings, with some conflicting outcomes based on the granularity of what is being investigated and the type of study.

One suggested implication of Facebook usage is social capital. Social capital is typically categorised as either bonding or bridging. Bonding social capital refers to the emotional benefits of close relationships (strong ties), whereas bridging social capital refers to the informational benefits of distant relationships (weak ties) [Steinfeld et al., 2008, Putnam, 2000]. Having high social capital has been suggested to be linked with positive benefits [Kawachi, 1999]. For online relationships and communication, these can both be measured using the Internet Social Capital Scales (ISCS) [Williams, 2006].

Ellison et al. [2006, 2007] found that intensity of Facebook usage was associated with increased bonding and bridging social capital with 286 undergraduate students. Results from this study also found that having more friends who also used Facebook, using Facebook to connect with offline contacts and using Facebook for fun were all positively associated with bridging social capital. Having more friends who also used Facebook was additionally positively associated with bonding social capital. Using Facebook to meet new people, however, had a negative association with both bridging and bonding social capital.

In a follow up to the study by Ellison et al. [2006, 2007], Steinfeld et al. [2008] re-administered the survey to 92 of the previous participants one year later, along with 477 new participants. Again, greater Facebook usage was associated with increased bridging

social capital. Steinfield et al. found that of the 92 students who completed the survey twice (one year apart), the amount of time spent on the Internet, the amount of time spent on Facebook and the number of Facebook friends had all significantly increased. Steinfield et al. reflected on the inability of previous between-subject studies to assume a causal direction (i.e. whether greater Facebook usage leads to increased bridging social capital or if people with higher bridging social capital would simply have more reason to use Facebook). After computing a significant modified Pearson-Filon z index, Steinfield et al. argues that this “lends support to the original [Ellison et al., 2007] thesis that greater Facebook use leads to increases in bridging social capital”.

Burke et al. [2010] expanded on these findings with 1193 Facebook users completing an online survey. Unlike Ellison et al., Burke et al. were able to use Facebook usage data rather than self-reported responses regarding SNS usage, allowing more accurate and specific analyses to take place. Burke et al. found that overall SNS activity, particularly friend count, was positively associated with both bonding and bridging social capital. Content production was associated with increased bridging social capital, but not bonding social capital. Bridging social capital was largely predicted by friend count, however, consumption was associated with reduced bridging social capital.

Burke et al. [2011] then readministered the survey to 415 of the 1193 participants after 8 months, reporting that time spent on the site was a “marginally significant predictor” ($p = .06$) of increased bridging social capital. Inbound directed communication was a strong predictor of bridging social capital, however, outbound was not. Broadcasting (i.e. status updates and notes written, photos uploaded) and consumption were both not significant predictors of bridging social capital.

Bonding social capital was not found to be significantly predicted by Facebook usage. Burke et al. suggest that these results may be due to the longitudinal factor of the study (compared to the between-subjects design of Ellison et al. [2006, 2007]), and that “Facebook users tend to be already rich in bonding social capital, and their use of the site does not directly increase the value of those relationships”.

Ellison et al. [2011] found that while the number of actual friends was a significant predictor of bridging social capital, the number of total Facebook friends was not. This suggests that using Facebook to initiate new friendships does not carry the association of increased bridging social capital, rather, the association exists when Facebook is used as a method to maintain these ‘actual’ friendships. Ellison et al. went on to discover that “social capital benefits appear to diminish after approximately 500 reported actual friends”.

Different studies have investigated this topic with varying measurements or definitions of ‘Social Capital’. Pfeil et al. [2009] used friend count and diversity to argue that the social capital of MySpace users over 50 years of age is smaller in size but more heterogeneous. Brandtzæg [2012] found no difference in levels of bridging social capital between SNS users to non-users using a different set of scales from Ellison et al. [2006, 2007], Steinfield et al. [2008], Burke et al. [2010, 2011]. Valenzuela et al. [2009] also used a different method of calculating social capital, finding that intensity of Facebook usage was positively associated with social capital, although this effect was small. The model of social capital used by Valenzuela et al. was non-numerical, but rather a contextual combination of factors including life satisfaction, social trust, civic and political participation. Erickson [2011] explored social capital from a qualitative perspective, finding that Facebook appeared to have played little or no role in increasing the bridging social capital of seven Facebook users over 65.

This lack of consistency across the literature makes direct comparisons challenging. Each definition of ‘Social Capital’ should therefore not be compared with other definitions, but rather analysed as a more granular component of what was actually being measured or investigated.

In addition to these studies, research has continued to expand on this topic, investigating varying aspects of SNS usage and social capital [Ji et al., 2010, Vitak et al., 2011, Yoder and Stutzman, 2011]. Although some of the aforementioned research does focus on older adults [Erickson, 2011, Pfeil et al., 2009], it is clear that more research would be beneficial to see how the findings of Ellison et al. [2006, 2007], Steinfield et al. [2008], Burke et al.

[2010, 2011] evolve throughout the lifespan in a quantitative investigation.

Other research has extensively expanded on sociological factors and SNS usage [Błachnio et al., 2013, Wilson et al., 2012] including loneliness [Brandtzæg, 2012, Burke et al., 2010, Kross et al., 2013, Ryan and Xenos, 2011], self-esteem [Burke et al., 2010, 2011, Ellison et al., 2006, 2007, Forest and Wood, 2012, Gonzales and Hancock, 2011, Mehdizadeh, 2010, Steinfield et al., 2008, Valkenburg et al., 2006], life satisfaction [Oh et al., 2014, Valenzuela et al., 2009], quality of life [Sundar et al., 2011], social trust and civic participation [Valenzuela et al., 2009], extraversion, agreeableness, conscientiousness, neuroticism and openness [Ross et al., 2009, Ryan and Xenos, 2011, Seidman, 2013] among other psychological characteristics [Kim and Lee, 2011, Kross et al., 2013, Mehdizadeh, 2010, Oh et al., 2014, Ryan and Xenos, 2011, Seidman, 2013, Valkenburg et al., 2006].

2.2.5 Privacy Issues

Privacy is a recurring topic in the literature for both younger and older adults alike. While younger adults are often portrayed in the media as less concerned with privacy as older people are, Hoofnagle et al. [2010] found that attitudes towards privacy by young adults were not nearly as different to that of older adults as many suggest. This misconception was also observed by Livingstone [2008]. Much research has been conducted on SNSs and privacy in recent years. While SNSs evolve and change frequently, many privacy concerns that existed several years ago are still present. It is therefore worthwhile to briefly outline some key findings and points made in the literature, regarding privacy and SNSs.

Levin and Abril [2009] break down privacy into two different concepts: “Privacy as control over personal information” and “Privacy as dignity”. “Privacy as control over personal information” is the concept that a person has the ability to choose whom to share information with about themselves, and in what manner. “Privacy as dignity” is defined by Levin and Abril [2009] as the right to maintain chosen information about oneself a secret in the circumstances where publication, for example, of such information ”renders a person

and his sense of self vulnerable in a way that is a fundamental affront to human dignity”. Issues can arise when companies or organisations use a person’s personal information for their own gain or betray trust. In the context of SNSs, boyd [2008] defines privacy as “a sense of control over information, the context where sharing takes place, and the audience who can gain access”.

Several examples of privacy issues, risks or mishaps on mainstream SNSs are evident in the literature, both in the way that the SNS deals with privacy [Aimeur et al., 2010, boyd, 2008, boyd and Hargittai, 2010, Comer et al., 2012, Hart et al., 2008, Krishnamurthy and Wills, 2008, Lipford et al., 2008, Rosenblum, 2007, Tuunainen et al., 2009] and in the way that other people can use publicly available information [Aimeur et al., 2010, boyd, 2007, Gross and Acquisti, 2005, Hart et al., 2008, Krishnamurthy and Wills, 2008, Lipford et al., 2008, Livingstone, 2008, Rosenblum, 2007, Timm and Duven, 2008, Tuunainen et al., 2009].

On Facebook, users can control who is allowed to view their information on the site, ranging from ‘only me’, ‘friends’, ‘friends of friends’, or ‘everyone’. By default, much of the information is available to everyone [Comer et al., 2012]. Despite these privacy issues, research has suggested that only a small number of users change these default settings [boyd and Hargittai, 2010, Gross and Acquisti, 2005, Krishnamurthy and Wills, 2008], and some people do not know of their existence or confuse the settings that they have [Brandtzæg et al., 2010, Gibson et al., 2010].

In terms of Facebook, criticism has arisen over default privacy settings and the automatic opt-in of controversial features [Comer et al., 2012]. Comer et al. outline the changes in default privacy settings between 2005 and 2010, noticing a “stark contrast” with more information becoming visible to anyone on the Internet. Further criticism comes from the interface design which allows you to change these default settings [Lipford et al., 2008, Livingstone, 2008]. At times these privacy settings do not have the desired level of granularity to represent how relationships are maintained in the real world [Gibson et al., 2010, Livingstone, 2008]. Lipford et al. point out that the constantly changing nature

of Facebook makes it difficult to understand and remember how to use these settings. Additionally, long and confusing privacy policies are constantly changing and rarely read, leading users to misunderstand what the SNS can do with their data [Hoofnagle et al., 2010, Tuunainen et al., 2009]. People trust their SNSs [Dwyer et al., 2007, Tuunainen et al., 2009], without fully understanding the consequences.

Even if one's privacy settings allow only friends to view information, important implications still exist. In a study mentioned by Gross and Acquisti [2005] a script was executed to befriend 250,000 Facebook users with 75,000 users accepting this request (30%) giving access to all personal information that was set to 'Friends only', and additionally opening up the availability of information from friends of any user which had information set to 'Friends of Friends'.

Attempts have been made to suggest improvements to SNSs. One outlined solution is a 'Privacy-Enhanced Social Networking Site' (PSNS) outlined by Aïmeur et al. [2010] who define PSNSs as a SNS that fulfils the following properties:

- Privacy awareness and customization (The user is aware of risks and can take appropriate measures)
- Data minimization (The user is aware of what information is being stored and how it is used)
- Data Sovereignty (personal data belongs to the user and not the SNS. All information is deleted at the request of the user)

Privacy issues relating to SNS usage are prevalent in the literature for both younger and older adults (as will be outlined in the next section), and this has been the case for some time. SNSs can address many of these issues, although Comer et al. [2012] point out that by taking a more restrictive stance on privacy by default, the new features of a SNS may not generate enough new interest. It is clear from the literature, however, that the current stance of privacy by many mainstream SNSs is drawing a high amount of criticism from researchers, policy makers and users.

2.3 Social Networking Sites and Older Adults

In the previous section, current research involving SNSs has been outlined. Much of the literature, however, focuses on younger adults. This section will focus specifically on research conducted investigating older adults and social networking sites. Reviews in the literature show that this is a quickly increasing topic of recognised importance [Bennett, 2011, Leist, 2013, Nef et al., 2013].

As outlined in Chapter 1, there are proportionately much less online older adults who choose to use SNSs as other age categories. SNSs in general are mostly used by people younger than 30 [Maier et al., 2011]. The complex nature of this topic makes qualitative research, such as questionnaires, interviews or focus groups, an appropriate approach to understanding why this low participation may exist. Other studies, such as system evaluations, also provide insight into what has been done in the literature and the findings of those studies.

2.3.1 Differences Between Older and Younger Adults

Prior research has investigated some of the differences between younger and older users of SNSs [Arjan et al., 2008, Brandtzæg et al., 2010, Karahasanović et al., 2009, Pfeil et al., 2009, Siriaraya et al., 2011]. Arjan et al. and Pfeil et al. compared the use of SNSs between these two cohorts, finding that typically the teenagers had a larger network of online friends, the majority of which were in their own age range, while the older adults had a smaller but much more diverse spread from varying age groups. Brandtzæg et al. [2010] also noticed a difference in the numbers of friends that younger and older SNS users have. This could be linked to one of the findings by Gibson et al. [2010], who reported on a focus group consisting of Internet users over 60. Gibson et al. reported that relatives made up a sizeable proportion of the participants' (offline) social networks.

The findings of Arjan et al. [2008], Pfeil et al. [2009] suggest a fundamental difference in the way that younger and older adults use SNSs. This may be in part explained by

differences in the offline social networks of both younger and older adults. Hartup and Stevens [1999] report that a decline in friends often occurs after retirement primarily due to the loss of casual friends. Lang [2001] elaborates on the decline of friendships by reporting that while the change in networks is in part associated with mortality, there is evidence to suggest that “older adults deliberately discontinue their relationships with partners who are less close or who are perceived as less important”, and that older adults “report, on average, about half as many social relationships as adults who are in their 20s or 30s do”.

This pruning of ‘weak ties’ in favour of ‘strong ties’ may partly explain the difference in friend numbers. Another partial explanation may be that of ‘critical mass’. While conducting interviews, Lehtinen et al. [2009] found that since friends and acquaintances of the older adults weren’t using such a technology, it gave participants little incentive to use them. Lehtinen et al. go on to argue that if more friends and relatives were to use such sites, it may become more meaningful as a communication technology, with older adults having a reason to explore it.

Pfeil et al. [2009] suggest that, since it is impossible to maintain strong relationships with a high number of people, teenagers are more likely to connect with loose acquaintances than older adults. boyd [2007] observed that teenagers would often strategically make their profile private to prevent parents from ‘lurking’, however, this also means that peers cannot engage with them without becoming friends on the SNS. “To handle this, teens are often promiscuous with who they are willing to add as Friends on the site” [boyd, 2007]. Questions have been raised about whether or not a younger adult would want to have their parents as friends on an SNS [Brandtzæg et al., 2010, Kanter et al., 2012], however, Kanter et al. found that it actually enhanced their relationship in cases where there were higher levels of conflict.

In addition to friend count and diversity of age, Pfeil et al. [2009] identified 3 more differences in teenagers and older adults. Teenagers were found to make better use of different types of media on their profile pages, the average number of comments the teenagers received was higher than that of the older adults, and the types of language used

on the SNS was found to be different, which was also observed by Siriaraya et al. [2011]. Several papers suggest that older adults do not actively contribute to SNSs in the same way that younger adults do, rather, many older adults preferred to consume content rather than produce it [Bloch and Bruce, 2011, Righi et al., 2012, Wilson and Nicholas, 2008]. This supports the observation by Brandtzæg et al. [2010] who noted that younger adults used Facebook ‘more instrumentally’ and were more purpose driven.

Differences in motivation are also evident in the literature. Ellison et al. [2006, 2007] found that maintaining connections to former high school classmates was a strong motivation for using Facebook. In contrast, family have been shown to be a strong motivator in the literature regarding older adults [Bloch and Bruce, 2011, Brandtzæg et al., 2010, Cornejo et al., 2010, 2013, Erickson, 2011, Gibson et al., 2010, Gomes et al., 2013, Goswami et al., 2010, Maier et al., 2011, Righi et al., 2012, Sundar et al., 2011, Tsai et al., 2011b]. Older adults can feel disconnected from a family if they do not use social networking sites [Cornejo et al., 2010, 2013, Righi et al., 2012]. As a result of not being a SNS user, an older adult can feel as if they are missing out in this form of communication, which other family members may use to communicate with each other frequently. Geographical distances were also found to be a major barrier for maintaining emotional ties [Cornejo et al., 2010, Gibson et al., 2010]. It was seen as more difficult to stay in touch with a younger relative if they are studying abroad or have moved out of town, and this in turn resulted in a lack of emotional and practical support that was desired. Burke et al. [2013] suggests that Facebook could help facilitate family communication in instances of large geographical distances.

Clear differences exist between older and younger adults, including behaviour and motivation regarding mainstream SNSs. Age is a statistically significant predictor of Facebook membership, and being older is shown to be negatively associated to Facebook usage [Lampe et al., 2013, Szabo, 2012]. These findings suggest that current mainstream SNSs are not currently suitable for older adults. This is supported by the literature [Chen, 2009, Connolly and Meiselwitz, 2011, Jaeger and Xie, 2009, Lehtinen et al., 2009]. This,

however, highlights the need for future research, not only to identify issues faced by older adults, but also to promote recommendations for the design of more inclusive SNSs for a wider range of people.

2.3.2 Understanding the Lack of Participation

A number of studies have investigated reasons behind the lack of participation of older adults on SNSs. Much of this literature overlaps, with core themes emerging. These will now be outlined and discussed.

Four primary reasons have been outlined by Sundar et al. [2011] for older adults choosing not to use a SNS: a lack of interest, a lack of access, a lack of skill and privacy concerns. On the analysis of survey respondents over 55 years of age, 77.38% were non SNS users. Sundar et al. found that these primary reasons made up 64.4%, 9%, 7% and 9% of these primary reasons respectively, while answering an open-ended question regarding their decision not to sign up for such a site. On asking what could convince the non-users to join, 57.1% stated “nothing”, 13.2% mentioned friend or family influence, 4.4% desired better knowledge about the technology and 15.4% responded with various other replies, such as “money, self-promotion, requirement for class, and being housebound, among others”. While much of the literature does not focus on a lack of skill, this point has additionally been raised [Chou et al., 2010, Righi et al., 2012]. The lack of literature focusing on the lack of skill as a barrier may be due to much of the reviewed research involving participants who were confident Internet users. Further comments regarding the lack of accessibility options on SNSs have also been made [Connolly and Meiselwitz, 2011, Jaeger and Xie, 2009].

Lack of Purpose

Many older adults cannot see the purpose, or benefit, of using a SNS [Chou et al., 2013, Gibson et al., 2010, Lehtinen et al., 2009, Mikkola and Halonen, 2011, Righi et al., 2012, Sundar et al., 2011, Szabo, 2012]. It has been suggested that a preference to maintain

habitual routines and a reluctance to change their way of life is an important factor for this [Bloch and Bruce, 2011, Maier et al., 2011], or that older adults are simply content with their existing methods of communication, such as through phone calls, SMS and email [Lehtinen et al., 2009]. Showing clear benefits and purposes of using a SNS will be necessary if we are to introduce older adults to this technology [Lehtinen et al., 2009]. Baker et al. [2013] note that “the needs of people will be met through unique and innovative adaptations as long as the technology is flexible and responsive enough to permit it”, arguing that “the technology must be receptive to the needs of older adults... both as a matter of design and of functionality”. Other research corroborates this position [Boyd et al., 2012, Lin and Chou, 2011].

This theme suggests two important concepts. First of all, older adults must see the purpose or benefit of a SNS before they are likely to adopt it, and secondly, that SNS must take into account the needs and desires of this cohort in order to provide the best possible situation for adoption. These two points may seem somewhat obvious, however, little has been done in mainstream SNSs to actively address these points in a satisfactory fashion.

Lack of Suitability

Currently, mainstream SNSs do not seem to fit the everyday communication of older adults well [Lehtinen et al., 2009]. This has been supported further by arguments that older adults find intentional self-presentation as not socially acceptable, and online communication as “cold”. SNSs were perceived as “places for dating or celebrities, not for themselves”. This was additionally observed by Gibson et al. [2010], with participants commenting on negative feelings of being “on display”. Erickson [2011] noted the use of Facebook as an additional tool for keeping up with friends and family, alongside email and phone, however all participants suggested that a complete shut down of Facebook would have little or no impact for them. In the event of serious issues, other communication channels were used instead of Facebook. This preference of face-to-face communication is not an isolated finding in the literature [Righi et al., 2012]. Connolly and Meiselwitz [2011] argue that

more research is required into the themes identified throughout the literature in order to make social environments more inviting to older adults. Other research has questioned the suitability of mainstream SNSs for older adults [Chen, 2009, Gomes et al., 2013, Jaeger and Xie, 2009].

Again, this relates back to the design and functionality of the SNS. By placing more emphasis on matching the everyday communication needs of older adults, it should be possible to address this barrier to participation. SNSs can vary greatly in the methods of communication (e.g. private, public, broadcasting) that they allow; SNSs are not inherently a bad fit for older adults, rather, the design and functionality of many of the mainstream sites referred to in this literature are not designed in such a way to best cater for inclusion.

Lack of Moderation

The undesirable behaviour of other users can be alienating for some people [Chou et al., 2013, Erickson, 2011, Goswami et al., 2010, Maier et al., 2011, Lehtinen et al., 2009, Righi et al., 2012, Xie et al., 2012]. Lehtinen et al. observed that participants found the Internet as a dangerous and unwelcoming place. Chou et al. list swearing and friendship requests from strangers as examples. Xie et al. found that ‘cyberbullying’ was a concern for participants, even though this stemmed from pre-existing perceptions and they hadn’t directly experienced it first hand. Trust is additionally raised as a factor [Righi et al., 2012].

Negative Preconceptions

Participants’ perceptions of SNSs was, at times, a barrier, for example if participants had encountered negative media stories involving SNSs [Gibson et al., 2010, Mikkola and Halonen, 2011, Righi et al., 2012, Xie et al., 2012]. This can lead to participants being put off from the idea of signing up to such a site. Mikkola and Halonen found that while Facebook was used very little among the participants, all knew what it was, seeing it as “useless time consuming”. At times, negative media coverage has led to misconceptions about the behaviour of SNSs. For example, Gibson et al. discusses that most participants

believed that content published on SNSs was all publicly available, and that privacy settings to control this did not exist.

During their seven week period of the group discussions, Xie et al. noted that Facebook's privacy policy became a prominent news story, which had largely discussed concerns over SNS privacy. In addition to this, separate media coverage reported that Facebook experienced a technical malfunction, which resulted in private chat messages becoming publicly available, leading to Xie et al.'s decision to move from SNSs to blogs for the study.

Privacy Concerns

Privacy concerns are discussed as a key factor in the lack of adoption of older adults on SNSs several times in the literature [Brandtzæg et al., 2010, Chou et al., 2013, Cornejo et al., 2010, Erickson, 2011, Gibson et al., 2010, Gomes et al., 2013, Goswami et al., 2010, Lehtinen et al., 2009, Maier et al., 2011, Mikkola and Halonen, 2011, Righi et al., 2012, Sundar et al., 2011, Szabo, 2012, Xie et al., 2012]. Chou et al. described privacy as a "major concern", noting that participants preferred not to provide any personal information to Facebook. Cornejo et al. did not observe privacy concerns on a SNS designed for communication between relatives, however, it was recognised that privacy issues may arise during wider evaluations. Gibson et al. described privacy as 'very important' to participants. A degree of distrust was observed by Mikkola and Halonen, reporting that some participants were afraid of joining Facebook. The group discussions held by Xie et al. had a strong emphasis on privacy, being described as the "primary concern" and "key perceptual barrier to adoption".

Lehtinen et al. [2009] noted that the participants did not want to upload photos of themselves due to security concerns and appearing vain, while some participants feared unintentionally publishing private content due to misunderstanding features or privacy settings. A lack of confidence was additionally observed by Lehtinen et al., who commented that participants did not trust their own computer skills. The fear of committing a social

blunder was described as potentially hindering the adoption and use of a SNS with older adults.

Summary of the Issues and Barriers

Many of the qualitative studies have a degree of overlap, with several themes presenting themselves. These themes, such as a lack of purpose, incompatibilities, perceptions of SNSs and privacy, are all suggested as important reasons as to why participation with older adults on social networking sites is so low. Much of the literature discussed above identified many of the underlying issues associated with SNSs from the perspective of older adults. Righi et al. [2012] noted that older participants expressed a clear interest in knowing more about SNSs, however many of these concerns were subsequently raised. Righi et al. suggest that older adults may learn to use SNSs over time, but not all older adults have the level of support and training that the participants in this ethnographic study had.

An underlying theme throughout the issues raised in the literature is that SNSs must take into account the needs and desires of the older population in order to provide the best possible situation for adoption. This is currently not being addressed in any of the mainstream SNSs investigated in the literature. These issues arise from decisions and design practices which are not inherent in SNSs, and therefore, it should be possible to design a SNS that avoids these issues and better fits the needs of older adults through user centred design.

Additionally, while several key issues are identified, with a high degree of overlap and consistency, none of the above research attempts to investigate these barriers further. By understanding more about these themes, we can begin to create solutions which bypass or mitigate some of these issues, providing the best online environment and opportunity for older adults to explore SNSs. An evaluated set of recommendations, for more inclusive SNSs for older adults, has not been identified in the literature.

2.3.3 System Evaluations with Older Adults

In addition to the standard web-interfaces, proof-of-concept prototypes have been developed to investigate older adults using social networking sites. Systems used in the literature range from established SNSs [Chou et al., 2013] [Lehtinen et al., 2009], to alternative and ambient interfaces for established SNSs [Cornejo et al., 2010, 2013] and to custom SNSs [Gibson et al., 2010, Tsai et al., 2011a]. This subsection will outline quantitative and exploratory research with older adults and SNSs through the use of developed prototypes.

Cornejo et al. [2010] conducted a study with an 88 year old female and 18 family members. Two prototype systems were given to the family over 21 weeks. The first was a digital photo frame which retrieved and displayed photographs of family members which had been uploaded to Facebook, and the second was a bowl which could be used to share jokes and notify when people were out of the house. The evaluation was conducted via interviews and had favourable results, demonstrating that alternative methods of interacting with SNSs can help older adults feel more emotionally connected.

Cornejo et al. [2013] conducted a study with what they called an ambient social network, which again displayed Facebook pictures on a digital photo frame, with a family. Similar positive feedback was received, however, the lack of an ability to respond to the pictures was not ideal. This led to the prototype being redesigned to incorporate this functionality and tested with another family. Again, the prototype received positive feedback and reportedly helped build a sense of family connectedness.

Similarly, Waycott et al. [2013] developed an iPad application to share messages and photos, with or without captions, in order to explore how such an application could be used to foster new relationships in cases of social exclusion. The use of this application was then explored with seven older adults between 71 and 92. Waycott et al. observed that the participants began interacting with each other and did not have concerns over privacy, although this was likely due to a closed system being used with a small group.

Gibson et al. [2010] discuss how participants used Ning, an open source social platform,

to create their own closed-off social network. This custom SNS had the underlying purpose of providing information on upcoming events and classes. The users could also contact other members without exchanging email addresses and share resources with one another. Gibson et al. suggest that a clear purpose and a community, rather than an individual, focus may be one of the key reasons for the site's uptake. Additionally, the SNS was not publicly available to anyone outside of the group, with users expressing greater feelings of security. A secure and focused SNS may be seen as more acceptable for this age group, conditional on very careful behaviour and design considerations.

Gomes et al. [2013] identified requirements for how social networking sites could be made more inclusive for older adults, which will be outlined in the next section. These requirements were used to evaluate a tablet prototype comparatively against the Facebook mobile application with older Facebook users. This paper suggests that participants considered the prototype easier than the native Facebook android application when completing a series of tasks, however, statistical testing was not conducted.

Tsai and Chang [2009], Tsai et al. [2011a] designed a touch-table application aimed at exploring how this technology was adopted within a senior living community. This application, designed to aid interactions between users, is described by Tsai et al. as a 'special type of a social network' and allowed users to share files and leave messages to other users. The Technology Acceptance Model (TAM2) was used to evaluate user acceptance with 52 adults aged between 64 and 91.

While the above study by Tsai et al. reported positive results from the evaluation, there are a few limitations not discussed by the authors. The TAM2 questionnaire used in the evaluation contained 18 Likert scale questions, all of which were in a positive direction. This lack of 'reversed' Likert questions can lead to systematic response bias, resulting in inaccurate results [Baumgartner and Steenkamp, 2001] [Couch and Keniston, 1960]. In addition to this, statistical assumptions appear to be violated through the use of mean-based parametric tests and ordinal-level data [Stevens, 1946].

Wherton and Prendergast [2009] designed a hardware communication system which

used the Skype API to support social engagement in older adults. While this system is not a SNS, it allowed the participants to call or send messages to other participants. The device and software were developed through a user-centred process of ethnographic field work, focus groups, requirements gathering and an evaluation.

Increasingly, researchers are developing systems to encourage older adults to participate or engage with SNSs. These systems are mostly separate from mainstream SNSs, however they quite often share much of the same functionality. Throughout this research, however, there is a clear lack of evaluated universal recommendations for developing such a system. While the literature regarding the lack of participation is reasonably well populated, it is seldom used in this type of research. The research reported in this thesis aims to address this issue by investigating such a set of recommendations, which researchers can use to better understand the needs of older adults and subsequently build more acceptable prototypes and systems.

2.3.4 Recommendations, Requirements, Guidelines and Design Principles

Some of the research in the literature has attempted to provide design principles for developers of older adults. While the findings and deliverables of the research on this area may have a similar aim to that of this research, limitations are apparent in what has previously been done. This section will provide an outline of this previous work. Main differences between the findings and methods of the outlined research will be discussed more in-depth in chapter 4.

Chou et al. [2013] conducted ‘think-aloud’ interviews with 5 adults over 55 years old in Taiwan while they used Facebook. Inconveniences were categorised before being turned into user requirements, which were then combined with requirements generated from existing research [Kurniawan and Zaphiris, 2005]. These requirements, to date, have not been heuristically evaluated in comparison to the default web interface, however Chou et al.

Most important	Moderately important	Minor important
<ul style="list-style-type: none"> • Extremely protect personal privacy • Able to immediately find functional buttons • Able to make operations of travelling to and fro the web page simple • More conveniently use the keyboard and the mouse • Provide clear layout • Provide online help which can help use the website 	<ul style="list-style-type: none"> • Immediately search for the needed information • Relaxedly register on the website • Provide comprehensible image and text information 	<ul style="list-style-type: none"> • Provide amiable Internet environment • Stay connected with families and friends • Select suitable large font • Clearly know the way to classify the menu • Clearly know operational steps • Provide simple operational steps • Read the whole content of online data

Table 2.1: Chou et al.'s user requirements [Chou et al., 2013].

argue that Facebook can be improved for the elderly through the use of these requirements.

Karahasanović et al. [2009] created a list of user needs in relation to user generated content. These include accommodating the differences between older and younger adults, making the technology easy to use and recognising the need for user control.

[Gomes et al., 2013] identified requirements for social networking sites to be made more inclusive, including modifying Facebook's privacy options, having group based content and functionality, a focus on family, a focus on photographs, avoiding 'find new friends' functionality, simplifying navigation and using terminology carefully.

[Goswami et al., 2010] used focus groups to derive user requirements to enhance SNSs for older adults. The key suggested enhancements from these focus groups were:

1. Support for initial establishment of ties. Authenticity verification of established profiles
2. Voice chats
3. Integration / synchronisation of electronic calendar systems
4. Integration of local information
5. Single-click access to local emergency / other elderly specific services

Most important	Moderately important	Minor important
<ul style="list-style-type: none"> • Additional and more eye-catching navigation bar should be provided • The layout and the items on the navigation bar and professional terms should be simple, clear and consistent • Hyperlink should be placed among bullets instead of being placed densely and linearly arranged • Fewer choices are offered to enable users to identify the usage instead of recalling it • Provide an online guidance which can help him or her 	<ul style="list-style-type: none"> • Provide larger targets • In the contents of the text, there should be clear headlines • Provide website maps • The location of navigation should be kept on the web page • Avoid using the drop-down menu • Avoid deep menu, and convert the message into meaningful classifications • The diction should be simple and clear • Important messages should be highlighted • Use the colour cautiously 	<ul style="list-style-type: none"> • Avoid double click • There should be alternative words for images • The images should be simple, meaningful and easy to be connected with • Avoid displaying irrelevant messages in the contents • The messages should mainly be gathered up in the center of the location • Clicked hyperlinks and unclicked hyperlinks should be separated • Distinctively distinguish whether the text is hyperlinked or not • Avoid using scroll bars • Provide one open window only, and avoid pop-out windows • Provide sufficient time to read messages • Avoid using the colour tones like blue and green • The contrast between background colours and foreground colours should be high • Avoid dynamic text • It's better to align the text to the left, and the length of the sentence should be short • Suitable space of the text • Use large font and avoid weird font • Entry errors can be tolerated in the search engine • Error messages should be able to be easily read

Table 2.2: Chou et al.'s technical requirements [Chou et al., 2013].

6. Graphical display of established ties. Categorization of established ties and creation of sub-networks (e.g. friends/family, co-workers)
7. Local site administrator for initial setting up of profile and establishing connections. Support for authenticity of established profiles
8. Closed groups / sub-networks (membership only by invitation)
9. Guidance to enable privacy settings. Reporting of harassment. Blocking of users

These suggestions would likely be useful for developing a SNS specifically for older adults from the ground up, however, these recommendations do not address many of the concerns that have been identified in the literature in much detail.

While investigating younger and older adult SNS users in relation to privacy, Brandtzæg et al. [2010] outlined six principles:

1. Design for privacy salience
2. Design with a focus on privacy purpose
3. Design for restrictions on friends
4. Design for multiple social circles and forms of social capital
5. Design for control over content sharing
6. Make restrictive default settings

While this comparison supports previous findings about privacy concerns, it is worth pointing out that the definition of ‘older adults’ is somewhat low compared to the literature. The study involved eight older users (40-64) with an average age of 48. Regardless of this, these principles are useful, considering that the literature has shown a concern regarding privacy both with younger and older users. Brandtzæg et al. noted that the older adults found privacy settings useful, but difficult to use. These design principles were outlined in order to address issues that appeared during the study.

Many of the suggestions from the literature focus on technical requirements which do little to address issues relating to how the site behaves. Little attention has also been given to investigating the impact of these requirements in a controlled evaluation. There is a need for research which addresses both of these aspects. By evaluating recommendations using a comparative evaluation, researchers can begin to understand how much of an impact these changes can make, and subsequently promote them to developers, designers and stakeholders of SNSs as well as other researchers.

2.3.5 SNSs for Older Adults

SNSs designed for older adults do exist [Chen, 2009, Farkas et al., 2010, Maier et al., 2011], however without great uptake. These websites do very little to address privacy

issues, design problems and security concerns as suggested in previous literature, and simply offer an alternative to other SNSs with age as a basis for content. Additionally, Maier et al. [2011] argue that “these potentials of SNS can only be realized if people participate within the same social network”. This raises a complication of SNSs designed specifically for older adults. With family connections being such a large motivator for older adults to use SNSs, as shown in section 2.3.1, this motivator may not exist on a SNS designed specifically for this age group. More research is needed in this area in order to understand opinions and uptake of such sites.

2.4 Summary and Discussion

This chapter has outlined relevant research taking place in this field. Challenges in designing for older adults have briefly been outlined. User diversity is a difficulty when it comes to developing systems for older adults, however, outlined methods (such as inclusive design) allow researchers and developers to create software and websites to cater for a wider range of people. Additionally, by developing around the needs of ‘extra ordinary users’, a better system can be designed for everyone.

Ongoing research into SNSs have suggested some of the reasons for the great uptake of such sites. These range from cultural to sociological factors. A large amount of research has recently investigated links between Facebook usage and social capital, finding associations between some components of Facebook usage and social benefits. Privacy has additionally been identified as an important issue for younger and older adults alike, however, SNSs appear to be gradually becoming more open, rather than more private, much to the dismay of users and researchers alike.

The literature review then turns to the topic of older adults and SNSs. Research has identified key differences between younger and older adults, ranging from the number of friends that they have on SNSs, the distribution of those friends and the language used. The mainstream SNSs that currently have great popularity among younger adults may

not be suitable, however, for the older generations. Five key themes in the literature have emerged regarding the lack of participation of older adults on SNSs: A perceived lack of purpose, a lack of suitability, a lack of moderation, negative preconceptions and privacy issues. There is a high degree of overlap in the literature regarding the reasons for the lack of participation, however, little work has been done in an attempt to investigate solutions.

A number of researchers have constructed prototypes and systems which were then evaluated with older adults. A degree of success has been observed. Research has suggested that ambient displays, such as digital photo frames, could be an effective way to allow older adults with little or no computer experience to interact with family via SNSs. Finally, design requirements outlined in the literature have been identified, but little research has attempted to investigate the impact that these recommendations and guidelines may have. While SNSs designed specifically for older adults do exist, they have not seen a great uptake. This is potentially due to few of the actual concerns being addressed and family members not using them.

Researchers are looking into SNSs for older adults, mainly looking into the reasons behind the low uptake, and the opinions on such sites from those who do not use them. Through understanding the reasons behind the low participation, researchers and designers can discover barriers which hinder the inclusion of such sites. While many people over 65 may not have any interest in using a SNS, there are adults who would use such sites, for example for communicating with family members, if only some of their concerns were addressed. Providing an accessible way of social networking for older adults will allow the user to potentially share community based news, share photos with close friends and family and participate in constructive discussions with like-minded people, which would help people stay sociable and active after retirement or moving house.

SNSs have allowed people to communicate in a way which was not possible to do so a few years ago. The divide, however, between older and young adults using these online social networks is clear, yet, no mainstream SNSs have attempted to include older adults by taking into account the opinions and concerns of this cohort.

With suggested social benefits, such as increased social capital, SNSs could play a key role in the lives of many older adults. Steinfield et al. [2008] suggest that these websites are especially beneficial through life transitions, which older adults are particularly aware of. Social support and information can also provide help and support to a person with an illness or condition, yet many older adults do not see a purpose in SNSs. Providing a specific purpose may increase the participation of older adults, however, there are many more factors which also need to be addressed.

With careful consideration of the barriers which are preventing older adults from participating on social networking sites, SNSs could be designed and built which complement their current communication needs. This could add value to their lives. Such a system may provide social benefits to those who use it as well as being a platform for support during illness or a life transition. It is not a matter of pressurising older adults into using SNSs, but rather, to gain an understanding of the issues that exist with mainstream ones. By doing this, SNSs can be made more inclusive for a greater range of people.

Chapter 3

Focus Groups

This chapter outlines the first qualitative stage in identifying potential improvements to the inclusivity of SNSs. Two focus groups were held with adults over 60 from the SiDE user pool. The purpose of conducting these focus groups was to expand on the literature in discovering barriers and opinions that older adults have in using SNSs. While the literature provides insight into the overall emerging themes and barriers faced in this topic, conducting new qualitative research provides more information and context while allowing for further analysis on gathered transcripts. It additionally allows control over the questions asked and provides opportunities for further clarification. Topics including how older adults use SNSs, motivations for starting, why people don't use them, individual problematic components of such sites and opinions regarding improved SNSs specifically for the older population are all areas of interest explored in this chapter.

3.1 Introduction

Findings from the literature, outlined in the previous chapter, indicate that a clear lack of purpose, negative preconceptions, privacy, social blunders, a lack of confidence, a lack of skill, concerns over security and abusive other users can all be reasons why older adults might choose not to use SNSs [Chou et al., 2013, Gibson et al., 2010, Hoofnagle et al., 2010, Karahasanović et al., 2009, Lehtinen et al., 2009, Lewis and Ariyachandra,

2010, Mikkola and Halonen, 2011, Nyemba et al., 2011, Sundar et al., 2011, Wherton and Prendergast, 2009, Xie et al., 2012]. While a small number of papers outline suggestions to improve SNSs for older adults, many of these focus on more technical issues, and no attempt to validate or evaluate these suggestions has taken place. This indicates that there is a need for a set of recommendations that have been user-centered, verified and evaluated for impact. This chapter aims to outline the first process in deriving these recommendations by presenting the discussions which led to their creation.

User-centered design is a well established process in HCI [Vredenburg et al., 2002]. Despite the barriers outlined in the literature, SNSs could provide a more acceptable and useful platform for older adults to converse and share digital content online by considering the needs and opinions of the cohort. As highlighted in the previous chapter, the complex nature of this topic makes qualitative methods well suited as a starting point for understanding why low participation may exist. Using qualitative data gathering and analysis techniques, opinions and barriers regarding SNSs can be identified and potential solutions can subsequently be generated to improve the inclusivity of this technology.

Two focus groups were held with separate groups of Internet users over 60 years old. Participants were recruited from the SiDE user pool [Watson et al., 2010], a collection of over 800 volunteers, mostly over 65, who have been recruited through local organisations, groups or clubs for accessibility research. Using this recruitment method, a list of potential participants could be created that matched the recruitment criteria (e.g. Internet use, SNS use), however, the characteristics which could be factored into the process was limited. The lead researcher was not involved in the recruitment process for either focus group, or any study in this research which utilised the user pool. Both focus groups were held within the School of Computing (Queen Mother Building) of the University of Dundee and were audio recorded and transcribed so that subsequent analysis could take place. Participants were given a £10 gift voucher for taking part, and ethical approval for the study was received from the department.

3.2 Focus Group 1

3.2.1 Procedure

The first focus group involved 8 people (4 male, 4 female; aged 61-80, $M = 67.9$, $SD = 5.8$), two of whom were SNS users, two were previously SNS users and four were non-users. A mixture of backgrounds was sought to explore a range of opinions from different experiences. The aim of this focus group was firstly to investigate opinions and suggestions of the participants regarding SNSs, and secondly, to outline a potential prototype SNS and gain feedback.

The focus group was designed to be an open-ended discussion while still allowing the researcher to direct the overall topics of conversation. Participants shaped the micro-level points of discussion, while the macro-level topics were steered by the researcher to guide the overall direction of the discussion. This allowed the researcher to explore important topics while not limiting the participants on what specific issues they found most important. The macro-level topics are as follows:

1. How technology is currently being used
2. Opinions and suggestions on a localised social website
3. What the participants know about SNSs
4. If the participants use SNSs
5. Thoughts and opinions on SNSs
6. If the discussion of SNSs makes the participants more or less likely to use the proposed localised website
7. Do any of the participants use SNSs aimed at more mature audiences, such as LinkedIn

All participants were encouraged to participate in the discussion, with questions being directly asked to participants if they had not contributed as much as others. The focus group was recorded with both video and audio devices for future analysis. The full transcript can be found in Appendix A on page 205.

3.2.2 Findings

Suggestions for Inclusive Social Websites

A proposed location-based website was suggested to the participants. The website was described as being based on a user's local neighbourhood, where people could voice concerns, events or opinions. Examples included local roadworks which restrict mobility, deals and discounts active at local shops, suggestions for improving the area, events being held and advertisements for local groups and charities. The site would be populated by user-provided content, and would only be available to the residents of the neighbourhood. As the website was restricted to a geographical area, privacy was mentioned to be much more controllable over other social-based websites, with no one outside of the neighbourhood having access to the messages. By inquiring about this example, it provided information into what issues the participants fundamentally had with sites that allow user-generated content. The participants were not initially told that this was a SNS and this was revealed later, allowing exploration on whether opinions may change due to negative preconceptions of this kind of technology.

The description of the localised website received mixed reviews, with many of the participants demonstrating concern over the idea that the website could be updated by individuals on the street. One participant described the idea as “dangerous”, while another asked about who would monitor the content provided to the website. In the case of “very dull” streets, the participants commented that the site would “very quickly be populated by rubbish”.

While discussing concerns about user-provided content on such a website, the parti-

Participants soon evolved the conversation to discussing reported media stories about Facebook. Examples such as vandalising memorial pages and harassing messages were identified as issues and used as examples to further demonstrate their scepticism.

The group was in agreement that moderation was an important concern. When asked to elaborate on the comment that the site would be “dangerous”, one participant spoke of previous negative experiences on websites with user-generated content. Both abusive messages and out of date information would need to be removed before the participants would view the content as acceptable and reliable.

Many of the participants did not see any beneficial purpose of such a system. Discussions involved potential benefits to older adults, such as support during times of bad weather, however these benefits were met with scepticism. Such a website left the participants unconvinced in its value. When informed that the proposed site was a type of SNS, the participants didn’t view it as a SNS due to the lack of emphasis of collecting contacts. Despite this, the concerns over the localised site remained.

The participants were more interested in a site that benefited them directly, in an easy-to-understand format. One participant commented that a website for elderly people was a good idea, and suggested different focuses to existing websites which presumably target younger audiences. An example of this was a method of communicating with the user’s GP, and obtaining repeat prescriptions. While the participants reacted negatively to the idea of a ‘social’ website, the idea of a site focusing on a local area, such as within a postcode block, was seen as acceptable as long as someone was responsible for adding and removing content.

One person commented that having little or no complexity would need to be a consideration for any inclusive sites, and that plenty of support information was needed. Participants expressed a dislike for advertisements, commenting that they expected Skype to “bombard” them with adverts after it was acquired by Microsoft. While the group was against advertisements, many recognised that this is how the services remain free to people.

Barriers

Several barriers were brought up during the duration of the focus group, such as problems with the hardware, cost issues and a lack of easily accessible and digestible information. Not having the initial knowledge to learn how to perform tasks which were more advanced than what they already knew was one of the key barriers for all of the participants.

It was commonly mentioned that the participants felt the need for help to set things up appropriately in terms of software, hardware and website settings. Family members were usually asked to help with this task, however, it was discussed that without someone to help it can be difficult for them.

One participant commented that community education targeting older adults would be a potential solution for learning how to perform specific tasks, such as shopping and email. Simple terminology and a minimum amount of text was suggested for such a guide, however one participant highlighted the issue that “you’ve still got to get them there”.

The participants were asked about privacy, and how important it was for them online. One participant commented that “privacy is very important”, while another commented with “I think privacy is going out the window”. The participants described a lack of trust towards the web in general, specifically discussing websites and email. An example of this distrust is when check boxes are involved, such as asking the user to share their information with external companies. This coupled with a small font left the users feeling both suspicious and concerned.

Privacy regarding a site disclosing email addresses was discussed, with mixed opinions. A few of the participants were protective over their email addresses, and were concerned with providing it to websites or people that they did not trust, however other participants acknowledged that email addresses are not private.

There was an underlying concern of receiving spam emails, with two participants stating that they had two email addresses, one of which was only for family. They discussed their objection with purchasing something from a company and receiving multiple emails, and having to delete these messages.

Regarding trust, Facebook was discussed, both in terms of other users and the site itself. One participant talked about previously removing their Facebook profile after receiving messages and friend requests from people they did not know. Another participant mentioned a similar experience, with two others commenting that it hadn't happened to them, and suggested that setting Facebook up properly would prevent similar occurrences.

Many of the barriers are a result of a lack of consideration for adults with potential vision or motor-control problems, while some were just not compatible with how older adults wanted to experience the web by targeting the younger age range. For any website being developed to include older adults, simplicity was suggested to be a key point, with help in place if the user could not perform a task.

Keyboard use was seen as a barrier for many of the participants using computers in general, with one participant suggesting that a larger keyboard would help with issues of poor eyesight and dexterity. One participant described not having been brought up with computers in work or school as a "downside", however, another described it as a repetitive skill that would come easy if time was taken to learn it.

Issues relating to money were brought up by many of the participants. All of the participants raised concerns about the cost of broadband. Access to broadband was described as the "stumbling block", and despite protection programs (anti-virus, ad-ware protection etc.) being available for free, many of the participants did not know this, and highlighted it as another problem relating to cost, with a lack of information available.

3.2.3 Focus Group 1 Summary

The participants were given an overview of a site based on local information, which was met with scepticism due to a lack of moderation. The participants referred to news stories about Facebook, and indicated that people would write potentially hurtful and inappropriate things if such a site was available for unchecked contributions. Despite discussions on the beneficial aspect of the site, many of the participants could not see the value which would make them consider using such a site.

Several barriers to technology were discussed, such as changing settings, learning to use websites or applications, design, privacy, trust and physical limitations. Cost was a concern, both for a computer and for broadband, security packages and programs. The participants showed a lack of trust in websites, demonstrated by the example of being misled into signing up for newsletters or for information to be shared with external companies, and viewed the Internet as a place where caution must be exercised. Learning to use websites and software was one of the largest shared issues for the participants, with many saying that they often required support. Software and sites contained too much relative information, and lacked basic support for inexperienced users.

Many of the participants, despite considering themselves reasonably technologically aware, expressed frustration at the complexity of technology, discussing how frequently they would require help from a relative or friend, however other barriers were highlighted, ranging from the physical computer to cost issues and trust. The discussion demonstrated that there is no one obstacle that needs to be overcome, but rather a wide range of smaller issues collectively preventing many older adults from using technology comfortably. While some of these issues cannot be easily addressed by the SNSs themselves, e.g. hardware problems, several important points were highlighted which can be used to increase confidence and improve SNSs.

The non-SNS users had mostly high-level concerns (such as privacy, security) whereas the users had specific examples of barriers that they had experienced and overcome (e.g. difficulties accessing privacy settings, frequent unsolicited emails). These examples were generally more specific and informed. The experiences of those who had previously overcome barriers in their early stages of use were therefore recognised as valuable for identifying potential problems for new users. This led to the decision to recruit only SNS users for the second focus group.

3.3 Focus Group 2

3.3.1 Procedure

The second focus group involved 7 people (5 female, 2 male; aged 63-78, $M = 68.7$, $SD = 5.2$). For this discussion, only SNS users were recruited from the SiDE user pool, however, one was not a SNS user due to a misunderstanding during the recruitment process. This individual remained for the duration of the discussion and was encouraged to participate wherever possible. The aim of this focus group was to provide a better understanding of the way in which older adults who do use SNSs do so, to specify the challenges faced when learning to use SNSs and to identify issues that they still experience from an informed perspective. Ethical approval was granted from the department and participants were provided with a £10 gift voucher for participating.

Seven participants, two males and five females, were recruited through the SiDE user pool, all of whom had answered either “Strongly Agree” or “Agree” on a Likert question labelled “I feel confident using social networking websites like Facebook, MySpace and Twitter”. An additional two males had been recruited, however, they did not show up to participate in the focus groups. SNS users were recruited in order to gain a perspective of the issues faced by people who have faced and potentially overcome these barriers. All of the participants were encouraged to participate in the discussion, with every participant being asked for their opinions. The focus group was recorded by an audio device for transcription and future analysis.

The following categories were discussed:

1. The participants’ introductions to Social Networking Sites, including:
 - When the participant started
 - What encouraged the participant to start
 - How the participant started
 - Whether the participant needed assistance to start

2. How the participants use Social Networking Sites, including:

- Which site(s) the participant used
- Who made up the majority of contacts
- How often the participant logged on to such sites (observation)
- How often the participant shared information, including talking to people or uploading photographs on such sites (participation)

3. What the participants thought of Social Networking Sites, including:

- The opinions of the good points
- The opinions of the bad points
- The concerns using such sites
- Problems experienced when using such sites

4. How the participants suggest improving Social Networking Sites:

- For the participants themselves
- For helping beginners

The full transcript can be found in Appendix B on page 229.

3.3.2 Findings

Participants' Introductions to SNSs

The participants first discussed their introductions to SNSs, including who or what encouraged them to start using SNSs, when and how they started and the support they required. For many of the participants, family members and friends were the motivational factors for joining, with some commenting that curiosity led to their use. Many of the participants indicated that initially they were lightly pressured from family and friends to join, but after using such sites they could see the benefits as a tool for communication and sharing. The

participant who did not use SNSs commented that “laziness” would hold him back from joining if family members had asked him to sign up, commenting that he had a lack of interest. This individual did not have family members encouraging him to join up to any SNSs and expressed indifference, rather than reluctance, to registering.

While being asked to join by family and friends was a commonly recurring incident, a few of the participants had joined social networking sites without being asked to. One participant commented that curiosity was what made her want to investigate, while another described how hearing family members talk about it led to curiosity and eventually registering with the SNS.

While family seems to be a common motivational factor for the participants, two joked that family members had a negative reaction to them joining. One participant stated that her family were “appalled” that she was on a SNS, while another likened the situation to joining her daughter on a night out with friends. Regardless of this, both participants continued to use SNSs and were not discouraged by the reactions. This does, however, raise the interesting point about whether a son, daughter or grandchild would necessarily want to give family members access to photos and messages on a platform which often serves as a personal representation of identity amongst friends and peers. This may be an issue for some, but with the majority of the participants discussing that they were connected to their family members on SNSs, and many older adults having sons or daughters who are adults, the family aspect seems to be a strong motivator.

An insight into how much help and support the participants required and received, and from whom, when beginning to use SNSs were areas of interest. For some of the participants it was family, and sons or daughters were commonly asked to show how to complete a task. Despite this, the participants indicated that they were not simply interested in having the family solve any issues experienced, but rather to also have the family member explain what they are doing, how, and why, demonstrating an interest to learn how to fix these issues in the future. One participant developed the skills needed to use the Internet and computers by attending a class, while others discussed how interests,

such as photography, eventually led to the motivation for using computers and the Internet to further these interests. The participants seemed to be a highly motivated group, who were not indifferent to new technology, but rather were happy to learn the skills needed in order to further develop previously existing hobbies and skills.

How SNSs are being used

With an understanding of how the participants used social networking sites, areas to make SNSs more relevant and useful for this age range can potentially be highlighted. Information, such as who made up the participants' contact lists and how they spent their time on the site was investigated. From the first focus group and previous informal discussions with older adults regarding social networking sites, it was hypothesised that family was the key motivator for older adults, participation on the SNS was low and frequency of visiting the site was expected to be low, but not as low as participation.

The participants had no desire to increase their number of contacts on such sites, giving examples of relatives they have with over 700 contacts. Of the six participants who used SNSs, four regularly visited their profile (daily), with none of the participants regularly contributing messages, comments or photographs.

Both observation and participation on SNSs were queried, where observation is the frequency of the participants logging in to these sites and participation is how often they share photographs, messages or links, contributing content. While the participants rarely participated in sharing content on their SNSs, it was surprising how regularly many of the participants logged on to their SNS profiles. Many of the participants logged on to their SNS most days or daily. Despite this frequent visitation to the SNS, the rate of contribution was very low.

Some of the participants told stories based on their experiences with using SNSs. Some of the experiences were positive, while others were negative. Some of the negative stories were based around inappropriate comments. Some of the more positive experiences have involved re-initiating contact with people after a long time, a situation which a few of the

participants had experienced.

A few of the participants described how they had to be “prompted” to check their SNS profiles, while others described themselves as regular users who log on every day to view updates. The desire to actively participate and contribute was low across all participants. Family members were the main form of motivation, giving an indication about how different the purposes of this generation compares to the uses and views of how younger adults tend to communicate online. With many of these sites designed around the desired activities and behaviours of younger adults, such as contributing frequently, it is therefore unsurprising that SNS use amongst older adults is so low.

Opinions

The opinions held by the participants provide an insight into some of the flaws and barriers to using SNSs, which were overcome or overlooked by those who use them, as well as providing examples of positive features. With all but one of the participants using SNSs, and many of them visiting the sites daily, it might be expected that the feedback would be mostly positive, however, this was not always the case.

One participant described one SNS as “appalling”, and elaborated by questioning the benefit of such a site. Others shared this lack of interest. One participant also commented on the constantly changing interface of the SNS, a frustration which was shared by other participants. In addition to this, another participant commented on the changing of the privacy policy and terms of service on one site, which reverted their privacy settings to ‘Public’ without notifying them. The participant commented that they didn’t think “they have a right to do that”.

The point was also raised about strangers sending contact requests, as well as receiving contact requests from people who the participants did not want to communicate with. There was a described feeling of social obligation to accept these requests (e.g. people known from school).

The SNSs that the participants used were useful for what they wanted to do, however,

they came with downsides. Being added as a contact by people you don't know, a constantly changing interface and set of functionality, irrelevant messages by people and privacy incidents can be common on mainstream SNSs. Some of these issues indicate the extent to which these sites are designed for younger adults and teenagers, constantly changing and encouraging people to be vocal, which were highlighted as negative consequences of using these sites for many of the participants.

Despite some of the negative feedback, there were other, more positive opinions of social media as mentioned in the previous sections. Many of the participants, however, remained ambivalent about this technology, commonly mentioning the good features and the bad together. The participants appeared to be enthusiastic and praising of the nature of social networking sites, yet commonly criticised how these sites have been implemented in general. A SNS that is inclusive to older adults would most likely need to be very adaptable, allowing the user to have a very high level of control, yet with such mixed views on how different people would like to use such a site it would perhaps be difficult to choose the functionality without alienating others.

Suggested Improvements

The participants were asked how they would recommend improving the social networking sites that they use, both to make the tasks easier for themselves, and also to encourage new older adults to become users by overcoming the barriers that they themselves found when initially starting.

Some of the comments had to do with the appearance of these sites. The SNSs that the participants had used were described as "cluttered", with too much information. It was common for participants to dislike the way in which they received messages through these sites, either from the site itself or from people, such as games and applications. One participant questioned the relevance of the site to themselves, while another participant gave an example of being sent requests to sign up for a popular Facebook game from a friend.

Stopping these messages can be a complicated process and only prevents messages from that specific application, not other applications which exist. Another point which was discussed by the participants was the number of emails from the sites themselves. One person discussed their annoyance with the frequency that they receive several unsolicited emails a week from Facebook, prompting them to log back on. This was described by another participant as invasive, with Facebook sending updates about status updates that their friend had posted.

These opinions provide an indication into how these services can apply pressure to users in an attempt to increase contributions. Incidents like this can alienate people from using the service and do not promote SNSs in general as a beneficial and pleasant way to share and consume content.

The amount of time that the participants had available to use social networking sites was also talked about. One of the participants was under the impression that SNSs require hours of free time after reading about how long younger people were spending on these sites. This was corrected by other participants who commented that it takes “seconds”, with one participant saying “I just like to check it and then come off. See what’s new”. Another example of this was the financial cost of using a SNS. Some of the participants asked about the cost of using different SNSs, unaware that they were free.

The last topic which was discussed was about privacy and security, and some considerations that they felt the designers of SNSs should take into account. What differed largely between the attitudes of these participants and that of those in the first focus group who did not use SNSs was the acceptance that these factors were a consequence of SNSs, and that it was a sacrifice that they were willing to make to be digitally included. Some of the participants commented that a level of awareness was required in order to avoid these issues, such as what information you share or how you interact with other users. This is similar to the finding by Hoofnagle et al. [2010] who suggested that while many younger adults identify privacy concerns, many continue to use SNSs to remain digitally included.

Privacy settings were also discussed regarding this topic, again suggesting the import-

ance of user control. For the most part, participants were aware of what privacy settings represent, and described it as important to be able to do so. In the discussion, one criticism of Facebook was that it was not obvious how to access and change privacy settings.

3.3.3 Focus Group 2 Summary

Many of the opinions and concerns regarding social networking sites were very similar to the first focus group, however, one of the main differences was that this group of participants seemed a lot more willing to accept potential downsides as a consequence of using the service. As one participant stated, “you don’t get anything for nothing”, while another commented with “Just get rid of it if you don’t like it”. This difference in attitude may be why this group used SNSs rather than those who don’t. It is unclear whether using SNSs changed their opinions of having to sacrifice the risk of personal information, or whether it was this willing to compromise which led to them using and staying with these SNSs in the first place.

During the focus group, several areas were discussed. Perhaps the most interesting was the extent of the differences in how older adults would like to use SNSs compared to younger adults. The participants had no interest in maintaining a large list of contacts and no interest in nurturing a web identity by sharing messages or opinions with contacts. Sharing messages and photos with family members were both the initial motivation to join and the reason for continual use for many of the participants. Family was highlighted as a strong motivator for many participants using SNSs, including help and support, and learning how to set up their profile with the right levels of privacy.

For these people, the level of active participation on SNSs was very low. This is similar to findings in the literature [Bloch and Bruce, 2011, Righi et al., 2012]. For many, observation was very high. Four of the six SNS users regularly visited their SNS profile, on a mostly daily basis. The participants did not seem interested in sharing irrelevant messages with their contact list, and could not see a use in sending any direct message in such a public way. Privacy was important, with many of the participants expressing

discontent regarding how the existing sites work. Incidents such as frequent unsolicited emails and friend requests from strangers caused the participants to lose trust in these services, which at times caused irritation.

Despite all but one of the participants using SNSs, opinions were largely mixed. The participants generally liked some of the features of existing SNSs, while strongly disliking others. On discussing SNSs as a method of staying connected with family, the opinions were largely favourable. SNSs allowed the participants view photos from their offspring and grandchildren, yet, the other functionalities of SNSs were described as “appalling” by one person. Some good examples of SNS usage were reconnecting with lost family members and staying in touch with geographically distant people. Some of the negative examples were irrelevant messages from both individuals and the SNS, privacy mishaps, inappropriate public comments, email, spam and harassment from others. On asking why participants thought SNS usage was so low for older adults, misconceptions were suggested as being potential reasons.

An interesting difference in the participants of the first and second focus groups was the motivations for use. One of the key reasons that the participants of the first focus group gave for not using SNSs was that they just did not understand the purpose of such a service. Questions like “what is it for?” and “why would I want to use this?” were common, yet those present in this second focus group had found a purpose for SNSs. It is unclear why the same motivations did not apply to the first group or the majority of older adults who are non-users.

Family members were a key motivational factor for using SNSs, therefore, there may be people who would not benefit from using such a service. An example may be an older adult whose close family may live locally, or where other methods of communication are used, therefore effectively filling the role that SNSs are used for by others. Many of the participants in both focus groups used Skype and highly praised the application. This also allows families who are distant geographically to feel closer, arguably, in a much more humanistic way than largely asynchronous SNSs. The benefits of family communication

for some older adults may therefore have been effectively filled by another medium.

These sites appear to be strongly designed for younger generations, with little foresight for inclusion of other age ranges. This focus group provided a further understanding about how some older adults who do use SNSs do so, taking into account concerns, barriers, advantages and uses. The way in which older adults use SNSs appears to be different to how younger people may do so, and as a result the mainstream systems may not be suitable as-is for widespread adoption for older adults.

3.4 Comparison of Focus Groups to the Literature

There is a large degree of agreement between the findings of these focus groups and the literature. While new findings are present, some are existing issues which support the literature. In Chapter 2, five common reasons for the lack of participation of older adults were proposed: a lack of purpose, a lack of suitability, a lack of moderation, negative preconceptions and privacy concerns.

Lack of Purpose

Some participants who were non-users of SNSs didn't see the benefit or purpose in such a technology. Examples were provided as to how a system could provide direct benefit, e.g. with a healthcare focus, allowing communication with their GP. General communication was not seen as something worthwhile compared to their current methods of contacting people, face to face or using a telephone. One participant brought up a local news paper as a preferred method of finding out news. Of those who were SNS users, family encouragement was a major motivator for beginning to use SNSs.

Lack of Suitability

The designs of mainstream SNSs were raised by some participants as examples of how they weren't relevant to the participants. Sites were described as cluttered, and SNS applications,

such as games, were seen as annoying. Adverts were seen negatively, however, a few participants understood that these often keep the services free. One participant commented on their suspicion that the SNS purposefully complicated how important features, such as privacy settings, are accessed. Simplicity and easy-to-use support features were suggested as methods to make a SNS more suitable for older users.

Lack of Moderation

The need for moderation was raised frequently in the first focus group while a new neighbourhood SNS was being suggested. Cyberbullying and abusive messages were additionally raised as a concern by participants, who argued that effective moderation would be important to their decision to use a SNS. This concern stemmed from both media stories and prior experiences. Participants demonstrated that abusive messages would need to be removed, as well as outdated information and irrelevant “rubbish”.

Negative Preconceptions

During the discussions, media stories about Facebook were occasionally raised by non-users. These examples included abusive other users and vandalism on memorial pages. While these events can happen, methods can be taken to limit the likelihood of this happening, i.e. privacy controls. Some of the participants in the second focus group thought misconceptions might be a reason for the lack of participation. One participant commented that many people thought that using SNSs cost money, while another discussion suggested that some people could be concerned about the amount of time it takes, with one person countering this concern by saying that they only check their SNS profile for a few seconds each time.

Privacy Concerns

Privacy was described by one participant as “very important”, and “going out the window” by another. Privacy settings were identified by the second focus group as an effective way

to bypass privacy concerns, however, a lack of trust was demonstrated toward mainstream SNSs. Examples provided included the SNS changing the user's privacy settings without permission and also the site making it purposefully challenging through obfuscation to change such settings. Despite this, the ability to change privacy settings were outlined as very important.

New Findings

New findings, which had not emerged in the literature specifically regarding SNSs and older adults, were identified in the focus groups. These themes include frequent and unsolicited emails to the user, difficulties experienced when trying to deactivate an account, constantly changing interfaces, confusion over cost and feelings of invasion regarding friend suggestions.

Some participants were protective of their email addresses and were frustrated at the number of emails they received from their SNS. These emails, e.g. encouraging the user to log on or to connect to applications, were thought of negatively, and no participants seemed to know that the frequency of emails could be changed via the site settings. The frequency of emails received was described as "invasive" by one participant.

One participant expressed the frustration of trying to deactivate their SNS account, while a few others found themselves annoyed at how often the interface of their SNS changed. One suggestion for improving SNSs for non-users included clarifying that the site was free to avoid any misunderstandings. Participants also commented on different features that were seen as unacceptable and invasive, such as frequent emails, friend suggestions, difficulties deactivating accounts.

3.5 Summary

Two focus groups were held with Internet users over 60. These focus groups contained a mix of gender, experience and opinions of SNSs. While the first focus group had a mix of

users and non-users, the second focus group specifically recruited SNS users to investigate barriers and challenges which were overcome. Both focus groups contained a separate group of participants, none of which were invited for both.

Participants were asked to discuss their opinions of SNS, including both positive and negative comments, with potential improvements to SNSs also being discussed. Conversations were gently directed by the researcher through a number of topics, such as how participants used SNSs, why participants started using them, why participants chose not to use them and improvements that could be made to make this technology more suitable. Both focus groups were audio recorded and transcribed so that further qualitative analysis could be conducted.

Several barriers were identified and outlined in this chapter, identifying several ways in which a SNS could be made more compatible with older users. The findings of the focus groups were discussed, and agreement between the focus groups and the literature were outlined. This chapter provides a summary of the discussion points in the focus groups, similar to how findings within the literature are reported. This method of summarising the discussions effectively allows an understanding of issues raised, and it allows a comparison between what was discussed in the focus groups and what has been reported in other key papers in the field. New findings, such as the frequency of emails, constantly changing user interfaces, confusion over cost and invasive functionality, have been outlined in this chapter and act as a stand-alone contribution to the existing literature. Having access to the transcripts, however, allows further analysis to take place. By analysing these transcripts, recommendations can be derived based on the categorisation of issues faced. This will be outlined in the next chapter.

Chapter 4

Generation of Initial Recommendations

This chapter outlines the processes undertaken in generating an initial set of recommendations from the focus group transcripts. The recommendations are intended to make SNSs more inclusive by taking into consideration the needs and opinions of older adults. By analysing the transcripts of the focus groups outlined in the previous chapter, a method inspired by thematic analysis is used to derive 32 initial recommendations for SNSs.

These recommendations consist of both design and behavioural considerations. The derivation of these suggestions can be described in three stages:

- The identification of opinions and barriers using two focus groups (Chapter 3)
- The analysis of the focus group transcripts using a method based on thematic analysis
- The generation of the recommendations based on possible solutions to identified themes

4.1 Introduction

In the previous chapter, two focus groups were described which aimed to investigate barriers and opinions of SNSs with older participants. The findings of these focus groups were presented in a qualitative way, outlining the rich insights from the participants. This method of presenting the findings (along with a summary) of the focus groups contributes

to the literature and reports the findings in a similar way to that of other papers. While this is an effective way to collate the participants' opinions from the focus groups, other methods of analysis can be used to further explore the findings. Through this further analysis of the focus groups, suggestions can be created as to how SNSs could be improved from the perspective of the participants.

Having conducted and transcribed the two focus groups, the next stage was to analyse this data to discover key themes that emerge. By doing this, both positive and negative opinions of the participants can be mapped out and investigated. The method used as a starting point to analyse the data was based on thematic analysis [Braun and Clarke, 2006].

Thematic analysis, as described by Braun and Clarke, is a method for identifying, analysing, and reporting themes within data. These themes can consist of sub-themes at a lower level of abstraction which are often used supportively alongside the main themes in order to derive an underlying theory or explanation of the data [Attride-Stirling, 2001].

Thematic analysis was identified as an effective starting point for the analysis of this research for mapping out themes and sub-themes at various levels of abstraction, however, the method used in this research was an adaptation of thematic analysis in order to provide a more appropriate tool for this research. The purpose of this stage in the research was to derive requirements from the data, rather than to construct a theory or to explain the overarching themes. Therefore, careful consideration was taken in order to preserve highly specific themes, creating a large thematic map, rather than refining down to a small set of abstract ones.

4.2 Method

The two transcripts from the focus groups were imported and subsequently coded in Atlas.ti ¹. Coding involved categorising a quote under a specific theme. For example, one participant commented that “You’ve got to keep the information really simple and

¹<http://www.atlasti.com>

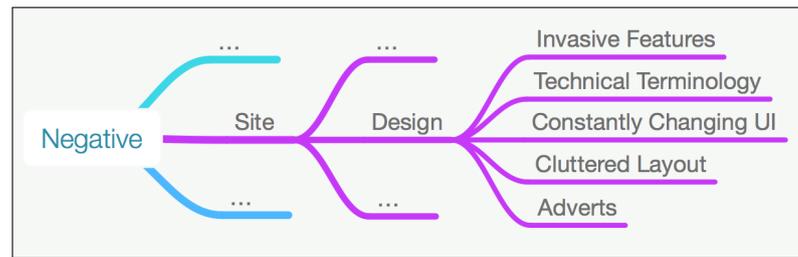


Figure 4.1: A subset of the themes. The sub-themes are all relating to people raising concerns over the design of specific sites.

with simple terminology”. Quotes were then coded with one or more themes, such as “Terminology”.

Attride-Stirling [2001] suggests that between four and fifteen themes is an effective number to have for thematic analysis. While thematic analysis usually encourages refinement toward a small collection of abstract themes, maintaining the high level of granularity and specificity of our themes was necessary to preserve the wide range of issues for the identification of recommendations. The solution used in this research was to break down themes into sub-themes throughout the coding process, refining the analysis while maintaining both high and low levels of granularity. As an example, a collection of quotes might be categorised under “Privacy”, but also under a more specific category of privacy, such as “Concern Over Personal Information” or “A Lack of Transparency Regarding Privacy Settings”.

As the coding process progressed, codes were altered, grouped and re-evaluated to reduce redundancies or to better capture a collection of quotes. Key underlying themes began to emerge from the data. This resulted in the thematic network being created. Essentially, the thematic map is a mind-map, where abstract themes appear toward the center of the map (such as “Don’t like SNSs”) and more specific themes appear toward the end of the branches (such as “Worried About Personal Information Being Online”). Figure 4.1 demonstrates a subset of the themes.

4.2.1 Comparison of Codes to the Literature

When designing a set of accessibility guidelines for older people, Kurniawan and Zaphiris [2005] used an extensive literature review to develop their guidelines before heuristically evaluating them. A similar use of the literature was employed in this research. By investigating and comparing the analysis of the focus groups and key papers in the literature, the extent to which these themes generalise to other qualitative studies can be investigated. The thematic map can thus be strengthened by including important findings not identified in the focus groups.

A further stage of analysis was conducted with two key qualitative papers in the literature Lehtinen et al. [2009], Gibson et al. [2010], chosen due to their relevance in the field and their combinations of findings and quotes providing justification. This process aimed to investigate theoretical saturation and congruity. Text from the literature, e.g. ‘they were anxious to retain their privacy’ Gibson et al. [2010], was coded in the same way as text from the transcripts. Findings in the literature were coded as new themes, unless a new theme overlapped with one from the transcripts, whereupon the existing theme was used.

Including these two papers in the later stages of analysis enabled the verification of consistency of the themes with other research. A high amount of overlap appeared between the themes of the focus groups and those from the two papers. This suggests that many of the focus group themes generalise to beyond the small sample sizes. Themes such as a lack of purpose, privacy concerns and negative media stories were present in both the literature and the transcripts.

Some themes were unique to the focus groups outlined in Chapter 3, such as frequent and unsolicited emails to the user, difficulties experienced when trying to deactivate an account, constantly changing interfaces, confusion over financial cost and feelings of invasion regarding friend suggestions. Other themes were unique to the literature, such as a fear of social blunders and a desire for partial anonymity, mass distribution of messages and off-the-record (temporary) messages.

Paper 1: Designing Social Networking Sites for Older Adults

Gibson et al. [2010] report on findings from ethnographic interviews, focus groups and demonstrations with older adults using participants from the University of Dundee's School of Computing drop-in User Centre, which is described as an "informal computing club". It is worth noting that the focus groups reported in the previous chapter used a different recruitment method (the SiDE user pool [Watson et al., 2010]) compared to the study outlined in the paper by Gibson et al., however, it is not possible to assume that there was no overlap of participants due to some user centre members choosing to be a part of the SiDE user pool.

This paper was analysed using the list of themes from the focus groups. 27 of these themes applied to quotes and findings of the paper. In addition, five new themes emerged. These themes were as follows:

- Changing network of participant
- No anonymity
- Fear of social blunder
- Mass distribution of messages
- Permanence of messages

Paper 2: A little silly and empty-headed: older adults' understandings of social networking sites

29 of the themes from the focus groups were found to apply to quotes and points in this paper, with 3 new themes emerging. The new themes included after analysing this paper were as follows:

- Incompatibility with participants' view of communication
- Damaging to friendships

- Connectedness to similar people

4.2.2 Thematic Map

After the two additional papers were subjected to the analysis and the new themes were added to the thematic map, the thematic map was in its final form. A final version of the thematic map can be seen in Figure 4.2.

4.2.3 Deriving the Recommendations

With the thematic map finalised, the next stage of the research was to identify recommendations from the analysis. These recommendations were derived from the thematic map and aimed to suggest user centered methods to either avoid negative aspects or encourage positive aspects of SNSs when developing and designing such a site. Since these recommendations are derived from discussions with older adults, there is less of an emphasis on technical requirements for SNSs. Rather, participants had strong feelings about the sites' behaviour and design, giving these recommendations a unique focus which differs to previous guidelines and recommendations outlined in the literature.

Traversing from higher to the lower levels of the mind map provided context for each low-level theme (e.g. 'Negative' > 'Don't like SNSs' > 'Worried' > 'Privacy' > 'Lack of Transparency'). Recommendations for developers were then derived from this process by the researcher. From the above example, a recommendation was identified to 'Clarify and simplify privacy and account settings', as this would likely help users who were worried about the lack of transparency regarding privacy settings. Additional context was gained by consulting the quotes which were coded under the sub-theme in question. This aimed to avoid misinterpretations during the process of deriving the recommendations.

As an example of this process, consider a branch of the thematic map, as shown in Figure 4.1. The sub-themes on the right of the figure are all categorised as issues with the design of specific SNSs. Some recommendations that were derived from this subset include *using a simple layout* and *avoiding technical terminology, advertisements and frequent changes to the interface*. 'Invasive Features' is an example of where quotes were

consulted. Participants described friend suggestions and unsolicited emails as invasive. This led to a recommendation of avoiding such invasive functionality.

Themes were treated equally when identifying the recommendations, regardless of whether they originated from the transcripts or the literature. Each recommendation involved suggesting a way to either support a positive feature or eliminate a concern. In cases of themes relating to a positive feature, the recommendation suggested supporting that feature. In cases of themes relating to a concern, the recommendation attempted to identify the root cause of the problem and suggest a method to bypass this concern. If a possible solution could be identified by the researcher then it was included as a recommendation. Some themes, however, could not be addressed by a recommendation, e.g. 'Negative' > 'Not Interested' > 'I am happy without it'. In this case, 'I am happy without it' is at the highest level of granularity. Neither the parent themes or coded quotes identify a way to 'solve' this reason for not using a SNS.

The process resulted in the generation of 32 initial recommendations, which will be outlined in the next section, to mitigate concerns or support positive features identified in the focus groups and literature. Each initial recommendation is outlined alongside relevant themes from the analysis, a selection of relevant quotes from the transcripts and a suggested action to conform to the recommendation. The themes can be looked up in Appendix C on page 253.

4.3 Initial Recommendations

This section outlines each of the derived recommendations, alongside the relevant themes and example quotes. It can be consulted if context or examples are needed to clarify any of the recommendations.

InitRec 1 - Reduce or avoid advertisements

Relevant Theme(s):

Negative > Site > Design > Adverts

Negative > Site > Design > Non-Financial Cost

Example Quotes:

“Bombarded with adverts.”

“You’re phoning New Zealand, you can fly there for only £335. That’s what’s going to pop up so we’ll wait and see. I’m cynical now.”

“They tend to fund it. Let’s face it.”

Suggested Actions: The participants expressed a dislike of advertisements, however, some understood that they were a necessity for many sites to remain free. Avoiding or reducing the amount of advertisements, where possible, would likely be preferred by older adults. Minimal advertisements would also allow the site to maintain a simple layout.

InitRec 2 Avoid drastic and frequent changes to the site

Relevant Theme(s):

Negative > Site > Design > Changing

Example Quotes:

“They’re forever changing things.”

“There’s no need to change.”

“Sometimes when they update it they very sneakily remove your privacy stuff and I get quite annoyed about that. I don’t think they have a right to do that. If that’s the settings you have then they should not tamper without your permission.”

Suggested Actions: Drastic updates to the interface of the site should not occur often as this can frustrate people who are trying to find specific settings or features. Updates to the site should also not change user settings or reveal personal information which was previously hidden as this can diminish trust.

InitRec 3 Use a simple layout on the site**Relevant Theme(s):**

Negative > Site > Design > Cluttered

Negative > Site > Design > Complexity

Example Quotes:

“A first page rammed with information, I think you don’t really know where to start.”

“I think maybe seeing them a bit less cluttered... Somebody who’s new to it looks on it and you just see... things you can do and information on it, and I think it can look a little bit cluttered.”

“It’s as complex as everything else and what you need is a straightforward website.”

Suggested Actions: A complex or overcrowded layout on the site should be avoided and instead a minimalistic appearance and clear content should be used. This could involve reducing the amount of information on the screen or better utilising white-space. This suggestion is somewhat subjective, however, online resources may suggest ways to design minimalist websites.

InitRec 4 Avoid the use of technical terminology**Relevant Theme(s):**

Negative > Site > Design > Terminology

Example Quotes:

“You’ve got to keep the information really simple and with simple terminology.”

Suggested Actions: Technical terminology should be avoided where possible. Additionally, consider other terms used (e.g. feature names) as users may disagree with the use of the term. As an example, Gibson et al. [2010] found that some participants had an issue with the use of the word ‘Friends’ on a SNS, since they found that acquaintance was a more accurate description of a majority of their online contacts.

InitRec 5 Follow accessibility guidelines**Relevant Theme(s):**

Negative > Other > Accessibility

Example Quotes:

“As we’re getting older, it’s getting harder to read these small print details.”

“As we’re all getting older our eyesight is not so good.”

“I’ve even tried to help an eighty-five year old friend, she’s used a computer before in the past but her eyesight’s not so good and she said ‘the little arrow, sometimes I can’t see it’.”

Suggested Actions: All sites should follow strict accessibility guidelines to ensure that content is available to a wider range of people (e.g. WAI-AGE). While most of the participants raised concerns over visual impairments, other accessibility measures should be taken to ensure that the site is accessible for as many people with diverse abilities as possible.

InitRec 6 Simplify navigation to controls (privacy and account settings)**Relevant Theme(s):**

Positive > Control > Privacy Control

Positive > Control > Reduce Number of Emails

Negative > Site > Design > Lack of Desired Control

Negative > Site > Design > Complexity

Negative > Site > Trust

Negative > Site > Privacy > Not Obvious How to Change

Negative > Site > Privacy > Unclear

Negative > Site > Privacy > Concealed Deliberately

Example Quotes:

“I like to think that you can change your privacy settings. That to me is very important. The only criticism I would have of Facebook is they don’t make it awfully obvious how you get to change and make your settings. Finding in the menu where you actually go to that, and I think they do that deliberately. I think it’s deliberately concealed from you. To me it should be right up there saying My Settings or My Privacy, but it’s not. You’ve got to look for it.”

Suggested Actions: Accessing and changing settings should be a clear and straight forward task. The users may lose trust in the SNS if they feel that these settings are being deliberately concealed. As privacy is so important to this cohort, it is likely that they will want to have control over their settings and so links to these settings should be readily accessible from every web page.

InitRec 7 Avoid similar designs to sites where people hold negative assumptions

Relevant Theme(s):

Negative > Site > Design

Negative > Site > Privacy

Negative > Don’t Like It > Worried > Read Too Much

Example Quotes:

“I’m just afraid of the connotations. I’ve heard too many horror stories.”

“I think that’s why so many elderly people are put off from starting, because they’ve heard all the stories. It’s in the press. You’ll see all the problems and it puts people off starting because they feel ‘Oh gosh, I don’t know enough to be able to protect myself’.”

“They’re scared stiff... I think they’ve read too much about security and don’t know enough about what they’re doing.”

Suggested Actions: Some participants suggested that negative media stories would prevent older users from signing up to a SNS. While it may seem sensible to base a social networking site’s design or functionality on existing well-established sites, this may subsequently limit the number of people who are willing to sign up. People have chosen not to join these sites for a reason, and any negative assumptions or stories that they have read may be carried over to a new SNS with a similar design.

InitRec 8 Clarify if the site has a financial cost or is free

Relevant Theme(s):

Negative > Not Interested > Misconceptions > Cost

Example Quotes:

“I have never joined LinkedIn because I thought I had to pay and I don’t pay for anything.”

“Do you have to pay to join Friends Reuited?”

“Lots of people think it costs [money].”

Suggested Actions: Make it clear for new users if the site is free to use or costs money to avoid misconceptions or feelings of deception.

InitRec 9 Avoid targeting specific age groups

Relevant Theme(s):

Positive > Someone Asked Them to Join > Friends

Positive > Someone Asked Them to Join > Family

Positive > Enjoyment > Connectedness

Positive > Enjoyment > Family

Example Quotes:

“My daughter in law asked me to go on Facebook because she was posting photographs of my grandchildren.”

“Family got me to go on to Facebook... My wife’s on Facebook as well so she tends to look at it every day. So she tends to say to me ‘Oh there’s some nice photographs of the family on’ or something so I’ll go and look at those.”

“Facebook was purely family, because my family don’t live in Dundee so it’s a nice way for them to put photographs of the kids and the grandchildren and stuff, so it was good.”

Suggested Actions: A strong theme in the focus groups and in the literature was a desire to stay connected with family members. By designing a site specifically for older adults, there is a risk of alienating those that older adults wish to engage with the most. Similarly, designing for younger adults or teenagers, as many popular social networking sites do, risks putting off older users. It is suggested that an inclusive SNS would likely have to remain age-neutral in order to attract a wider range of people.

InitRec 10 Avoid using ‘small print’ or optional check-boxes for additional services/data sharing

Relevant Theme(s):

Negative > Site > Trust

Negative > Site > Design > Invasive

Negative > Site > Non-Financial Cost

Negative > Site > Unsolicited Emails

Negative > Don’t Like It > Worried > Privacy

Negative > Don’t Like It > Lack of Knowledge > Don’t Understand

Negative > Other > Accessibility

Example Quotes:

“I’m very careful when you get these little boxes. ‘Would you be prepared...’. But

they're very clever. Some of them you click them and you think 'I'll click them all'. Well, you don't. You've got to read them very carefully in tiny tiny print, so that's what I'm concerned with."

"As we're getting older it's getting harder to read these small print details."

"I find my finger slightly faster than my brain and I end up getting things I really do not want."

"I've got one email for business and I've got one for family and friends and I don't trust that with all the things... You know, once you've bought something, suddenly you get 20 the next day that they've obviously passed on to other [people]."

"How do you stop something like that? I get messages from William Hill... Telling me that I have 10 credit in my account. Now I've never ever had anything to do with William Hill in my life. I just delete it, but can you stop that?"

Suggested Actions: Using small print check-boxes for sharing information not only has accessibility implications, but also creates site trust issues. Avoid providing the option to share information with other sites/services and make sure that all print is clearly legible when signing up and using the site.

InitRec 11 Avoid pressurising techniques, reminders or features to encourage a user to contribute to the site

Relevant Theme(s):

Positive > Observation > Curiosity

Positive > Observation > Don't Want to Participate

Positive > Observation > Photos

Negative > Site > Design > Invasive

Example Quotes:

"I keep getting emails from Facebook. Just about one a day, or two or three a week.

"We notice you haven't been on Facebook for a while" so I just delete those. But I go on

when I feel like going on.”

“You get two or three emails a week. We notice you haven’t been on Facebook for a while, and then you’ll get ones saying: Notifications - so and so’s put some interesting comments. And I do find that a bit invasive.”

Suggested Actions: Participants often liked to passively observe on their SNS. While many participants visited the site regularly, few participated in producing content. Features which encourage users to contribute to the site (e.g. ‘Reconnect with Person A’, ‘Send Person B a message’) should be used with caution as people can find these invasive.

InitRec 12 Keep the functionality of the site relevant

Relevant Theme(s):

Negative > Site > Design > Relevance

Negative > Don’t Like It > Incompatibilities > Unnecessary

Negative > Not Interested > Boring

Example Quotes:

“There are things at the side and I think ‘What relevance does that have to me?’”

“Yeah but I find that... It’s not... I’m trying to find the relevance of [a popular Facebook game].”

“I kept getting emails saying he wants you to get a farm and trade with him, and I went back to him and said ‘on you go, go build your oil rigs and give me peace.’”

Suggested Actions: Adding applications such as games and the sharing of content (e.g. Music, articles) may generate new content on the site, however, this can be seen as low-quality content and of limited or no relevance. This could potentially result in users becoming disengaged, or bored, with the site.

InitRec 13 Clarify implications of functions to prevent social blunders**Relevant Theme(s):**

Negative > Site > Design > complexity

Negative > Site > Non-Financial Cost

Negative > Site > Privacy > Not Obvious How to Change

Negative > Site > Privacy > Concealed Deliberately

Negative > Don't Like It > Worried > Privacy

Negative > Don't Like It > Worried > Damaging to Friendships

Negative > Don't Like It > Worried > Security

Negative > Don't Like It > Worried > Social Blunder

Negative > Don't Like It > Lack of Knowledge >

Example Quotes:

“Does that mean when you put in the name you were looking for, if someone put my name in, they would be able to go on to my page?”

“Facebook don't make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they're saying.”

Suggested Actions: This recommendation originates from findings by Gibson et al. [2010] and Lehtinen et al. [2009]. Complex social networking sites with different features for public and private communication, combined with potentially hard to find or confusing settings, may lead to users committing social blunders. Such an occurrence could be damaging to friendships if messages are made public when they are supposed to be private. Clarifying features (for example whether the message is public or private, or who can see it), may give people the confidence of using it and prevent a social faux pas.

InitRec 14 Avoid invasive functionality**Relevant Theme(s):**

Negative > Site > Trust

Negative > Site > Design > Invasive

Negative > Don't Like It > Worried > Privacy

Example Quotes:

“I'd just put in the barest details and it said ‘Would you like to link with these people?’ And I looked at the names and I thought ‘That’s funny, some of them are from work’. So I thought it must be the geographical area. And then my niece was on and she’s up in Thurso and my other niece is down in Reading and I thought ‘That can’t be geographical’. Then I realised it had gone right through my email address book and I thought ‘No’, and ‘Off, no I don’t need it’.”

“I get a wee bit annoyed because I keep getting emails from Facebook. Just about one a day, or two or three a week. ‘We notice you haven’t been on Facebook for a while’... I go on when I feel like going on.”

“That’s something that does annoy me. You get two or three emails a week. We notice you haven’t been on Facebook for a while, and then you’ll get ones saying: Notifications - so and so’s put some interesting comments. And I do find that a bit invasive. I don’t mind getting emails from people I work with, but that’s just unsolicited.”

Suggested Actions: Features which access other services (such as email address books) and create personal assumptions (e.g. who you know) can alienate people who have not knowingly given permission for the site to do so. These invasive features and emails should be avoided.

InitRec 15 Reduce or avoid emails to the user by default

Relevant Theme(s):

Negative > Site > Design > Relevance

Negative > Site > Unsolicited Emails

Example Quotes:

“I kept getting emails saying he wants you to get a farm and trade with him... go build your oil rigs and give me peace.”

“That’s something that does annoy me. You get two or three emails a week. We notice you haven’t been on Facebook for a while, and then you’ll get ones saying: Notifications - so and so’s put some interesting comments. And I do find that a bit invasive. I don’t mind getting emails from people I work with, but that’s just unsolicited.”

“I get a wee bit annoyed because I keep getting emails from Facebook. Just about one a day, or two or three a week. ‘We notice you haven’t been on Facebook for a while’ so I just delete those.”

Suggested Actions: Participants were protective over their email addresses and strongly disliked unsolicited emails. Ideally, emails should only be for important system messages by default. Emails which aim to ‘remind’ or ‘re-engage’ users with a site should be used with extreme caution and infrequently to avoid frustrating the user, who may not know how to change their email settings.

InitRec 16 Allow for controlled mass distribution of messages

Relevant Theme(s):

Positive > Contact > Mass-Distribution

Example Quotes:

“Some [participants] mentioned that if they had to transmit information that is relevant for several people, it would be nice to have some kind of channel for that.” [Lehtinen et al., 2009]

Suggested Actions: Lehtinen et al. [2009] suggest that allowing people to send messages to a group of several recipients independently of each other may be seen as a useful feature for older users. Caution will have to be taken, however, to make sure that such a feature would not be abused (e.g. unsolicited spam).

InitRec 17 Provide support to explain/help/guide users through tasks

Relevant Theme(s):

Negative > Site > Design > Complexity

Negative > Site > Privacy > Not Obvious How to Change

Negative > Don't Like It > Worried > Social Blunder

Negative > Don't Like It > Lack of Knowledge

Negative > Other > Lack of Support

Example Quotes:

“The thing that’s lacking is easily accessed information about how do you set a website up, how do you go to a website, how do you set up your Facebook. It’s not there. If you know somebody, fine, they’ll help you, but if you don’t know somebody, it’s not easy.”

“What you need is a straight forward website in which there is a lot of support information.”

“I don’t get any rubbish now... you need somebody to come along and set it up with you, or something to make sure it’s set up right.”

Suggested Actions: A support section or feature would help users who do not know how to complete a task. Such a feature would need to be simple and easy to understand.

InitRec 18 Allow for session, or ‘off-the-record’ private messages

Relevant Theme(s):

Negative > Site > Privacy > Permanence

Negative > Don't Like It > Worried > Damaging to Friendships

Negative > Don't Like It > Worried > Social Blunder

Example Quotes:

“Participants also identified that SNSs do not represent a typical model of dialogue,

specifically where there is an opportunity to do a face to face conversation off-the-record, for example if they were sharing a secret. The **persistence** of interactions via SNSs, long after the event was also concerning for them.” [Gibson et al., 2010]

Suggested Actions: Identified by Gibson et al. [2010], the permanence of messages may be seen as not representative of expected methods of communication. A function which allows users to send instant messages without them being stored on the system may help people feel more trusting towards sharing sensitive messages privately over a social networking site, knowing that it won’t exist on the system indefinitely.

InitRec 19 Avoid unnecessary complexity when completing tasks or changing settings

Relevant Theme(s):

Negative > Site > Design > Complexity

Negative > Site > Privacy > Not Obvious How to Change

Negative > Don’t Like It > Lack of Knowledge

Example Quotes:

“It’s as complex as everything else and what you need is a straight forward website.”

“The only criticism I would have of Facebook is they don’t make it awfully obvious how you get to change and make your settings... To me it should be right up there saying My Settings or My Privacy, but it’s not. You’ve got to look for it.”

“Facebook don’t make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they’re saying.”

“The thing that’s lacking is easily accessed information about... how do you set up your Facebook. It’s not there... it’s not easy.”

“I have no idea. I don’t even know how to work them.”

Suggested Actions: A lack of knowledge has been identified as a barrier. Therefore, completing a task (e.g. changing settings, sending messages, uploading photographs)

should be as simple as possible. While features and settings should clarify implications of using them, the user should not feel bombarded with information or options.

InitRec 20 Focus on a specific purpose to engage users

Relevant Theme(s):

Positive > Enjoyment > Connectedness > Similar People

Positive > Enjoyment > Connectedness > Friends

Positive > Enjoyment > Connectedness > Colleagues / Workmates After Retirement

Positive > Enjoyment > Hobby

Negative > Site > Design > Relevance

Negative > Not Interested > lack of Relevant People

Negative > Not Interested > Boring

Example Quotes:

“I get out of the front page immediately because I’m not interested in anything.”

“I’m not interested in it.”

“I don’t read anything that comes up unless it’s of some interest to me.”

“I’m not particularly interested I have to say because it just seems to be every day, you know, just what they did yesterday... I go on other people and I think ‘So what?’, you know? I don’t find it particularly riveting.”

“I’m not interested in tittle tattle.”

“You see people saying what they had for their tea.”

“I’m not into this ‘What I had for my tea last night’.”

Suggested Actions: It may be difficult to attract users to a social networking site. A lack of friends using such a site and other existing sites being used may make gaining a critical mass challenging. The participants often found the content from other users as boring and of no relevance to themselves. One potential solution could be focusing on a specific purpose on a small scale, such as a club, a hobby or an organisation. Such a site could then

potentially expand into different purposes if desired.

InitRec 21 Provide control to delete content

Relevant Theme(s):

Positive > Control > Delete Content

Negative > Don't Like It > Worried > Reliability

Negative > Don't Like It > Incompatibilities > Suspicion

Negative > Don't Like It > Other People

Negative > Not Interested > Boring

Negative > Other > Different Side to People

Negative > Don't Like It > Worried > Social Blunder

Negative > Site > Design > Lack of Desired Control

Negative > Not Interested > Misconceptions > It Is Something It's Not

Example Quotes:

“I delete anything I don't like the look of.”

“[Deleting messages] is actually a very good policy.”

“If you see an email from someone you don't know, you just delete it.”

“And who's going to take the old information off, if people are quick enough to put on, like 'Family picnic at Number three', but who's going to take it off next week?”

“How do I get rid of them?”

“A friend of mine had got a new dress and somebody had put a rude comment against it and I thought 'Oh god, is this what Facebook is about?'”

“I would seriously fear what people would put up on it if it were open for people to post. People can be really perverted and nasty.”

Suggested Actions: Users should easily be able to delete content created by themselves or by others on their profile. Other content should have the option to be hidden to the user.

InitRec 22 Provide simple control to delete account if desired

Relevant Theme(s):

Positive > Control > Delete Account

Negative > Site > Design > Lack of Desired Control

Negative > Site > Design > Complexity

Negative > Site > Trust

Example Quotes:

“Just get rid of it if you don’t like it.”

“Some people think that you must have it, no you don’t have to have it, you can get rid of it if you don’t want it. If you’re uncomfortable with it then you just get rid of it.”

“I had great trouble getting myself off Facebook. I had a terrible job at it. Eventually I got a little app I think it was, or some sort of mini program which took it off, and I just tried and tried and tried. I changed my name to ‘Surname, A. Family name, A’ and even that, I just gave up on Facebook.”

Suggested Actions: Users should easily be able to delete their account if they wish to. This process should be as straight forward as possible. Making this process difficult may diminish trust in the SNS.

InitRec 23 Clarify and simplify privacy settings

Relevant Theme(s):

Positive > Control > Privacy Control

Negative > Site > Design > Lack of Desired Control

Negative > Site > Design > Complexity

Negative > Site > Privacy

Negative > Don't Like It > Worried > Privacy

Negative > Don't Like It > Incompatibilities > Views of Privacy

Negative > Don't Like It > Lack of Knowledge

Negative > Don't Like It > Worried > Social Blunder

Example Quotes:

“It’s as complex as everything else and what you need is a straight forward website.”

“That’s the thing that older people worry about. About how private it can be.”

“I like to think that you can change your privacy settings. That to me is very important.”

“Does that mean when you put in the name you were looking for, if someone put my name in, they would be able to go on to my page?”

“Facebook don’t make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they’re saying.”

Suggested Actions: Accessing and changing privacy settings should be clear. In addition to this, these settings should be well explained, and simple, while providing suitable granularity of control.

InitRec 24 Allow simple control over what emails (if any) a user wishes to receive

Relevant Theme(s):

Positive > Control > Reduce Number of Emails

Negative > Site > Design > Relevance

Negative > Site > Design > Complexity

Negative > Site > Design > Invasive

Negative > Site > Unsolicited Emails

Negative > Site > Privacy > Not Obvious How to Change

Negative > Don't Like It > Lack of Knowledge

Example Quotes:

“I kept getting emails saying he wants you to get a farm and trade with him... go build your oil rigs and give me peace.”

“I get a wee bit annoyed because I keep getting emails from Facebook. Just about one a day, or two or three a week. ‘We notice you haven't been on Facebook for a while.’”

“That's something that does annoy me. You get two or three emails a week. We notice you haven't been on Facebook for a while, and then you'll get ones saying: Notifications - so and so's put some interesting comments. And I do find that a bit invasive. I don't mind getting emails from people I work with, but that's just unsolicited.”

Suggested Actions: Unsolicited emails were seen as frustrating to the participants. A simple mechanism for changing or reducing the number of emails sent to the user should be available and easy to find.

InitRec 25 Allow partial anonymity if desired

Relevant Theme(s):

Negative > Site > Privacy > No Anonymity

Negative > Don't Like It > Incompatibilities > Views of Privacy

Example Quotes:

“Overall, they felt more secure with a group identity (and the related partial anonymity) when exploring and experimenting, rather than highlighting themselves as an individual.”
[Gibson et al., 2010]

“Instead they would prefer a more tentative, incremental approach to revealing their identity.” [Gibson et al., 2010]

Suggested Actions: Gibson et al. [2010] note that anonymity was important to their participants. Partial anonymity may help users to feel more comfortable in using the site. This could be provided by making profiles invisible in searches, the hiding (or lack of

requirement) of personal information on profiles or making the entire profile of a user hidden from others.

InitRec 26 Allow simple removal of contacts

Relevant Theme(s):

Negative > Don't Like It > Incompatibilities > Changing Network

Negative > Don't Like It > Other People > Annoying

Negative > Don't Like It > Other People > Meanness

Negative > Other > Different Side to People

Negative > Not Interested > Misconceptions > It Is Something It's Not

Example Quotes:

“I would seriously fear what people would put up on it if it were open for people to post. People can be really perverted and nasty.”

“A friend of mine had got a new dress and somebody had put a rude comment against it and I thought ‘Oh god, is this what Facebook is about?’”

Suggested Actions: An adults network of contacts changes, specifically in early and older adulthood. This should be supported by simplifying the removal of contacts. Additionally, contacts can become annoying or mean. In such a case, the user should be able to remove that contact.

InitRec 27 Allow categorization of contacts

Relevant Theme(s):

Positive > Enjoyment > Family

Positive > Enjoyment > Connectedness > Friends

Positive > Enjoyment > Connectedness > Colleagues / Workmates After Retirement

Negative > Site > Design > Lack of Desired Control

Example Quotes:

“The SNSs that were demonstrated did not contain the kinds of groupings (such as family, close friends, work friends) that they hoped. They found this disappointing. The customary binary or tertiary privacy settings (friend/ friend of a friend/ everyone) were particularly disliked. The use of appropriate friendship groupings was identified as particularly important.” [Gibson et al., 2010]

Suggested Actions: Discretely being able to categorise contacts into groups (e.g. Friends, family, colleagues) may allow the users greater control over what content is shared with whom. This will ensure that users have control over contacts that more accurately reflect how social groups are reflected in the real world.

InitRec 28 Give users control of which contacts see what

Positive > Enjoyment > Family

Positive > Enjoyment > Connectedness > Friends

Positive > Enjoyment > Connectedness > Colleagues / Workmates After Retirement

Negative > Site > Design > Lack of Desired Control

Negative > Don't Like It > Worried > Privacy

Negative > Don't Like It > Worried > Damaging to Friendships

Negative > Don't Like It > Other People > Awkwardness

Example Quotes:

“The SNSs that were demonstrated did not contain the kinds of groupings (such as family, close friends, work friends) that they hoped. They found this disappointing. The customary binary or tertiary privacy settings (friend/ friend of a friend/ everyone) were particularly disliked. The use of appropriate friendship groupings was identified as particularly important.” [Gibson et al., 2010]

Suggested Actions: This recommendation goes very closely alongside InitRec 27 (Allow

categorization of contacts). Ideally, users should be able to hide some of their personal information or content from contacts if they wish to do so. For example, one might wish to hide personal information, such as relationship status or religion, with certain groups of people (e.g. colleagues or a club).

InitRec 29 Reassure users that suitable security measures are in place

Relevant Theme(s):

Negative > Site > Design > Non-Financial Cost

Negative > Site > Security

Negative > Don't Like It > Worried > Security

Negative > Don't Like It > Lack of Knowledge

Negative > Don't Like It > Worried > Read Too Much

Negative > Site > Trust

Example Quotes:

“It’s got to be at the back of your mind, hasn’t it, security. You’ve got to be aware of it all the time.”

“Security is my worry.”

“I just think I’m worried about security and personal information on it.”

“That’s the only thing I fear, is the security aspect of it. What could happen as a result of somebody maybe getting access.”

“I think they’ve read too much about security and they don’t know enough about what they’re doing.”

“What people worry about is security and you getting access into that.”

“I think younger people are more likely to put up information with a lack of security or personal information that they maybe shouldn’t. And I think that this age group is less likely to do that.”

“The better the offer, the bigger the scam it’s likely to be.”

Suggested Actions: Security was an important issue for the participants and users should feel comfortable and trusting with the security aspects of any SNS. This could be improved by ensuring that the site runs on HTTP Secure (HTTPS) or by avoiding features which cause trust issues.

InitRec 30 Have increased privacy by default

Relevant Theme(s):

Negative > Site > Privacy

Negative > Don't Like It > Worried > Privacy

Positive > Control > Privacy Control

Negative > Site > Trust

Negative > Don't Like It > Lack of Knowledge

Negative > Don't Like It > Worried > Social Blunder

Negative > Site > Design > Non-Financial Cost

Example Quotes:

“I don't get any rubbish now... you need somebody to come along and set it up with you, or something to make sure it's set up right.”

“Does that mean when you put in the name you were looking for, if someone put my name in, they would be able to go on to my page?”

“Facebook don't make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they're saying.”

Suggested Actions: Privacy has been identified as a very important consideration for older adults. Additionally, users may not realise that the privacy settings of their account are not closed off by default. Accounts should therefore have increased privacy by default, where users who are not connected to the account cannot view content. Open privacy by default may create trust issues.

InitRec 31 Reduce and moderate fake accounts**Relevant Theme(s):**

Negative > Don't Like It > Worried > Security

Negative > Don't Like It > Other People > Strangers

Negative > Don't Like It > Other People > Annoying

Negative > Don't Like It > Incompatibilities > Suspicion

Negative > Don't Like It > Other People > Meanness

Example Quotes:

“I was getting messages from complete strangers wanting to be my friend... What on earth is this person in Taiwan want to be my friend and where did they get the information for that? What were they after?”

“I've got all these people I don't know who want to be my friend and I hate that.”

Suggested Actions: Fake profile accounts should be moderated and/or deleted to reduce spam and security concerns.

InitRec 32 Provide and clarify moderation/report functionality**Relevant Theme(s):**

Positive > Control > Delete Content

Negative > Don't Like It > Other People > Annoying

Negative > Don't Like It > Other People > Meanness

Negative > Not Interested > Misconceptions > It Is Something It's Not

Negative > Other > Different Side to People

Example Quotes:

“I would seriously fear what people would put up on it if it were open for people to post. People can be really perverted and nasty.”

“A friend of mine had got a new dress and somebody had put a rude comment against it and I thought ‘Oh god, is this what Facebook is about?’”

Suggested Actions: Moderation was an important point for the participants. Users should have the ability to easily report messages/comments that are offensive, hiding the content from them and notifying a moderator.

4.4 Discussion

The process of analysis resulted in 32 initial recommendations for improving the inclusivity of SNSs from the perspectives of older adults. While similar suggestions have been identified in the literature, there are some notable differences in both the creation of the recommendations and in the suggestions themselves. One such difference is that many of the papers in the literature focus on technical requirements, whereas the recommendations presented here have a strong emphasis on both the aesthetics of the site and also the site behaviour (e.g. how the site handles privacy). These differences will be identified and discussed in more detail toward the end of the chapter.

4.4.1 Comparison of Recommendations to the Literature

The literature review described in Chapter 2 provided a number of suggestions for improving SNSs, similar to what has been created in this chapter. These will be compared to the recommendations provided by this research with similarities and differences being outlined.

Chou et al. [2013] conducted ‘think-aloud’ interviews with 5 adults over 55 years old in Taiwan while they used Facebook. Inconveniences were categorised before being turned into user requirements, which were then combined with requirements generated

Initial Recommendations	
InitRec 1	Reduce or avoid advertisements
InitRec 2	Avoid drastic and frequent changes to the site
InitRec 3	Use a simple layout on the site
InitRec 4	Avoid the use of technical terminology
InitRec 5	Follow accessibility guidelines
InitRec 6	Simplify navigation to controls (privacy and account settings)
InitRec 7	Avoid similar designs to sites where people hold negative assumptions
InitRec 8	Clarify if the site has a financial cost or is free
InitRec 9	Avoid targeting specific age groups
InitRec 10	Avoid using ‘small print’ or optional check-boxes for additional services/data sharing
InitRec 11	Avoid pressurising techniques, reminders or features to encourage a user to contribute to the site
InitRec 12	Keep the functionality of the site relevant
InitRec 13	Clarify implications of functions to prevent social blunders
InitRec 14	Avoid invasive functionality
InitRec 15	Reduce or avoid emails to the user by default
InitRec 16	Allow for controlled mass distribution of messages
InitRec 17	Provide support to explain/help/guide users through tasks
InitRec 18	Allow for session, or ‘off-the-record’ private messages
InitRec 19	Avoid unnecessary complexity when completing tasks or changing settings
InitRec 20	Focus on a specific purpose to engage users
InitRec 21	Provide control to delete content
InitRec 22	Provide simple control to delete account if desired
InitRec 23	Clarify and simplify privacy settings
InitRec 24	Allow simple control over what emails (if any) a user wishes to receive
InitRec 25	Allow partial anonymity if desired
InitRec 26	Allow simple removal of contacts
InitRec 27	Allow categorization of contacts
InitRec 28	Give users control of which contacts see what
InitRec 29	Reassure users that suitable security measures are in place
InitRec 30	Have increased privacy by default
InitRec 31	Reduce and moderate fake accounts
InitRec 32	Provide and clarify moderation/report functionality

Table 4.1: The list of initial recommendations.

from existing research.

There are areas of overlap between the user requirements of Chou et al. and the recommendations of this chapter. Both identify the importance of privacy, interface clarity, online support and considered terminology. Many of the requirements identified in the research by Chou et al. are technical, with technical requirements outnumbering user requirements two to one. While technical requirements are useful for identifying issues with SNSs, user requirements tend to focus more on the needs of the user and are generally more complex and open to interpretation. It is also worth noting that the requirements from Chou et al. have not been evaluated or validated, which would help illustrate how such requirements could be implemented or what impact they might have on a SNS.

The user needs of Karahasanović et al. [2009] identified the importance of user control and ease of use, while Goswami et al. [2010] found that privacy settings and report functionality were important. Brandtzæg et al. [2010] also found privacy and user control to be an important point, noting that default settings should be restricted and that control should be provided over content sharing. Similar to the work of Chou et al. [2013], none of these requirements or guidelines have been investigated further for validity and reliability.

While these suggestions for developers do exist, there is a lack of recommendations which match the issues identified in the literature in a broad and concise way. Secondly, no research has been conducted into the actual impact of the recommendations, such as how they could be implemented and the impact of them. There is a unique gap to fill by deriving detailed recommendations from issues and opinions regarding SNSs and evaluating these recommendations for approval and impact. By evaluating the recommendations using a comparative evaluation, researchers can begin to understand how much of an impact these changes can make, and subsequently promote them to developers, designers and stakeholders of SNSs.

4.4.2 Limitations

There are a few recognised limitations with the process outlined above. One such limitation is that the recommendations consist of potential solutions interpreted by the researcher from the analysis. This has the ability to introduce issues relating to the misinterpretation of the quotes and the subsequent generation of recommendations which older adults may not agree with. While quotes and themes are presented alongside each recommendation to demonstrate the justification for each, there is still no guarantee that older adults would actually agree with the recommendations.

In addition to possible misinterpretations, there is also no certainty that the use of such recommendations would actually improve SNSs from the perspective of older adults. It is possible that while some of the recommendations appear sensible at this stage, the implementation of such suggestions may do little to improve the sites.

Because of these limitations, further research needs to be conducted to improve the recommendations as they currently exist. Therefore, the next step of the research was to evaluate the individual recommendations for participant agreement (validity), as well as the overall impact of the initial set of recommendations (reliability). The research must identify whether or not utilising the recommendations results in an improvement to such sites.

4.5 Summary

To generate the initial version of the recommendations, two focus groups were held with Internet users who were over 60 years old. To analyse the focus group transcripts, themes relating to both positive and negative aspects of SNS usage were created and mapped out using a method based on thematic analysis. These maps identified main underlying themes, which led to the creation of the initial list of recommendations. Two existing papers were chosen due to their relevance in the specific field ([Lehtinen et al., 2009]; [Gibson et al., 2010]), which were then subjected to a further stage of analysis with the codes generated

from the transcriptions.

This enabled the consistency of these themes to be verified in relation to other research by exploring how well they generalise. A high amount of overlap appeared between the themes collected from the transcriptions and the findings of existing papers, which suggests that these themes generalise to beyond the small sample sizes of the focus groups.

Once the recommendations were generated from the codes, they were compared to the original quotes from the focus group to ensure that they had not been misrepresented in the process of converting from quotes to themes and then solutions. 32 initial recommendations were created to address barriers and opinions of SNSs from the perspective of older adults, covering areas such as privacy, design and site behaviour.

Chapter 5

Evaluation of Recommendations

This chapter outlines the next stage of the research, which focused on evaluating both the impact and validity of the recommendations identified in the previous chapter. In order to evaluate the impact of the recommendations, a SNS prototype was developed for use in a user study. The prototype website was designed in such a way that two User Interface (UI) versions could be applied, controllable via a hidden page on the site, thus allowing for a comparative evaluation to take place with two versions of the same site. One UI version (Control UI) was designed to be similar to Facebook, as of December 2012, while the other (Modified UI) demonstrated how that interface might be modified by the recommendations.

25 older adults participated in a comparative evaluation of both UI versions in a mixed-factorial design. An additional four participants attended, but were unable or unwilling to complete the comparative evaluation part of the study. Despite this, all 29 participants completed a Likert questionnaire which measures participant agreement with each recommendation. Techniques used to develop the prototype and the design of the subsequent user study are outlined in this chapter.

5.1 Introduction

After creating an initial set of 32 recommendations in the previous chapter, a study was proposed to evaluate these suggestions. This study involved both investigating the impact

of the overall set of recommendations and exploring the individual recommendations for participant agreement. In order to conduct this study, a SNS is required.

Conducting a controlled, comparative task-based study is an effective method for investigating the impact of the recommendations, for example, comparing a SNS which follows the recommendations to one which does not. Similar comparative methods have been effectively used to suggest improvements to the Facebook privacy settings [Lipford et al., 2008], identify improvements to Facebook's mobile application for older adults [Gomes et al., 2013], and to compare different file structure interfaces for older adults [Hollinworth and Hwang, 2010]. This method of conducting a comparative evaluation on SNS interfaces identifies a few challenges for this research, however. It is difficult to develop a control site which does not follow any of the recommendations, as this would require a conscious effort on the part of the developer to discard good design practice; SNSs commonly adhere to some, but not all, of the recommendations presented in Chapter 4. For example, a SNS may have a support section. One solution to this challenge is to investigate the impact that the recommendations may have on an existing SNS.

Having non-SNS users as participants allows the study to explore the impact that the recommendations may have on individuals who do not use SNSs, therefore investigating whether these solutions may attract and support new users to SNSs. Inviting existing Facebook users to participate on a comparative evaluation, for example, would have likely resulted in a skew toward the control system (Facebook) due to familiarity, and the study would not have suitably explored how SNSs can be made more acceptable and usable for those who have thus far not adopted this kind of technology. This raises further difficulties, however. Ethical considerations, such as a lack of consent from the participants' contacts and requiring participants to sign up to a service, became evident and the difficulties associated with conducting a controlled study on such a diverse site were also issues which surfaced in the early stages of planning a study.

There were a few methods of creating a system that were considered. Firstly, an Application Programming Interface (API) of a mainstream SNS could easily be used to

create a new UI to the existing service. While real-world relevance and applicability would be large, this method had a few downsides. Most SNSs and account-based web services limit what features can be accessed via an API, such as an inability to change settings. This rule is likely in place to prevent malicious applications from utilising the API to change settings without a user's approval, however, with issues such as privacy and email settings being frequently raised in the focus groups, it was recognised that this was too large a compromise to be chosen as the best method of conducting the study. In addition to this, participants would be required to sign up for an account in order to participate. This does not avoid the ethical concerns previously mentioned. Additional practical difficulties, i.e. choosing between new users with no existing contacts or established users with prior experiences, resulted in other methods being investigated.

The solution which was eventually identified as the most suitable method resulted in a combination of these options. An offline likeness to Facebook was developed, providing the main functionality with full development and administrative control over the system. Creating a custom purpose prototype allows for the application of alternative interfaces, and allows for the attempted simulation of the barriers experiences faced by potential users of the site. This method also avoids the previously discussed ethical issues; participants would not be required to sign up for any services and real friends or contacts would not be involved in the study. Since participants would communicate on the prototype with simulated users representing real-life friends and family, this method does however come at the cost of real-world applicability. Additionally, not every feature was implemented into the prototype due to both developmental constraints of implementation and the complexity of the features (e.g. 'chat' (instant messaging), uploading photographs and sharing content with specific people or lists). Further information about features that were included can be found on Table 5.1 in Section 5.2.2.

This study should therefore be viewed as a case study into the impact of the recommendations on a theoretical site which shares many of the same functionality and design aspects as Facebook, as is the case with many other SNSs, rather than an evaluation of

```
<div id="logo">
  <% if UI_Cookie == "System A" %>
    <image source = "SystemA.png">
  <% else if UI_cookie == "System B" %>
    <image source = "SystemB.png">
  <% end %>
</div>
```

Figure 5.1: Example pseudo-code from the template file. If the UI cookie is set to System A (Control UI), then the System A logo is included in the HTML. If the cookie is set to the System B (Modified UI), then the System B logo is displayed.

Facebook itself.

5.2 Development

The SNS prototype has two separate user interface (UI) versions, the ‘Control UI’ and the ‘Modified UI’. The Control UI was designed to be a strong resemblance to Facebook (as of December, 2012) in both design and behaviour, while the Modified UI adapts the Control UI to follow some of the recommendations, as will be outlined in Section 5.2.2.

The prototype was developed using the Ruby on Rails framework¹. While only one prototype was developed, it was capable of rendering both UI versions depending on which was selected in a browser cookie. The UI version could be changed via a hidden page on the website which could change the value of this cookie. The computer running the application would act as the server via ‘localhost’, in the same way that server software can be installed on home computers and accessed without an Internet connection. When this chapter refers to the ‘server’, it is referring to the server software on the PC which is running the prototype. All data was confined to the machines in question, and was not processed by an actual, physical, server computer.

When each page loads, the server checks the browser cookie to know which UI version should be active, as demonstrated on Figure 5.1. In this figure, code starting with `<%` is

¹<http://rubyonrails.org/>

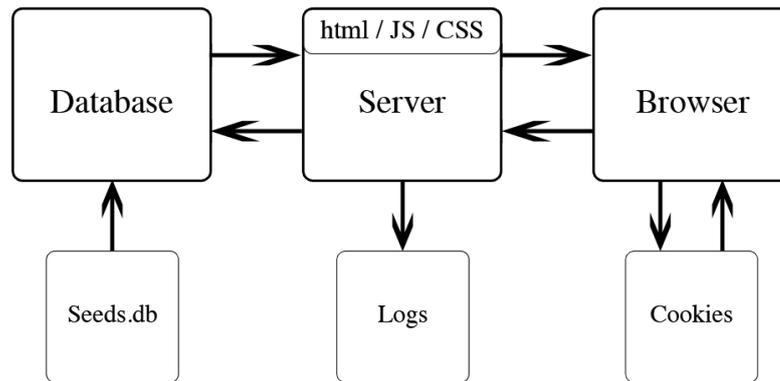


Figure 5.2: The system architecture.

Rails code, whereas code starting with only `<` is HTML. The HTML file is then generated by the server to only include the appropriate code for the current UI version. In this example, only the System A image would be included in the HTML file. The generated files are then rendered by the browser. Each UI additionally has a specific CSS and JavaScript file which is included in addition to a global version that is used by both interfaces. A simplified model of the system architecture can be seen in Figure 5.2.

5.2.1 Replicating Site Behaviour

A number of measures were taken to replicate the design and behaviour of Facebook in order to provide the participants with a fluid and realistic SNS experience. These range from generating simulated other users, dynamic advertisements, dynamic pages, database manipulation and some hard-coded functionality.

Pre-Generated Content

Each computer running the prototype contains the system database, which is reinitialised and repopulated using a ‘Seed’ file for every participant. The generation of this content ensures that there are 16 (simulated) other users, 20 status updates/messages, 13 comments and 17 ‘liked’ items. This remains consistent for every participant regardless of deletions or modifications to the database by the previous participant.

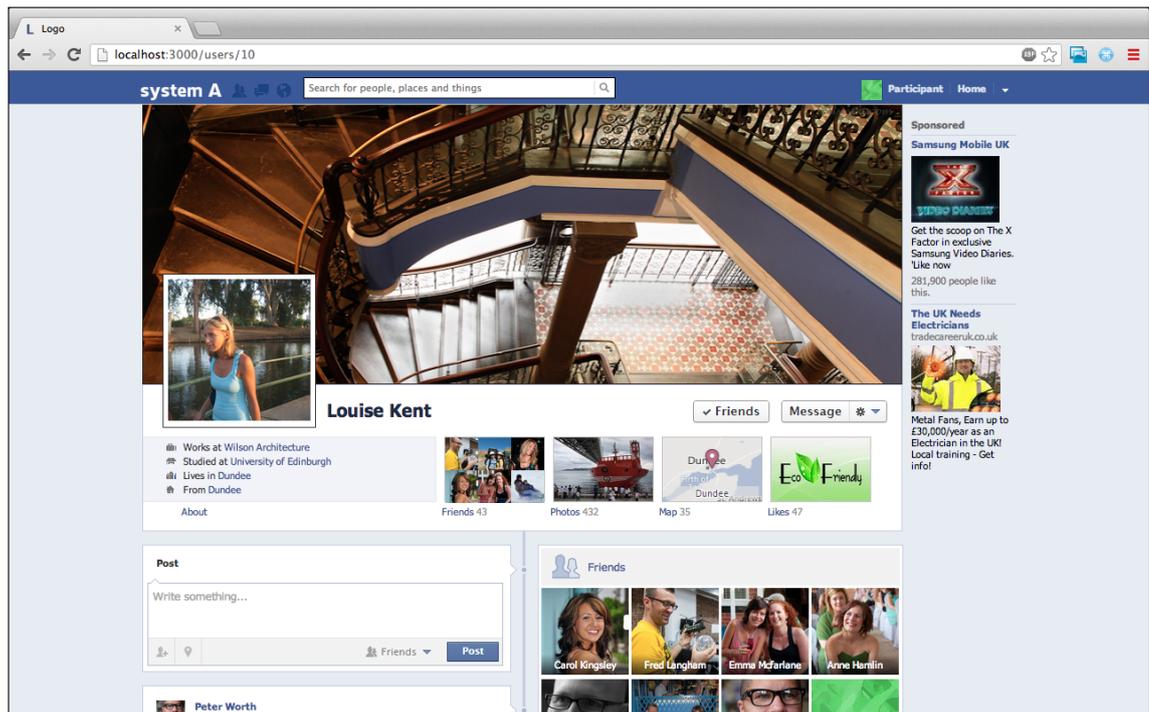


Figure 5.3: Screenshot of one user profile generated from the ‘Seed’ file. The Control UI (System A) is the active interface.

For the pre-generated users, names were randomly generated from a US name generator and personal information was made up. Both profile pictures and cover images were found using the Flickr search tool with a filter which returned only images licensed under Creative Commons. All content from the users, such as statuses, replies and likes, were written to create the impression of an interweaving community of people for the study.

12 advertisements (adverts) are also created using the seed file, and either two or four (depending on the page) of which are randomly selected for each page load on the Control UI. These were real adverts on Facebook, including a mix of well known and obscure companies. One limitation of this aspect of the study, however, is that since Facebook uses targeted advertising, it is possible that some of the adverts would not normally be seen by an older adult if they were to sign up to the actual site. It would be difficult to implement and perhaps morally questionable to simulate targeted advertising in a study with several individuals due to the large amount of personal information that are often used in selecting which advert to display.



Figure 5.4: The 'Update status' box before being clicked.

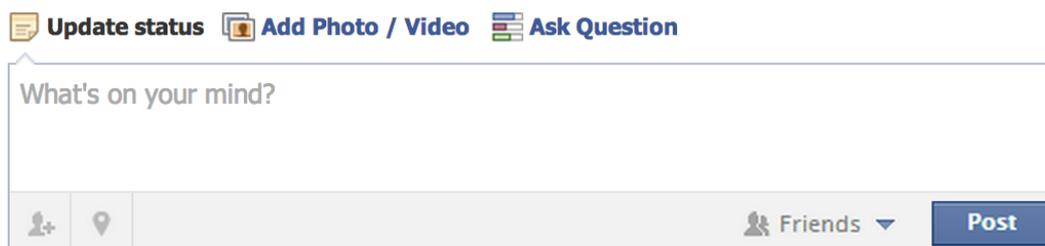


Figure 5.5: The 'Update status' box after being clicked. jQuery is used to modify the size and display the lower box without reloading the page, simulating Facebook behaviour.

Interacting With The Site

In addition to recreating the design of Facebook, behavioural aspects were also considered and implemented. When a participant interacts with a page, the browser makes use of jQuery² to replicate aspects of Facebook's behaviour. jQuery is a JavaScript library which allows client-side scripting and direct manipulation of HTML elements without relying on reloading the page. This can be triggered via either global JavaScript events or UI-specific events.

An example of this in practice is seen in Figures 5.4 and 5.5. When a user loads the homepage, the 'Update status' box appears as it is on Figure 5.4. When the user clicks on the text-box, a jQuery event is triggered to alter the HTML, resizing the height of the text box, and also displaying a previously hidden bottom bar. After this script has been executed, the box resembles that seen on Figure 5.5 and the user can now enter text into the box and click 'Post' to update their status. This replicates how the window behaves on Facebook, which also makes use of jQuery for similar user interactions.

²<http://jquery.com/>

Similar examples of the usage of jQuery are with drop-down boxes. Clicking buttons which trigger a drop-down box makes use of jQuery in order to cause hidden HTML elements to appear. The page then shows the drop down box with the newly available options. Additionally, jQuery was used in the 'Settings' page to provide tabbing functionality, choosing which tab to display based on what tabs have been clicked.

Interacting With Content and Users

Since the prototype uses a database rather than hard-coding, content can be added or removed, creating a more dynamic and realistic website. New content added by the participant will remain on the website until deleted (or until the database is cleared at the end of the session) and existing content can be reported, hidden or deleted, which removes it. The same can be done with contacts. After 'unfriending' a contact, that unfriended user no longer shows up when traversing the participant's friends list.

Searching For Users

Search functionality was also implemented using jQuery. Entering text into the search box on any page would display a drop down box which displayed a maximum of three users. The three users that were displayed were all contacts of the participant who had the entered characters in their name. For example, entering 'ma' may display a user called 'Emma' and a user called 'Mark'. The script checked which contacts the user still had and used auto-predict functionality to display predicted contacts. The predicted contacts list was updated after each new character was entered.

Changing Settings

While the active options in the Settings page didn't do anything to actually alter the site's behaviour, the options selected were stored in a new cookie so that returning to the settings page showed their updated choice, rather than the default. This means that if a participant changed their privacy settings from 'Public' to 'Friends only', then this would remain the

Pages	Functionality
<ul style="list-style-type: none"> ● Home page ● Profile (own) ● Profile (Friend) ● Friends list ● Privacy Settings ● Account Settings 	<ul style="list-style-type: none"> ● Create a Status ● Report a Status ● Delete an owned Status ● Hide a Status ● ‘Like / unlike’ a Status ● Reply to a Status ● ‘Like / unlike’ a reply ● Delete an owned reply ● Search for a user ● ‘Unfriend’ a user ● Change privacy setting ● Change email setting ● Deactivate an account

Table 5.1: The pages and functionality implemented into the prototype.

‘active’ default if the user was to revisit that page. This was the case for both privacy and email Settings.

The implementation of these features provided a dynamic and realistic environment when using the prototype. It was the intention of the prototype, particularly with the Control UI, to be as close a likeness to Facebook as possible, and these subsequent considerations were implemented to replicate the behavioural and design aspects of the site. Table 5.1 shows the full list of pages and functionality created.

5.2.2 Differences Between the Two User Interfaces

Some of the recommendations are currently met by Facebook, and thus were implemented on the both UI versions. For example, overly technical terminology is avoided on both the Control UI and the Modified UI. Similarly, while the majority of users are younger, Facebook does not specifically target age groups in the same way that, for example, some SNSs do for adults over 65.

The Modified UI attempted to make use of the recommendations in several ways. Firstly, visual aspects were slightly altered including a removal of adverts, collapsing the

Change	Recommendation(s)
Removal of advertisements from all pages.	InitRec 1
'Pages' and 'Apps' moved to under 'More' on left navigation bar of the home screen.	InitRec 3, 12
Changed the colour of the header	InitRec 7
Header size increased from 37px to 67px	InitRec 3, 6
Font of content slightly increased from 11px / 13px to 12px / 14px	InitRec 3
Drop down box for settings pages labelled with 'Your Settings'	InitRec 6
Add text to clarify who will be able to see a new status update	InitRec 13
Location and tagging removed when creating a status update	InitRec 12
Default frequency of email notifications set to least frequent option	InitRec 15
Default privacy setting set to 'Friends'	InitRec 30
Buttons to change privacy settings moved to the top of the privacy settings page	InitRec 19, 23
'Quick Settings' tab added to settings page which contains email and privacy settings	InitRec 19, 23, 24
Removal of 'Subscribers', 'Apps', 'Mobile', 'Payments', 'Advertisements' and 'Gifts' tabs from the settings page	InitRec 3, 12, 23
Hovering the cursor over content makes the report and delete/hide box appear directly	InitRec 19, 21, 32

Table 5.2: Table showing the changes made to the Modified UI and the relevant recommendation(s).

'Pages' and 'Apps' links on the left navigation bar under the 'More' drop down box, a slightly increased font size of content and an increase in size and change of colour for the blue header.

The change of header was, firstly, to draw more emphasis to the top navigation panel where settings can be accessed, and secondly to allow participants to easily differentiate the two UI versions. In addition to this, access to the settings pages were clearly labeled by adding 'Your Settings' beside the white arrow on the top navigation panel, whereas on the Control UI, only the white arrow could be used to access the settings.

In order to help avoid 'social blunders', the 'Update Status' window was altered. While the Control UI provides a drop-down window showing whom the status will be visible

to, text was added to clarify this. Additionally, buttons for including location and tagging were also hidden to avoid what may be seen as unnecessary functionality and focus on the core features necessary for communication.

The reporting, deleting and hiding of content functionality was altered to remove complexity. On the Control UI, hovering the cursor over a contents area brings up a box to the right of that content with an arrow. Clicking that arrow makes a drop-down box appear, with the necessary buttons to remove, delete or hide content. On the Modified UI, the box with the arrow is removed and hovering over the content makes the full drop-down list of features appear.

More information about the recommendations that are adhered to on both the Control UI and the Modified UI can be seen in Table 5.2. Since the system is a simplified representation, some of the more sophisticated features are not implemented and therefore the Control UI may not replicate some of these, such as creating specific lists of people who can view information from a profile. In such cases, the Modified UI also did not have the functionality to meet this criterion.

Some of the recommendations were not implemented for either UI version due to difficulties implementing or representing the feature within this study. For some, it was overly challenging to simulate the true implications in an hour-long session, such as avoiding frequent changes to the site or the consequences of email and privacy settings (although the default options were changed). One recommendation suggested the implementation of a support section of the site, which was considered and then avoided since it would potentially make it overly easy to complete tasks and detract from findings of the study.

5.3 Method

The aim of this study was firstly to investigate the impact of the recommendations as a collection (in terms of perceived usability, task completion rates and user preference versus the control UI), and secondly, to evaluate each recommendation for participant

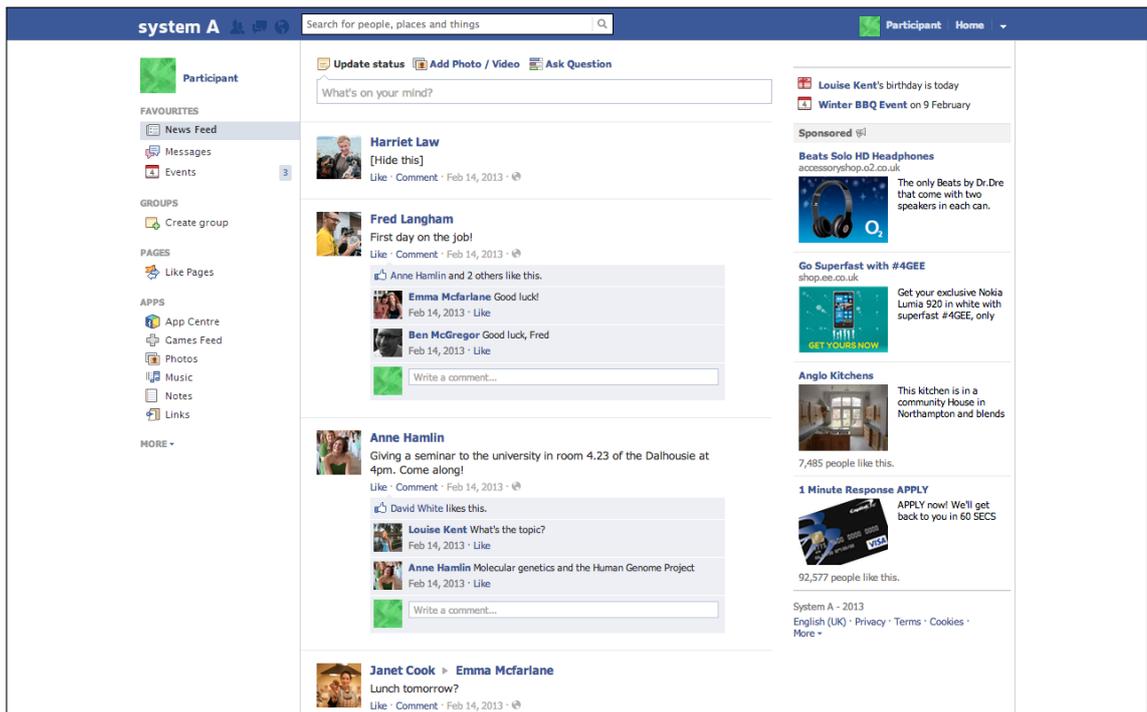


Figure 5.6: The Control UI Homepage.

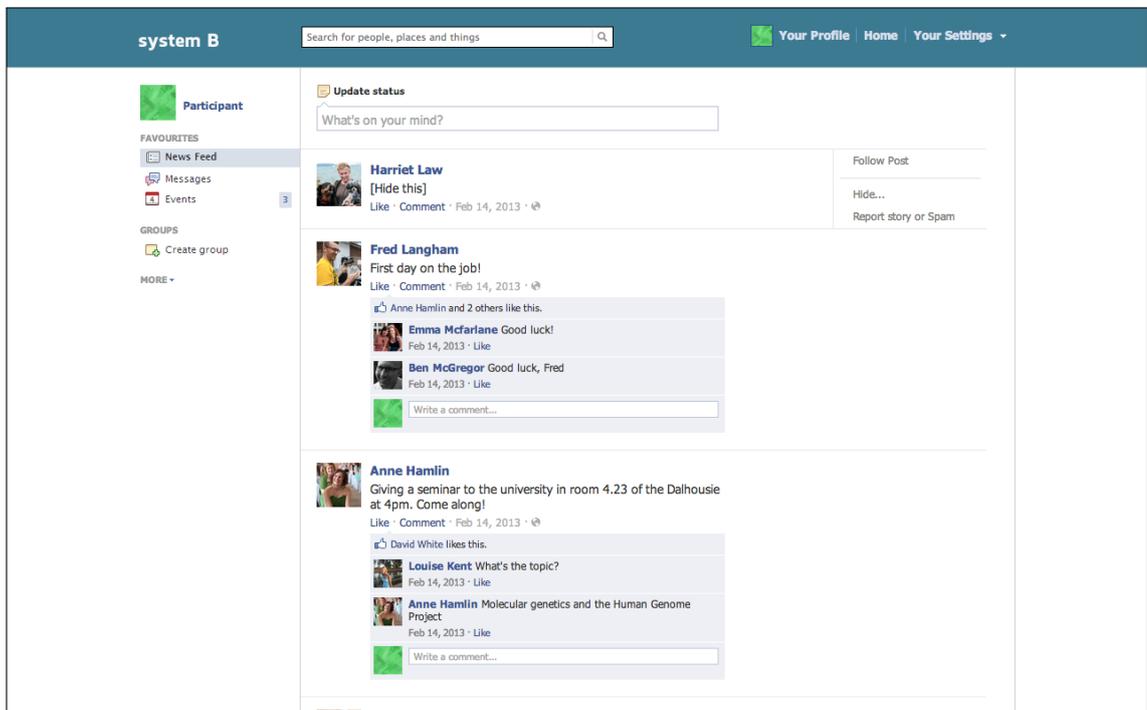


Figure 5.7: The Modified UI Homepage.

agreement. For the first part of this study, the prototype outlined previously would be used in a comparative evaluation, with the two UI versions representing a control version (Control UI) and a version which made use of the recommendations (Modified UI). These two UI versions are presented to the participants as 'System A' and 'System B' respectively, removing any reference to one version being an improvement over the other and reducing bias which may arise as a result of this naming convention.

30 participants, who were all non-SNS users but Internet users with no severe cognitive impairments, were recruited from the SiDE user pool [Watson et al., 2010] to partake in the study. None were participants of either focus group. Of the 30 participants, one did not attend and three did not wish to complete the comparative evaluation part of the study. One participant additionally could not complete the comparative evaluation due to having a severe visual impairment. While having no visual impairment was a prerequisite for this study, this participant's impairment was not listed on the SiDE user pool and was not discovered during the recruitment process. The four participants who did not, or could not, complete the comparative evaluation wished to complete the questionnaire to evaluate the recommendations. This resulted in 25 (aged 64-86, $M = 71.2$, $SD = 5.07$) participants for the comparative evaluation and 29 (aged 64-89, $M = 72.3$, $SD = 6.30$) for the questionnaire. Participants were given a £10 gift voucher for participating and ethical approval was provided from the School of Computing.

The study was conducted within a private testing lab under controlled settings. Two computers were set up on a table in the corner of the room. Each computer had its own monitor, mouse and keyboard which were positioned perpendicular to each other. The computers were placed perpendicular to each other to prevent direct visual comparisons between the two UI versions. While the participant could not view both screens at the same time, the researcher could see both without moving and potentially distracting the participant.

The two PCs had identical hardware and accessories, ensuring that bias could not arise from differences in equipment, such as monitor size or computer response speed. The



Figure 5.8: The two computers in the lab used for the study.

computers had both been formatted and set up with a hard-drive clone used for new systems within the computing department prior to the study. All additional software required for the prototype to run was then installed on both computers, including Windows 7, Ruby 1.9.3., Ruby on Rails 3.0.1. and the Chrome browser. The computers were set up to contain all necessary software, code and database files independently and locally, meaning if a comment was deleted on one UI version, it would exist on the second UI version until also deleted there. The two systems therefore did not need to communicate with a central server or with each other in order to run, and all functionality was available with no access to the Internet. A picture of the lab and the computers can be seen in Figure 5.8.

For each participant, the computer running each version of the UI remained the same for the duration of the session. Participants could therefore associate each UI with a physical computer to make it easier to differentiate between ‘System A’ and ‘System B’ when later answering questions relating to that UI version. Each computer had an

Task
1 Navigate to Emma Mcfarlane’s profile page and leave a message on her profile.
2 Navigate to your “Privacy Settings” and change your privacy setting to “friends”.
3 Find the status from David White which says “[Report this comment]” and then Report this message.
4 From either the Home page or your profile page, create a “status” containing some text. The text can be anything.
5 From either the Home page or your profile page, find the status from Peter Worth to you (Participant), click the “Like” link and then add a “comment” to this status.
6 Go to your “Email Settings” and change your email settings to “Important notifications about you or activity you’ve missed”.
7 Find the status from Harriet Law that reads “[Hide this]” and Hide it.
8 Delete the status you posted in Task 4.
9 Delete the status from Peter Worth to you.
10 Navigate to Fred Langham’s profile page and “unfriend” him.
11 Go to your “Account Settings” and click on “delete/deactivate your account”.

Table 5.3: The tasks which participants attempted in the study.

identical, but separate, prototype database which was reinitialised and repopulated using the ‘Seed’ file for every participant. This ensured that the pre-generated content on each system remained consistent for every participant, regardless of deletions or modifications of content during prior sessions with other participants.

For the comparative evaluation, participants were asked to attempt 11 tasks on both UI versions, outlined in Table 5.3. These represented tasks that were identified in the earlier focus groups as important for the participants to be able to do. These ranged in complexity and contained commonly performed tasks (such as writing a status update and replying to a comment), less common tasks (e.g. Reporting a comment and ‘unfriending’ a contact) and miscellaneous tasks (e.g. Changing the frequency of which the site emails the user, changing privacy settings and deactivating/deleting the account). All tasks could be completed on both UI versions, however, the steps required slightly changed depending on the UI version used.

Participants attempted each task on one of the two UI versions before moving on to

the second UI. The order of which UI version the task started with alternated for each participant and each task. So for example, a participant may attempt task 1 on the Control UI and then the Modified UI. The participant would then attempt task 2 on the Modified UI and then the Control UI. This alternating order of completing tasks had two benefits. Firstly, this ensured that the study was counterbalanced and that practice effects were mitigated, since each participant would attempt roughly half (5 or 6) of the tasks starting on the Control UI and the remaining tasks starting on the Modified UI. Secondly, the amount of participant movement required between the two computers was effectively cut in half (over always starting each task on the same system), since each task always begins on the computer that the participant finished the last task on. In addition to these counterbalancing measures, the computers running each UI version were swapped after every seventh participant. This was an attempt to counter any bias that may arise as a result of the positioning of one of the two computers (e.g. near the window).

The participants were encouraged to attempt the task on both UI versions. If the participant could not complete the task on the first version, they were encouraged to try on the other. If the participant could not complete the task on either UI version, or had completed it on one but could not on the other, they were shown how to complete the task. This was to prevent the participant from becoming frustrated that they could not complete the task. It was noted by the researcher, however, that this task on the appropriate UI version was not completed by the participant.

Each participant was briefed at the start of the study to emphasise that it was the UI versions, not themselves, being evaluated. Participants were encouraged to ask questions if any occurred. This was an opportunity for participants to ask about the meaning of any of the tasks, since it was not known how much the participants knew about the concepts on SNSs. It was made clear, however, that the researcher may not be able to answer questions relating to the completion of tasks on the prototype. Few questions were asked, however, as participants completed the study. All participants were debriefed at the end of the study, outlining the exact purpose of the research.

5.3.1 Data Collection

After each task was completed on both systems, participants were provided with a single 5 point Likert question on paper asking which system (UI version) they preferred completing the task on. This Likert item ranged from “System A greatly” (Control UI) to “System B greatly” (Modified UI) with a neutral point of “No Opinion”. This resulted in eleven of these answers for each participant (one for each task) for the study. After all tasks were attempted, participants completed two System Usability Scale (SUS) questionnaires [Brooke, 1996], which each provided a 0-100 score relating to the usability of the corresponding UI version. In addition to this, it was noted whether a participant successfully completed each task, allowing completion rates to be investigated, page data was recorded from the system logs, and observational notes were taken when problems were encountered.

After all tasks had been attempted on both UI versions, a final Likert questionnaire was completed by each participant to evaluate the individual recommendations. Only recommendations with a median response that demonstrates agreement would be considered verified and accepted. Those with a median response that demonstrates disagreement or no opinion with the recommendation would be subsequently rejected. One recommendation (shown on Table 6.6 as recommendation InitRec 5) which promotes the use of accessibility guidelines was not evaluated in this questionnaire due to a strong existing body of support for accessible design, as seen in the WAI-AGE guidelines³. It would also be difficult wording a technical question in such a way that the participants would fully understand the implications.

Measures were again taken to reduce bias and to balance the study. Questions/statements were worded in a neutral, non-person perspective. An example of this is the following statement: “Users should be able to reverse becoming a contact of another user on the system”. There are two additional non-neutral perspectives that could have been used instead of this statement; A first person perspective (i.e. “You should be able to reverse becoming a contact of another user on the system”), and a second-person perspective (i.e.

³<http://www.w3.org/WAI/older-users/>

“Users should be able to reverse becoming a contact of yours on the system”). It was expected that a change in perspective may alter the opinion entirely on the statement as a participant may be happy to remove other users as contacts on such a system but dislike the idea of being removed themselves by others. As a result of this, a neutral perspective was used for all statements.

As an additional method of balancing the questionnaire, an equal number of ‘Agree’ and ‘Disagree’ answers are expected for all recommendations to be supported by the participants. In order to achieve this balance, a method of reversing the question is used, where a positively worded question becomes a reversed (negatively worded) question (e.g. should/shouldn’t), to ensure that an even mix of positive and reversed questions is asked. Using this balancing method, however, means that for some questions it is not possible to assume that the recommendation has been supported, rather, it demonstrates that the reversed version of the recommendation is disagreed with. This is countered by creating two questionnaires, where each question is the reversed opposite (positive/negative) on the opposing questionnaire, resulting in the average of both standard and reversed questions for each recommendation being used to evaluate support. This avoids patterns which can be detected by participants and bias results. The questions in each questionnaire version can be seen in appendices D and E on pages 270 and 272.

5.4 Summary

In this chapter, the methods used to evaluate the recommendations are outlined. A SNS prototype was developed and subsequently used in a user study. This prototype, developed in Ruby on Rails, had the ability to load two User Interface (UI) versions. One version (Control UI) was a simulation of Facebook and acted as the control system. The other (Modified UI) attempted to simulate how Facebook may be if the recommendations were followed.

25 older adults participated in a comparative evaluation of both UI versions. This

Participant	Gender	System Order	Questionnaire Version	System Position
1	F	A/B	1	A/B
2	M	B/A	1	A/B
3	F	A/B	2	A/B
4	F	B/A	2	A/B
5	M	A/B	1	A/B
6	F	B/A	1	A/B
7	F	A/B	2	A/B
8	F	B/A	2	B/A
9	F	A/B	1	B/A
10	M	B/A	1	B/A
11	F	A/B	2	B/A
12	M	B/A	2	B/A
13	M	A/B	1	B/A
14	M	B/A	1	B/A
15	M	A/B	2	A/B
16	M	B/A	2	A/B
17	M	A/B	1	A/B
18	F	B/A	1	A/B
19	M	A/B	2	A/B
20	F	B/A	2	A/B
21	F	A/B	1	A/B
22	F	B/A	1	B/A
23	M	A/B	2	B/A
24	M	B/A	2	B/A
25	M	A/B	1	A/B

Table 5.4: An outline of all counterbalancing factors in place. A = Control UI; B = Modified UI.

involved completing tasks on each UI version in a counterbalanced order. After each task was attempted, participants answered a questionnaire asking which UI version they preferred completing that task on. Whether the participant completed the task on each version was noted by the researcher. Additionally, participants completed a System Usability Scale (SUS) for each UI version after attempting all of the tasks. This would provide a usability score for each version, allowing the impact of the recommendations as a whole to be evaluated.

29 participants then completed a Likert questionnaire which measures participant agreement with each recommendation. There were two versions of the questionnaire, with 12 or 13 of the participants completing each version. Each questionnaire was a reversed version of the other, allowing each questionnaire to have an even mix of positively and negatively worded (reversed) questions, with both 'Agree' and 'Disagree' answers required to support the recommendations.

The decisions made in the development of the prototype system and the design of the study are outlined in this chapter. The results of this user study will be presented in Chapter 6.

Chapter 6

Results

This chapter presents and analyses the findings from the evaluation outlined in the previous chapter. Nine aspects are investigated: The System Usability Score (SUS), the individual SUS questions, the UI preference rates, overall task completion rates, task completion rates for the first attempt, recorded system data analysis, accepted recommendations from the unpolarised questions, the overall accepted recommendations and observational notes. Statistical testing is used in most cases to compare the UI version modified by the recommendations (Modified UI) to the UI version which is a likeness to Facebook (Control UI). The tests used and the justification for using these tests are included alongside the results.

6.1 Introduction

In the previous chapter, an evaluation of the recommendations was outlined, alongside a developed prototype. This user study investigated both the impact of the recommendations as a set and additionally evaluated each recommendation for user agreement. The results of this study are presented and analysed in this chapter.

6.2 On the Use of Statistical Testing

Statistical testing allows us to measure and test the probability of experimental results being down to chance. The importance of choosing the right statistical test for analysis has been discussed recently within the HCI community [Cairns, 2007, Kaptein et al., 2010, Kaptein and Robertson, 2012, Martens, 2012, Robertson, 2012], and many of these papers have explored and reported on the widespread occurrence of the incorrect use of statistical testing in HCI. In order to elaborate on the tests used and the reasoning which led to the selection, a few concepts must be briefly outlined and discussed.

6.2.1 Parametric and Non-Parametric Tests

The terms ‘parametric’ and ‘non-parametric’ were first outlined to differentiate between tests that make assumptions about the parameters of the population distributions [Wolfowitz, 1942]. Parametric tests require assumptions to be met before that test can be used, otherwise the validity of the results can be called into question [Kaptein et al., 2010]. In circumstances where data does not meet the assumptions of a parametric test, many tests have non-parametric equivalents which can be used. Non-parametric tests do not require these assumptions to be met, however, as described by Carifio and Perla [2008], they are less sensitive and less powerful as parametric tests, making them more likely to miss weaker or emerging findings.

Assumptions of parametric tests can mean slightly different things for each test used, but Field [2009] outlines the four general assumptions as follows:

- Normally distributed data
- Homogeneity of variance
- Interval or Ratio level data
- Independence of data

Examples of these differences include the distributions tested for normality (for independent t tests each group must be normally distributed, whereas for paired t tests it is the differences between groups), different requirements of homogeneity of variance (the independent t test makes this assumption, while the paired t test does not) and different meanings of the independence of data [Field, 2009]. Violations of the homogeneity of variance and non-normal data can often be corrected, however, no such corrections were required for these results.

In order to determine the correct statistical test to use, it is at times necessary to categorise the data into levels. Stevens [1946] outlines four levels which can be ranked in order of precision from lowest to highest as: Nominal, Ordinal, Interval and Ratio. Considering the levels of data can prevent the incorrect use of statistical testing by ensuring that the data meet the required assumptions of the test. This is a particularly relevant assumption due to the use of Likert scales. Individual Likert items are categorised as ordinal, and are therefore unsuitable for parametric tests, however as will be outlined, there exists a further debate about how collections of Likert items should be treated.

For an example of consulting the assumptions of parametric tests in practice, consider the paired (or repeated measures) t test. If the assumptions of this parametric test are not met, such as ordinal level or non-normally distributed data, the non-parametric equivalent (a Wilcoxon signed-rank test) should be used instead. Other parametric / non-parametric equivalents used in these results include the independent t test (Mann-Whitney U test), and the one-way repeated measures ANOVA (Friedman test).

Each statistical test has been considered for this research in order to reduce the potential risk to validity. The reasoning behind the decisions taken are included alongside the results below.

6.3 Results

6.3.1 System Usability Scale Scores

As an example of why the previous concepts are important to distinguish, the decisions taken to use certain statistical tests require justification. An example of this is the analysis of System Usability Scale (SUS) scores. Brooke [1996] outlines the SUS alongside a scoring method which provides a 0-100 score representing the subjective usability of a website or software, where higher scores represent better usability. The study outlined in the previous chapter generates 2 SUS scores (one for each UI version) per participant. The SUS consists of ten Likert items, which are individually categorised at the ordinal level. Since individual Likert item responses are ordinal, any parametric test which requires interval level data or higher cannot be used. Carifio and Perla [2008], however, argue that the summation of a Likert scale (multiple Likert item responses, described by Carifio and Perla as over eight questions as a rule-of-thumb) generates interval level data. Since Brooke [1996] outlines a scoring method with the SUS, providing a single value generated from the ten individual Likert items, as per the argument of Carifio and Perla [2008] the data is now at the ratio level. Parametric tests can therefore be used if the other assumptions of the test are met.

A Shapiro-Wilk test of normality confirmed that the difference between the two sets of SUS scores from the evaluation were normally distributed ($p = .343$). Using a paired measures t-test on the two mean SUS scores for each UI version, it can be shown that there was a statistically significant difference in the SUS scores for the Control UI ($M = 44.4$, $SD = 12.651$) and the Modified UI ($M = 56.0$, $SD = 15.360$); paired $t(24) = -3.756$, $p = .001$, $d = 0.75$. While statistically significant, the difference between the SUS scores for the Modified UI and the Control UI is fairly modest. Despite this, the statistical improvement of the Modified UI over the Control UI (in relation to the SUS scores) demonstrates a step in the right direction and an average increase of over ten points on the System Usability Scale.

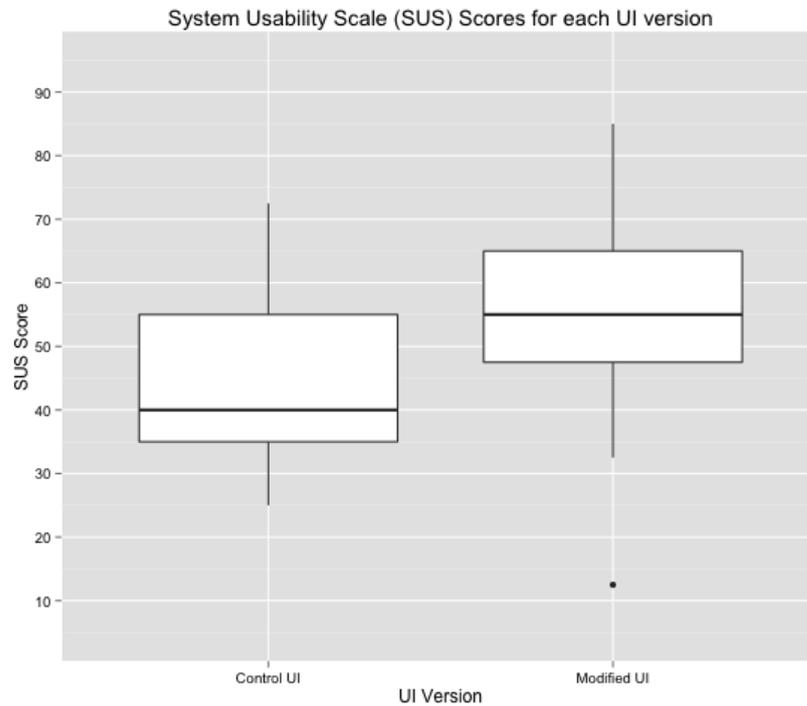


Figure 6.1: Boxplots for the SUS scores for each UI version.

6.3.2 SUS Analysis of Individual Questions

While statistical tests can be conducted on the Likert scale scores from the overall SUSs, individual Likert item responses can additionally be consulted to gain insights into the different components of the questionnaire, and compare the answers to individual questions for each UI version. Since individual Likert items are now being used, the level of data is ordinal and an assumption of the paired t test is not met. Therefore, the Wilcoxon signed-rank test is used to compare the UI versions.

Table 6.1 shows the median responses to each question for each of the two UI versions alongside the first and third quartile responses. Additionally, a Wilcoxon signed-rank test on each of the two responses per question can be seen on Table 6.2. Seven of the ten tests confirm a statistically significant difference between the responses. Of those seven questions, five have a different median response for each system (questions 1, 2, 3, 8 and 9). The remaining two questions (questions 5 and 7) are significantly different on each UI version while having the same median response option, as can be seen in Figures 6.2 and

Question	Control UI Median	Control UI Quartiles (Q1 - Q3)	Modified UI Median	Modified UI Quartiles (Q1 - Q3)
1. I think that I would like to use this system frequently	Disagree	(1 - 2)	Agree	(1 - 3)
2. I found the system unnecessarily complex	No Opinion	(1 - 3)	Disagree	(1 - 2)
3. I thought the system was easy to use	Disagree	(1 - 3)	Agree	(1 - 3)
4. I think that I would need the support of a technical person to be able to use this system	No Opinion	(1 - 3)	No Opinion	(1 - 3)
5. I found the various functions in this system were well integrated	No Opinion	(1 - 2)	No Opinion	(2 - 3)
6. I thought there was too much inconsistency in this system	No Opinion	(2 - 2)	No Opinion	(1 - 2)
7. I would imagine that most people would learn to use this system very quickly	Agree	(2 - 3)	Agree	(3 - 3)
8. I found the system very cumbersome to use	No Opinion	(1 - 3)	Disagree	(1 - 2)
9. I felt very confident using the system	Disagree	(1 - 2)	No Opinion	(1 - 3)
10. I needed to learn a lot of things before I could get going with this system	Agree	(2 - 3)	Agree	(1 - 3)

Table 6.1: Table showing the median responses and the first (Q1) and third (Q3) numerical quartiles of the individual Likert questions in the System Usability Scale for each UI version. Quartiles have not been rounded to the nearest participant. For Q1 and Q3, 0 = 'Strongly Disagree', 1 = 'Disagree', 2 = 'No Opinion', 3 = 'Agree', 4 = 'Strongly Agree'.

Question	Wilcoxon Signed-Rank Test
1. I think that I would like to use this system frequently	Z = -2.592, p = .010*, r = -.367
2. I found the system unnecessarily complex	Z = -2.496, p = .013*, r = -.353
3. I thought the system was easy to use	Z = -2.464, p = .014*, r = -.348
4. I think that I would need the support of a technical person to be able to use this system	Z = -1.518, p = .129, r = -.215
5. I found the various functions in this system were well integrated	Z = -2.191, p = .028*, r = -.310
6. I thought there was too much inconsistency in this system	Z = -1.058, p = .290, r = -.150
7. I would imagine that most people would learn to use this system very quickly	Z = -2.359, p = .018*, r = -.334
8. I found the system very cumbersome to use	Z = -2.251, p = .024*, r = -.318
9. I felt very confident using the system	Z = -2.636, p = .008**, r = -.373
10. I needed to learn a lot of things before I could get going with this system	Z = -1.155, p = .248, r = -.163

* p < .05; ** p < .01; *** p < .001

Table 6.2: Table showing the results from a Wilcoxon signed-rank test between the two UI versions per question of the System Usability Scale.

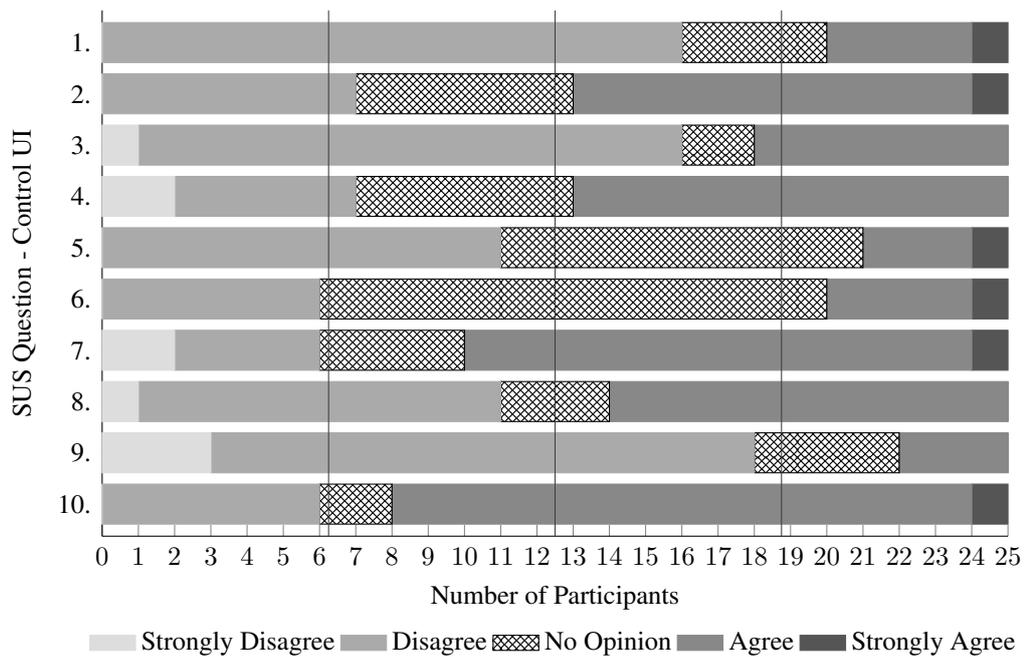


Figure 6.2: Stacked bar chart showing Likert responses to the individual SUS questions on the Control UI. Lines are included for the median (n = 12.5), and quartiles 1 (n = 6.25) and 3 (n = 18.75).

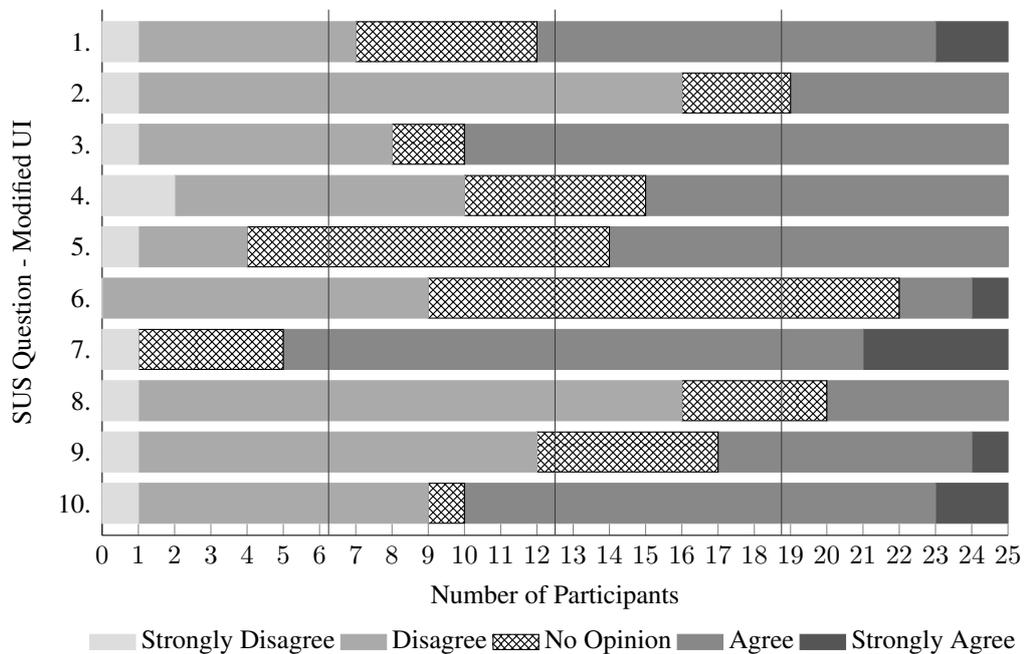


Figure 6.3: Stacked bar chart showing Likert responses to the individual SUS questions on the Modified UI. Lines are included for the median (n = 12.5), and quartiles 1 (n = 6.25) and 3 (n = 18.75).

6.3.

The individual Likert questions of the two SUS scales allow for more specific comparisons into the different components of the SUS's usability model over just the score alone. For example, different responses to question 1 may suggest whether or not a participant would consider using such a system. By comparing the median response for each UI version, an understanding of what components of the SUS participants found different can be gained.

The median responses to question 1 suggest that participants agreed that they would like to use the Modified UI regularly, but this was not the case with the Control UI, which received a median response of 'Disagree'. Similarly, responses to question 3 suggest that participants generally agreed that the Modified UI was easy to use, but did not agree that the Control UI was.

Figures 6.2 and 6.3 show the number of each possible Likert response for each question on the Control UI and the Modified UI respectively, and outline the main usability differences between the two UI versions when combined with Tables 6.1 and 6.2.

6.3.3 System Preference Per Task

While statistically analysing the participants' responses to the Likert-based preference question for each task, answers from the Likert items are divided into 3 categories:

1. Control UI is preferred ("greatly" or "slightly").
2. Modified UI is preferred ("greatly" or "slightly").
3. "No Opinion" is selected.

The Likert responses are grouped together to statistically compare the three overall perspectives while retaining five Likert points. Participants' choices are therefore not limited and further analysis using the five points, such as on Figure 6.4, remain possible.

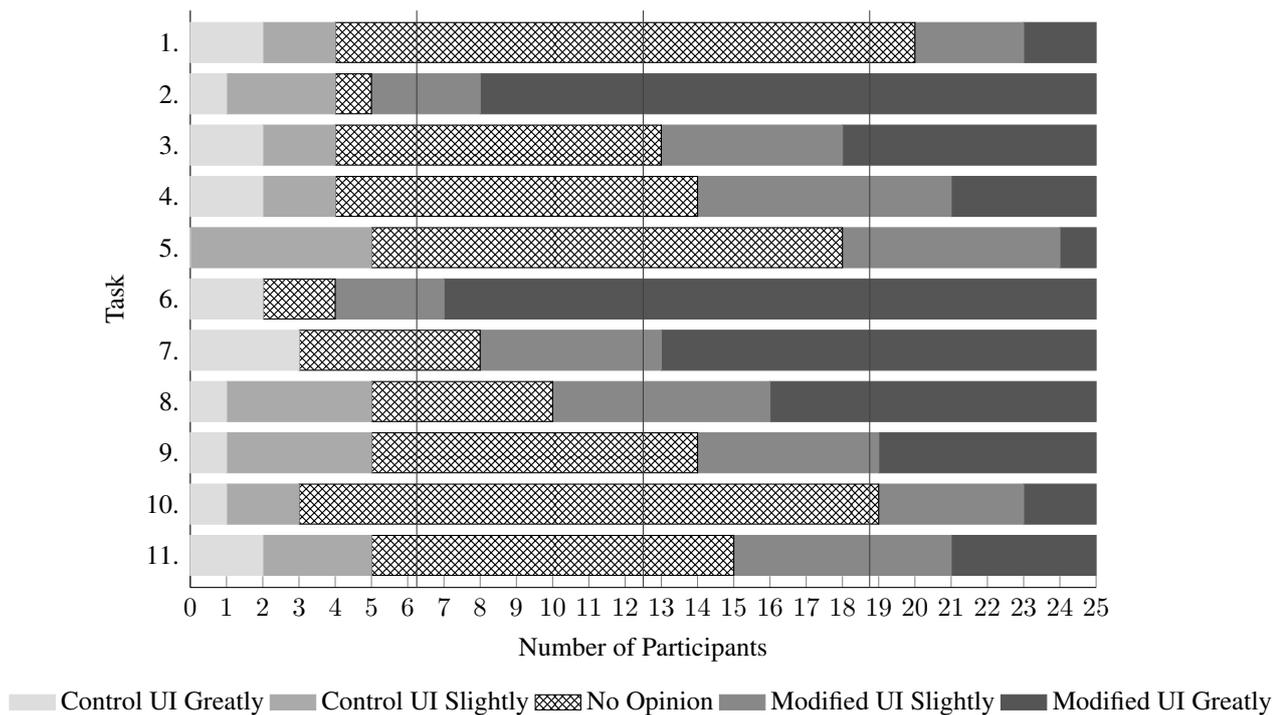


Figure 6.4: Stacked bar chart showing System Preference responses for each task.

Analysis was conducted on the number of responses for each category. Checking the normality of the categories using three Shapiro-Wilk tests indicated that while “No Opinion” data were normally distributed ($p = .519$), both the Control UI ($p < .001$) and the Modified UI ($p = .034$) were not. These two statistically significant Shapiro-Wilk results indicated that the assumptions of a one-way repeated ANOVA were not met. This resulted in a Friedman test being used to compare the median number of each categories being preferred.

The results of the Friedman test show that there was a statistically significant difference between the number of instances where participants preferred either the Control UI ($Mdn = 1$), the Modified UI ($Mdn = 5$) or “No Opinion” ($Mdn = 4$); $\chi^2(2, 25) = 24.344$, $p < .001$. Post-hoc analysis using three Wilcoxon signed-rank tests was conducted with a Holm-Bonferroni correction applied. There were statistically significant differences between the Control UI and Modified UI categories, $Z = -4.053$, $p < .001$, $r = -.573$), between the Modified UI and “No Opinion” categories, $Z = -2.043$, $p = 0.041$, $r = -.289$, and between the Control UI and “No Opinion”, $Z = -2.989$, $p = .006$, $r = -0.423$).

The Modified UI was preferred more frequently to both the Control UI and “No Opinion” options individually, however, comparing the total number of instances where Modified UI was chosen ($N = 135$) to the summation of instances where Control Interface or “No Opinion” was chosen ($N = 140$), it can be seen that the Modified UI was not preferred outright. The overall median response across all tasks and participants was “No Opinion”.

The high frequency of “No Opinion” being selected may be partially explained by considering that not all methods of completing the tasks were modified by the recommendations, resulting in some tasks having the same steps to completion on both versions of the interface. This does however have interesting implications for recommendations which slightly altered the visual appearance of all pages on the site, such as the removal of adverts. While participants felt strongly about the removal of adverts in the focus groups (and as shown on Table 6.6), “No Opinion” was the median response on seven of the eleven tasks despite adverts only existing on the Control UI.

This has grander implications on the limitations of simply accepting recommendations. Participants raised the issue of adverts in the focus groups. Despite this, the removal of adverts seems to have made little difference to whether the participants preferred the Modified UI to the Control UI. An interesting balance is therefore present: participants may feel strongly about specific design recommendations, but these recommendations may make little difference to whether they actually prefer a site which adheres to them. There is no right or wrong answer to whether such recommendations should be included, however, it is important to keep in mind that participants do feel strongly about them. This does, however, highlight the difference that the behavioural recommendations made to user preference rates on other tasks. It also emphasises the importance of evaluating recommendations, as per the methodology outlined in this research, for understanding how different recommendations may lead to unexpected outcomes.

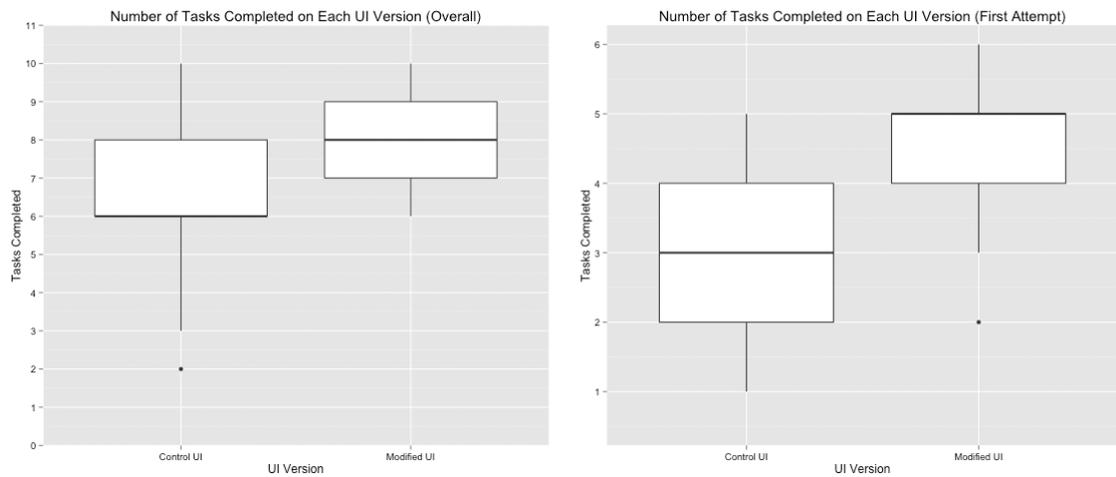


Figure 6.5: The left chart contains a boxplot with the number of tasks participants completed for each UI version (overall). The right chart contains the same information but only for the first attempt at each task.

6.3.4 Task Completion Rates

Initially, the number of tasks that each participant completes on each UI version are investigated. Due to the difference between the numbers of tasks completed on each system returning statistically significant with a Shapiro-Wilk test of normality ($p = .001$), it is not possible to assume that the difference is normally distributed, and thus, the Wilcoxon signed-rank test is used to compare the median number of tasks completed on each interface version across participants.

A Wilcoxon signed-rank test shows that a statistically significant difference exists between the median number of tasks completed on the Control UI ($Mdn = 6$) and the Modified UI ($Mdn = 8$) across participants; $Z = -4.025$, $p < .001$, $r = -.569$.

This result provides an idea of the number of successfully completed tasks on each UI version by participants, but comparisons can also take place between the number of successful task completions for the Control UI and the Modified UI on participants' first attempts at each task only, reducing the practice effect. Since half of the participants started each task on each version of the UI, the variables of the test cease to be paired. However, since there are 13 participants in the A/B group and 12 in the B/A group, one participant was removed from the former to remove any issues which might arise. This is

Task	No. of Completions		Wilcoxon Signed-Rank Test	
	on Control UI	on Modified UI	Z	p
1 Leave a 'Post' on a contact's profile page.	22	20	Z = -1.414,	p = .157, r = -.200
2 Change privacy settings.	16	24	Z = -2.828,	p = .005**, r = -.400
3 Report a 'Status Update' from a contact.	5	11	Z = -2.449,	p = .014*, r = -.346
4 Create a Status containing text.	24	23	Z = -1.000,	p = .317, r = -.141
5 'Like' and comment on a contact's Status.	6	7	Z = -1.000,	p = .317, r = -.141
6 Change how often the site emails the user.	8	22	Z = -3.742,	p < .001***, r = -.529
7 Hide a Status from the 'News Feed'.	14	19	Z = -1.890,	p = .059, r = -.267
8 Delete a Status created by the user.	22	24	Z = -1.414,	p = .157, r = -.200
9 Delete a Post created by someone else on the user's profile.	20	22	Z = -1.414,	p = .157, r = -.200
10 'Unfriend' a contact.	22	22	Z = 0.0,	p > .999, r = 0.0
11 Deactivate the user's account.	7	8	Z = -1.000,	p = .317, r = -.141

* p < .05; ** p < .01; *** p < .001

Table 6.3: Table showing a brief description of each task attempted along with the number of participants who completed each task on both UI versions. Results from a Wilcoxon signed-rank test between the two UI versions are also included (N = 25).

due to 11 tasks being attempted, which results in a higher number of first attempts on one system over the other for each person. By removing a person from the larger group for the test, overall there are an equal number of first attempts on each UI and each task. An online random number generator was used to select a number between 1 and 13, and that participant was excluded from the following test.

A statistically significant Shapiro-Wilk test of normality indicates that the data are not normally distributed ($p < .001$), therefore a Mann-Whitney U test is used to show that there is a statistically significant difference in the median number of tasks completed on the Control UI ($Mdn = 3.5$) and the Modified UI ($Mdn = 4.5$) on participants' first attempts; $U = 133.5, p = .001, r = -.481$.

Table 6.3 additionally provides context regarding how many participants were able to successfully complete each task on each UI version. Three tasks show a statistically significant difference (tasks 2, 3 and 6) and the Modified UI has more completions on it in each of these three statistically significant results.

6.3.5 Additional Recorded Data

The systems have the ability to collect and provide data about pages that were viewed by each participant. This is provided for the exploration of additional findings. Each finding will suggest how these results are best interpreted to the reader.

Page Loads

One aspect that can be investigated with the recorded data is the number of page loads that each UI version records during the study. While this can be used to compare the two UI versions, a few practical limitations exist within testing this. Firstly, due to tabs being used within the settings page, only one page view is created, whereas the user could be switching between the different tabs multiple times. Additionally, in order to register an interaction with the database, such as 'Liking' a comment, the prototype used the HTTP POST method to communicate with the server software, refreshing the page. This means

that an additional record entry is created when ‘Liking’ content, inflating the values when this action was taken. The actual mean number of page views are somewhat arbitrary for both systems, however, comparing these two values can still provide an interesting insight into differences between the two UI versions by investigating whether a statistically significant difference exists.

A Shapiro-Wilk test confirmed that differences between the two UI versions were normally distributed ($p = .348$). A paired measures t test shows that there was not a significant difference in the number of page loads for the Control UI ($M = 32.84$, $SD = 5.588$) and the Modified UI ($M = 30.48$, $SD = 6.266$); paired $t(24) = -1.884$, $p = .072$, $d = 0.26$.

Pages Viewed

Probing further into what pages were visited on both prototype systems, the recorded data can provide information about the number of times the different pages were visited per UI version, as shown in Table 6.4. Interestingly, while the previous results show that there is no statistical difference between the total number of page loads for both systems, Table 6.4 suggests slight differences between the UI versions. Five of the pages have statistically different median page requests between the two UI versions. The Modified UI had a higher median number on two pages (the homepage and the settings page), whereas the Control UI had a higher median number on two other pages (the participant’s profile and the profile of contacts). The interquartile range (Q1 - Q3) of these values also provide suggestions into the consistencies of page views across participants (with larger ranges suggesting less consistency and smaller ranges suggesting greater consistency across participants). These results will be revisited and discussed in Section 6.5.2.

Page	Control UI Median (Q1 - Q3)	Modified UI Median (Q1 - Q3)	Wilcoxon Signed-Rank Test
Homepage	10 (9 - 15)	11 (9 - 12)	$Z = -1.994$, $p = .046^*$, $r = -.282$
Privacy	2 (2 - 2)	2 (2 - 3)	$Z = -2.504$, $p = .012^*$, $r = -.354$
Settings	2 (2 - 3)	3 (2 - 4)	$Z = -2.676$, $p = .007^{**}$, $r = -.378$
Friend Profile	9 (6.5 - 10.5)	7 (6 - 9)	$Z = -1.996$, $p = .046^*$, $r = -.282$
Own Profile	8 (7 - 11)	6 (4 - 7.5)	$Z = -3.668$, $p < .001^{***}$, $r = -.519$
Friends List	0 (0 - 0)	0 (0 - 0)	$Z = -1.225$, $p = .221$, $r = -.173$

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 6.4: Median number of pages requested per participant for each UI version. A Wilcoxon Signed-Rank Test was used due to assumptions of normality being violated for three of the six pages.

6.4 Accepted Recommendations

Table 6.6 lists the recommendations that have been supported by the evaluation. The data have been processed to take into account the two versions of the questionnaire and the reversed questions, providing a 0-4 value representing the degree of agreement participants had to each recommendation. Recommendations are classed as supported when the median response is 3 or above, which represents a median response above “Agree” on the Likert item. 27 recommendations are found to be supported, while 5 have been removed due to a lack of support (“Strongly Disagree”, “Disagree” or “No Opinion” as median responses).

The last chapter outlined the method of using both positive and reversed questions to ensure a balance of reversed Likert questions. One outcome of this, however, was that half of the questions would measure agreement with a statement representing the recommendation while the other half would measure disagreement with the reversed statement (e.g. should becomes should not) representing the recommendation.

While the method of evaluating the individual recommendations outlined on Table 6.6 takes into account both the positive and reversed versions of the question, Table 6.5 shows the median responses to each of these individually for all questions (unprocessed). This allows the processed and combined means in Table 6.6 to be compared against

Positive Questions	Median	Reversed Questions	Median
1. Users should be able to delete 'content' on their profile	SA	1. Users should not be able to delete 'content' on their profile	SD
2. The layout of the system should not change frequently over time.	A	2. The layout of the system should change frequently over time.	D
3. The system should not use technical terminology.	A	3. The system should use technical terminology.	D
4. In addition to communication, the system should not have features such as games, music and company profiles.	SA	4. In addition to communication, the system should have features such as games, music and company profiles.	D/NO
5. The system should make it clear if it is free to use.	SA	5. The system should not make it clear if it is free to use.	SD
6. The system should allow the user to control what emails the user receives.	SA	6. The system should not allow the user to control what emails the user receives.	SD
7. The layout of the system should not be complex.	SA	7. The layout of the system should be complex.	SD
8. The system should specify whether a new message will be visible to everyone on the system or just the user's 'contacts'.	SA	8. The system should not specify whether a new message will be visible to everyone on the system or just the user's 'contacts'.	SD
9. The system should not prompt the user to contribute to the site (e.g. "You haven't spoken to Tom in a while. Send Tom a message").	A	9. The system should prompt the user to contribute to the site (e.g. "You haven't spoken to Tom in a while. Send Tom a message").	D
10. The system should not be similar to Facebook.	NO	10. The system should be similar to Facebook.	NO
11. The system should not allow people to create and use fake profiles.	SA	11. The system should allow people to create and use fake profiles.	SD
12. The system should allow users to hide personal information from their 'contacts' (e.g. age, hometown).	SA	12. The system should not allow users to hide personal information from their 'contacts' (e.g. age, hometown).	SD
13. The system should be used by people of all ages.	A	13. The system should not be used by people of all ages.	D
14. Users should be able to send 'off the record' messages which are not stored on the system.	A	14. Users should not be able to send 'off the record' messages which are not stored on the system.	NO
15. Privacy settings on the system should be simple to understand.	SA	15. Privacy settings on the system should not be simple to understand.	SD
16. The system should not show advertisements (adverts).	SA	16. The system should show advertisements (adverts).	D
17. The system should make it clear what measures are in place for site security.	SA	17. The system should not make it clear what measures are in place for site security.	SD/D

18.	Using features of the system should not be a complex task.	SA	Using features of the system should be a complex task.	SD
19.	By default, the system should not E-mail the user frequently with news about the user's 'contacts'.	A	By default, the system should not E-mail the user frequently with news about the user's 'contacts'.	NO
20.	By default, a user should not be able to see the profile of another user without being a 'contact' of theirs.	SA	By default, a user should be able to see the profile of another user without being a 'contact' of theirs.	D
21.	Users should be able to delete their accounts.	SA	Users should not be able to delete their accounts.	SD
22.	Users should be able to reverse becoming a 'contact' of another user on the system.	A	Users should not be able to reverse becoming a 'contact' of another user on the system.	SD
23.	Users should be able to hide their content from certain 'contacts'.	A	Users should not be able to hide their content from certain 'contacts'.	D
24.	The system should have a support area which explains how to complete tasks.	SA	The system should not have a support area which explains how to complete tasks.	SD
25.	The system should have a specific purpose (e.g. Used only for a Club or group).	D	The system should not have a specific purpose (e.g. Used only for a Club or group).	A
26.	Accessing account and privacy settings on the system should not be a difficult task.	SA	Accessing account and privacy settings on the system should be a difficult task.	D
27.	The system should not scan the user's email address book and suggest new 'contacts' from it.	SA	The system should scan the user's email address book and suggest new 'contacts' from it.	SD
28.	The system should allow the mass-distribution of messages to more than one person.	NO	The system should not allow the mass-distribution of messages to more than one person.	A
29.	Content and messages shared on the system should be moderated by an 'administrator'.	NO	Content and messages shared on the system should not be moderated by an 'administrator'.	A
30.	The system should allow users to categorise their 'contacts' into groups (e.g. 'Friends', 'family', 'acquaintances').	A	The system should not allow users to categorise their 'contacts' into groups (e.g. 'Friends', 'family', 'acquaintances').	D
31.	The system should not have 'small-print' check-boxes for additional services or information sharing with third party companies.	A	The system should have 'small-print' check-boxes for additional services or information sharing with third party companies.	D/NO

Table 6.5: Table showing the median responses to all questions for both versions of the questionnaire. Unpolarised questions expect "Agree" answers) and polarised questions expect "Disagree" answers. SD = "Strongly Disagree", D = "Disagree", NO = "No Opinion", A = "Agree", SA = "Strongly Agree".

	Recommendation	Median	
Design & Behaviour	1.1	Have increased privacy by default.	SA
	1.2	Avoid invasive functionality and emails.	SA
	1.3	Clarify implications of functions to prevent social blunders.	SA
	1.4	Reduce and moderate fake accounts.	SA
	1.5	Clearly label navigation to privacy, email and account settings.	SA
	1.6	Avoid targeting specific age groups.	A
	1.7	Avoid pressurising techniques, reminders or features.	A
	1.8	Avoid games, apps and irrelevant functionality.	A
User Control	2.1	Provide control to delete content.	SA
	2.2	Provide control to delete account if desired.	SA
	2.3	Clarify and simplify privacy and settings.	SA
	2.4	Allow control over what emails the user wishes to receive.	SA
	2.5	Allow partial anonymity if desired.	SA
	2.6	Allow simple removal of contacts.	A
	2.7	Allow categorization of contacts.	A
	2.8	Give users control of which contacts see what content.	A
Generalisable Beyond SNSs	3.1	Use a simple layout on the site.	SA
	3.2	Reduce or avoid advertisements.	SA
	3.3	Clarify if the site has a financial cost or is free.	SA
	3.4	Reassure users that suitable security measures are in place.	SA
	3.5	Provide support to explain/help/guide users through tasks.	SA
	3.6	Avoid unnecessary complexity when changing settings or completing tasks.	SA
	3.7	Avoid drastic and frequent changes to the site.	A
	3.8	Avoid technical terminology.	A
	3.9	Avoid using ‘small print’ check-boxes for additional services or information sharing.	A
	3.10	Reduce or avoid emails to the user by default.	A
	3.11	Follow accessibility guidelines.	N/A
Rejected	Rej.1	Avoid similar designs to sites where people hold negative assumptions.	NO
	Rej.2	Allow for mass distribution of messages.	NO
	Rej.3	Allow for session, or ‘off-the-record’ private messages.	NO
	Rej.4	Provide moderation/report functionality.	NO
	Rej.5	Focus on a specific purpose.	D

Table 6.6: The list of recommendations alongside the median responses, where SD = “Strongly Disagree”, D = “Disagree”, NO = “No Opinion”, A = “Agree”, SA = “Strongly Agree”.

the medians of only the positive questions. Four of the five rejected recommendations (Recommendations Rej.1, Rej.2, Rej.4, and Rej.5) have a median response of “Strongly Disagree”, “Disagree” or “No Opinion” (Questions 10, 25, 28 and 29). The remaining rejected recommendation (Rej.3) received a median response of “Agree” on the positive question (Question 14). Despite this agreement with the recommendation on the positive question, however, a median response of “No Opinion” on the reversed question led to a median response of “No Opinion” when processed, resulting in rejection.

6.5 Discussion

This study investigated potential solutions to barriers faced by older adults when using SNSs. It additionally explored how these recommendations could potentially be used by developers and designers. This study should be viewed as a case study into the impact of the recommendations on a theoretical but representative SNS site. The study suggests that improvements can be made when taking the recommendations into consideration, at least in terms of perceived usability, task completion and user preference (for completing certain tasks).

The third subset of the recommendations (3.1 - 3.11) generalise beyond SNSs, and a number have been identified as good design principles for older adults, such as in the WAI-AGE guidelines¹ or those by Kurniawan and Zaphiris [2005]. While recommendations 3.1-3.11 may be generally applicable, they were identified in the focus groups as barriers to SNS usage, and are therefore included in Table 6.6.

6.5.1 Considerations for Development

While the results suggest that the recommendations led to improvements in usability and task completion rates, such improvements depend on how these recommendations are applied to SNSs. Thus, important contributions from this research are likely to arise from

¹<http://www.w3.org/WAI/older-users/>

the observations of how these prototypes were used by the participants.

There were statistically significant differences in the number of participants who completed a task for each UI version in 3 of the 11 tasks, as seen on Table 6.3. Two of these are related to changing settings. Observational notes from these tasks highlight that many participants who did not complete the task often struggled to navigate to either the settings or the privacy pages. Modifying the navigation panel in the top right to include text in addition to the white arrow of the drop down box led to participants discovering the privacy and settings pages. This suggests that using unambiguous text for buttons, rather than abstract icons or symbols (e.g. 'Your Settings' rather than a gear or arrow icon) can avoid this issue. A similar finding was identified by Gomes et al. [2013] when participants did not understand the functionality of a button labelled '+' on the Facebook mobile application.

For task 2, participants who couldn't find the 'Settings' drop down box on the Control UI often then found a 'Privacy' link at the bottom of the page, which isn't always possible when sites make use of AJAX to generate new content when the bottom of the page is reached. While AJAX allows for a fluid experience, developers should be conscious of any text, link or information at the bottom of the page which will be difficult or unreachable because of this feature, and consider moving them to a static location on the page (e.g. a sidebar).

While task 3 (reporting content to an administrator) was statistically higher on the Modified UI, the completion rates for either UI were not encouraging. Our method of having the collapsed set of options appear when hovering over content did not go far enough to allow a majority of participants to complete the task. Observing the participants revealed that they simply did not know what to do, and it was not apparent that hovering the mouse over that content would uncover additional features, as was the case for both UI versions. Developers should therefore aim to reduce mouse-hover functionality for older adults, or leave clear indicators that functionality is there. An example may be an always-visible 'Delete' link within content, which expands into different options when the

user hovers over the area.

Some tasks did not have a high completion rate on either system, such as reporting a status, deactivating the account and 'liking' and commenting on a contact's status update. For the latter, many participants had difficulty differentiating their profile from that of other people. Many created their own status as a reply, which wasn't linked to that of the original. Additionally, many participants struggled due to the lack of a visible 'Submit' button when writing a comment and did not know that pressing the 'Enter' key on the keyboard was necessary.

Despite improvements highlighted in this chapter, there were still issues with the Modified UI, such as with the hover functionality. It was the intention of this study to only make modifications to the Modified UI that were discussed in the focus groups. This does, however, highlight that many of the recommendations were based on site behaviour, and so, it is advised that they should be used in conjunction with other guidelines for accessibility and for designing for older adults. Such guidelines often focus on technical issues. A combination of the recommendations identified in this research and established guidelines in the literature will likely lead to the best possible online environment for older adults.

The findings of this study suggest that careful design can increase the usability of SNSs, with this research using the recommendations as a starting point. Assumptions, such as the meaning of icons, features which appear on mouse hover and enter-to-submit text boxes, should be removed or reconsidered. These assumptions are common on the Internet and thus these recommendations may generalise beyond SNSs. The Modified UI version was preferred more frequently than the Control UI. This demonstrates that common practices used on SNSs can be improved upon, leading to a more inclusive online environment. By investigating how these sites can be improved for older adults, an online environment can be provided where a wider range of people can feel comfortable communicating and sharing content with family and friends, with implications for social capital, loneliness and life satisfaction. Developers of such sites can consider and implement these recommendations as they feel appropriate.

6.5.2 Lessons Learned

Following the analysis, it is thought that by recording greater amounts of information from the system, one can likely increase the range of available findings. While the recorded data were considered to be a supplementary source of data for the study, analysing the primary data (questionnaires, task completion rates) points to trends that could be investigated further with additional recording on the system. For example, the recorded data can be used to identify that a user visits the privacy settings page, however, if the system recorded button identification names and presses, or XY coordinates of mouse clicks, then it could be investigated whether the participant used the 'Privacy' link on the side-bar or the link on the header. Having access to highly granular levels of data adds the potential for further exploration into interesting aspects of the study which can be unearthed by initial testing.

An example of where this could be useful is as follows. As shown in the previous section, the 'Friends List' page was visited infrequently by participants. Only 7 participants accessed this page. However, many participants completed tasks which required accessing a friend's profile (e.g. 'unfriending' a contact, which 22 participants completed on both UI versions). There are four main ways, other than the friends list, to access a friend's profile:

- searching for the user
- seeing the user on the randomised list of six friends on the participant's profile page
- finding a link to the friends profile on content left on the participant's profile
- finding a link to the friend's profile from content listed on the homepage (news feed)

A combination of these methods were used to access user profiles during the study. From observing the participants, many used the News Feed method. Further implications arise, however, on the potential for difficulties on a real SNS with a similar design. If the prototype had more pre-generated contacts and content, or the simulated user they were looking for had not been active, this method may not have worked due to the user not showing up on the news feed. Additional recorded data could have been used to investigate

statistical differences in the frequencies of different methods being used. From that, new areas of difficulty not directly observed could have been identified, suggested and justified statistically.

6.6 Summary

In this chapter, the results and findings from the evaluation of the recommendations as a collection and individually are presented. Nine aspects were investigated or evaluated: The System Usability Score (SUS), the individual SUS questions, the UI preference rates, overall task completion rates, task completion rates for the first attempt, recorded system data analysis, accepted recommendations from the unpolarised questions, the overall accepted recommendations and observational notes.

Results show that the UI version which made use of these recommendations had statistically higher System Usability Scores (SUS) and higher task completion rates than the Control UI. The Modified UI version was additionally preferred more frequently to the control version. A majority of participants agreed that they would like to use the Modified UI frequently and found the system easy to use, while a majority disagreed that they would like to use the Control UI and that it was easy to use. Log files were explored and found that statistical differences occurred in the number of page requests made for five of the six pages across the two UI versions.

The recommendations were evaluated individually, finding that 27 of the 32 recommendations are supported, while five are rejected. One recommendation, regarding the following of accessibility guidelines, was accepted due to situational benefits and a wide existing body of recognised support. The remaining recommendations were supported when processed results of two questionnaires indicated that the mean for the standard and inverted (polarised) question, per recommendation, receives a median response which agrees with the statement (and disagrees with the opposite).

Observational findings are discussed, suggesting that key improvements to SNSs could

be made by:

- Clearly labelled access to settings, using text rather than abstract symbols or icons
- More careful integration with footers and AJAX to avoid unreachable links
- Reduction of hover-over and initially hidden functionality
- Clearly labelled buttons for submitting text, and a reduction of assumptions, such as 'Enter to submit'

While these suggestions are generalisable, these issues are commonly present in mainstream SNSs, such as Facebook.

The final collection of evaluated recommendations are presented for developers and designers of SNSs to improve this technology for adults over 65.

Chapter 7

Mainstream Social Networking Sites and the Recommendations

In this chapter, three SNSs are investigated in relation to the recommendations. Facebook, Twitter and Google+ are examined in order to investigate if and to what extent each SNS adheres to the suggested principles of each recommendation. If a SNS does follow a recommendation, how and to what extent are outlined in order to understand how the recommendations may be used in practice. Ideas for improvement in relation to the recommendations are additionally suggested. A discussion about utilising the findings of this chapter is then presented. This chapter provides a snapshot into potential issues and benefits currently in place within the design and functionality of three mainstream social networking sites. By utilising the recommendations in a way similar to this chapter, new lessons can be learned regarding the design of SNSs.

7.1 Introduction

Exploring whether the recommendations are met, either fully or in-part, requires a degree of subjectivity for some of the recommendations. It is not possible to machine automate a test, as adhering (or not adhering) to the recommendations is not always a binary outcome. As an example, it is not possible to say with full certainty whether or not a site strictly

adheres to Recommendation 3.1, advising that the site should use a simple, but bold, layout. Despite this, it is important not to discard the recommendations which fall under this category since they are derived from important issues raised by the participants of the focus groups.

This chapter aims to provide designers and researchers with suggestions for effective design choices when creating inclusive SNSs. Additionally, examples of how one might make use of the recommendations to identify improvements to existing sites are outlined. Because of the subjectivity issue, a more qualitative approach is necessary, outlining how different aspects of the SNSs could relate to each recommendation. Positive and negative aspects of these sites, relative to the recommendations, are outlined and discussed.

This investigation was conducted by the lead researcher and is intended to provide qualitative examples based on the knowledge and findings from the previous studies. It is intended to identify which aspects of each site follow the recommendations well, allowing a designer or developer to pick and choose effective components of each site to shape their SNS. It is not intended to act as a formal, quantitative evaluation of the SNSs themselves.

As discussed in Chapter 2, there are several mainstream SNSs with varying uses and focuses. Three mainstream SNSs were chosen for this investigation based on their current popularity. The three SNSs have a general aim of enriching communication, although similar techniques can be applied to more specific SNSs such as LinkedIn, Flickr or MySpace.

7.1.1 Facebook

While the previous study provides an insight into how the Facebook replication fares in regard to the recommendations, the developed prototype was a likeness with limited functionality designed to mimic a typical mainstream SNS. As a result, caution should be taken before extrapolating any strict conclusions to Facebook itself. Another consideration is the time difference between the construction of the prototype and the subsequent evaluations included in this chapter. While the prototype was based on Facebook as it was

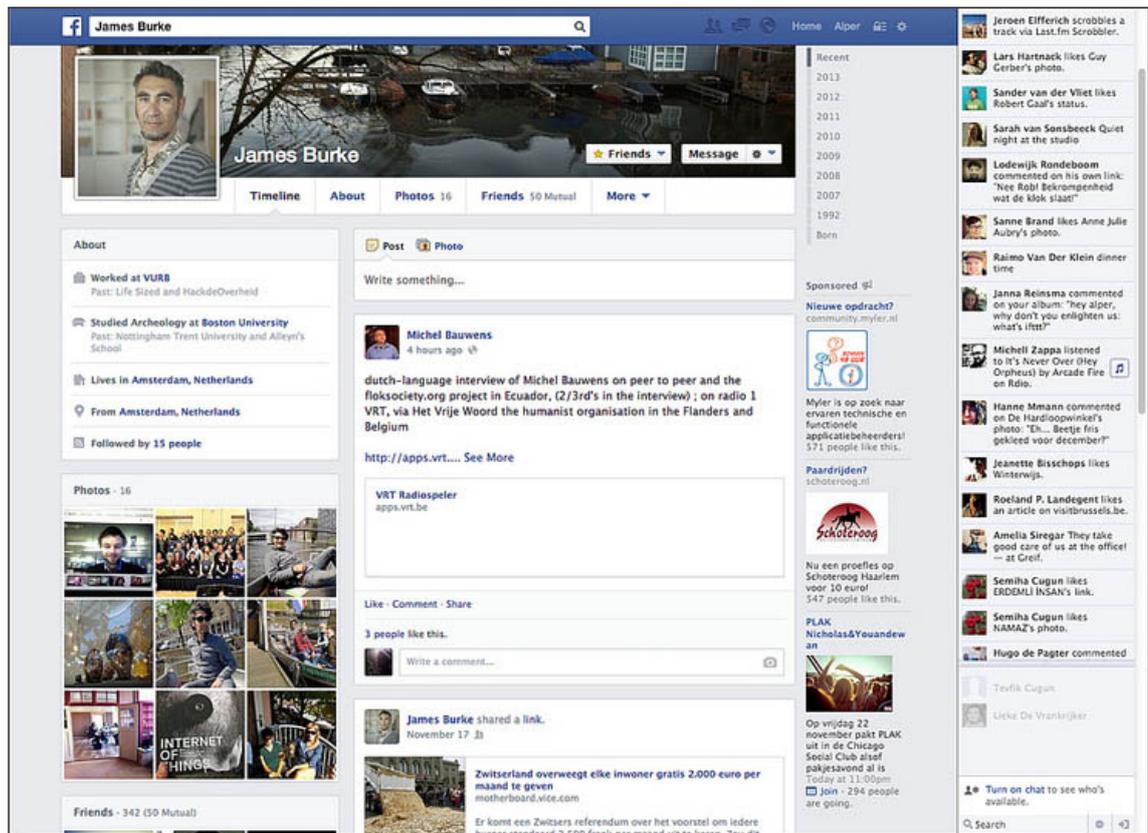


Figure 7.1: A screenshot of Facebook. Licensed under CC from Alper Çuğun.

in December 2012, these investigations were conducted during October and November, 2013. Mainstream SNSs can change over time. Due to these factors, and Facebook's unrivalled popularity, the site is included in this investigation.

7.1.2 Twitter

Twitter is another popular social networking site which focuses on 'microblogging'. The site has over 230 million monthly active users and approximately 500 million 'tweets' are created daily [Costolo, 2013]. The focus of Twitter is somewhat different to that of Facebook with a large emphasis of consumption of information. The requirement of short (140 character) messages makes the content consistently easy to digest but potentially less informative. Twitter can be used as an effective aggregator for news, company information and hobbies, as well as personal communication between friends and relatives.



Figure 7.2: A screenshot of Twitter. Licensed under CC from Kathy Cassidy.

7.1.3 Google+

The figures relating to Google+ usage are difficult to interpret. It is unclear from Google's figures whether or not 'usage' relates to actively participating on Google+, participating on a service with Google+ integration (e.g. YouTube) or using other Google services when signed in with a Google+ account. While Google+ is similar to the concept and layout of Facebook, the main difference with the site is the 'Circles' functionality. When adding a new contact, the user must choose a 'Circle' to add that contact to. These Circles relate to groupings that different users may fall under in relation to the user, for example 'Family', 'Friends' or 'Colleagues'. Users can then choose with a high degree of granularity which content should be available to which Circles. For example, holiday photos may be shared with family and friends, but not colleagues. Circles are integrated as a key component of Google+.

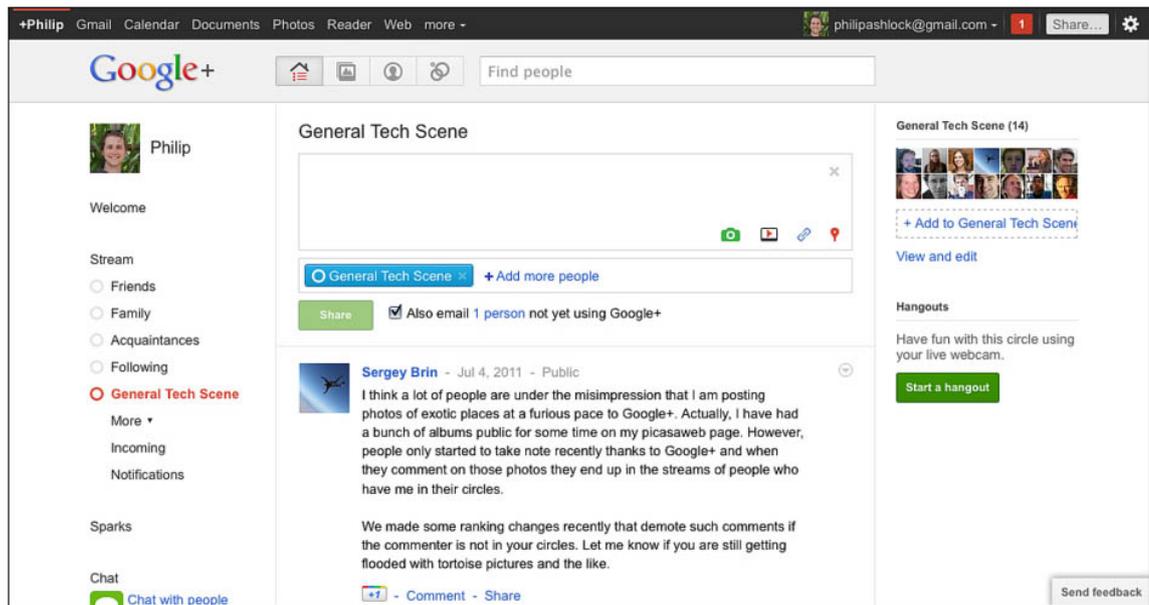


Figure 7.3: A screenshot of Google+. Licensed under CC from Philip Ashlock.

7.2 Examination

7.2.1 Method

New accounts were created for three SNSs: Facebook, Twitter and Google+. This allows the investigation to take place under similar settings to a new user signing up during the same time period. Default settings were maintained and no browser extensions or settings were used that might interfere with any visual or functional aspects of the site (e.g. the removal of advertisements or modifying zoom settings). Each recommendation was investigated on each of the SNSs by the lead researcher and notes were taken outlining whether the SNS adhered to the recommendation, to what extent if so, and how improvements could be identified by the recommendation in question. Suggested improvements were created following lessons learned from the derivation of the recommendations and the previous studies.

In addition to a description about how each site adheres to each recommendation, it is also given one of three marks. A '+' symbol means that the SNS adheres to the recommendation well, a '-' symbol means that the SNS does not adhere to the recommendation

and a ‘±’ symbol indicates that the SNS partially adheres to the recommendation, but that more could be done to improve the site further. By identifying the SNS(s) that most closely adhere to each recommendation, one can quickly identify components of mainstream SNSs that would be best suited for older adults.

7.2.2 Recommendations on Mainstream SNSs

Rec. 1.1. Have increased privacy by default.

Facebook’s privacy settings are set to ‘Everyone’ by default, allowing anyone to potentially view the profile and the content on it. This should be set to ‘Friends’ by default to prevent unaware users from having their account more exposed than they would like.

Twitter’s privacy settings are also public by default. According to the recommendations, users would prefer if private was the default setting.

Google+ improves upon that of Facebook and Twitter by clearly allowing the user to choose the level of privacy for their new content. This takes the form of a drop down box, with the options listed as ‘Your circles’, ‘Public’, ‘Extended circles’ or specific circles that the user has set up. If the user tries to share content without choosing the level of privacy, Google+ prompts the user to ‘Choose who you want to share this post with’. This feature requires the user to consider their privacy, while also prompting them to make a decision about who can see the content. The option chosen by the user remains the default selection the next time they try to add new content.

Scoring:

Facebook	Twitter	Google+
-	-	+

Rec. 1.2. Avoid invasive functionality and emails.

Facebook suggests friends to the user based on having mutual friends. It is not clear

what method is being used to order the list of people the user may know, however, due to the non-sequential ordering, it may weight people with more friends who the user communicates with on a regular basis. For example, a user may have a group of 3 close friend with whom they communicate on Facebook on a regular basis. These 3 friends may all have a mutual friend who is not friends with the user. This mutual friend may be ranked higher than another person who has 5 mutual friends with the user if the user does not communicate regularly with those 5 contacts. Personal contacts can additionally be added through Apple or email accounts, which is a feature introduced to the user after signing up for the site. It is possible that a person might inadvertently enter their email address without understanding the implications for doing so.

Twitter sends emails suggesting accounts based on the accounts that the user follows. In addition to this, suggested accounts are listed on the twitter feed page. There is also functionality to search email address books for people who are on Twitter.

Google+ prompts the user to submit their phone number for authentication when logging in. Although this functionality is beneficial, as per Recommendation 3.4, the nature of this recurring prompt may seem invasive to those who do not wish to provide this information. Suggested people and pages are shown on the homepage, and notification settings are set to email ‘occasional updates about Google+ activity and friend suggestions’ by default. While these emails are currently in place in all 3 SNSs, some users may find this invasive. Google+ can also recommend content to the user without the user being subscribed to this page. It is unclear whether or not user search data is used to identify content and pages which are recommended to the user.

Scoring:

Facebook	Twitter	Google+
-	-	-

Rec. 1.3. Clarify implications of functions to prevent social blunders.

When creating a new status on Facebook, light grey text, beside a downward pointing triangle, indicates who will see the message. This can be changed by clicking on it, however, this is not immediately clear. Hovering over the text darkens it and uncovers a box. Clicking on it makes a drop down box appear, with different options for who should be able to see the status. This feature helps inform the user of who will see the message.

When composing a new tweet on Twitter, there is no indication about who will be able to view it. By default, tweets are visible to everyone, including those without a Twitter account. Sending private messages is possible, but how to do this is unclear. When on another account's profile page, a drop-down box gives the option to 'Tweet to ...' (which is public) or 'Send a Direct Message' (which is private), however these also do not clarify the publicity of the message for the user. The option to send Direct Messages is not present for all accounts. If it were stated that tweets are public (if that privacy level is active) and Direct Messages are private on the composition window, users would be more informed and therefore less likely to commit social blunders due to a lack of knowledge.

Google+ requires the user to choose the audience for new content. The site remembers the last setting used and selects that by default. When creating new content, this level of privacy is clearly stated, notifying the user of who will be able to see it.

Scoring:

Facebook	Twitter	Google+
+	-	+

Rec. 1.4. Reduce and moderate fake accounts.

Facebook doesn't allow fake accounts, and thus, reporting an account for being fake should result in its deletion. Facebook allows users to report and block accounts, however, the method of doing so requires clicking on an unlabelled 'gear' icon. This could be made clearer by changing the icon for text.

Fake accounts are prevalent on Twitter, making up an estimated 5% of the total user

base [Costolo, 2013]. While these largely go unopposed, Twitter has two features which aim to clarify the authenticity of accounts. Firstly, accounts can be listed as ‘Verified’ (shown as a blue badge with a white tick inside), which demonstrates that the site has established authenticity. Secondly, Twitter has functionality which allows accounts to be reported for impersonation. While these features can prevent people from following unauthentic accounts, spam accounts still exist. These accounts, however, can be reported on the profile page.

Google+ doesn’t allow fake accounts. The site provides functionality for users to report accounts that spam or imitate others. However, navigating to this feature can be confusing. It involves visiting the page in question and scrolling down far enough for a navigation bar to appear. This bar contains a drop down box with options to report and block the account. This could be simplified to make the process clearer.

Scoring:

Facebook	Twitter	Google+
+	-	+

Rec. 1.5. Clearly label navigation to privacy, email and account settings.

Facebook allows access to privacy settings in a few different ways. On either the user’s profile or the news feed, there is a privacy button at the bottom of the page. It is difficult, however, to click this as reaching the bottom of the page causes new content to load. The bottom of the page can not easily be reached for more than a short amount of time. On the News Feed (but not profiles) a link to privacy settings also occurs underneath the adverts on the right bar. Alternatively, there is a link to ‘Settings’ via a gear icon at the top-right of the screen, which can then be used to navigate to the privacy settings. Privacy settings can also be accessed via a padlock icon next to the gear icon. The site should ideally avoid links at the bottom of the page where new content loads and have more prominence on the side bar. The gear and padlock icon should additionally be changed to include text (e.g.

‘Your Settings’ and ‘Privacy Shortcuts’) to clarify what can be accessed.

Similarly, Twitter allows both account and privacy settings to be accessed with a link on the top right of each page. This drop-down box, however, is also controlled via an unlabelled gear icon. Additionally, a ‘Privacy’ link exists on every page which navigates to the site’s privacy policy, rather than the account’s privacy settings. This information clarifies some of the implications of using Twitter and while it does provide a link to the privacy settings, this link is not prominent on the page. Changing the gear icon to text, such as ‘Your Settings’ would remove the requirement of prior knowledge that the gear icon commonly represents site settings.

Google+ allows access to privacy settings in different ways. Firstly, the user can click on their picture which is displayed at the top-right of the UI. This causes a new box to appear with links to both account and privacy settings. Another way is to hover over the left navigation bar, which causes a drop-down box to appear. On the drop down box, ‘Settings’ is clearly labelled next to a gear icon. This method is effective as the navigation button is prominent on the page and the ‘Settings’ text is clearer than using just an image. It would potentially be clearer, however, if there was a permanent and labelled link for privacy and account settings on the header bar.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 1.6. Avoid targeting specific age groups (e.g. over 65).

Facebook does not specifically target an age group but users must be over 13. This policy is in place to protect children from potentially inappropriate content. In the event of wanting to communicate with, for example, a grandchild under 13, that grandchild could access the content through a proxy user (e.g. a parent). This would allow the grandparent and grandchild to communicate via Facebook without the grandchild having an account or

seeing anything that the proxy user does not want them to see.

Twitter also doesn't target any particular age group. Additionally, similar to Facebook, Twitter is open to people aged 13 or older. Twitter does not ask for a date of birth when signing up to the service but provides functionality to notify the site's staff to an account of someone under the age of 13.

Google+ also requires that a user is 13 or older. When signing up for a Google account, if the birthday entered indicates that the user is under 13, the account becomes disabled. There is no emphasis to any age group on the site.

Scoring:

Facebook	Twitter	Google+
+	+	+

Rec. 1.7. Avoid pressurising techniques, reminders or features to encourage contributions.

Facebook has a 'Complete Your Profile' feature if information has not been added (e.g. hometown, location) or has been removed from the user's profile. This window appears on the profile, prompting the user to enter this information. A partially filled blue bar, representing how complete the profile is, is also shown. The site will also periodically remind you of this with a percentage of how 'complete' your profile is. Additionally, the site also encourages users to 'Like' pages that have been 'liked' by friends and encourages the user to send messages to friends. These are all examples of the site possibly being perceived as pressuring the user.

Twitter suggests accounts to follow, yet in a slightly less invasive way to that of Facebook. There are fewer areas of the site which encourage contribution. The site does however email users regularly with summaries of what accounts being followed have tweeted, and suggestions for new accounts to follow. Twitter tends to focus more on the consumption, rather than creation, of content. This may be more compatible with the way

in which older adults use social media (passive) as shown in the literature review.

Similar to Facebook, Google+ also has a ‘Complete your profile’ feature on the user’s page when information is missing. This includes asking the user for a profile photograph, their location, where they work, where they went to school and additional contact information. Additional prompts are sent to the user via email.

Scoring:

Facebook	Twitter	Google+
-	+	-

Rec. 1.8. Avoid games, applications and irrelevant functionality.

Facebook contains games and applications, or ‘apps’. When a user engages with certain apps, that app can publish to their news feed in an attempt to encourage other people to use it. This can, at times, lead to people becoming frustrated with being inundated with messages or invites from the applications. While the existence of apps in itself is not frustrating, Facebook should ideally disallow the publication of these messages by default and make the ability to hide all messages from applications more prominent.

Twitter does not support games or similar applications through the use of the API. This creates a more focused appearance, with all functionality directly relevant to creating and consuming content on Twitter. The UI is therefore less cluttered and more relevant for users.

Google+ does not currently have integrated apps or games on the site.

Scoring:

Facebook	Twitter	Google+
-	+	+

Rec. 2.1. Provide control to delete content.

Deleting content on Facebook is possible, however, it is not immediately obvious how this can be done. By hovering over content, a light grey arrow appears. Due to the white background, this may be difficult to see. Clicking this arrow causes a new box to appear which contains a link to delete the content. The hover functionality could be replaced with an always-present indicator that options regarding that content are available, ideally in text form. This text should have a reasonable degree of contrast from the background so that it is clearly visible. Content not created by the user can be reported or hidden.

Twitter allows a user to delete content created by themselves. While this link may be difficult to see for users with declining eyesight (light grey text on a white background), hovering over that item increases the darkness of the text and underlines the link. This is well clarified due to the always-present 'Delete' text, however, making this text darker when not hovering over the content would draw more attention to this functionality. Making the link blue and underlined would help people who are familiar with this association on the Internet to quickly know that it is a link. Additionally, content not created by the user can be reported.

Content can be deleted on Google+. The process is similar to that of Facebook. Firstly, the user must hover their cursor over the content to be deleted, which makes an arrow appear. Clicking this arrow causes a drop-down box to appear with controls to edit or delete the content, as well as control to disable comments or 'reshares'. Similar to Facebook, this feature on Google+ could be improved by making it clearer that extra functionality is available for that content. That could be achieved by always showing the arrow and removing the hover functionality. Additionally, the arrow could be changed to text to indicate that extra options exist if the text is clicked.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 2.2. Provide control to delete account if desired.

Deactivating a Facebook account is possible, but this requires a number of steps to complete. First, the user must click on a gear icon at the top-right of the screen, and then click on 'Settings' from the drop-down list that appears. The user must then click on 'Security' on the right menu of the account settings page and a link to deactivate the account is provided at the bottom of the page in small (11px) blue text. As suggested in Recommendation 1.5, the gear icon should be replaced with text (e.g. 'Your Settings'). Additionally, the link to deactivate the account should be easier to find, potentially by making it more prominent on the page or placing it under 'General' settings.

Twitter's method of allowing an account to be deactivated is an improvement over that of Facebook, but still may be unclear. The user must click on a gear icon at the top-right of the screen, similar to Facebook, and then click 'Settings' from the drop down list. At the bottom of the main settings page, a link to 'Deactivate my account' is present. This font is slightly larger than that of Facebook's link (12px), but still not very prominent. Again, image-based icons should be in addition to or replaced by text and the link to deactivate the account could be made bolder.

On Google+, the user must first navigate to their settings by either clicking on the user portrait at the top right of the page and clicking 'Account' or hovering over the left navigation bar and clicking 'Settings'. From here, the user must click on 'Account' on the navigation bar for the settings page. On this page, there are two options; one link deletes the user's Google+ profile and all Google+ features, and the second link closes the Google account and all associated services. This choice is important as it allows users to delete their Google+ account while still maintaining their account with Google (and subsequently YouTube, Gmail, etc.) if desired. An additional link to delete the user's account is also available by clicking 'Google+' on the navigation bar for the settings page. It also allows the user to close their Google account if that is what the user wants to do. The text is larger than both Facebook and Twitter (13px). Due to the different ways of accessing this option, the flexibility of what you want to delete and the slightly larger font, it is likely easier to

find than the settings on other SNSs.

Scoring:

Facebook	Twitter	Google+
±	±	+

Rec. 2.3. Clarify and simplify privacy and settings.

The introduction of Facebook’s ‘Privacy Shortcuts’ (shown on the interface as a padlock icon on the top right of the screen) helps simplify changing privacy settings. These settings are presented to the user in a first person statement (e.g. “Who can see my stuff?”, “Who can contact me?”) along with options for changing a select number of account settings. A similar approach would be a good way of representing all relevant settings of commonly asked questions, however, it should be clearer that this padlock icon consists of privacy resources (e.g. by changing the icon to text).

On Twitter, there is one setting which can be used to control privacy levels. This is provided as a check-box with the text ‘Protect my Tweets’. A description of what this setting does is also provided, along with a ‘Learn More’ link which takes the user to a page about public and protected tweets. This setting makes it so that only approved users will receive the tweets that the user creates. Twitter effectively provides clarification over this setting to varying levels of detail depending on the user’s desire to seek further information.

In addition to the privacy control for new content on Google+, as outlined under Recommendation 1.1, other privacy controls exist. On the privacy section of the settings page, a number of options are available alongside a clear explanation of what that setting will change. The page explains each feature well, potentially helping the user to make informed decisions about the options that they want for each setting.

Rec. 2.4. Allow control over what emails (if any) the user wishes to receive.

Facebook allows users to change what emails the user receives, although it can be

Scoring:

Facebook	Twitter	Google+
+	+	+

a obfuscated setting to access. First, the user must access their account settings (see Recommendation 1.5). From there, the user must select ‘Notifications’ in the navigation bar, which may not be obvious, then select ‘Email’ and then choose one of three pre-determined levels of importance for an email to be sent. This process could be streamlined and clarified.

On Twitter, when accessing the ‘Account Settings’ page, an option on the left navigation bar leads to ‘Email notifications’. By clicking this, the user is taken to a page where email settings can be changed. This page provides highly granular levels of control, however, at 21 check-boxes, it would be beneficial to include a feature to select all or none of the boxes to be checked. Further boxes could then be checked, or unchecked, as the user desires. An alternative to this is providing pre-set options which could check a pre-determined selection of boxes related to different terms (e.g. ‘Frequent’, ‘Infrequent’, ‘Only Important’).

Google+ allows the user to change email notifications via the ‘Google+’ sub-page in the Settings page. Similar to Twitter, disabling all email notifications involves un-ticking 24 check-boxes. An ability to select or de-select all boxes would be useful for quickly enabling or disabling all emails to the user.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 2.5. Allow partial anonymity if desired.

Features promoting partial anonymity on Facebook can be achieved in different ways. First, a user can choose to not appear in search engine results via privacy settings (see Recommendation 1.5). Additionally, information from the profile about the user can be

removed, although this will result in frequent prompts to resubmit that information (see the investigation on Recommendation 1.7).

A person can view public tweets on Twitter without signing up for an account. In addition to this, users can make their tweets private and prevent others from finding the account via the user's email address. There is, however, no way to prevent an account from showing up in Twitter's search feature or on other search engines. This would be a useful option for those wanting greater levels of anonymity while using the system.

Users on Google+ can prevent their page from appearing on search engines via the settings page. Similar to Facebook, information about the user can be removed or not added, however, this will also result in prompts on the user's profile for the user to write this information.

Scoring:

Facebook	Twitter	Google+
+	+	+

Rec. 2.6. Allow simple removal of contacts.

Facebook friends can be removed via that contact's profile. On the profile, the user can select a gear icon which is located on their cover photo (not the gear icon at the top right of the header). Clicking this icon makes a drop-down box appear with the ability to 'Unfriend' the other user. Again, both gear icons should ideally be clarified with text (e.g. 'Your Settings' for general settings, 'Friend Settings' for settings regarding a specific contact).

Twitter's contact system works a little differently to that of Facebook, with an asynchronous connection mechanism (Followers). When viewing a profile on the system, the user can hover over the 'Following' button which then changes to 'Unfollow'. Clicking this will stop the user's account from following the other user. In order to remove someone who is following the user, one can 'block' the second user. This prevents the second user

from following this account. This is not explained well on the site. Additionally, it is not clear that hovering over the ‘Follow’ button provides more functionality. An additional ‘Unfollow’ link could be provided alongside the other controls in the user drop-down menu, providing all information in one place as well as having the additional button for those who know of it.

Google+’s contact system is similar to that of Twitter. Users can hover over a ‘Connect’ button on another user’s profile to make a one-way connection. This prompts the user to add the second user into one or more Circles. The user can then undo that connection by hovering over the same button and removing that person from their Circles. This method of removing a contact, however, may be unclear to those new to the site as it is not clear that the button will remove a contact. Users can also block other users who are following them.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 2.7. Allow categorisation of contacts.

On Facebook, while it is possible to construct ‘lists’ of users, this is quite challenging. Better implementation of this is seen by Google+ with the ‘Circles’ concept, where the functionality is more prominent and is introduced to the user early and as a core function.

Twitter allows users to categorise those they follow into ‘Lists’. Lists can be created and subsequently accounts can be added to it. Lists can be public or private. For public lists, all users categorised will be notified, however, they will not be notified when added to private lists. Lists are only for reading content, thus, a user cannot send a public or direct tweet to members of a list.

Google+’s ‘Circles’ feature is the main way of categorising contents on the SNS. The user can add contacts to one or more Circles (e.g. ‘Family’, ‘Friends’, ‘Colleagues’) and

then have specific content only visible to one or more of those Circles. Using this method, a user could upload photos to family and friends but not colleagues. This method of categorisation is prominent within Google+, and is a core component of the SNS. It is an effective way of providing highly granular, but simple, control over contact categorisation.

Scoring:

Facebook	Twitter	Google+
±	±	+

Rec. 2.8. Give users control of which contacts see what content.

Similar to the last recommendation, this is possible on Facebook but it can be quite complex to implement. One method is to create a new private message and add multiple respondents, however, this can be time consuming when sending content to many users, and those users will receive notifications that they have been messaged (which may not be appreciated if the message is not directly relevant to them). When creating content such as statuses, users also have the ability to change who will be able to see it, as outlined in Recommendation 1.3. By selecting ‘Custom’ from the list, the user can select specific people or lists of people (whitelist). Alternatively, the user can select individual people who will not be able to view the content (blacklist). While similar in principle, a better alternative would likely be implementing functionality similar to that of Google+’s ‘Circles’ concept, encouraging the use of this categorisation.

Other than Twitter’s ability to make tweets private (see Recommendation 2.3), there is no easy way to control content in this way. Direct (private) messages can be sent, but only to one user at a time. Additionally, lists can be created but tweets cannot be visible only to those on a specific list. This functionality would be useful as it would allow different personas to be active on one account (e.g. sending specific tweets to family members and other tweets to work colleagues).

As outlined under Recommendation 2.7, Google+’s ‘Circles’ feature makes it easy to

choose specific groups that should be able to view content. This coupled with the clear method of selecting the audience for new content, outlined under Recommendation 1.1, makes Google+ effective at allowing users to control the audience of all content posted, with a high level of granularity.

Scoring:

Facebook	Twitter	Google+
±	-	+

Rec. 3.1. Use a simple, but bold, layout on the site.

The Facebook UI can appear somewhat cluttered due to its use of three columns, each with several rows and small fonts. While ‘simple’ is a subjective term, improvements could be suggested, such as a larger font, less columns, more white-space (padding) and less content on the screen.

Twitter’s layout is much cleaner than that of Facebook. Two columns separate content (tweets) from profile information, trends and informational links. URLs and most images contained in tweets are not expanded by default. Information regarding accounts that have retweeted or favourited that message and a quick-reply box are also collapsed by default and expand when clicked. Additionally, since tweets must be 140 characters or less, messages are generally short. These features result in the user’s Twitter feed consisting of compact, succinct messages with little clutter. A larger font with more contrast on some of the text (e.g. light grey on a white background) are suggestions to improve this further.

Google+’s layout makes good use of white space to prevent clutter, but improvements could still be made. The home page consists of two columns of content, however, one might be unsure about the differences between what’s in one column and what’s in the other. The two columns could potentially lead to the site appearing overly cluttered. Unlike Twitter, images, videos and links are all displayed in an expanded form on the site. Google+ also allows users to upload moving image files (.gif files), creating the potential for lots of

moving pictures on the interface. This can take away from the simplicity of the design by introducing overly-busy interfaces. Google+ gives the option to the user to change the site formatting from two columns to one, however, the site does not make this setting overly obvious. It may perhaps benefit users to promote this change more. Currently, there is no way to disable moving images or prevent images from showing.

Scoring:

Facebook	Twitter	Google+
-	+	±

Rec. 3.2. Reduce or avoid advertisements.

Targeted adverts are placed around Facebook on both the News Feed and profile pages. These adverts can also, on occasion, show friends who have engaged with, liked or recommended pages or websites. These adverts occupy an area separate from content, and therefore when the user scrolls down throughout their news feed, the adverts stay on-screen. While adverts help keep the site free, reducing the number of adverts or presenting different interface components based on age are both compromising alternatives for mainstream commercial sites.

Twitter does not contain adverts in the traditional sense, rather, users can pay to ‘promote’ their tweets to a larger audience. This is likely to be a better method of monetisation on a SNS as it reduces clutter on the page and maintains the simplistic layout of the site. Promoted tweets are additionally infrequent, reducing the potential for people to feel bombarded with adverts. Promoted tweets appear clearly marked at the top of the user’s Twitter feed and subsequently do not stay on the screen when a user scrolls down through content.

Google+ does not currently show adverts or allow content to be promoted.

Rec. 3.3. Clarify if the site has a financial cost or is free.

Scoring:

Facebook	Twitter	Google+
-	+	+

On the sign up page, text clearly indicates that using Facebook is free.

Twitter does not specifically clarify whether or not the service is free on the home page. This should be stated for new users who are unfamiliar with the site and are concerned about charges for using the service.

Google+ also does not explicitly state that it is free to use. People with the misconception that the site costs money to use may be discouraged from signing up due to this.

Scoring:

Facebook	Twitter	Google+
+	-	-

Rec. 3.4. Reassure users that suitable security measures are in place.

Facebook makes use of HTTPS for the secure transfer of data (which is often represented by a padlock on the browser). On the sign up page, there are also links to the site's terms and data use policy. The data use policy contains both a simple, straight forward explanation of the site's practices (which includes pictures) as well as a text only formal version. The site's terms consists of well-formatted text with mostly simple terminology. Additional security features involve mobile verification and security settings.

Twitter also uses HTTPS, conveying a sense of security to the user. On the sign up page, while there are small links at the bottom of the page to both the terms of use and the privacy policy. These are not as straight forward as Facebook's policies, and subsequently, an approach similar to Facebook would likely improve feelings of security as it would

allow users to understand the terms and privacy policies of the site without reading lengthy legal pages. Other security features exist, such as phone and app verifications when the account is signed into.

Similar to the other two SNSs investigated, Google+ makes use of HTTPS. Mobile verification is also optionally available. The sign-up page contains links to both the terms of service and the privacy policy, however, the language used in these policies are not as clear to the user as other sites. A simplified page with these policies, in addition to a formal legal version, would allow users to better understand the security implications of using the service.

Scoring:

Facebook	Twitter	Google+
+	±	±

Rec. 3.5. Provide support to explain/help/guide users through tasks.

By clicking on the gear icon at the top right of Facebook’s interface, an option for ‘Help’ appears in a drop down box. Additionally, there are options for accessing the help guides at the bottom of the page (which is difficult due to access due to reloading content) and at the bottom of the right bar beneath adverts, however this is collapsed under a ‘More’ drop-down box. Despite potentially being difficult to find if the user has never used the site before, the help is quite effective at giving guidance and quick links for completing tasks, although some features require the user to know the terminology before the results can appear. Giving the help functionality a more prominent place in the interface would help new users discover the support section and subsequently learn tasks and terminology.

Twitter requires similar steps to access the help pages. These pages can be accessed by either clicking the gear icon and selecting ‘Help’ or by clicking a link beneath the column with the user’s account information. The link beneath the user’s column are not underlined and use a light grey font on a white background, potentially making it

difficult to notice for some people. The help pages allow the user to enter a question into a search box and provides a number of front-page links to presumably frequently requested solutions. In addition to the help section, new users are shown a tutorial which explains terms, demonstrates how to follow accounts and encourages the user to follow a number of popular accounts to populate their Twitter feed from the start. This is likely an effective way of explaining the features to new users and getting people started on the site.

Google+ also has a basic guide, which finds friends and pages on the site when the user first signs up and identifies important components of the interface. When conducting tasks for the first time, the tutorial points out additional features of the site. For example, when creating content for the first time, a window appears instructing the user that clicking on the downward arrow beside the content allows the user to edit or delete that content. Via the navigation drop-down box to the left of the interface, a link to the site's 'Help' page is included, however, this link also uses small, light grey font on a white background. This link could be made more prominent. The help section provides a search box, providing instructions and information about several aspects of the site.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 3.6. Avoid unnecessary complexity when changing settings or completing tasks.

While this recommendation is somewhat difficult to investigate due to its subjective nature, insights into complexity can be seen with issues highlighted in the text of other recommendations for Facebook. For examples, see Recommendations 1.3, 1.5, 2.1 - 2.4, 2.6 - 2.8.

For Twitter, a simpler interface reduces the complexity in using the site. There are, however, similar issues to that of Facebook. Assumptions (such as the use of visual icons without text, default levels of privacy and hover-over functionality) still require the user to

know features of the site. This combined with poor colour choices of links could lead to users becoming frustrated at being unable to complete tasks.

Google+ avoids some of the assumptions that Facebook and Twitter both make, e.g. labelling some buttons in addition to icons, however, assumptions still exist for some buttons and features on the site. Hover functionality is still used to show extra features of content on Google+. Additionally, extra functionality becomes available on profile pages when the user scrolls down, which is not immediately obvious.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 3.7. Avoid drastic and frequent changes to the site.

Facebook is known for changing drastically quite frequently, making it potentially difficult for new or casual users to use the site. For new users, they lack the experience of features, terms or icons that may have been streamlined throughout Facebook's history (such as changing text labels to icons), whereas casual users may become frustrated when things aren't where they expect during a significant redesign or feature introduction.

Twitter's interface has largely remained consistent in recent years. This reduces the likelihood of issues arising from casual users being unable to complete tasks or becoming frustrated due to moving interface components.

Google+ is relatively new compared to Facebook and Twitter, however, the interface has changed to a moderate degree over time.

Scoring:

Facebook	Twitter	Google+
±	+	±

Rec. 3.8. Avoid technical terminology.

Technical terminology is minimal on Facebook, although the site does use several terms which may be either new or not consistent with more traditional uses of the words. Such terms (e.g. ‘Status’, ‘Friends’, ‘Like’, ‘Timeline’, ‘Notifications’) could potentially be vague or misleading for new users, but have some form of logical reasoning behind them.

Twitter also avoids technical terminology, although new terms and existing words with slightly different meanings are also present. The terms used on the site are often suggestive of what the feature does, such as ‘Follow’ and ‘Trends’. Other terms could be improved by clarifying the key characteristics of the feature (e.g. ‘Private Messages’ rather than ‘Direct Messages’).

Google+ also uses existing words for features while avoiding technical terminology. These terms may be unclear as many are not suggestive of the feature (e.g. ‘Circles’, ‘Hangouts’, ‘Mute’). However, most terms used are effective in suggesting what the feature does or represents (e.g. ‘Add a comment’, ‘Trends’).

Scoring:

Facebook	Twitter	Google+
+	±	+

Rec. 3.9. Avoid using ‘small print’ check-boxes for additional services/information sharing.

Facebook does not contain a check-box when signing up, however, it does have the following text: “By clicking Register, you agree to our Terms and that you have read our Data Use Policy, including our Cookie Use”. This message is in reasonably small (11px) font in grey (against a light blue-grey background). The text should be larger, with bolder text.

Twitter also has a text box on the sign-up page specifying that by creating an account, the user agrees to the Terms of Service, Privacy Policy and Cookie Use terms. This box

contains 11px grey font on a light grey background and clicking it opens up the full Terms in formal, legal language. Similar to Facebook, steps should be taken to emphasise this agreement with larger text and more contrast.

This is also the case for Google+. The user must click a check-box which states that they agree to the terms of service and the privacy policy. This text is more prominent than that of Facebook or Twitter, using a 13px black font on a light grey background.

Scoring:

Facebook	Twitter	Google+
±	±	±

Rec. 3.10. Reduce or avoid emails to the user by default.

By default, Facebook emails regular summaries of activities from friends. While measures have been taken by Facebook to reduce the frequency of these emails, this Recommendation is strongly linked to Recommendation 2.4 (having control over the frequency of emails). Ideally, Facebook should only email important account information and make the settings to change this more obvious.

Twitter, by default, has all 21 email check-boxes (see Recommendation 2.4) checked, resulting in frequent emails being sent to the user. Important information should be the only option selected, allowing the user to choose what emails they would like to receive at a later date if they desire.

Google+ also has a large number of check-boxes for email notifications which are all checked by default. It would be preferable if this was reduced. Signing up for a new Google account to use Google+, however, involves also creating a Gmail account. All emails are configured to go to the new Gmail account unless otherwise specified.

Rec. 3.11. Follow accessibility guidelines.

Scoring:

Facebook	Twitter	Google+
-	-	-

Facebook has a dedicated section in the help and support area of the site for accessibility issues. This provides information about features and technologies for using Facebook with assistive technologies. One challenge, however, which is not unique to Facebook is alt-text on user-generated images. Facebook outlines a number of potential solutions to those with disabilities and provides a report feature to notify the developers of issues experienced when using assistive technology to access the site.

Twitter has built in keyboard shortcuts, which can be shown by pressing '?', to facilitate access without a mouse. Support with different screen reader software has also been outlined via the official Twitter blog ¹. Again, user-generated content, such as images, usually lacks meaningful alt-text. A dedicated section focusing on accessibility would be beneficial for the help option.

Google+ has a feature in the options to 'Change the presentation of some pages to work better with screen readers and other assistive tools'. In addition to this, improvements have been made to accessibility features on the site.

Scoring:

Facebook	Twitter	Google+
+	+	+

7.3 Discussion

This chapter presents an outline into how, and to what degree, the recommendations are currently represented in three mainstream SNSs. The recommendations have been used as a method of identifying potential modifications to the SNS interfaces aimed at making the

¹<https://blog.twitter.com/2013/improving-accessibility-of-twittercom>

	-	±	+
Facebook	7	11	9
Twitter	7	11	9
Google+	4	10	13

Table 7.1: A summary of how each of the SNSs conform to the recommendations. + means that the SNS does a good job, - means that the SNS does not conform to the recommendation and ± means that the SNS somewhat conforms, but more could be done.

sites more in-line with the views, opinions and needs of older adults. While potentially negative aspects of each SNS have been identified, positive aspects have also been outlined. Outlining these positive aspects can potentially be used by developers and designers who are constructing a SNS with a focus on inclusion.

7.3.1 New SNSs

Conducting this investigation provides an insight into how one might design a new SNS which is inclusive of older adults. Components and features of the best-fitting SNSs for each recommendation may suggest approaches to avoiding current barriers. Such a hybrid SNS may, for example, have features similar to Google+'s 'Circles' functionality and content audience selection, Twitter's simplistic and consistent design, and Facebook's approach to clarity over data use policies and settings. Each mainstream SNS has both strengths and weaknesses in regard to the recommendations. By utilising these strengths, one could outline the design of a SNS which aimed to provide a more appropriate platform for adoption with older users.

Google+'s implementation of their 'Circles' concept is potentially a particularly effective solution to mitigate some of the concerns raised in this research. It is a method of categorising contacts into groups (Recommendation 2.7) while also providing the control to the user to be able to select who sees what (Recommendation 2.8) and reduce the potential for social blunders (Recommendation 1.3). The site also provides a labelled button for navigating to settings (Recommendation 1.5), requires that the user consider the

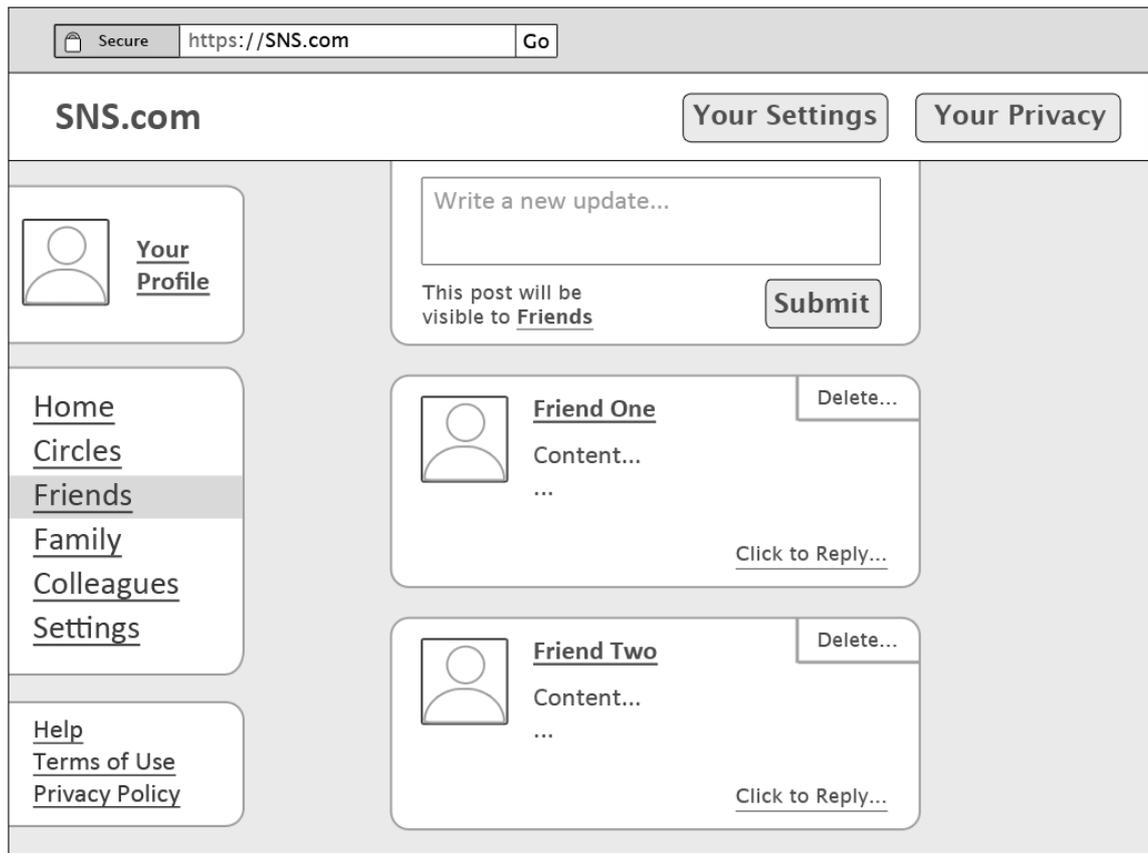


Figure 7.4: An example wireframe prototype design of a new SNS based on the findings from this chapter. The foundational components are a combination of different aspects of popular SNSs.

level of privacy that content will have when starting on the site (Recommendation 1.1) and currently does not have adverts (Recommendation 3.10).

Twitter also does particularly well in regard to some of these recommendations. The site has a simple two-column format (which reverts to one column when scrolling through content) and hides or reduces the size of images on the homepage. The site also hides information about the tweets by default (number of retweets and favourites, replies and timestamp) which is made available when the user clicks on the content. While this click-to-expand feature requires that the user knows about that functionality, the compression of content and the 140 character limit provides a uniform and consistent interface when browsing through tweets.

7.4 Summary

Three mainstream SNSs, Facebook, Twitter and Google+, were qualitatively investigated according to the recommendations outlined in chapter 6. The aim was to explore which requirements were currently being adhered to by each SNS and to what extent. The outcomes of this investigation identify different strengths and weaknesses of each of the SNSs and suggest features which are most closely aligned with the findings of the previous chapters.

It is proposed that by taking into account the strengths and weaknesses of existing SNSs, new sites could be developed in such a way to provide a more appropriate platform for older adults. Such a site may, for example, make use of several positive components from each of the mainstream SNSs while avoiding negative features.

This chapter explored the three mainstream SNSs in the context of the recommendations. The current practice of each site in relation to each recommendation was outlined and discussed. Several suggestions of improvement have been raised. This chapter firstly generated insights into how new SNSs could be developed and also provided an example of how one might use the recommendations to evaluate and improve a SNS in development.

Chapter 8

Conclusions

8.1 Summary

This research has explored issues relating to the adoption of social networking sites (SNSs) experienced by older adults, and subsequent recommendations for developers, designers and stakeholders of SNSs have been identified. It has shown through an exploratory case study that when used, the recommendations can lead to improvements in task completion rates, perceived usability scores and user preferences.

Two focus groups were held with older adults to explore opinions and concerns regarding SNSs. These focus groups were transcribed and coded using a method based on thematic analysis. Two key papers in the literature were additionally used to verify consistency and strive for theoretical saturation. From this analysis, themes were identified, each relating to an opinion. These recommendations were then compared to the original transcript quotes to ensure that nothing was misinterpreted. The recommendations suggested steps that developers could take to improve SNSs. Overall, 32 initial recommendations were derived from the themes.

Despite generating these recommendations from focus group transcripts, there was a need for evaluation and verification. A counterbalanced study was devised, firstly, to explore the impact that these initial recommendations may have on a SNS, and secondly, to

measure participant agreement with each of the recommendations. A prototype SNS was created, imitating the design and functionality of Facebook (Control UI). This offline SNS had pre-generated users and content, and a profile was set up representing the participant. A second UI version (Modified UI) was created which adhered to the recommendations.

Older adults were recruited to participate in the evaluation. There were two parts to the study. Firstly, participants completed a prototype evaluation, completing eleven tasks on both UI versions. Additionally, the participants completed a form after attempting each task on both UI versions asking which version the participant preferred. A System Usability Scale (SUS) was also completed for each UI version after all tasks were attempted. The second part of the study asked participants if they agreed with each recommendation, verifying each one.

Statistical analysis identified differences in SUS scores, task completion rates and user preference rates between the Modified UI and the Control UI for the prototype evaluation. 27 recommendations were accepted per the verification questionnaire with 5 initial recommendations being rejected (median response of 'Strongly Disagree', 'Disagree' or 'No Opinion').

With a final version of the recommendations, the researcher then looked at three mainstream SNSs (Facebook, Twitter and Google+) to see which recommendations were currently adhered to and to what extent. This investigation identified unique core components for each of the SNSs which followed the recommendations better than others. These components were used in a discussion to outline how a developer or researcher may design a SNS to best follow the recommendations using existing concepts. This chapter additionally provided an example for how one might use the recommendations to evaluate an existing SNS.

8.2 Contributions of This Research Project

This research produced: (i) a set of recommendations for improving SNSs for older adults; (ii) a framework for identifying user-centered improvements for complex systems in which opinions can act as a barrier to adoption; and (iii) an outlined example of how these recommendations could be applied and used for both new and existing SNSs.

8.2.1 Recommendations for Inclusive Social Networking Sites

A core contribution of this research is a validated set of recommendations to improve SNSs for older adults. These have been evaluated and show positive improvements in regard to task completion rates, user preferences and perceived usability scores.

These recommendations have varying applications. Firstly, developers and designers within industry can choose to use the recommendations to make new and existing SNSs more inclusive for a wider age range. This may be a mainstream SNS with a desire to branch out by catering for families, or a new site attempting to provide support to groups who may be in need. The creators of such sites can choose to use some or all of these recommendations and subsequently use the examples provided as a guide for how they could be implemented into a working system.

Secondly, researchers can use these recommendations to support the design of a social platform for older adults in different contexts. Such an example may be telecare. Increasingly, research is exploring potential healthcare applications for SNSs [Leist, 2013].

Thirdly, researchers can explore these recommendations in order to refine, build upon or to conduct more specific research on this topic. Such a potential use may relate to future research identified in this chapter. For example, studies could be conducted to explore and compare smaller age ranges of older adults (e.g. 65-74, 75-84, 85+) or to explore how including or excluding specific recommendations can alter the outcome of the results. Such a use of the recommendations would likely help to improve and refine them for future theoretical and practical uses.

An additional layer of context is included within this research. In addition to the applications of these recommendations suggested above, the thoughts and opinions of participants regarding each of the recommendations can also be followed. This, in conjunction with the focus groups, may provide added context about how older adults feel about each of these barriers. Such context may aid the creators of such sites in future design decisions.

8.2.2 Framework for Identifying Improvements in Complex Systems

Another contribution of this research is the outline of a mixed-methods approach to generate recommendations from complex systems where opinions can act as a barrier to adoption. This framework can be used to subsequently demonstrate improvements on such systems using real-world examples within a counterbalanced study. This approach could be adapted to derive recommendations from other complex and dividing technologies or different age groups.

The framework is unique as it involves creating a simulation of a real life site. This allows an investigation into how the derived recommendations may impact a real life site. Making a replica also bypasses any issues associated with not having access to the code of the original site or not wanting participants to sign up for a real service. The framework is outlined as follows:

1. Conduct focus groups or interviews to outline barriers to adoption
2. Transcribe and analyse findings using method based on Thematic Analysis
3. Derive initial recommendations to avoid barriers to adoption
4. Construct a replica of complex system. Create two interface versions. One which acts as a likeness to the system as is (control version), and a second which follows the recommendations
5. Conduct a counterbalanced, comparative study between the two interface versions

6. Administer balanced questionnaires measuring agreement with each recommendation
7. Analyse and interpret the results

8.2.3 Applying and Utilising Recommendations to Improve Systems

The research also provided an example of how the recommendations could be used to evaluate and improve existing sites. Additionally, it suggested how conducting these evaluations with existing mainstream sites can identify core design principles for new social networking sites during early stages of planning and development.

8.3 Future Work

8.3.1 Practical

This research presents 27 evaluated recommendations, however, future work can investigate how these recommendations could be used in a practical way on new and existing mainstream SNSs.

Browser Extensions for Existing SNSs

One such method could be through browser extensions. A browser extension is a program that can add new features or functionality to a web browser. Such a program can be used to modify the way a web page is rendered, e.g. not displaying advertisements, or add new features.

With the ability to alter the way a page is rendered, existing sites can be modified by specifying new values to overwrite some or all of the HTML, CSS and JavaScript values on the client side. Such alterations may increase the font size, or set parts of the webpage to not be displayed. In terms of future research, such an extension could be created to apply many of the design-based recommendations to mainstream SNSs. While

an extension would not be able to, for example, change default settings, prevent unsolicited emails or add new functionality to the SNS, other recommendations, such as removing advertisements, hiding invasive or irrelevant components or clarifying features of the site, could be achieved by using this method.

Future research could therefore involve the creation and release of a browser extension which attempts to make use of many of the recommendations. Such an extension could be used by people on real SNSs, and real-world evaluations could take place. This would help to further understand the impact of the recommendations and open up the ability for longitudinal studies. Through A/B testing, the comparison of similar web pages with an individual minor difference, recommendations could be evaluated individually in order to further advance the collection.

New SNSs

Another practical use of the recommendations for future research could involve the development of a new SNS. The recommendations could be used in part or in their entirety, and research could investigate the adoption and use of such a site by older adults. These new SNSs could have different focuses, such as family communication, general communication, healthcare or support. Creating a new SNS could allow detailed longitudinal investigations into how such sites are used.

Multi-Layered Interfaces for Existing SNSs

A multi-layered interface is described by Kang et al. [2003] as “the use of two or more interfaces each containing a pre-determined set of features of growing complexity”. One method of utilising the recommendations may be for developers to implement a multi-layered interface for existing SNSs. While the method of implementation outlined by Kang et al. suggests multiple levels for users of varying stages of experience, another implementation could be multiple levels for different types of user (i.e. age). When signing up for such a SNS, the user could either enter their date of birth or select a relevant age

range. If the user is over 65 years old, the system could make use of a different UI template to that of younger users. This adapted template could implement the recommendations to the SNS. For example, the homepage for a user over 65 may contain text as well as images and no adverts. The same homepage for a user aged 20 may contain image-based buttons and adverts. Such a method may allow for the recommendations to be achieved for users over 65 while maintaining the unmodified interface for younger users. Future research could investigate this as a method of making the SNS more inclusive for older users while maintaining the existing UI for younger users.

8.3.2 Theoretical

Theoretical future work could extend upon these recommendations to further investigate how SNSs can be made more inclusive for older adults. Two potential areas for future investigation are suggested.

Granularity of Age Ranges of Users Over 65

As outlined in Chapter 2, an individual aged 65 may have very different experiences, abilities and constraints to that of an individual aged 85. The term ‘older adult’ is a broad definition which can be used for a wide range of individuals. While age is not a perfect predictor of ability, future research could explore this limitation in regard to the recommendations further. It is possible that some recommendations could be valued by those aged 65-74 while not being relevant for those aged 75-84. By conducting a similar process to that of this research, yet with more granularity of age ranges, one could investigate how to better improve SNSs for users within this broad age range.

The Influence of Impairments on Specific Recommendations

Similar to the above suggestion of future research, it may be worth investigating how different impairments of varying levels of severity may influence the need for some recommendations over others. An individual with a visual impairment may need some

considerations, whereas an individual with a motion impairment may require a completely separate set. By investigating different groups with a similar framework to that of this research, more tailored recommendations could be created for more granular groups of people. This and the age granularity suggestion could also be investigated within the context of the ‘Multi-Layered Interfaces’ suggestion of the ‘Practical’ future research section; A SNS could be investigated which tailors the UI based on information provided to the system, such as age and any relevant impairments (if the user chose to disclose such information).

8.4 Returning to the Research Question

Returning to Chapter 1, a research question was proposed:

How can a collection of user-centered recommendations be derived, validated and evaluated to improve SNSs for older adults with regards to task completion rates, user preference and perceived usability?

Two sub-questions were additionally identified:

1. *What would such recommendations contain?*
2. *How could such recommendations be used by developers, designers and stakeholders in order to evaluate and subsequently improve both new and existing SNSs?*

This research has outlined a framework for developing such a set of user-centered recommendations. Focus groups can be used to identify both positive and negative features of SNSs, and can identify improvements based on needs that are not currently being met for older adults. The transcripts of such conversations with older adults can be analysed using a method based on thematic analysis to derive an initial, unevaluated set of recommendations. Key papers from the literature can also be used during the analysis process to measure congruity and push for further theoretical saturation.

Once initial recommendations have been derived, a method of evaluating the recommendations is to develop a prototype system which is a replica of a real system or website. This is a unique approach and solves several issues associated with conducting studies on complex systems. The prototype should have a control interface and a modified interface, and a comparative evaluation can take place between these two interface versions. In addition to the evaluation, a questionnaire can be developed which measures and verifies participant agreement with each recommendation.

The results of this research demonstrate that the use of the derived recommendations improved task completion rates, user preference rates and perceived usability when completing tasks on the prototype system. The final version of the recommendations are presented in Chapter 6. Several areas of improvement are suggested, including considerations for both the design and practice of such sites. Default settings, the reduction of assumptions of prior knowledge, greater levels of control, easier navigation and simpler UI designs are all suggested to make SNSs more suitable for older adults.

Regarding how the recommendations could be used by developers, designers and stakeholders, examples are included in the research. Firstly, the focus group findings and transcripts allow readers to gain context behind each recommendation. Examples are also provided to show how the recommendations were used for the Modified UI during the comparative study. The recommendations are then used to investigate existing social networking sites. This investigation acts as an example of how suggestions for improvements to these sites can be identified, as well as also highlighting how such investigations could lead to the conceptual design of a new SNS by extracting the best design components of each site.

8.5 Limitations

It is a recognised limitation that, since the SiDE user pool members have agreed to take part in computing research, it is likely that many have an interest in learning technology or

already know about technology, and therefore it may not be representative of the general population in terms of non-Internet users. While biases exist, all participants for all studies in this research were recruited under the precondition of being reasonably confident using computers. This aims to explore the issues of SNSs to those who could use such a technology, but in many cases have made a conscious decision not to. Additionally, the SiDE user pool contains members with a wide range of ages and contains members with and without different disabilities. Participants in this research were all over 60 years of age and any relevant disabilities are outlined in the appropriate study sections.

8.6 Conclusions

As Social Networking Sites (SNSs) increase in popularity, more services are adapting to this trend. Older adults, however, are much less likely to use this technology than younger adults. This signifies a digital divide if SNSs continue to be used more widely for communication and diffusion of information. This research has argued that by considering the needs and opinions of older adults, a more acceptable and useful platform for online communication can be provided.

This research has created a verified and evaluated set of user-centered recommendations for developers, designers and stakeholders of SNSs, aimed at improving such sites for older users. The results of a comparative evaluation show that the utilisation of these recommendations increased perceived usability and task completion rates, and participants preferred the UI version which made use of the recommendations statistically more often than that of the control UI. The findings suggest that careful design considerations can improve SNSs for a greater number of people, creating a more inclusive environment for online communication between family and friends.

8.7 Final Remarks

This research attempts to further our knowledge of older adults and SNSs in a way that has not been attempted before. Previous research suggests measures that can be taken to improve SNSs for this cohort, however, that is usually where the research ends; previous research makes no further attempt to query whether the improvements being suggested are an accurate reflection of the needs of older adults, or even if they would make a difference to the usability of the sites in question. This research addresses this problem.

The methods proposed in this research have multiple dimensions of impact: The recommendations can be used to improve existing SNSs, they can be used to design the foundational components of a new SNS, and the framework presented can additionally be used to explore and address reasons for disinterest across different cohorts and technologies.

Whether older adults choose to use SNSs or not is ultimately up to themselves. This research makes no attempt to coerce or apply pressure to older adults who do not want to use such a technology to do so. Rather, the intention of this research is to explore *why* older adults may not want to do so. This thesis argues that by designing SNSs for a greater number of people, these sites will provide the best possible service to anyone, in terms of design and practice, if ever they choose to use them.

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Appendix A: Focus Group 1 Transcription

- How does everyone use technology? What technology do you use?

- iPad 2. The thing I like to do best. I use google a lot and I use Skype a lot. I bank a lot and I shop online for my groceries

- I recently retired. I use technology all the time still. I use the messaging systems and I still use it for teaching and delivering courses. I probably spend half my day on the computer in one way or another. I also am an author of books so I use it a lot for word processing

- I use mine for banking, travel, just searching information, shopping for the good lady. What amazes me is I've been retired for 5 and a half years and it was the girls I worked with that got me into the Internet. I've always been able to use the computer for word processing and I've always been able to use the systems at work but on the web, it keeps on expanding. Anything you want to find out on the net, you can go on the net. I met a boy on holiday and I wanted to know more about him. I typed in his name, he's now in South Africa. It told me all about him. It's mind boggling what it can throw up. I feel people at even my age who don't use it are missing a lot. Some of my friends used to say "So and so's on the computer, he's been on there for hours, he's got lost." Now I can understand that because once you start doing things... I live in Longforgan. I typed in Longforgan and a whole host of historical information came up. The height it was above the sea, maybe useless information if you're not really wanting it, but if you are wanting it, it's amazing. And that's just on the immediate search, that's not your 3 million odd hits. That's just the first two or three. You can go on old Dundee, or Dundee streets, whatever it is, but yes. I

think it's an amazing thing. Don't know where it's going to stop though. And it's on touch screens and, not that I've got a touch screen.

- You don't have to touch them, you just speak to them.

- But the technology to me is developing so rapidly I just don't know, you know. Keeping up with it is a problem.

- I would agree, it changes so often that it is hard to keep up with it, but I use it for really just what everybody else uses it for. Banking and travelling.

- I forgot to mention emails. I've got Skype but I don't use it.

- Well I use it a bit, but I don't use it that much. I sometimes use it just to phone somebody on their own phone rather than Skype to Skype but I mean, my daughter's in New Zealand and I'm looking up the websites to see if the planes are cancelled. Just endless, everything.

- I use the computer for two of my hobbies. One of them is family histories I do quite a lot on the research of my family history, and for bridge, there are bespoke programs for that. I control two websites for bridge clubs and Skype and emails and just about everything else.

- I'm much the same, I've got two websites. One's for family history, but there's very few of us left, and one's for the war of 1812. So I do a lot of work transcribing documents for that sort of thing, and shopping ofcourse. Emails, word processing, Excel, but I've had computers since year dot, even before the Uni started up and they had their own email systems.

- Do you feel the same as what some other people have said, that it's moving really fast and at times it can be quite difficult to keep up?

- No. It's not difficult to follow. Although I'm interested with the new net addresses, if that's going to affect us.

- You're way above my head now. *laughs* Skype, email, writing letters or documents, Buying things off email, researching different things. Ooh, tracking how far I walk. My daughter showed me that one, and it's quite interesting. I suppose there are other little bits

and pieces but I'm very much an amateur, but it's fun.

- I'm a bit of a dinosaur. I haven't got Skype, I email in Google and I shop on Google. I do photographs with video and digital cameras but that's just a minor thing. I'm still trying to struggle with Tesco's Internet savings. They've changed it and I've got *something* up logged on, and I don't know. Computers and I, I don't think are compatible at times when it comes to things like that. I like to speak to a human being, like where do I click on, so I'm a dinosaur.

- So apart from what you just mentioned, do you tend to explore what the web has to offer, or do you just stick to what you use?

- I don't know an awful lot. I can look up things if I want to, google earth things if somebody bought a house in the family. I like to know where it is, and things like that. Just to get a picture of where they are because two or three of my family have bought houses down south and we just like to see where it is, so that's quite exciting to know where they are and things like that, but that's really about it. I do a lot of buying on google, but that's what everybody does.

- There's quite a mix of different things that people use the Internet for here. There's a couple of things that kept on coming up. People mentioned Skype, email and research. I'm quite interested by the use of Skype, so when people use it, is it just informal with family members?

- Generally, yes.

- Ok. One of the things we're looking at is designing for people over 65. At times they're not seen to be represented online very much, you tend to get sites that are designed for teenagers, and we're looking at areas that can be built upon. So we're thinking about designing a website around a local neighbourhood. Does anyone have any thoughts on that?

- Can I just say, one of my biggest drawbacks in using computers is the keyboard skills, because of my finger. *jabbing gesture*

- Well don't use it. Speak to it.

- Well that's maybe coming, but as I say I know when I was working with the girls in the office here that really introduced me to it, I mean they could sit and type and sing and have a conversation and everything like that, and very very quickly, even searching, it's very slow, because, you know...

- I think it's a skill though that you can learn very easily and there are free programs on the Internet to teach you. But ten minutes a day is all it takes.

- Well possibly. I'll stick to doing it like that *jabbing gesture*

- Earlier on I stopped because I knew keyboard skills were important and I took ten minutes a day for a few months and I can type at about 65 words a minute. But it's just a skill, a repetitive skill. It comes very easily if you take the time. And as I say, it's like learning to play the piano or guitar.

- It's not as if you use a qwerty keyboard and numbers all round it, but you see the secretaries that have been trained secretaries that then have the computing and then go the way back to the word processing and that. They're magic on the keyboard.

- I'm so bad if I went like that I'd be going back correcting it.

- I've got very heavy hands for keyboards and, it's just a faint touch on the keyboard and the key's done.

- My husband's sitting there and he's banging and banging and I say "Would you go easy on that keyboard"

- For over 65s, the majority who didn't go into work or school and start on a computer. I find that a downside. But as I say, voice things are coming in, but how they're going to do that I don't know.

- I hate all the websites you have to phone up and say what you want. 9 times out of 10 they don't get it. They're not good I don't think.

- Voice recognition is still relatively early. There are programs you can train to listen to your voice and you train it to listen to your accent but I've tried them in the past and I gave up very early on.

- I was interested in what you said about the websites being designed for younger

people. I log on to Virgin and they asked me if I would do a survey and I said yes, and one of the things I said was the front main page was designed for 18-28 year olds. They were of no interest to me whatsoever and I get out of the front page immediately because I'm not interested in anything.

- **What sort of stuff do they have?**

- Links to music sites, make-up, drinks and...

- The only thing I use on that page is the email.

- Yeah exactly. I go straight to the email button. I just daren't look at it. I told them that.

- That's a point about the virgin email. They tried to slip one through when they were changing to Gmail. What they didn't ofcourse tell you was they're keeping your email on their servers, so I've kept mine so that all my stuff is downloaded onto my machine.

- I'm the very opposite. I erase mine immediately and keep it in the email.

- I've got it set up for four email addresses and because Virgin made a complete mess of it I have four copies of every email coming to me. It goes to every inbox.

- There's too much information.

- It's another basic office skill not to store your emails beyond a certain date unless you have a reason to, because your computer will slow down anyway and keep loading it up with stuff.

- I certainly use it for music a lot. I recently bought wireless headphones so I can walk around the garden. Most people I know do use it for music.

- **You were saying about the Virgin front page, it has nothing really relevant to you. Do you think if things were a bit more, generally what you are interested in you would...**

- It is very badly done. If you're trying to find or get your account like that then you've got to have all the passwords and information to hand and you've got to really drill down.

- It's also like the mail where they keep wanting to update it and you have all these stupid animations like that, that really bugs me.

- I'm listening and I'm thinking, you know, some of the things, music for instance, I'd love to use, but I don't know how.

- With regards to the front page, I use iGoogle for the front page, and you can tailor that and you can put on what you want, and that's the best thing to use because I don't use any commercial front pages. I just go on to iGoogle, and you can put your own links in, and it keeps me up with the weather and everything else automatically.

- That's what I do also. I very rarely go into the Virgin site because, only if I want to get into the email.

- My daughter has set these things up for me. I wouldn't have been able to.

- You just have to fiddle about with it. I don't like things to beat me.

- The more you fiddle about, the more you learn.

- When I'm trying to find out how to do something I always think "I need to note it down" and never do. It's usually six months later and you've got to go through the whole thing again.

- Once you've solved it or done it, and then you think "That's fine", six months later you think "how did I get that?"

- I came across a program, it was very very simple but it could actually record you doing everything, so I did that, because each Christmas I print out all of the addresses to labels.

- What about a very local site giving information about the street you're on if you're happy enough to say "I'm in DD4..." and you could see if there were things like roadworks going on? If there was anything that would really impact your daily life... What are your thoughts on that?

- If it's kept up to date it would be.

- Up to a point it would be useful but there isn't a lot. I mean, local weather, local roadworks would be good, but after you go beyond that it would, with things like history and historical stuff, you can choose to go into that when you want.

- Local events might be quite good. Something that's coming up within sort of a two

mile radius or three mile radius of what's going on in the neighbourhood.

- But you can do a lot of that on the BBC website, because you can put in your postcode and it will give you local events, so it's there if you know where to go, but on a home page, I think it would be fine, but there's a limit to how much you could populate it with.

- But it'd be populated with advertising like "Eat at Joe's" and things like that.

- Opening times of shops and that sort of thing.

- They tend to fund it. Let's face it.

- I just ignore all the adverts.

- I think part of the trick is knowing what search to do to get the information you want.

- Getting the right words, yeah. That can be quite difficult sometimes.

- I know when I went to the uni, they used to have courses for the staff, interrogating as it were the searches, and it's a knack on its own to put in the right google to get the answer you're looking for, but you can stick in any hotel name in the world and just press and it comes up. It's just colossal.

- Yeah it is quite amazing. I have actually been sending someone I met in the far north Christmas cards for years now.

- I think that's quite interesting. One of the interests I have is the idea of very localised websites to do with, say, the street you live on. One of the other things we're thinking about is if we gave the opportunity for people who actually lived on that street to add the information that was important to them, like, say you knew about roadworks that were going on then you could let everyone on the street know, and that way it necessarily wouldn't be funded by adverts to add the information that is only really relevant to them, it's up to the people on the street. There might be an offer on at the local shop or something like that. What are your thoughts on the idea of, for one, you adding information to this website or happily enough reading information that's been put up by someone else?

- Do you mean that you could actually update the website?

- Yes

- Like Wikipedia.

- That would be dangerous, I would think.

- Your email is going out to everyone in a street. Do you want your email to be personally known... Once it goes down the street it can spread out. It depends how private you like your email address or that sort of thing.

- Who would monitor it?

- Emails are not private anyway.

- But I've got one email for business and I've got one for family and friends and I don't trust that with all the things... You know, once you've bought something, suddenly you get 20 the next day that they've obviously passed on to other folk and it's just, you're deleting all the time on that. But at least there's one that's purely for family.

- I think it would very quickly become populated by rubbish.

* Everyone agrees *

- If you leave it for people to do then there's a limited number of people who are over 65 who are using computers anyway, and what about all the people who don't use computers. You've got to think how they get the basic information such as roadworks.

- Or you live in a very dull street.

- Or you live in a very exciting street, but you daren't put it on the Internet.

- **You said that would be dangerous?**

- Well from bitter experience from my family history society we had an open page and we had to close it down.

- People post nasty things, about neighbours and about other people on the estate, or rumours.

- And who's going to take the old information off, if people are quick enough to put on, like "Family picnic at Number three", but who's going to take it off next week?

- You would need a monitor for that sort of stuff.

- It would need to be known that you could rely on the information and it was current.

- There's a site for Longforgan. I found the geographical elements are good.

- Monikie, where I live, has it's own website and it gives you the history and it gives you all these links, but I wouldn't need to count on one hand how many times I've used it.

- It's not an updated site, it's monitored, but essentially up to date information is not a part of what goes on with these sites.

- I would seriously fear what people would put on it if it were open for people to post. I mean people can be really perverted and nasty about neighbours and friends or dogs over the road or cats

- Look when somebody dies and suddenly they send a sympathy to a young person and then somebody turns nasty and writes some really unpleasant thing and the family are distraught with what's been said on the Facebook or whatever it is. It's just, but once it's there it's open to the world.

- Facebook is your example.

- I had great trouble getting myself off Facebook. I had a terrible job at it. Eventually I got a little app I think it was, or some sort of mini program which took it off, and I just tried and tried and tried. I changed my name to "Surname, A. Family name, A" and even that, I just gave up on Facebook.

- Yes, Facebook. I thought I'd just see, and then I'd just put in the barest details and it said "Would you like to link with these people?" And I looked at the names and I thought "That's funny, some of them are from work." So I thought it must be the geographical area. And then my niece was on and she's up in Thurso and my other niece is down in Reading and I thought "That can't be geographical." Then I realised it had gone right through my email address book and I thought "No", and "Off, no I don't need it".

- It's one thing I have not, I've resisted Facebook, because there was something in the papers recently about Facebook, is that right? I can't remember what they were saying.

- The court case, they were yapping to each other.

- Oh right, a juror was discussing things with a defendant.

- And had the use of Facebook come crashing down in America and Canada, and Britain might be following. People are stopping using it.

- If you use Facebook appropriately and you're careful how you set it up there's nothing wrong with it. I use it all the time, my sons are in London, and their girlfriends and everything else, so we're all communicating, but I don't get any rubbish now, and I think it's all about, you need somebody to come along and set it up with you, or something to make sure it's set up right because otherwise, I find it fascinating, my sons went to America to University, able to communicate with them easily. It has a lot of advantages providing you're careful but that's true of the web in general.

- I think if you're going to set up a local thing it would have to be reasonably wide in the area around, like Tayside or Dundee, and make that your front page and every day somebody would have to be responsible within the group for giving updates, but less personal than just general information, like you were saying roadworks or whatever it is, because I've just passed the roadworks down at Dundee just now and that's horrendous.

- The roadworks would keep it full.

- If then you had it local like that and you asked people like the police if they were going, they get their information pretty quickly, to load it up so that people would actually notice it. Coming back from Perth yesterday afternoon I was held up with that accident. Actually it happened when I was away so I wouldn't have not gone as it were, but if you were travelling up at 5 o'clock you might say "Well I'll leave it until tomorrow". It's the kind of thing that I think it would have to be when you switched on and that was what came up because that would bring it to your attention rather than your normal home page rather than, and then you said "I wonder what's happening" because people usually go in for a specific reason.

- A lot of people would get very bored if the front page came up with just roadworks. Some people don't drive and won't worry about it.

- You're right. I don't know how you do it but your first page and then your second homepage which is the one you prefer, but I think... Am I not correct in saying that there used to be a television channel for Dundee on one of the channels, and that gave a lot of local information but that closed down.

- The funding, I suppose you have to have the adverts and things. That's how it runs.

- When you have nothing to do and you're fiddling about and you think "I wonder what the Dundee program thing is". It's kind of like a local front page. It gives you the weather and anything interesting that's happening in the town.

- Or you can buy The Courier.

- The Courier's not up to date though. The Courier's a day behind at least.

- M: Do you remember last winter when a young couple set up a facebook page about the weather, and people who were stuck, people who were immobile, people who couldn't get out, people who couldn't get up and down the streets of Dundee because of the ice. And so between them they all talked to different people and said that we know that someone's stuck in Lochee, does anybody live up there and can anybody get to a shop and get bread to them? And they went looking for the flat. I imagine their would be scenarios in a local neighbourhood

- But how would you let somebody you know, who lets say is stranded and is an elderly person who doesn't use a computer...

- M: Well that's the point. Someone in your street or in the flat next door to you knows that the lady upstairs, or someone that comes from there who knows, or they phoned a daughter in Newport, and the person in Newport can't get out to get to her mother in Lochee, and they use this social networking site of some sort, or maybe to alert someone. This is how it actually worked, it was quite an amazing set up and it ran for a fortnight I think when the snow was out and about

- It's a bit like neighbourhood watch

- I can see all sorts of legal problems there.

- M: There were problems but social services got involved in order to make sure they got a password in order to make sure that they were vetted and there weren't any rogues

- If you started a neighbourhood watch and if you just started to take an interest in four people round about you like in a star... And if everybody did that you would be encasing

everybody to sort out anybody who's not keen in going out in the car or couldn't get out and things like that.

- M: This was something very sudden, when the snow came down and the shops closed, cars couldn't get up and down the street and it was a very young couple of students I think.

- My daughter lives in Globelane now so she was going round. "Can I get you some shopping?" Somebody phoned me up and said "My, you've brought up your daughter really well."

- M: It might be an activity for local people to get to know each other. It might not just be about roadworks.

- Or you can go round and speak to them.

- I mean the problem with all of this is, you're focusing on the computers and in fact a lot of older people don't use computers, and they're going to get completely left out of any schemes that are being done. It's a very dodgy proposal, I use a computer more than probably most, but I'm not convinced it's... It's good for emergencies, the example you gave I can understand, and it could be potentially useful, except the people in the cars who have got mobile phones so they can phone people to ask for help if they are in trouble which is why I bought my wife a mobile phone so if she gets stranded coming home from work she can phone. Mobile phone fulfils that function more than anything, so I'm not convinced, I mean...

- But we're maybe talking about it as it is at the moment, and in another fifty years I don't know what technology will be like, but if you look back fifty years, everybody didn't have a telephone.

- You'll have a chip implanted here, and you'll see what's on the Internet.

- Even looking five or ten years ahead, there's going to be more and more elderly people like ourselves who are computer...

- The problem will die out.

- Yes.

- **M: I think the point is, researchers like Chris who are working for SiDE research, social inclusion through the digital economy, are well aware that there are huge gaps in access to technology, and the whole point in the research is to develop technology that are cheaper and accessible and available for people who have been traditionally excluded, and that's why he's trying to think "What is it that would?"**

- Well I think what you need is information to help people use the computers, as we've heard round here. The thing that's lacking is easily accessed information about how do you set a website up, how do you go to a website, how do you set up your Facebook. It's not there. If you know somebody, fine, they'll help you, but if you don't know somebody, it's not easy.

- I agree but you've got more basic problems, and that, as you mentioned before, a great number of people won't have a computer in the first place, so they are going to be excluded, so what you need probably is some sort of cheap, freely available, basic computer.

- I've even tried to help an eighty five year old friend, she's used a computer before in the past but her eyesight's not so good and she said "the little arrow, sometimes I can't see it". As we're all getting older our eyesight's not so good. If the keyboard was bigger and the little symbol, whatever, because she couldn't see this.

- You can usually make those bigger.

- I was trying to help her with simple things and she couldn't work the email, and even I could help her with that, she says "Where's the arrow?" and I said "It's down there" and she said "Well I can't see it"

- You can make that bigger.

- That's what we're saying about knowledge. If you don't need to do that then you don't, you just think "Aah I'll just suffer it".

- The other thing is, how do you interest the people who do not have computers, how do you bring an interest, I mean I was dragged kicking and screaming into the twenty first century. I had to use computers at work, but these were programs that were self contained programs, and there was always somebody there to help you if you're stuck, which I did,

and then I gradually became interested, I got an old computer and I fiddled away with that. I bought myself a new computer and I am using it more. But I think if I hadn't had the experience at that last point in my work where I had to use computers I might not have been sitting here.

- A lot of people aren't interested in it.

- Well I gave my mother a computer and she never used it, not once.

- But you see, my wife went to a community thing in Longforgan for a computer course for six or eight weeks and could do things, and then grandchildren came along and said "I've no time to do that now". Now she's back at square one really and you've got to have the inclination to do it.

- You have to lure them in with something.

- My eighty five year old friend, when I set it up I said "You can play games on it like solitaire and things like that", "I just wanted to get used to using a mouse". And she got back to me and said "Oh, I'm managing to play these games", and you could tell by her voice she was a little bit more confident and a bit more relaxed about it. She's a very impatient lady, so she won't wait for things to come up, and then she gets into a guddle as you might say. "Why isn't this coming up" and I say "Give it a minute" you know, but the games have helped her.

- I think a website for elderly people is a good idea, with different focuses that people when they're more mature use rather than the very young people, but I think the other part of that has got to be some sort of physical program where you go round and try and persuade elderly people to use it, and with a product that is simple.

- I think, you said the issue that some people just don't really want to use technology. One of the things that I think is quite interesting as well, talking about the actual hardware side of things, say, the mouse being too small, is actually the iPad.

- That's the thing of the future.

- Well iPads are very small, and I've got two, and if my eyes are tired at the end of the day then I can't really read them without putting on a special pair of glasses, so I don't

think the iPad is the solution for elderly people.

- No I think they're too small.

- The other thing you could have on the website for elderly people is so they could communicate, like I can email my GP and get repeat prescriptions, if they could do that then even if they were a little bit housebound then they could get their prescriptions via their GP and go to the local chemist, and that immediately resolves quite a few problems.

- That's the way I do all my prescriptions online.

- And I think that could be promoted for the people who are apprehensive because the older they are, the more likely they'll need medication.

- They'll just think they're not going to be able to do it, I mean it's not difficult.

- Like anything else in life, it's not difficult if you know how. If you don't know how then it is very difficult.

- You really do need some instructions. If you start with a blank sheet of paper and say "Right"... You really need somebody to say... I prefer somebody showing me rather than reading a book.

- Reading a book is only good if you know how to do it.

- Chris could set up a team to go round and show people.

- I think community education provided for an elderly group on simple, like shopping, email...

- And using simple terminology

- ... Rather than miles wide, keep it down to the half inch that you really use, instead of the local...

- But you've still got to get them there.

- Correct but if we cut out all the mumbo jumbo, the books and everything like that and somebody just saying "Look how simple it is, you press that key. And that comes up".

- If you travel round local groups, as you say, part of their local bowling groups and that

- To my next door neighbour who is eighty three, she won't entertain the idea of a

computer but she does telephone banking frequently, and you know, she'll do that.

- As I said I liken it to the telephone fifty years ago where not everybody had a telephone.

Now, I say, 99

- The good thing is, in the future you'll have an age group coming in that have grown up with computers so probably the problem will diminish with time to some degree, but there is still a problem with cost and a lot of elderly people don't have the money to run a computer and to have broadband and all the rest of it, and there is a side of it that you're always going to have a group of people who are not advantaged enough.

- Ah, that's the point, you're quite right. They need access to broadband ofcourse. That's probably the real stumbling block.

- Could we be able to jump back into the topic, one of the things that was brought up the last time we were talking was, you mentioned email addresses. You weren't happy with everyone knowing your email. How important would privacy be to everyone on a site like this that noone maybe knew who you were on this website, noone had access to your email address, couldn't send you messages. Do you think that would help at all?

- I just like to communicate with people or companies I want to communicate with, I do not want 40,000 rubbishy things that... Cold calling, you know, and I really do object to that, because you know, if you sign on and you've bought something from a company you can guarantee, half an hour later you've suddenly got a whole wedge of things and you just spend half your time deleting and it really bugs me so... I've got one just for family which I don't disclose to... I never buy anything on that one.

- I've got a spam thing done and I think that works. I got somebody from Abertay University who was very good, and he set that up for me, purely for family.

- I think to answer your question very shortly, privacy is very important.

- That's the short of it.

- I think privacy is kind of going out the window, and I do banking but I know of a friend and my daughter, both of whom have had money taken out of their account.

- I'm concerned with that. I'm very careful, when you get these little boxes "Would you be prepared...", but they're very clever. Some of them you click them and you think "I'll click them all", well you don't. You've got to read them very carefully in tiny tiny print, so that's what I'm concerned with.

- As we're getting older it's getting harder to read these small print details.

- I find my finger slightly faster than my brain and I end up getting things I really do not want and my computer's completely "Slow down" and...

- But that of course, if you were talking about security, the key thing is again, cost for person. You've got to buy a decent anti-phishing and the rest of it software and you're starting to talk about more money. Broadband, protection programs, the computer itself, I mean how many elderly people are going to want to spend the money on it.

- I know, I go for the free one.

- The one that's free I think... They're always trying to get you to buy them.

- **When people say things like "A Social Networking Site", what's the first thing that comes into your heads regarding that?**

- Something like Facebook comes to my mind.

- There's so many out there, messaging systems, but Facebook is the one that jumps into your mind.

- **We talked a little bit about... What are your thoughts on it?**

- I like it. I use it but I think you need to know how to use it and I don't think the majority of people do. I only know how to use it because my sons are very computer literate and they told me what not to do and what to do and I set it up.

- I'm not interested in it.

- I think it's something that can be abused, and there are always people who try to do what you really don't want them to do

- But I haven't had any trouble, it is possible to do it

- I just use it for looking at people to see what they're up to.

- I'm just afraid of the connotations. I've heard too many horror stories .

- I think that's why so many elderly people are put off from starting, because they've heard all the stories, it's in the press, you know, you'll see all the problems and it puts people off starting because they feel "Oh gosh, I don't know enough to be able to protect myself".

- They're scared to do anything incase they wreck the whole lot

- I think Skype's probably a better one for folk with relatives abroad et cetera, it's just sort of like a telly telephone

- It's very good, you know, because I use it probably more just phoning phones, rather than phoning Skype because it's very very cheap.

- But the thing is too, you know, you can go round with your camera on the computer and show folk your house in New Zealand or something, you know, where, I think that's fantastic. I know the son in law, his brother has just gone out to Australia and they found it great that the grandparents could see the family and once a week they had a wee Skype session and that was fantastic.

- Google bought up Skype and it's not working as well as it was so time will tell. Skype is going to change.

- Bombarded with adverts

- You're phoning New Zealand, you can fly there for only 335. That's what's going to pop up so we'll wait and see. I'm cynical now.

- **So do you think sites like Facebook would possibly influence your decision to use other social networking sites?**

- Facebook is good enough so I only use the one and I've never had any thoughts about using anything else. I mean I use Skype as well but to me it's not a messaging system, it's a phone system.

- The only trouble I had with Skype [Facebook] is, and I did use it and I did take myself off as I said earlier, I was getting messages from complete strangers wanting to be my friend. I wondered "What on earth is this person in Taiwan want to be my friend and where did they get the information for that? What were they after?"

- That's right it does that.

- That's never happened to me.

- No I haven't either.

- Maybe I didn't set it up properly

- That's the problem

- When you get emails from Nigeria and all these places.

- I only have two people on Skype and that's my two sons in London. We video conference with them regularly and I've seen him playing his bagpipes in his flat and everything, you know, it's great.

- I think it's wonderful. I love it

- But if you haven't set it up right you may be worried, and you may get stuff like you were saying. And so it's the setting up that is what's needed for the elderly people.

- If you go on from a laptop it automatically puts the people that's on Skype on to there without you doing anything. Now I know strangers could possibly get on to my Skype because I have contacts protected. Would you like to see them? This is the most amazing thing I've ever bought in my life. (holds up iPad) It really and truly is. Now there's the Facebook one. Why don't you have a Wi-Fi because I can't get the... I'm not gonna swear, and there's Skype

- Technically the system I was describing earlier, the kind of very localised website where people can post messages about what's important to them, technically that would be a social networking site. I'm just curious as to whether that changes your thoughts on anything

- You were describing a site I think that had sort of local information on it rather than sort of personal contacts so it's not... I wouldn't have thought it was social in that respect, more of an information bulletin board really

- If it's local, people aren't going to need a social networking site because hopefully they would walk down the road or your principle and knock on somebody's door if they've got information

- How local?
- Your original concept of a local site is fine.
- Street.
- To me that's far too low.
- There wouldn't be enough happening on one street.
- It would have to be an area.
- You could do by postcode.
- A postcode's even smaller than a street.
- There' only five houses in my street and my postcode doesn't cover the whole street.
- I mean a block of postcodes
- DD1 or 2 or 3, 4, 5
- The difficulty of doing that of course is DD1 and DD2, there's some places that's maybe across the street from each other
- Ah yeah that's a point.
- Yeah that's what I'm saying so you maybe have to do all the DD postcodes
- Like DD2
- But I mean if you've got a car, folk go 10 miles and go up to *inaudible*
- The thing is you're going to need a webmaster for the concept. You'll have somebody who's responsible for putting stuff up and taking stuff down.
- And a backup for when he's on holiday
- That's right.
- Yes that's right.
- Who's going to pay for the server space?
- But that maybe comes into Cameron's big society thing
- St. Andrews University have a website a bit like that with various things, it's called The Sinner. And I mean they've got various groups in it, and there's accommodation and people who are looking for accommodation and...
- It's run by the students isn't it

- I'm not sure who it's run by
- I think it's the students union
- I think it could be, but it's certainly run by people because they check your... If you want to put an ad on it they run it through
- Check it out, yes
- Check it out and then put it on and then generally people leave an email and they can reply to it or you can post a reply on the site. They have accommodation, they have advice, things that people want to sell and maybe five or... different things on that.
- This is open to the great unwashed is it?
- It is because I use it
- Well that's alright then, it must be okay
- But I don't use it much but I'll have a wee look at it but, you know, I mean. People put... if they've got a house to let out they can put an ad on to let it out and various things like that
- But the difference is it's open to everybody but not everybody can post on it, and that's why it's not a social networking site
- You can post on it but you have to go through a *inaudible* type thing. But it's quite interesting.
- It's been running for quite a while.
- It's been running for... I don't know.
- My sons went to St. Andrews
- Well my daughter went to St. Andrews and certainly I've seen it since then.
- It's been up for eight years or more
- This is why you've got to keep the information really simple and simple terminology, especially if you're wanting to get more mature people into using computers like "This is a mouse", you know
- People tend not to have it simple enough very often. They don't realise how simple simple really is

- It would have to be very basic

- As if you're teaching a one year old child, not insulting people...

- Or have it very pictorial, because they found that people cope better if they've got pictures, like "This is a mouse", "This is your screen". It sounds daft but it always helps people to get started and if people already know that they can skip the pages, but from personal experience on work days when we had a pictorial booklet to show somebody how to use a piece of machinery and it started off "This is a pump", "This is a stand" and people say "Oh is that what you mean? Right, yes" and it was a book of about twenty pages

- Builds their confidence

- Screen shots as you say are ideal

- Three pictures to a page and two sentences to a picture, and we found that people learned very quickly with something new and it was really an eye opener. This company got it right, in a booklet. And that was about 15 years ago.

- Is your project aimed primarily at the concept of a social networking site and local information?

- Yeah it's very much local and what I'm looking at is the social aspects of that, so kind of sending messages between people. I think it's quite interesting though what you say though that it would need moderation

- Yep.

- Definitely.

- It would need moderation and I think what's on the website would need to be enough to draw people in and it needs to be aimed at people of an elderly character because there isn't a website in the world that, as far as I can see... Even if you go to Saga, it's as complex as everything else and what you need is a straight forward website in which there is a lot of support information. Then you can go round and physically try to persuade people to buy computers, but again, computers, broadband, protection, there's a serious problem I think for elderly people.

- They also don't know what sort of computer to buy a lot of them and they go into

these shops and they sell things that really are not suitable at all for what they want

- When I got my last laptop I asked two people... The father did a lot on computers and the son had just finished a university degree so they actually told me more or less what to look for so I went into the shop and I said "I need B, C and D" and I got a really good deal and when I got it home they said "Oh that's perfect, it's just what you need", but it was very nice to have somebody giving you...

- Yes...

- It's a bit like Which? You know. If you're looking for something you're not familiar with it's quite nice when you look through it but I was lucky to have these two people to help me.

- Most people probably don't have these people

- That's right

- No I didn't either

- So if you wanted a social networking context maybe a link to somebody... I have a site in India that protects my computer remotely and I can go on line and I can chat with them and say "I need this, I've got a problem with that", maybe you need the equivalent of that for elderly people who can go online and say "What sort of computer do I need" and hopefully they'll interact and say "Well what do you need it for?" and something like that in a sort of social networking framework might work.

- But not too much information on the first page I think. Because a first page rammed with information I think you don't really know where to start

- It's got to be simple

- Should you have to go into another page...

- I just have one very quick yes or no question. There were a few people that said they had recently retired from work. Does anyone use LinkedIn?

- What's that?

- Somebody had been trying to get me to join. I couldn't be bothered with it

* 3 people say * Never heard of it

- I was invited to join but I didn't

Appendix B: Focus Group 2 Transcription

- I want to have an idea of the background you all have of SNSs. What I want to do is go around the group and ask how you use them.

- I use it very little. I only use the computer if there is something I want to know about. A cheap hotel, or something like that, or a holiday. It's more of that sort of thing I do. I'm not really interested in getting 700 friends on Facebook or anything like that.

- Even, if you use it maybe once every three months then that's fine, because you still go on. I'm still interested in how you use it. Even if you've signed up and never used it since then, I'm interested in what caused you to sign up and things like that.

- I press the delete button.

- The delete button where?

- Things that come up. I don't read anything that comes up unless it's of some interest to me.

- On SNSs or...?

- I'm not sure. What do you mean by social networking? Facebook and that sort of thing?

- Yes, a site like Facebook, Twitter or LinkedIn.

- I don't look at any of these because I'm not really interested. I could be missing something but I won't know unless I try it.

- So you've never tried Facebook?

- No.

- I'm a person who has a computer on all day. From first thing in the morning until last

thing at night, mainly because I sell books on Amazon but I play with SNSs. I have never joined LinkedIn because I thought I had to pay and I don't pay for anything.

- I go on Facebook most days but I don't put anything on it, I just look. But I'm not particularly interested I have to say because it just seems to be every day, you know, just what they did yesterday. I go on twitter some times when there's something that people are debating about. I follow Alison Graham who writes for the radio times, who is funny, but I go on other people and I think "So what?", you know? I don't find it particularly riveting, and I didn't know about LinkedIn.

- I hadn't heard of LinkedIn either. My daughter in law asked me to go on Facebook because she was posting photographs of my grandchildren on Facebook and I just find it appalling. I don't like it at all. I just find it... It's... A friend of mine had got a new dress and somebody had put a rude comment against it and I thought "Oh god, is this what Facebook's about?". No. If she wants to send me photographs, let her send them to my Internet (email). I really can't see any benefit in Facebook. I've had the occasional contact from somebody I hadn't seen for a long time. I haven't had contact from a lot of other people I haven't seen for a long time, and as I say, I've got a good friend network. I don't need people I don't know to be my friend. So very negative.

- I'm on Facebook every day. I love catching up with all the cousins and nieces and nephews and what their news is. I very rarely put any of my news on because I think they'd probably take me off. So I'm just nosy and I'm on it every day. I love it. And I know it can cause problems though. I've come across that in my own family, but on the whole I think it's good.

- I'm a Facebook freak. I'm just a nosy person. I like to know what goes on. I basically joined it because a friend in Australia kept on at me to. And it is a good quick way of just having a wee chat if she's online and I'm online, have a wee quick chat. I get her news; I get her pictures of her family. I kind of use it that way, and you can also spy on your kids. My daughter said "Oh mum, what are you doing, going on Facebook?" she says "That's like going on a night out with your pals and your mum comes." I like it. I'm on it all the

time. I've got an iPhone and I just keep... "Let's see what's happening now."

- I was on Friends Reunited from the very beginning, just because I'm into computers and I got onto it from the beginning. I don't access it very often. Family got me to go on to Facebook. I got on to Facebook about three years ago. I don't use it an awful lot. My wife's on Facebook as well so she tends to look at it every day. So she tends to say to me "Oh there's some nice photographs of the family on" or something so I'll go and look at those. I don't comment very much on it. Twitter, I'll have a look at now and again. The only thing I find with it... Though and so saying, a cousin of mine got in touch through Facebook and I haven't seen her in over forty years. She's married so obviously I didn't know what her married name was but now we're back in touch. So I suppose it has some good aspects to it. The only thing with it is I don't like the use of the word "Friends"...

- I was going to say that.

* General agreement *

- ...because they're not actually friends. You've got your close circle of friends who have been friends forever, basically. I think it should be something like "Contact" or "Acquaintance" or something. You see people with thousands of friends. Friends? That's the only thing. The other thing is that I get a wee bit annoyed because I keep getting emails from Facebook. Just about one a day, or two or three a week. "We notice you haven't been on Facebook for a while" so I just delete those. But I go on when I feel like going on.

- You're talking about Friends Reunited as well. I've actually found that, I mean I only go on in when they send me an email and remind me, and I found that quite interesting, just for old photographs.

- I've actually Googled school photographs, and I've actually tagged names of people who I remember from school, and it's amazing how many people have actually come back and said "I've noticed you put my name on. How are you doing?" sort of thing, and then somebody would come back and say "Oh that's not me, I'm here", you know, so there are just little things like that which I find... But I don't use it an awful lot.

- **And what were the motivations for people starting, signing up?**

- Just other people encouraging me, you know. People kept sending me requests, and eventually as I say it was my friend in Australia. She says "Go on it. It's an easy way of keeping in touch." And it is, and that was what started it.

- With me it was Friends Reunited. That was basically the first one, wasn't it? Maybe it wasn't but I think it probably was the first one, and curiosity I think was what made me investigate. As I say I like computers and all that sort of stuff. So I think it was a curiosity thing. Facebook was purely family, because my family don't live in Dundee so it's a nice way for them to put photographs of the kids and the grandchildren and stuff, so it was good. Twitter, well, occasionally you'll see something on it quite, as you say, something quite funny or something like that, but that's the only reason, in my case, why I got onto it.

- I was always wanting to go on it because I always heard the kids talking about it and this kind lady asked me to be a friend.

- Well I said it was my daughter in law that encouraged me to look at the photographs of my grandchildren but now she keeps asking people to be my friend and I've got all these people I don't know who want to be my friend and I hate that.

- Just ignore them.

- And that's what gets peoples' backs up. "Why are you not speaking to me".

- No I just don't want to speak to you.

- You just get too many.

- You do.

* Universal agreement *

- I think it's the fact with Facebook that you get friends of friends of...

- You don't have to.

- You don't but you can get that.

- How do you get rid of them?

- You used to be able to quite easily.

- If you use the privacy settings then you don't have to get involved

- I'm sure my daughter in law, because she's hooked on it, and I'm sure it's her that

keeps sending me... They live in Australia and I think it's just... (incoherent)

- I think there's a lot of stuff that comes automatically on to your site from others who leave themselves open, because I've got stuff about somebody I know, who's an acquaintance really, but I get all her stuff. Photographs and everything. Does she know I'm getting that?

- Probably not. That's the thing that older people worry about. We're coming to that, aren't we? About how private it can be.

- **You said you aren't on the sites. Do you have family members who try and convince you to go on?**

- No, not really.

- Mine are appalled that I am on.

- So's mine.

- My daughter had a new boyfriend and I went on Facebook to find out all about him because she wouldn't tell me. We then went to a family gathering and she brought him across and I gave him my name and all his information and he nearly fell through the floor.

- I think you're what's called a stalker.

- Since then all their websites have been tightened up. No information given.

- **So, did anyone, when they first started, did anyone need help to set up an account? You did?**

- Yeah I'm not computer literate. I just call for the family and they... Anything goes wrong with the computer and they just...

- **So it was family members that helped you?**

- Yeah.

- **Ok. So no one else had any...**

- No problem downloading it...

- Just remembering passwords.

- **So what are the kinds of backgrounds of everyone who didn't have trouble? Are you all quite experienced with computers?**

- No. My husband died eleven years ago. Our house was stacked full of books and everybody said you have to sell them and you'll get a pound each and I said "I'm not getting a pound each" so they started me on a computer to sell them.

- I actually started on computers in the early 1980s when the machines were about two disks and all this sort of stuff, and in design work, and it just ended up as a hobby basically. I just about do everything online. Banking, holidays, travel, you name it, anything at all that you can do. And it is quite secure if you're careful. I never feel unsafe.

- I just started because I had time on my hands and I had to retire, and I wanted to do things, and I would say to my daughter "Come and show me how to do this." So she would come, and she would put her hands over my shoulder and she'd go "That's it done." No. I want to know how to do it.

- How to do it. Yes.

- So I went to a class and just developed an interest from there.

- I think it's something that you can develop into lots of other areas. I mean I have gotten into photography so I do a lot of photographic stuff, and it's amazing what you can do and adapt and change by using different software programs. And just little things like that. And now my wife, who wasn't really into it, she got a laptop about 2 or 3 years ago and she's now into doing photography, and she's been recently scanning loads of old slides that we've had for years, because you used to have to get the old projector out, but now of course you can scan it. She's got all that stuff, and it's just because she's got an interest. She's just now beginning to think "I can do this" and "I can do that" and it's amazing. The only problem is that a laptop and Molly is a danger, because time after time she says "I've just booked a couple of days here" or "I've just been on..." and I get the bill.

- Ok we'll jump on to the next question. We kind of discussed briefly which SNSs people used and which people didn't use, so I guess the next question is who makes up the majority of your contacts out of say friends, family members, people you work with or used to work with?

- I'd say family.

- Family, yes.

- Family. But I do have friends and workmates on it.

- It's funny. All my ex workmates, we all just communicate by email.

* Agreement *

- If we have a get together, it's always email, we never use...

- And you can actually find somebody, you can find people on the Internet that you've no means of finding. I mean I bought silver at the Edinburgh Art College years ago and I tried to find the guy and I couldn't find him and when I keyed his name in, I found he was a teacher in a certain school. Then I wrote a letter to the school and found him. I've found a lot of people that way, that I don't know where they are...

- **So it's mostly family members then?**

* Mostly general agreement *

- Friends.

- **Do you have any family members on?**

- I've never looked. I've got two brothers, I've never looked to see if they were on it. I'll look tonight.

- **How often do you log on to these sites to have a look around and how often do you go on to actually put up photographs or messages or communicate with people?**

- Well I go on Facebook every day. I don't put photographs up every day but I have done.

- I don't put anything about myself up on... But I go on it every day.

- **How often do you post messages or anything like that?**

- Not very often.

- **So you mostly go on to have a look at...**

- Like if it was my grandson's birthdays and they're not living in Dundee so I sent them messages. "Happy birthday" but apart from that I don't really put a lot on. You see people saying what they had for their tea.

* Agreement *

- I know and that's what turns me right off.

- But youngsters tend to do that.

- I just send emails to people when I want to and they send them back. That's the way I do it.

- Certainly I mean photographs because my family live away from Dundee so we get photographs of the grandchildren. But it's not usually me that finds them, it's usually my wife that finds them on my laptop so she'll say to me "Have a look on Facebook, there's some nice pictures of the kids on it" and I'll go and do it, but I suppose I've got to be prompted.

- I'm on quite a lot every day, but I don't actually put an awful lot on.

* Agreement *

- I don't at all. I maybe if somebody else has put something I just normally share it but I'm not into this "What I had for my tea last night"...

- No. Can't remember.

- ...And put it as your status and things like that, but I like to... Maybe a wee comment now and then if people put things on.

- You often see these strange, weird and wonderful videos, wee snippets of videos that people put on that are happening all around the world and it's really great. It is.

- Yeah.

- But then if you want to see those, you can go to some place like YouTube or...

- But it just sort of focuses you on it.

- The one I look at quite a lot is live leak and it's actually an American site and if you want to see these stupid people then that's where to go. Unbelievable, some of it. I'm often heard laughing when I see some of the stuff.

- I went on to YouTube last night. I was trying to send Simon's Cats, but I couldn't figure out how to send it on Facebook so I gave up.

- Is there not a share?

- Uh-huh I pressed it but it didn't tell me what to do so...

- So how often do you go on and how often do you share anything?

- I wouldn't share anything very often, no. Once in a blue moon. But I'll look at it every day but I wouldn't share anything very often.

- As I say, my cousin, she got in touch, well I got a note to say that this person wanted to introduce... And I didn't recognise the name because she'd obviously married and I didn't know what her married name was, and I went back and it turned out that it was my cousin. I hadn't seen her for over forty years. But now we're back in touch and I'm actually going to go and visit her shortly, but that's the only thing I could say. A couple of folk... Well, there's a girl contacted me on Friends Reunited and said she thought she knew me, and she came back to me and said "Did she know me?" so I said "Yeah, you know me" so I wrote back to her and said "Yeah you do know me. In fact we actually went out together once or twice, but I obviously made a very big impression". So you can imagine the lovely comment I've got, and she's kept in touch, but that's the only thing I would say.

- What does everyone think of SNSs?

- It has its moments, it's very useful at times. I'm not interested in tittle tattle. It can be extremely useful. The bad points are the tittle tattle and the rubbish.

- The other thing about people putting a comment on is you don't know how they're saying it, and it could cause problems.

- It's a bit like text messaging isn't it? It can mean a different thing written down than it does when it's said.

- Lack of command of the basic language nowadays is half the problem. They'll say something and it'll mean something totally different, and completely miss the point sometimes I think.

- Lack of spelling as well.

- Yes.

- Oh isn't that bad? It gets on my nerves. I feel like writing back to them.

- But then we have an example every day if you listen to the Scottish Parliament, you hear how good the grammar is, so there you go.

- What about Skype, does that come under that? I've two brothers and sisters and they've got grandchildren, and they live in different parts of the world, and these children all know each other because they communicate through Skype, and I think it's great.

- That's good, isn't it? It's great.

- And as a fact, my wife's brother, she has a brother who lives in New Zealand and her sister in law is actually seriously ill at the moment and they're on Skype to each other just about every other day, which is good because she sees him, so by seeing her brother, she'll say "How are you?" on the phone and he'll say "Oh I'm fine", but if you see him you know how fine he is. And the granddaughter, she often comes on to Skype because he'll be sitting there and suddenly you'll hear "beep bop" and you'll hear "Hello Granddad", so she's obviously bored and nothing to do and she thinks "I'll speak to granddad."

- But that's what would happen at home, wouldn't it? If they lived close to you.

- You're absolutely right.

- No I think Skype's wonderful.

* Agreement *

- Never used that.

- **Do you have any opinions of the bad points?**

- No to me it just seems to be a great thing because I've watched the kids, they don't sit there and talk the whole time, they go about what they're doing and playing. One will say "Oh granddad, look I got this new car, I got this!" and they chatted away as if they were in the room.

- Of course that generation, they're not so inhibited with it. They just treat it as normal, everyday, where as our generation tend to be a little bit inhibited.

- And they'll go away from it. They don't sit there all the time. You see them round the room, and the great thing is the kids really know each other.

- It's great.

- So it's like when all the families lived together, and everybody knew their cousins, didn't they. They were all together. Then the world became such an easy place to get to, so

it's bringing everybody back to it.

- My friend's daughter emigrated to Canada at the beginning of the year and she was devastated because she's got four kids and they lived around the corner and she just thought "I'm never, ever going to cope with this." But they're on Skype at least once a week. She sees the kids. They see her and they don't make a mess of her house. She says it's definitely made it much easier.

- I must admit, this year at Hogmanay we managed to get into NZ right on midnight and the whole of my wife's family were at one end and we were at the other, and that was good. It wasn't midnight for them but it was midnight for us, and it was great because we were able to stand with the drink and say "Happy New Year" and it was the middle of the day for them. But that was good. To see everybody and to speak to everybody, but as you say it is social networking of some sort.

* Agreement *

- People are usually concerned about privacy, aren't they?

- Security is my worry.

- The only thing I would say on that is if Facebook update the software, you get a software update, sometimes when they update it they very sneakily remove your privacy stuff and I get quite annoyed about that. I don't think they have a right to do that. If that's the settings you have they should not tamper without your permission.

- It's changed again this week. Have you been on this week?

- No I haven't but that's why I've raised the point. Molly mentioned something about it yesterday and I thought "I must go on and have a look".

- They're forever changing things.

- That's what I get annoyed about.

- There's no need to change...

- We were saying about people putting nasty comments.

- Mmhmm.

- **Is that something that bothers people?**

- I'm not bothered about the bad points.
- I think, having seen it with a friend, that's one of the things that's kind of put me off.
- It's open to bullying.
- I think it goes on a lot more amongst young kids.

* General agreement *

- We have a website, a chap called *something*, a chap in Auchterarder every day and he also has the police traps and the road blockages and the accidents and all various things and I go on to that. It's on Facebook and you go off that and on to other things and you get all of the local information.

- My brother actually has a weather station in Carnoustie and he has that on the Internet, and he's got records of the weather in Carnoustie for the last five years or something, but you can go on to that and he has links to various different things on that.

- My daughter's a weather forecaster in Leuchars.

- She's probably a lot better than what we get on the television anyway.

- **We mentioned privacy and security there. Anyone have anything to add to that?**

- I've had occasional, not a lot, but occasionally had problems with updates, where they'll do an update and it doesn't quite do what you expect it to do. Just occasionally. More so with Friends Reunited, because they did an update and something went wrong and eventually they had to come back and say there had been a revision to it and sometimes I get a wee bit concerned when you update whether it's actually going to work or not, but it's maybe just me.

- Do you have to pay to join Friends?

- No, no. It's free. And it's also got an associated site called genes reunited where you can do family trees. I'm not so sure about that one, and I don't use it because if you start publishing your family tree, then somebody can inadvertently start putting addresses in and it can start getting the wrong people, so I'm very, very wary about using that one, but then I'm probably wrong. It's just... There's just something that doesn't gel with me with that one.

- I would use Scotland's People rather than Friends Reunited.

- Well I use Scotland's People, I mean I have software, is it Family Tree Maker? I bought that bit of software and I input information from Scotland's People. It's quite good because that little package, it wasn't an expensive one, but you can actually put photographs in and you can write the history of people, so if you can remember things about your granny and stuff you can write all of that, so I've actually now got a family tree with pictures of actually great grand parents in the family tree, which I share with members of the family, and one member of the family lives in Cumbernauld and he's actually done his wife's side of the tree, and he's got over eleven hundred entries. I've done his side of the tree and him and I share, so like this cousin I've just got in touch with I've now been able to add her and her family to it, so him and I update it back and forward. It's very interesting.

- I obviously do not know enough.

- Scotland's people's a good site. It's an excellent site. I know you've got to pay for it but you learn from experience how to get away from... By using senses and things you can often narrow it right down and say "Now that's the person I want to get the certificate for", but sometimes you pay for something and it's not what you wanted. If you're careful then you can narrow it down quite quickly.

- How would you suggest improving SNSs, both for yourself, to make your experience on them better or easier to use, or more comfortable for you to use, and how would you also suggest they would possibly improve for beginners?

- I have no idea. I don't even know how to work them.

- I think maybe seeing them a bit less cluttered. There's an awful lot of... Somebody who's new to it looks on it and you just see this massive.... things you can do and information on it, and I think it can look a little bit cluttered.

- There are things at the side and I think "What relevance does that have to me?"

- Adverts, yeah.

- Have you not got a farm? You've got to have a farm. Have you not got your farm

with all your animals on it?

- No I don't.

- I don't either but you can do that apparently. And you can plant your wheat and sell it to someone.

- I can't keep my garden, let alone a farm.

- Its things like that that I find a bit... naff I suppose is the word.

- I'm sure it's interesting for some people.

- Yeah but I find that... It's not... I'm trying to find the relevance of that.

- It'd be interesting to know how many people do it.

- I've got a friend who's out in Shanghai and he was into this farming thing and I kept getting emails saying he wants you to get a farm and trade with him, and I went back to him and said "on you go, go build your oil rigs and give me peace".

- I'm very interested in real farming.

- Oh yeah.

- I can't understand anyone being fascinated by...

- But this is all just cyberfarm, isn't it...

- How do you stop something like that? I get messages from William Hill because I regularly... Telling me that I have 10 credit in my account. Now I've never ever had anything to do with William Hill in my life. I just delete it, but can you stop that?

- Is that an email you get?

- Yeah.

- You can add them to your blocked senders list. If you go into

- It's a damn nuisance.

- It's like one of these spam emails you get...

- I never look at my spam, I just automatically delete it.

- But you can set it up.

- **You said you don't really have an interest, but if someone said to you "Would you join this?", what would hold you back from joining?**

- I suppose laziness.

- Lots of people think it costs and a lot of people think it's something other than it is, and they haven't really tried it. Once you've tried it you get hooked.

- I just think I'm worried about security and personal information on it.

- It's the time... I don't... Because the time it would take to sit there for hours...

- I think that's very valid. I mean I just don't have the time. Plenty of other things that take my interest.

- It takes seconds.

- But don't they talk about some people spending hours on Facebook?

- On Facebook? Oh no. Not hours. I just like to check it and then come off. See what's new.

- It's quite interesting because I've had another focus group a few months ago and the majority of people didn't use SNSs and every time they would mention them they would talk about security concerns and things like that. They had real issues with how these sites were and some people had tried them and found them invasive, but they'd had a really bad experience. It's just interesting that no one here has had a similar experience. Have you ever almost been tempted to stop using it?

- No. * universal *

- I delete anything I don't like the look of.

- Yeah.

- Very easily. All the time.

- Which is actually a very good policy. Especially if you get emails in and you see an email from somebody you don't know. I kept getting ones in, the headline was a security warning from Halifax but I don't have a Halifax account, so all I did was add it to the blocked senders list, so it's obviously somebody at it.

- I entered a competition on ITV or something to win 20,000 and I found myself getting emails from companies I hadn't heard of but right at the end of it it said "if you want to unsubscribe"

- Most of them you can.

- I have a lot of people wanting to buy my property and I started getting emails from America, and if you want to stop these emails then send a letter. It's quite horrendous and all sorts of property people keep... "We have clients with money waiting to buy your property..."

- Just send us your bank account number...

- I am a well known person in Nigeria...

- I am plagued by those... They come to my door even, trying to buy it, because they could make a lot of buildings out of.

- That's the only thing I fear, is the security aspect of it. What could happen as a result of somebody maybe getting access to your... But then, if you've got good anti spyware and stuff like that on your computer and you keep it regularly up to date then you should be ok.

- It is quite interesting, the difference between people who... You guys... And the people I was talking to before. They seemed to be a lot more concerned about things like security and privacy especially, but you guys seem a lot more relaxed about it.

- Just get rid of it if you don't like it.

- Some people think that you must have it, no you don't have to have it, you can get rid of it if you don't want it. If you're uncomfortable with it then you just get rid of it.

- People need to remember that you don't get anything for nothing.

- Even your famous free Skype is not free. It uses quite a lot of bandwidth when it's running.

- And the better the offer, the bigger the scam it's likely to be.

- It's got to be at the back of your mind, hasn't it, security. You've got to be aware of it all the time, but it doesn't really...

- I think you're right, I mean I think you have to be aware of it, but don't get paranoid about it. If you just take simple steps... If you see an email from someone you don't know, you just delete it. If someone really wants to get in touch with you, they'll get in touch with you by another means. It's as simple as that. So it's just little simple things, you don't

have to be paranoid about it.

- **So how many of the people here have changed their privacy settings?**

- Yeah.

- **You two have. Have you?**

- I don't even know what you're talking about.

- I don't bother. I live on my own and I'm very remote.

- I'm the only person in the house, so...

- It's who can see what you say.

- I don't do it.

- Aww *name*'s had a baby. There you are. How good is that on Facebook? It's my friend's daughter.

- **For the people who didn't know what I meant by that, sites like Facebook have settings where you can basically say that only people I am friends with can see messages I send, photographs I put up. You can set it up so that no one can find you by searching, so it's only the contacts that you have that can see anything you put up. Is that something that you would really think seriously about? Would you change your privacy settings or would you not really mind that much?**

- I have a message that says you have no contacts. That suits me just fine.

- I like to think that you can change your privacy settings. That to me is very important. The only criticism I would have of Facebook is they don't make it awfully obvious how you get to change and make your settings. Finding in the menu where you actually go to that, and I think they do that deliberately. I think it's deliberately concealed from you. To me it should be right up there saying My Settings or My Privacy, but it's not. You've got to look for it. It's the same; you've got to look to log off if I remember.

- You do. Uh-huh.

- Does that mean when you put in the name you were looking for, if someone put my name in, they would be able to go on to my page?

- No, no. If your privacy settings are set as such that they can't do it...

- They will be, but if they weren't?
- If they weren't, they could, yeah. If you just leave it public, anybody, anywhere, can read what you've written, look at your pictures...
- They must have set it up for me.
- But this is what I was saying. Facebook don't make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they're saying. That's one of the things that I...
- Definitely changed roles. Instead of you looking after them, they're looking after you.
- You're talking about logging in to Facebook on your own computer?
- No because you're constantly logged in, well I'm not. I log in every time I go in. I don't have it that it instantly comes up. It has my name but I log in every time. It's like your email and stuff.
- Yeah, I just leave mine logged in on my own computer.
- My email I do, but then I don't use Internet. I use Microsoft mail.
- **One of the things that came up in the last focus group as well were a lot of people thought that Facebook especially was quite invasive. Things like messages they would send, emails, and this was actually from the website, not from friends. Every time you see the website prompting you to get back in touch with someone or something like that. A lot of people found that very invasive for themselves.**
- Yesterday they sent an email saying that they were no longer doing that.
- Yeah I read about that at the weekend.
- Policy change...
- They're cutting down on the emails
- And notification emails. You know the notification emails you get if somebody's put...
- Somebody's put interesting comments.
- You can block that now as well.
- Was that just yesterday?

- Over the weekend, yes.

- That's something that does annoy me. You get two or three emails a week. We notice you haven't been on Facebook for a while, and then you'll get ones saying: Notifications - so and so's put some interesting comments. And I do find that a bit invasive. I don't mind getting emails from people I work with, but that's just unsolicited.

- **So about the adverts on the site that say "Suggested Friends"...**

- I sometimes look them up, just curiosity. And see who on my list is also a friend. I've got relatives in Orkney and so many people in Orkney keep turning up, it's just interesting.

- I think you're a serial stalker.

- I know.

- **So that doesn't bother anyone?**

- No.

- No.

- Cause you can either take it or leave it.

- Now most websites nowadays have loads of adverts.

- **Yeah.**

- What's annoying is when blocks one you're looking at.

- Yeah you get a pop-up blocking what you want to read.

- I seldom look at them.

- It's trying to get rid of them...

- They're always quite appropriate to you.

- Like lose 20 pounds in 3 days.

- **I get that one as well...**

- They're not picking on me then.

- I've just got to go down to the town with my wife to lose 20.

- **Like I said at the start, the purpose of my research is to try and make SNSs more inclusive, which makes people want to go on, find it useful and not be hindered by some of the comments that were brought up in the last focus group. People were**

concerned about privacy, for example, so I'm trying to find a way of getting around that.

- They're not using their computer enough, because some of my friends who switch their computers on for 20 minutes every day, they're scared stiff and wouldn't dream of doing banking or anything on the computer. And I think they've read too much about security and they don't know enough about what they're doing.

- And they don't know enough about the computer.

- I must admit, I don't know when I was last in a bank. I do everything online.

- Oh I never Internet bank.

- I wouldn't do it online.

- I'd buy things online but I wouldn't do banking online.

- I do it all the time. I'm with Lloyds, and with Lloyds you've got several steps to go through with passwords to get into your accounts, so that's pretty secure. Very, very secure. If bills come in you just pay them online.

- What happens if your computer breaks down?

- I'm snookered.

- It's on the net so it's not on your computer.

- It's not on your computer, you actually access their computer, and your information is on their computer, but it's just... What people worry about is security and you getting access into that, but I know with Lloyds you've got a unique code and you've got a password then you go in and you've got to remember something else and with me I think it's a phrase or a saying, and it'll ask you to put the first digit and the tenth digit and the fourteenth digit.

- It'd be quicker going into the bank...

- No you're not. And stand in the queue?

- I don't do Internet banking... When was I last in a bank...? Two months ago, somebody paid me by cheque and I had to take it into the bank two months ago. I can do that every two months.

- Yeah.

- Everything else is direct debit.

- But with debits... I go in every other day and I can see that what they've taken off is what they should have taken off, and I've had mistakes with likes... Scottish gas takes off an extra couple of quid and stuff like that, and you're on the phone...

- One of the things I'm planning to build, and I'd really like your opinions on this, is... Like I said, many of the comments were that people used it, but for the same reason that everyone here seems to suggest using it. They would occasionally use it to go on and get family members' pictures and things like that. Find out what's happening with people that they don't want to maybe phone every day or they don't see every day but they think it's nice to see the pictures that they've uploaded. So one of the ideas I had was building a website that could... The person who owned the photos would be able to sign up for this and a person who wasn't signed up for FB would be able to go on and see all the photos without having to sign up for Facebook. So it would basically give you access if your children or your grandchildren set it up, you would be able to go on to your computer without the hassle of going on to Facebook. It would show you the pictures in a nice layout and you wouldn't be prompted to communicate with Tom down the road, or you wouldn't be asked to comment on those pictures, and you wouldn't necessarily see all of the "what I had for lunch". The main thing about it would be seeing the family members pictures. What are your opinions?

- Is it another social networking site?

- Is there not a site like that?

- That already exists for weddings, because I know we looked up a recent wedding and got all of the photographs on a website. Same idea.

- There is a website where you can actually upload pictures to it.

- Via Facebook though?

- You're talking via Facebook? Ah right, no. I'm thinking of... What's the one for photos, and in my case I used it for a while, I haven't used it for a long time but initially

we used it and my two sons who live out of town... They had access to it and we could all look at this common...

- Flickr.

- Was it Flickr.

- Oh it's Flickr.

- Because you can let other people look in, can't you?

- But this one would go via Facebook?

- **Yeah the basic idea is the person can upload photos, things like that. Maybe messages, and you would be able to see the photographs but you wouldn't have to sign up for Facebook. So you wouldn't get these emails, you wouldn't have to worry about security, you wouldn't have to set up an account to start with and give them all of your information just so you could access your contacts' pictures.**

- We can get all of that just now on Facebook without all of the hullabaloo.

- I never actually go on to Facebook as such. I just go on through somebody else's site.

- **So does anyone have any other opinions of what I was talking about before?**

Basically the idea that you don't have to sign up for Facebook but you can get access to family members' photographs.

- That might appeal to us.

- That would probably appeal to me. I just look at photographs, some pictures of the kids, so that would probably appeal to me.

- I use it so little. I don't think my opinion counts. I might be tempted, it depends. My sister quite often will say my niece has been doing something, she's been involved with the cot death trust quite a lot and I've been looking up that to see what she's been doing but other than have a reason to do it I can't see me just going in to something that comes up on the screen.

- My younger brother's just got a miniature schnauzer. That'd be nice to see put up.

- Just simple things...

- Its okay if it's something you want to see, but my kids don't really want me to see

their websites, and I get their photos from Facebook and I can get them without getting into the site because you press the wee photo...

- You're in the wrong... You should be in MI5. She's a hacker.

- It'd be quite useful to have photographs of, I would suggest my brother.

- I'm a voyeur. I just look at Facebook, I don't put anything on so it sounds like the same concept.

- It wouldn't work if everybody did it like you.

- Tough.

- No, but the people who are like you are very interesting for us to watch.

- I saw a different side to my grandson, that's for sure.

- You definitely do, yes.

- Oh yes.

- Sounds good.

- Sounds okay, yeah.

- **Just a last question. Does anyone have anything else that they want to say?**

- That was very interesting.

- It was very different.

- Different opinions and different views.

- Have you recorded all of that?

- **Yes**

- I think younger people are more likely to put up information with a lack of security or personal information that they maybe shouldn't. And I think that this age group is less likely to do that.

- Mobile phone, I mean I would never have had one, but my son got a new one at work and said "Here's a mobile phone." I thought this is bloody awful. But of course now it's no bother at all, and he got another new one just the other week and he said "do you want this one?" and I said "No, I'll stick to the one I've got. It does everything I need and I know how to work it". But I've been trying to get my wife to use one and she just doesn't want

to do it at all.

- If you're driving alone and away out in the country and something happens, and you can phone the AA...

- That's the reason my son gave me one in the first place. Have it in the car. And I had it in the car before I ever used it for a long time and I thought it was just daft. And then I did have a puncture once and discovered that I couldn't lift the wheel, and I thought "Oh that's it. I've got help."

Appendix C: List of Identified Codes

[1.] General

[1.1.] Usage

[1.1.1.] Prompt

While some participants used social networking sites, a few described having to be prompted to visit or use them. Examples were given, such as one participant's wife notifying him of new photographs of family members, and emails prompting another participant to visit the site.

[1.2.] Frequency

[1.2.1.] Visit

Participants in the focus groups discussed how often they visited their social networking site(s). This ranged from "very little" to "all the time". Many participants stated that they visited the site daily, with a number also saying they used it very little, however there weren't many examples of frequencies between these two.

[1.2.2.] Contribute

One theme of the focus group was the frequency of contribution. While a number of participants described visiting the site every day, many of these individuals commented on how rarely they actually contributed anything to the site (messages, photos etc.): "I go on [the site] most days but I don't put anything on it. I just look", "I don't comment very much on it", "I don't put photographs up every day but I have done". One potential reason for this may be the fear of being removed by contacts (see code [2.5.2.]), as illustrated by one participant's comment: "I very rarely put any of my news on because I think they'd

probably take me off”.

[2.] Positive Reasons

[2.1.] Control

[2.1.1.] Reduce number of emails

The ability to reduce the number of emails received was seen as important, however, for the participants, emails should have been reduced by default.

[2.1.2.] Delete account

The ability to delete an account was discussed by the participants positively, but with a level of expectation: “Just get rid of it if you don’t like it”, “Some people think that you must have it. No you don’t have to have it. You can get rid of it if you don’t want it. If you’re uncomfortable with it then you just get rid of it”. Despite this expectation, however, one of the participants became frustrated when they were unable to work out how to delete their account on a social networking site: “I had great trouble getting myself off [the site]. I had a terrible job at it I changed my name to surname: ‘a’, [first] name: ‘a’ and even that I just gave up on [the site]”.

[2.1.3.] Delete content

The ability to delete content was seen as a very important feature by participants: “I delete anything I don’t like the look of”, “If you see an email from someone you don’t know, you just delete it. If someone really wants to get in touch with you, they’ll get in touch with you by other means”, “[deleting messages] is actually a very good policy”.

[2.1.4.] Privacy control

Privacy control was one of the key themes in the focus groups and in the papers. It was recognised as very important to be able to change privacy settings of a profile in order to reduce unwanted access from other people: “If you use the privacy settings then you don’t have to get involved [with other users]”, “I like to think that you can change your privacy settings. That to me is very important”.

[2.2.] Someone asked them to join

[2.2.1.] Friends

A few of the participants said how friends convinced them to use social networking sites: “I basically joined it because a friend in Australia kept on at me to”, “Just other people encouraging me to”.

[2.2.2.] Family

Family members were a large motivator for participants to use social networking sites: “My daughter in law asked me to go on [the site] because she was posting photographs of my grandchildren”, “Family got me to go on Facebook”, “I was always wanting to go on it because I always heard the kids talking about it”.

[2.3.] Enjoyment

[2.3.1.] Connectedness

[2.3.1.1.] Similar people

Social networking sites allow users to connect with similar people. This may be with the common theme of a hobby, a location or a set of circumstances leading to a mutual interest.

[2.3.1.2.] Friends

Participants expressed enjoyment when discussing the ability to stay connected with friends using social networking sites, and staying in touch with friends (alongside family) was one of the key reasons that many participants started using social networking sites.

[2.3.1.3.] Colleagues/Workmates after retirement

A few participants discussed the enjoyment of staying connected with previous colleagues after retirement.

[2.3.1.4.] Family

This code represents the enjoyment of communicating with family members on a social networking site, and was repeatedly brought up by participants, highlighting its importance.

[2.3.1.4.1.] Catching up

Catching up with family members was a strong reason for using social networking

sites for many of the participants who used them, especially when the family members live far away: “I love catching up with all the cousins and nieces and nephews and what their news is”, “A cousin of mine got in touch through [a site] and I haven’t seen her in over forty years”, “This cousin I’ve just got in touch with, I’ve now been able to add her and her family to [the family tree]”.

[2.3.1.4.1.1.] Unobtrusive observation

Some of the participants discussed how social networking sites gave them the opportunity to feel connected to family members without feeling that they were bothering them. A social networking site allowed one participant to “spy on [their] kids”, while another used it to find out about their daughter’s boyfriend: “I went on [the site] to find out all about him because she wouldn’t tell me”.

[2.3.1.4.1.2.] Don’t live near

Social networking sites were said to be very useful for staying in touch with family members who do not live locally, according to the participants who used them. Several examples were given where these sites were being used to keep families connected who were geographically distant: “I use it all the time. My sons are in London, and their girlfriends, and everything else, so we’re all communicating”, “[Using the site] was purely family, because my family don’t live in Dundee”, “My sons went to America to university. [I was] able to communicate with them easily”, “It was my grandson’s birthdays, and they’re not living in Dundee, so I sent them messages”, “I’ve two brothers and sisters and they’ve got grandchildren, and they live in different parts of the world, and these children all know each other because they all communicate”, “My friend’s daughter emigrated to Canada at the beginning of the year and she was devastated because she’s got four kids and they lived around the corner and she just thought ‘I’m never, ever going to cope with this’”.

[2.3.1.4.2.] Photos

Family photos were discussed as a very important motivator for older adults, specifically of grandchildren, which was a recurring theme for many of the participants who used

social networking sites: “She was posting photographs of my grandchildren on [the site]”, “[My wife] tends to say to me ‘Oh there’s some nice photographs of the family on’ or something so I’ll go and look at those”, “It’s a nice way for [family] to put photographs of the kids and the grandchildren and stuff”.

[2.3.2.] Hobby

Hobbies, such as family trees and clubs, were a motivator for some participants to use social networking sites.

[2.4.] Contact

[2.4.1.] Informal chat

Social networking sites were seen as good tools for quick and informal communication. Participants described it as “a good, quick way of just having a wee chat” and “an easy way of keeping in touch”.

[2.4.2.] reconnect

Some of the participants described how social networking sites had led them to reconnect with family members and friends. One participant mentioned having “the occasional contact from somebody I hadn’t seen in a long time”, while another described the set of events leading to the reconnection with family: “A cousin of mine got in touch through [the social networking site] and I hadn’t seen her in over forty years”.

[2.4.3.] Collaboration

In one example, a participant described using social networking sites for collaborative purposes. The site was used to communicate with distant family members in order to expand and develop a family tree.

[2.4.4.] Mass-distribution

Mass-distribution refers to the ability to compose one message and send it to multiple people. This can range from sending it to two family members, or potentially sending it to hundreds of unknown other users as is sometimes the case on mainstream SNSs. Examples of where this could be useful were “checking in with widespread family, and with people that they see infrequently” and sending “information that is relevant for several people”.

[2.5.] Observation

[2.5.1.] Curiosity

Passive observation of the content of others was talked about by participants regularly, saying that they were “curious” and “interested”. It was common for participants to say that while they visited a social networking site regularly, they rarely contributed, preferring not to add new content.

[2.5.2.] Don’t want to participate

Some of the participants felt strongly against themselves participating in social networking sites by adding content. This was mainly due to a fear of being removed by contacts: “I very rarely put any of my news on because I think they’d probably take me off”.

[2.5.3.] Photos

Photos were seen as a very good feature of social networking sites, particularly when photos of family members were uploaded to social networking sites.

[2.6.] Other

[2.6.1.] Useful info

Social networking sites were described as having “its moments” and being “very useful at times”. Some of the participants went into detail about how they used social networking sites to make their lives easier, and finding local information emerged as a good use: “He also has the police traps and the road blockages and the accidents and all various things and I go on to that. It’s on [a social networking site] and you go off that and on to other things and you get all of the local information”.

[3.] Negative Reasons

[3.1.] Site

[3.1.1.] Trust

This code is related to codes [3.1.6.4.] and [3.2.1.4.]. Many of the participants did not trust some of the main social networking sites due to personal experience or something that they had read. Examples were given where the service appeared to abuse their trust, in

the eyes of the participants. “Sometimes when they update it they very sneakily remove your privacy stuff and I get quite annoyed about that. I don’t think they have a right to do that. If that’s the settings you have then they should not tamper without your permission”, “Finding the menu where you actually go to that, and I think they do that deliberately. I think it’s deliberately concealed from you”, “They’re very clever You’ve got to read them very carefully in tiny tiny print”, “I realised it had gone through my email address book and I thought ‘No’, and ‘Off!’. No, I don’t need it”.

[3.1.2.] Design

[3.1.2.1.] Lack of desired control

A lack of desired control was an underlying theme for many of the comments in the focus group. This often tied in closely with other codes. Sometimes this was due to the participant not knowing or understanding the available features (e.g. [3.2.3.2.] and [3.2.3.3.]). While some of the sites being discussed did have levels of control that the participants desired, they were unable to find it and unsure of their existence. Control was highlighted as important to participants, as seen in codes [2.1.1.]. [2.1.4.]. Additionally, one of the papers discusses the lack of grouping functionality that participants desired: “The SNSs that were demonstrated did not contain the kinds of groupings (such as family, close friends, work friends) that they hoped. They found this disappointing. The customary binary or tertiary privacy settings (friend/ friend of a friend/ everyone) were particularly disliked. The use of appropriate friendship groupings was identified as particularly important” [Gibson et al., 2010].

[3.1.2.2.] Changing

Changes were looked upon with a degree of suspicion. One participant described the following frustration with a popular social networking site: “sometimes when they update it they very sneakily remove your privacy stuff and I get quite annoyed about that. I don’t think they have a right to do that. If that’s the settings you have then they should not tamper without your permission”. Not all of the comments about the site changing were about settings however. One participant commented “they’re forever changing things”, while

others replied “That’s what I get annoyed about” and “there’s no need to change”.

[3.1.2.3.] Terminology

In describing how social networking sites could be made more inclusive for the older population, the terminology used on the site was raised several times. One participant commented that “you’ve got to keep the information really simple and with simple terminology”. In addition to this, two of the participants commented that they disagree with the use of the word “friends” rather than something like “contacts”, due to a strict definition of the word. An example given to illustrate this was people with thousands of ‘friends’ on the site.

[3.1.2.4.] Relevance of apps, content, adverts etc.

Features and apps which were seen as irrelevant were seen negatively by the participants. One participant described receiving messages from contacts about games which were being played through the social networking site, which eventually led to them contacting the person to “give me peace”. One person described how they “get out of the front page immediately because I’m not interested in anything”.

[3.1.2.5.] Cluttered

While discussing how social networking sites could be improved for older adults, some of the participants discussed the clutter of sites: “A first page rammed with information, I think you don’t really know where to start” and “I think maybe seeing them a bit less cluttered Somebody who’s new to it looks on it and you just see this massive.. Things you can do and information on it, and I think it can look a little bit cluttered”.

[3.1.2.6.] Adverts

Participants described frustration, but a degree of acceptance with adverts. While they understood that often adverts are what allow sites to run, they expressed negativity toward sites which have too many adverts, or which limit their use of the site. The phrase “bombarded with adverts” and “it’d be populated with advertising” were used negatively while discussing social networking sites, while other participants described adverts which block content (such as the full use of the site and content) as “annoying”.

[3.1.2.7.] Complexity

The complexity of completing tasks was discussed, with one participant describing the frustration of having “great trouble” deleting their account. Another, while discussing a social networking site designed to be inclusive of older adults, described it as “it’s as complex as everything else and what you need is a straight forward website”.

[3.1.2.8.] Invasive

Features which participants described as “invasive” were discussed negatively, with one participant commenting on why they deleted their account: “I thought I’d just see [the social networking site] and then I’d just put in the barest details and it said ‘would you like to link with these people?’ and I looked at the names and I thought ‘that’s funny, some of them are from my work’ And then my niece was on it and I thought that it can’t be geographical. Then I realised it had gone right through my email address book”. Another described undesired emails that they had been receiving: “I get a wee bit annoyed because I keep getting emails ‘We notice you haven’t been on [site] for a while’ I go on when I feel like going on”. Another commented “I do find that a bit invasive.”

[3.1.3.] Non-financial cost

While many social networking sites are free to use, the participants recognised and discussed the non-financial cost of using them. This not only referred to adverts, but the negative implications that could possibly surface as a result of using such a service. Some of the participants demonstrated a degree of suspicion around the sites and the content. One said “you don’t get anything for nothing”, while another replied “the better the offer, the bigger the scam it’s likely to be”.

[3.1.4.] Unsolicited emails

Unsolicited emails were strongly disliked by the participants. One commented “You get two or three emails a week I don’t mind getting emails from people I work with, but that’s just unsolicited”. Another was annoyed because they “keep getting emails from [the social networking site]”. Some of the participants were very protective of their email address: “Your email is going out to everyone Do you want your email to be personally

known?”, “I’ve got one email for business and I’ve got one for family and friends Once you’ve bought something suddenly you get 20 [emails] the next day that they’ve obviously passed on to other [people]”.

[3.1.5.] Site security

Site security was discussed by the participants as an important concern (noted in code [3.2.1.3.]). The terms “security” and “privacy” were, at times, used interchangeably, however participants illustrated a need to be able to trust such a service. One participant discussed a worry about people gaining access to their profile, while another joked about phishing emails which ask for bank details. One commented that “it’s got to be at the back of your mind You’ve got to be aware of it all the time”.

[3.1.6.] Site privacy

This differs from codes [3.2.1.1.] and [3.2.2.7.] as a level of distrust for the sites themselves was discussed.

[3.1.6.1.] No anonymity

One of the papers mentioned that participants “felt more secure with a group identity (and the related partial anonymity) when exploring and experimenting, rather than highlighting themselves as an individual”. The paper went on to suggest that participants would “prefer a more tentative, incremental approach to revealing their identity”.

[3.1.6.2.] Not obvious how to change

Participants commented on how it can be difficult to find how to change privacy settings on sites: “To me it should be right up there saying ‘My Settings or My Privacy’, but it’s not. You’ve got to look for it.”

[3.1.6.3.] Concealed deliberately

This code is tied closely with [3.1.1.]. A number of participants believed that privacy settings were concealed deliberately by the sites. On the topic of privacy, one said “I’m concerned with that. I’m very careful when you get these little boxes, ‘would you be prepared’, but they’re very clever. Some of them you click them and you think ‘I’ll click them all’, but you don’t! You’ve got to read them very carefully in tiny tiny print”. Another

discussed changing privacy settings on a popular social networking site: “They don’t make it awfully obvious how you get to change and make your settings. Finding in the menu where you actually go to that, and I think they do that deliberately. I think it’s deliberately concealed from you [The social networking site doesn’t] make it obvious how to do that, so anybody who is new to it could be quite happily on there and not realising that anybody could look at everything they’re saying”.

[3.1.6.4.] Never ‘off the record’

One of the papers commented on how social networking sites “do not represent a typical model of dialogue, specifically where there is an opportunity to do a face to face conversation off-the-record, for example if they were sharing a secret”. The idea that a message shared on a social networking site exists in the system forever may potentially put people off using it in the way that they may communicate with people when speaking face to face.

[3.2.] Don’t like it

[3.2.1.] Worried

[3.2.1.1.] Privacy

This differs from codes [3.1.6.] and [3.2.2.7.] as privacy was discussed more generally and as a concern. Privacy was described as “very important” to participants, with one commenting that they were “worried” about personal information being available online.

[3.2.1.2.] Damaging to friendships

One issue raised in one of the papers, but not by our participants, was the view that using social networking sites could have been damaging to existing friendships. The sharing of personal issues or giving the wrong impression to friends was listed as two examples.

[3.2.1.3.] Security

Worries about security were highlighted as a concern for participants. While it was common for participants to use the terms of security and privacy interchangeably, security issues such as hackers and identity theft were discussed. “I just think I’m worried about

security”, “Security is my worry”, “You’ve got to be aware of [security] all the time”.

[3.2.1.4.] Read too much

Many of the participants, including those who had not used social networking sites, referred to (mostly negative) stories they had heard in the news about social networking sites: “I’m just afraid of the connotations. I’ve heard too many horror stories”, “There was something in the papers recently about [the site]”, “I think that’s why so many elderly people are put off from starting, because they’ve heard all the stories. It’s in the press. You’ll see all the problems and it puts people off starting because they feel ‘Oh gosh, I don’t know enough to be able to protect myself’”, “Don’t they talk about people spending hours on [the site]?”, “They’re scared stiff I think they’ve read too much about security and don’t know enough about what they’re doing”.

[3.2.1.5.] Reliability of information

The reliability of content and information by other people was briefly discussed by participants as a concern: “It would need to be known that you could rely on the information and it was current”, “Who’s going to take the old information off, if people are quick enough to put on, like ‘Family Picnic at Number Three’, but who’s going to take it off next week?”

[3.2.1.6.] Social blunder

This code represents a worry about committing a social faux pas. While the participants in the focus group did not raise this as an issue for them, other papers discussed this as a concern for their participants. Hence the inclusion.

[3.2.2.] Incompatibility with older adults

[3.2.2.1.] Changing Network

One of the papers refers to the matter of designing social networking sites to cope with the death of network members, which it suggests older adults are more prone to experience than younger adults. While this is a relatively specific example, this code is used for any situation where participants discussed their need to have control over their list of contacts.

[3.2.2.2.] Views on communication

One of the papers discusses a degree of incompatibility with older adults' views on communication and social networking sites. It was described by the authors' participants as "cold", and described in the paper as not seeming to "fit the everyday communication of older adults".

[3.2.2.3.] Doesn't want things that aren't needed

Social networking sites were not looked upon as particularly necessary for some of the participants. In this case the participant either didn't use the site or used it very infrequently. One mentioned that they could not see any benefit in using a site like this, while another expressed a lack of interest at "getting 700 friends" on any social networking site.

[3.2.2.4.] Views of privacy

This code covered discussions about privacy specifically in the context of older adults. One participant, for example, named privacy as the main concern: "That's the thing that older people worry about. About how private it can be". Additionally, participants stated that older adults were less likely to put up personal information or contribute to a social networking site. One participant commented with "I don't put anything about myself up on [the site]".

[3.2.3.] Lack of knowledge

[3.2.3.1.] Lack of confidence

A lack of confidence was demonstrated by some of the participants in both focus groups, both discussing themselves and others that they know: "They're scared to do anything incase they wreck the whole lot", "I have no idea", "Some of my friends who switch their computers on for 20 minutes every day they're scared stiff".

[3.2.3.2.] Don't know what they're doing

Some of the participants commented that they did not know what they were doing when using a social networking site, lacking the basic level of knowledge to use it properly. One participant commented "I have no idea. I don't even know how to work them".

[3.2.3.3.] Don't understand

While some of the participants knew how to work social networking sites, a number

discussed how they did not fully understand the meaning behind features such as privacy settings. During the conversation on privacy, the participants were asked if they had changed their privacy settings. One replied “I’m the only person in the house”, others responded “I live on my own and I’m very remote”, and “I don’t even know what you’re talking about”. After privacy settings were explained to the participants, one asked “does that mean if someone put my name in, they would be able to go on my page? They must have set it up for me”. Some of the participants had not understood what privacy settings were and that they were public by default, expressing concern at the thought of their information being open to people they did not know.

[3.2.4.] Other people

[3.2.4.1.] Annoying

Participants described other people sending annoying messages and emails online. Examples were given, such as uninteresting status updates, spam from games and strangers and scams.

[3.2.4.2.] Awkwardness

Awkward situations were discussed, such as the removal of a contact or deletion of content: “They’re not actually friends”, “[Ignoring people is] what gets peoples’ backs up. ‘Why are you not speaking to me?’”, “I just don’t want to speak to them”, “How do I get rid of them?”

[3.2.4.3.] Strangers

Participants talked about strangers having a negative impact on using social networking sites: “I don’t need people I don’t know to be my friend”, “I’ve got all these people I don’t know who want to be my friend and I hate that”.

[3.2.4.4.] Meanness

Mean or unfriendly messages from other people was discussed as an important issue to participants, giving a negative impression of social networking sites: “People post nasty things or rumours”, “I would seriously fear what people would put up on it if it were open for people to post. People can be really perverted and nasty”, “Look when somebody dies

and then somebody turns nasty and writes some really unpleasant thing and the family are distraught”, “A friend of mine had got a new dress and somebody had put a rude comment against it and I thought ‘Oh god, is this what [the site] is about?’”. On the topic of a new social networking site, one participant asked “Who would monitor it?”, to which another replied “It would need moderation”

[3.3.] Not interested

[3.3.1.] Misconceptions

[3.3.1.1.] Cost

The misconception that using popular social networking sites cost money was discussed by participants. While some social networking sites may charge for access to some or all of the functionality, the sites discussed by participants were free to use. “I have never joined [the site] because I thought I had to pay and I don’t pay for anything”, “Do you have to pay to join [the site]?”, “Lots of people think it costs [money]”.

[3.3.1.2.] Takes too much time

Some participants discussed the misconception that social networking sites take up too much time. While users can use these sites as much or as little as desired, one participant thought that using such a site required time commitments, leading to the following exchange: “It’s the time Because the time it would take to sit there for hours”, “I think that’s very valid. I mean I just don’t have the time”, “It takes seconds”, “But don’t they talk about some people spending hours on [a social networking site]?”, “On [a social networking site]? Oh no. Not hours. I just like to check it and then come off. See what’s new”.

[3.3.1.3.] It is something it’s not

This code was used to represent a point where either the participant believed, or made reference to someone believing that social networking sites are something other than what it is. One example is that an offensive and rude comment made one participant believe that this was what a popular social networking site was for: “A friend of mine had got a new dress and somebody had put a rude comment against it and I thought ‘Oh god, is this what

[the site] is about?"". Another participant commented on other people: "A lot of people think it's something other than it is, and they haven't really tried it".

[3.3.2.] Happy without it

Many participants, when discussing why they did not use social networking sites, were simply happy without it and did not see a benefit that would consider them to become users. Comments like "I really can't see any benefit", "I suppose just laziness" and "I could be missing something but I won't know unless I try it" were used to explain, while some participants used other technology which was seen as sufficient: "All my ex workmates, we all just communicate by email", "If we have a get together, it's always email", "I just send emails to people when I want to", "If she wants to send me photographs, let her send them to my [email]".

[3.3.3.] Lack of relevant people

One of the barriers of older adults using social networking sites was that commonly their friend network did not use them. Without other people using them, there can be little motivation to use social networking sites. A small social networking site built around a purpose, such as a club or community, may generate the required critical mass to engage users.

[3.3.4.] Boring

Some participants described the content on social networking sites as "boring" and "uninteresting". One commented that "you see people saying what they had for their [dinner]" while another stated "I'm not interested in tittle tattle".

[3.4.] Other

[3.4.1.] Different side to people

One of the participants commented that he had seen "a different side to my grandson". Two others agreed that they had experienced something similar.

[3.4.2.] People don't want me to use it

Some participants commented that family members reacted negatively when discovering that they used social networking sites. It was suggested that this was due to the family

members believing that it was specifically for younger adults: “My daughter said ‘Oh mum, what are you doing going on [the site]?’”. She says ‘That’s like going on a night out with your pals and your mum comes’”, “[My family members] are appalled that I am on [the site]”, “My kids don’t really want me to see their [profile]”.

[3.4.3.] Lack of support

A lack of support was seen as a major barrier to technology by participants. One commented that “you need somebody to come along and set it up with you, or something to make sure it’s set up right”, while another replied with “most people probably don’t have these people”. Providing support was consistently mentioned as a very important feature for social networking sites: “What you need is a straight forward website in which there is a lot of support information”, “The thing that’s lacking is easily accessed information about how do you set a website up. How do you go to a website, how do you set up your [account]. It’s not there”.

[3.4.4.] Accessibility

The accessibility issues described by the participants were mostly to do with visual impairments, “As we’re getting older it’s getting harder to read these small print details”, “As we’re all getting older our eyesight is not so good”, however other issues, such as motor control using a keyboard and cognitive factors, were mentioned.

[3.4.5.] Too slow

One of the papers talks about participants finding social networking sites too slow for communication since their friends did not visit the site regularly.

Appendix D: Agreement Questionnaire

Version 1 Design

Question	Init. Rec.	Wording	Expected
1. Users should not be able to delete 'content' on their profile.	21	Neg.	D
2. The layout of the system should not change frequently over time.	2	Neg.	A
3. The system should use technical terminology.	4	Pos.	D
4. In addition to communication, the system should not have features such as games, music and company profiles.	12	Neg.	A
5. The system should make it clear if it is free to use.	8	Pos.	A
6. The system should allow the user to control what emails the user receives.	24	Pos.	A
7. The layout of the system should be complex.	3	Pos.	D
8. The system should not specify whether a new message will be visible to everyone on the system or just the user's 'contacts'.	13	Neg.	D
9. The system should prompt the user to contribute to the site (e.g. "You haven't spoken to Tom in a while. Send Tom a message").	11	Pos.	D
10. The system should be similar to Facebook.	7	Pos.	D
11. The system should allow people to create and use fake profiles.	31	Pos.	D
12. The system should not allow users to hide personal information from their 'contacts' (e.g. age, hometown).	25	Neg.	D
13. The system should be used by people of all ages.	9	Pos.	A
14. Users should not be able to send 'off the record' messages which are not stored on the system.	18	Neg.	D

15.	Privacy settings on the system should not be simple to understand.	23	Neg.	D
16.	The system should not show advertisements (advertis).	1	Neg.	A
17.	The system should make it clear what measures are in place for site security.	29	Pos.	A
18.	Using features of the system should be a complex task.	19	Pos.	D
19.	By default, the system should not E-mail the user frequently with news about the user's 'contacts'.	15	Neg.	A
20.	By default, a user should be able to see the profile of another user without being a 'contact' of theirs.	30	Pos.	D
21.	Users should be able to delete their accounts.	22	Pos.	A
22.	Users should not be able to reverse becoming a 'contact' of another user on the system.	26	Neg.	D
23.	Users should be able to hide their content from certain 'contacts'.	28	Pos.	A
24.	The system should not have a support area which explains how to complete tasks.	17	Neg.	D
25.	The system should have a specific purpose (e.g. Used only for a Club or group).	20	Pos.	A
26.	Accessing account and privacy settings on the system should not be a difficult task.	6	Neg.	A
27.	The system should not scan the user's email address book and suggest new 'contacts' from it.	14	Neg.	A
28.	The system should allow the mass-distribution of messages to more than one person.	16	Pos.	A
29.	Content and messages shared on the system should be moderated by an 'administrator'.	32	Pos.	A
30.	The system should not allow users to categorise their 'contacts' into groups (e.g. 'Friends', 'family', 'acquaintances').	27	Neg.	D
31.	The system should not have 'small-print' check-boxes for additional services or information sharing with third party companies.	10	Neg.	A

Table 8.1: Table showing the construction of version 1 of the agreement questionnaire. Init. Rec. represents the relevant Initial Recommendation, Wording represents either a positive (Pos.) or negative (Neg.) wording of the question, and Expected represents whether the question will be agreed with (A) or disagreed with (D) if that recommendation is supported.

Appendix E: Agreement Questionnaire Version 2 Design

Question	Init. Rec.	Wording	Expected
1. Users should be able to delete 'content' on their profile.	21	Pos.	A
2. The layout of the system should change frequently over time.	2	Pos.	D
3. The system should not use technical terminology.	4	Neg.	A
4. In addition to communication, the system should have features such as games, music and company profiles.	12	Pos.	D
5. The system should not make it clear if it is free to use.	8	Neg.	D
6. The system should not allow the user to control what emails the user receives.	24	Neg.	D
7. The layout of the system should not be complex.	3	Neg.	A
8. The system should specify whether a new message will be visible to everyone on the system or just the user's 'contacts'.	13	Pos.	A
9. The system should not prompt the user to contribute to the site (e.g. "You haven't spoken to Tom in a while. Send Tom a message").	11	Neg.	A
10. The system should not be similar to Facebook.	7	Neg.	A
11. The system should not allow people to create and use fake profiles.	31	Neg.	A
12. The system should allow users to hide personal information from their 'contacts' (e.g. age, hometown).	25	Pos.	A
13. The system should not be used by people of all ages.	9	Neg.	D
14. Users should be able to send 'off the record' messages which are not stored on the system.	18	Pos.	A
15. Privacy settings on the system should be simple to understand.	23	Pos.	A
16. The system should show advertisements (adverts).	1	Pos.	D
17. The system should not make it clear what measures are in place for site security.	29	Neg.	D

18.	Using features of the system should not be a complex task.	19	Neg.	A
19.	By default, the system should E-mail the user frequently with news about the user's 'contacts'.	15	Pos.	D
20.	By default, a user should not be able to see the profile of another user without being a 'contact' of theirs.	30	Neg.	A
21.	Users should not be able to delete their accounts.	22	Neg.	D
22.	Users should be able to reverse becoming a 'contact' of another user on the system.	26	Pos.	A
23.	Users should not be able to hide their content from certain 'contacts'.	28	Neg.	D
24.	The system should have a support area which explains how to complete tasks.	17	Pos.	A
25.	The system should not have a specific purpose (e.g. Used only for a Club or group).	20	Neg.	D
26.	Accessing account and privacy settings on the system should be a difficult task.	6	Pos.	D
27.	The system should scan the user's email address book and suggest new 'contacts' from it.	14	Pos.	D
28.	The system should not allow the mass-distribution of messages to more than one person.	16	Neg.	D
29.	Content and messages shared on the system should not be moderated by an 'administrator'.	32	Neg.	D
30.	The system should allow users to categorise their 'contacts' into groups (e.g. 'Friends', 'family', 'acquaintances').	27	Pos.	A
31.	The system should have 'small-print' check-boxes for additional services or information sharing with third party companies.	10	Pos.	D

Table 8.2: Table showing the construction of version 2 of the agreement questionnaire. Init. Rec. represents the relevant Initial Recommendation, Wording represents either a positive (Pos.) or negative (Neg.) wording of the question, and Expected represents whether the question will be agreed with (A) or disagreed with (D) if that recommendation is supported.